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NEW FRENCH ROSES.—Twelve of the best varieties of New French Roses for the present season, in very vigorous plants, sent carriage and package paid to any Railway Station in the United Kingdom, on receipt of a post-office order for 27*s.* 6*d.*

EWING AND CO., The Royal Norfolk Nurseries, Norwich.

SIR GARNET WOLSELEY.—The best new Rose of the season. See coloured plate in the *Floral Magazine* for April. Strong plants now being sent out, price 7*s.* 6*d.* each. The usual discount to the Trade.

CRANSTON AND MAYOS, Nurseries, King's Acre, near Hereford.

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.

Carlton, Tasmania.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to intimate that he has just published a SUPPLEMENTARY LIST of NEW and RARE PLANTS for 1875, which may be had free on application, either to himself or his Agents,

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

CUTTINGS of GERANIUMS, &c.—100 Geraniums, in forty choice varieties, including Tricolor, Gold and Bronze, Variegated, Zonal, Nosegay, and Ivy-leaf, for 10*s.*, 5*o*, 5*s.* 6*d.*, 25, 3*s.*; 24 Fancy Pelargoniums, 3*s.* 6*d.*, 12, 2*s.*; 24 Chrysanthemums, 2*s.* 6*d.*, 12, 1*s.* 6*d.*; 24 Pompons, 2*s.* 6*d.*, 12, 1*s.* 6*d.*; 24 Fuchsias, 2*s.* 6*d.*, 12, 1*s.* 6*d.* All post free.

CATALOGUES one stamp.

J. COOMBS, The Ferns, Enfield.

Dr. Denny's Third Set of Zonal Pelargoniums.

JOHN COPELIN begs to announce that the Orders he has received for the above will be executed on July 1. Subsequent favours in rotation as received.

Descriptive CATALOGUES forwarded on application.

Tyssen Street Nurseries, Stoke Newington, N.

Primulas, Primulas, Primulas.

WILLIAMS' SUPERB STRAIN.—Strong seedling Plants fit for potting into 3-inch pots, 1*s.* 6*d.* per dozen; 10*s.* per 100. CINERARIAS of best quality same price, package and carriage free. The above are quite equal to those distributed by John Stevens in previous seasons, and for which he has numerous testimonials.

JOHN STEVENS, The Nurseries, Coventry.

Adiantum farleyense.

MESSRS. JOHN STANDISH AND CO. have a number of magnificent specimens of the above splendid FERN, fit for immediate exhibition. They are in 16 and 22-inch pots, and of perfect form.

Further particulars and price on application.

Royal Nurseries, Ascot, Berks.

PYRUS MAULEI.—**The hardiest and most** beautiful New Fruit (from Japan) ever introduced to this country. Established plants, in pots, now sending out at 21*s.* each. Trade as usual.

WM. MAULE AND SONS, The Nurseries, Bristol.

DIPLADENIA BREARLEYANA.—This, one of the most beautiful flowering stove plants ever introduced, now supplied at the reduced price of 1½ guinea each.

Mr. WILLIAM BULL'S Establishment for New and Rare Plants.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

Plum Stocks.

GUISEPPE SADA, NURSERYMAN and SEEDSMAN, Milan, Italy, offers Seeds of the following, which will be ready in August:—PRUNUS MYROBOLANA RUBRA, 72 fr. 50 c. per 100 kilos.; PRUNUS DAMAS, black, 87 fr. 50 c. per 100 kilos. Orders solicited before July 15, after which date they will be subject to higher rates. Accounts settled December 31, 1875.

AMATEURS possessing PALMS, DRACÆNAS, ALOCASIAS, NEPENTHES, &c., which have grown too large for their houses, and who may be willing to EXCHANGE them for other New or Rare Species, are requested to send names and dimensions to

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, London, E.C.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

To the Trade only.

CROCUS.—Upwards of 100,000 English yellow; and SNOWDROPS, double, 100,000 to 200,000. Prices on application.

CHRISTMAS QUINCEY, Seedsman, Peterborough.

Dutch Bulbs.

A. E. BARNAART AND CO., Vogelenzang, Haarlem, Holland. Wholesale Catalogue of DUTCH BULBS is now ready, and may be had free from

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

N.B.—A large number of the Botanical and Royal Horticultural Societies' Prizes for Hyacinths, &c., were awarded to Bulbs sent out by A. E. B. & Co. during the past four years.

Hyacinths, Tulips, Crocus, Narcissus, &c.

Best Roots Only, and at Moderate Prices.

BUDDENBORG BROS.' (Hillegom, Haarlem, Holland) WHOLESALE CATALOGUE of DUTCH BULBS now ready, and may be had free on application to

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Dutch Bulbs.

Before ordering HYACINTHS, TULIPS, &c., for the ensuing season, Nurserymen and the Trade generally should send for

P. VAN WAVEREN (JUN.) AND CO.'S (Hillegom, Haarlem, Holland) WHOLESALE CATALOGUE. It may be had free on application to

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Best Seeds Only.

WM. CUTBUSH AND SON'S CATALOGUE of SEEDS, GLADIOLI, &c., should be had by all Gardeners and Amateurs purchasing really first-class goods at a moderate price. Post-free on application.

Highgate Nurseries, London, N.

SPECIMEN PLANTS on SALE.—Extra fine for showing this season.—GEO. COOPER, having decided to give over exhibiting has now to offer them for Sale. Price, &c., on application to

GEO. COOPER, Rose Hill Nursery, Derby.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, beg to call the attention of Florists and others to their splendid Collections of PANSIES and VIOLAS, which are now in full flower, and may be seen any day, Sunday excepted.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.

Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

CINERARIA PLANTS, Wetherill's Strain, surplus stock, strong pricked-out plants, to be sold at 10*s.* per 100, carriage paid to London, package free. Apply to WILLIAM WARREN, Worton Gardens, Isleworth, W.; or to 116 and 117, Flower Stands, Covent Garden Market, W.C.

Remittance to accompany Orders.

Cinerarias—Champion Strain—1875 Show Flowers.

H. J. HARDY has succeeded in saving seed of his far-famed Champion Strain of CINERARIAS, which he now offers, in 1*s.*, 2*s.* 6*d.*, and 5*s.* packets, post free, on receipt of Stamps or Post Office Orders. A liberal allowance to the Trade. All admirers of this lovely flower in perfection should have this Champion Strain.

Stour Valley Seed Grounds, Bures, Essex.

Cinerarias, Cinerarias.

MESSRS. JOHN STANDISH AND CO. have to offer SEED saved from their celebrated strain of CINERARIAS, 2*s.* 6*d.* and 3*s.* 6*d.* per packet. Post free on receipt of Stamps or Post Office Orders.

Royal Nurseries, Ascot, Berks.

Bedding Plants for the Million.

JAMES HOLDER can supply the following Plants:—Alternanthera, Alonsoa, Ageratum, Calceolaria, Campanula, Cineraria maritima, Coleus, Dahlias, Echeveria, Fuchsia, Geraniums (Scarlet, Variegated, and Ivy-leaved), Gazania, Heliotrope, Iresine, Koniga, Lobelia, Mesembryanthemum variegatum, Pentstemon, Petunia, double, Pyrethrum, Salvia, Stachys, Sempervivum californicum, Tropæolum, Verbena, &c. Eight dozen for 20*s.*; or four dozen for 10*s.* 6*d.*, basket included, cash.

Crown Nursery, Reading.

Australian Seeds and Plants.

SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.

SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

SALES BY AUCTION.

Lee, S.E.

Important CLEARANCE SALE of a beautiful collection of valuable STOVE and GREENHOUSE PLANTS, containing many particularly well-grown exhibition specimens, including Anthurium Scherzerianum, Nepenthes, Ixoras, Alocasias, Crotons, Allamandas, Marantas, Yuccas, Palms, Fuchsias, Ericas, Azaleas, &c.; likewise several unusually handsome specimen Exotic Ferns, a large quantity of Sarracenia purpurea in pots, and a choice assortment of smaller stock.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL the above by AUCTION, without reserve, on the Premises, The Gardens, Burnt Ash Lane, Lee, Kent, S.E., five minutes' walk from Lee, and ten minutes' walk from Blackheath Station, on WEDNESDAY, July 14, at 12 for 1 o'Clock precisely, by order of John Pound, Esq., in consequence of a change of residence.

On view the day prior to the Sale. Catalogues may be had of Mr. BARNES, on the Premises; of Mr. B. MALLER, Florist, The Pavement, Lewisham; and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Important Sale of Established East Indian and
OTHER ORCHIDS.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from H. J. Buchan, Esq., in consequence of change of residence, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 8, at half-past 12 o'Clock precisely, his valuable Collection of EAST INDIAN ORCHIDS, purchased during the last eight years from Messrs. Veitch, Bull, Williams, Rollisson, and others, and also selected from the best private collections at the sales held at these Rooms, comprising fine varieties of Aerides, Saccolabiums, Vandas, Cattleyas, Lælias, Cœlogynes, Phalænopsis Lowii, P. Schilleriana, P. grandiflora and P. amabilis, Dendrobium Wardianum, D. thyrsiflorum, D. crassinode, D. devonianum, and various other Dendrobes; Cymbidium eburneum, Anthurium Scherzerianum, Oncidiums, Odontoglossums, Pescatoreas, Dendrochilums, also a number of other Orchids.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 15, at half-past 12 o'Clock precisely, a Collection of Established well-grown ORCHIDS. As the plants in this Sale will be unusually fine, it will afford an exceptionally good opportunity to form or add to a collection. As well as being good plants, those offered will comprise many of the handsomest kinds in cultivation, including

Odontoglossums	Aerides
Vandas	Angræcums
Lælias	Phalænopsis
Saccolabiums	Oncidiums
Dendrobiums	Masdevallias
Cypripediums	Sophronites
Cattleyas	&c., &c.

On view the morning of Sale, and Catalogues had.

Important Preliminary Announcement.

To the NOBILITY, GENTRY, HORTICULTURISTS, &c.
ATTRACTIVE SALE of the Extensive and Valuable Collection of STOVE and GREENHOUSE PLANTS formed by the late Mr. Bewley, of Blackrock, County Dublin.

MESSRS. BENNETT AND SON respectfully announce that they have been favoured with instructions from the Executor of the late Thomas Bewley, Esq., of Rockville, Blackrock, County Dublin, to SELL by AUCTION, on the Premises, on WEDNESDAY, July 14, and following days, the entire important and valuable Collection of STOVE and HOTHOUSE PLANTS, which embraces some of the rarest and largest specimens of Ferns and Orchids in the United Kingdom, and for which this Collection has been so long and so justly celebrated, bearing, as it does, an almost European reputation, it having been formed, not only regardless of expense, but with a highly cultivated knowledge, as well as matured judgment and refined taste.

Full particulars will be duly announced. Descriptive Catalogues, price 1s. each, are now in course of preparation, and will be ready for distribution ten days previous to the Auction (without which the Collection cannot be viewed), and may be had only on application to the Auctioneers, BENNETT AND SON, 6, Upper Ormond Quay, Dublin.

Worcestershire, in the far-famed Vale of Evesham.
PRELIMINARY ADVERTISEMENT.

MESSRS. CHESSHIRE AND GIBSON have received instructions to SELL by AUCTION, on THURSDAY, July 15 next, at the "Hen and Chickens Hotel," in New Street, Birmingham, at 6 o'Clock in the evening for half-past, in consequence of the death of the Proprietor, unless in the meantime an acceptable offer be made by Private Contract, a very excellent FREEHOLD ESTATE of 240 Acres, known as "Seaford Grange," situated at Peopleton, within 1½ mile of the Pershore Station on the Great Western Railway.

A considerable portion of the above has been laid out as Fruit Gardens, the Trees being of the choicest kinds, now in their prime, the produce finding a ready sale at Liverpool, Manchester and Birmingham, where a very lucrative business was carried on by the late Proprietor.

In addition to a complete set of FARM BUILDINGS, with COTTAGES, there is a very comfortable and desirable RESIDENCE, replete with every convenience, and the portion of the Estate not laid out as Fruit Gardens is occupied as a FARM, and comprises Arable and Pasture of excellent quality.

A Balance-Sheet, showing the profits for the last five years, has been prepared, and may be obtained of the undermentioned Referees.

Further particulars and plans will be issued in due course, in the meantime further information may be obtained of H. G. GOLDINGHAM, Solicitor, or A. BUCK, Estate Agent, both of Worcester; or to the Auctioneers, Messrs. CHESSHIRE AND GIBSON, 93, New Street, Birmingham.

Specimen Stove and Greenhouse Plants, Grown by
W. HORNSBY, Esq., Elsham House, Grantham.

HENRY ESCRITT has received instructions from the above gentleman to offer for SALE by AUCTION, on WEDNESDAY, July 7, the whole of his valuable Collection of EXHIBITION STOVE PLANTS, owing to his relinquishing growing these varieties, including specimen Allamanda neriifolia, Caladium (various), Bougainvillea glabra, Clerodendron fallax, Croton (various), Pandanus utilis, Rhopala corcovadensis, Stephanotis floribunda, Vinca alba, Kentia australis, Kentia Forsteriana, Adiantum cuneatum, A. farleyense, A. formosum, A. peruvianum, Cyathea medullaris, Davallia Moorei, Dicksonia squarrosa, Gymnogramma chrysophylla (golden), Lomaria gibba, Phlebodium aureum, and Pteris cretica also lineata, varying in diameter from 2 feet 6 inches to 10 feet. Many of the Plants will be exhibited in the Grantham Horticultural Show.

The whole will be Sold on the Second Day of the Show, upon the ground, on WEDNESDAY, July 7, at 12 o'Clock.

Victoria Estate, Kansas, U.S.—To Farmers and
OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

Freehold—28 Miles S.W.

TO BE SOLD, a beautiful ESTATE of 240 acres, with elegant Swiss Villa, and capital Stabling, Gravelly Soil, fine views, and extensive frontages, free from tithe and land-tax. Two thirds on mortgage. The Furniture may be taken at a valuation.

A Plot of about 50 acres, planted with fine Evergreens, Fruit, and other trees, would be Sold separately; also a Plot of 25 acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot, Surrey.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

TO BE LET, on Lease, for a term of years, with immediate possession, the MAISON DIEU NURSERY, Dover. Premises comprise Dwelling-house with Shop, Greenhouses, Forcing-houses, Potting Shed, and Garden Ground. Rent moderate. Apply to

Messrs. TERSON AND SON, Auctioneers, 27, Castle Street, Dover, Kent.

RICHMOND HORTICULTURAL SOCIETY.—President, H.S.H. the DUKE OF TECK, G.C.B. Under the Royal and Distinguished Patronage of H.R.H. the Duchess of Cambridge, H.R.H. the Princess Mary Duchess of Teck, H.R.H. the Duc d'Aumale, &c.

The FIRST ANNUAL EXHIBITION of PLANTS, FLOWERS, FRUIT, and VEGETABLES, will be held on THURSDAY, July 8, in the Old Deer Park, Richmond, Surrey. Two Military Bands will attend. A Subscription of £1 1s. entitles to Four Admission Tickets. Tickets and Schedules may be had of

ALBERT CHANCELLOR, Hon. Sec.
Richmond, Surrey.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.

EVENING FETES and EXHIBITION of ROSES, FLORAL TABLE DECORATIONS, PLANTS, BOUQUETS, &c., in the Gardens, Old Trafford, on THURSDAY, FRIDAY and SATURDAY, July 8, 9 and 10.

SCHEDULES are now ready, and may be had from
BRUCE FINDLAY, Curator and Secretary.

NOTTINGHAM and MIDLAND COUNTIES GRAND ROSE SHOW and HORTICULTURAL EXHIBITION (open to all England) will be held at the ARBORETUM, NOTTINGHAM, on THURSDAY, FRIDAY, and SATURDAY, July 8, 9, and 10. The Mayor of Nottingham President; the Town Clerk Honorary Secretary. Prize List amounting to £750. Prizes for Roses upwards of £240. Space will be allotted for the exhibition of Horticultural Implements and Garden Furniture. Certificates of Merit awarded. Schedules are now ready, and may, with particulars, be obtained on application to

ALFRED KIRK, Municipal Offices, Nottingham.

ALTRINCHAM and BOWDON UNITED FLORAL, HORTICULTURAL, and ROSE SOCIETY, Cheshire.

The Exhibition this year will be held on FRIDAY and SATURDAY, July 16 and 17, when TWO HUNDRED POUNDS will be offered in Prizes. Several classes of Roses open to all England. ENTRIES CLOSE, SATURDAY, July 10

JOHN HAMS, Secretary.

WESTON-SUPER-MARE and EAST SOMERSET HORTICULTURAL SOCIETY.—The THIRD ANNUAL FLOWER SHOW in connection with the above Society will be held on WEDNESDAY, August 4, 1875. TWO HUNDRED POUNDS in PRIZES.

Schedules of Prizes can be obtained of

W. B. FRAMPTON, Secretary.

WAKEFIELD HORTICULTURAL SHOW and FÊTE.—The SIXTH ANNUAL EXHIBITION will be held on SATURDAY, August 28. Prizes of upwards of £250 will be given for Plants, Flowers, Fruits, and Vegetables. Schedules may be had of

ABRAHAM HOLMES, Secretary.

ROYAL BOTANIC SOCIETY
OF LONDON.

THIRD SUMMER EXHIBITION, June 30.

AWARD of PRIZES.

SILVER GILT MEDAL.

Mr. Charles Turner, Royal Nurseries, Slough, for 48 varieties of Roses.

SMALL SILVER GILT MEDAL.

Captain Christy, Westerham Hill, Kent, for 24 varieties of Roses.
Mr. John Keynes, Nurseryman, Salisbury, for 24 varieties of Roses.

LARGE SILVER MEDAL.

Mr. John Keynes, for Roses, 48 varieties.
Mr. Jas. Chard, Clarendon Park, Salisbury, for Roses, 24 varieties.
Mr. Charles Turner, for Roses, 24 varieties.
Mr. B. R. Cant, St. John Street Nursery, Colchester, for Roses, 24 trusses, red and rose.
Mr. B. R. Cant, for Roses, 24 trusses, yellow and white.
Messrs. H. Lane & Son, Great Berkhampstead, for 2 Vines in pots, white.
Mr. J. Douglas, Gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, for 1 basket of Grapes, Black.
Mr. J. Douglas, for 1 basket of Grapes, White.

SILVER MEDAL.

Messrs. Paul & Son, The Old Nurseries, Cheshunt, for 48 varieties of Roses.
Mr. B. R. Cant, for Roses, 24 varieties.
Mr. Charles Turner, for Roses, 24 trusses, red and rose.
Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., M.P., St. John's Lodge, Regent's Park, for 24 trusses of Stove and Greenhouse Plants.
Mr. T. W. Bond, The Beeches, Weybridge, for 2 Pine-apples.
Mr. J. Akhurst, Gr. to T. Copestake, Esq., The Grove, Highgate Road, for 1 basket of Grapes, Black.
Mr. P. Feist, Gr. to R. J. Ashton, Esq., Bishopgate House, near Staines, for 1 basket of Grapes, White.
Mr. P. Feist, for 3 bunches of Grapes, Muscat of Alexandria.
Mr. J. Douglas, for 4 dishes of Strawberries.
Mr. G. Sage, Gr. to Earl Brownlow, Great Berkhampstead, for 1 bunch of Bananas.

SMALL SILVER MEDAL.

Mr. H. Bennett, Stapleford, for Roses, 48 varieties.
Mr. John Fraser, Nurseryman, Leyton, for Roses, 48 varieties.
Mr. J. Chard, for 1 basket of Roses, yellow.
Mr. J. Douglas, for 24 trusses of Pinks.
Mr. C. Turner, for 24 trusses of Pinks.
Messrs. H. Lane & Son, for 1 Vine in pot, White.
Mr. C. Sandford, Gr. to the Earl of Bective, Underley Hall, Kirkby Lonsdale, for 2 Pine-apples.
Mr. T. W. Bond, for 3 bunches of Grapes, Muscat of Alexandria.
Messrs. Veitch & Sons, for a Collection of Cut Roses.

LARGE BRONZE MEDAL.

Mr. J. Keynes, for Roses, 24 trusses, red and rose.
Mr. J. Chard, for Roses, 24 trusses, yellow and white.
Mr. B. R. Cant, for Roses, 12 trusses, yellow.
Mr. C. Turner, for Roses, 12 trusses, red.
Mr. C. Turner, for Roses, 12 trusses, white.
Mr. J. Chard, for 1 basket of Roses, all colours.
Mr. G. Wheeler, for 24 trusses of Hardy Harbaceous Flowers.
Mr. T. Bond, for 1 Pine-apple.
Mr. H. W. Ward, Gr. to the Earl of Radnor, Longford Castle, Salisbury, for 1 Pine-apple.
Mr. W. Coleman, Eastnor Castle, Ledbury, for 2 Melons.
Mr. O. Goldsmith, Gr. to Sir W. Farquhar, Bart., Polesden, Dorking, for 1 scarlet-fleshed Melon.
Mr. A. Johnson, Savernake Forest, Marlborough, Wilts, for 3 bunches of Grapes, Black Hamburgh.
Mr. G. Grimmett, Gr. to J. Wilmot, Esq., Pine House, Isleworth, for 3 bunches of Black Grapes.
Mr. J. Douglas, for 3 bunches of White Grapes.
Mr. E. Lake, Gr. to Mrs. D. Boycott, Havesham Grange, Twickenham, for 2 dishes of Peaches.
Mr. W. Bones, Gr. to D. McIntosh, Esq., Havering Park, Romford, for 1 basket of Black Grapes.
Mr. A. Johnson, for 2 dishes of Nectarines.
Mr. T. W. Bond, for 1 basket of White Grapes.
Mr. G. Musk, Gr. to the Hon. Lady Baring, West Hill, Titchfield, Fareham, Hants, for 2 dishes of Black Cherries.
Mr. J. Douglas, for 2 dishes of White Cherries.
Mr. G. Musk, for 2 dishes of Red Cherries.
Mr. W. Clark, Welbrook, Farnborough, Kent, for 4 dishes of Strawberries.
Mr. G. Sage, for 2 dishes of Plums.
Mr. G. Sage, for 2 dishes of Figs.

BRONZE MEDAL.

Mr. J. Chard, for Roses, 12 trusses, yellow.
Mr. B. R. Cant, for Roses, 12 trusses, red.
Captain Christy, for Roses, 12 trusses, white.
Mr. C. Sandford, for 1 Pine-apple.
Mr. W. Davies, Gr. to T. W. Booker, Esq., Velinda House near Cardiff, for 1 Pine-apple.
Mr. H. Harvey, for 2 Melons.
Mr. H. Harvey, for 1 Scarlet-fleshed Melon.
Mr. A. Johnson, for 1 basket of Grapes, Black.
Mr. J. Douglas, for 3 bunches of Grapes, Black.
Mr. G. Sage, for 3 bunches of Grapes, White.
Mr. A. Johnson, for 2 dishes of Peaches.
Mr. E. Lake, for 2 dishes of Nectarines.
Mr. J. Chard, for 2 dishes of white Cherries.
Mr. J. Chard, for 2 dishes of red Cherries.
Mr. W. Clark, for 4 dishes of Strawberries.
M. J. Pottle, Gr. to Sir R. Wallace, Bart., Wickham Market for 2 dishes of Figs.
Mr. Akhurst, Gr. to T. Copestake, Esq., Highgate, for bunches of Black Hamburghs.
Mr. Turner, for 4 dishes of Strawberries.

CERTIFICATE.

Mr. J. Chard, for Roses, 12 trusses, red.
Mr. B. R. Cant, for Roses, 12 trusses, white.
Mr. J. Douglas, for 1 Pine-apple.
Mr. J. Douglas, for 2 Melons.
Mr. G. Sage, for 1 scarlet-fleshed Melon.
Mr. G. Sage, for 3 bunches of Grapes, Black Hamburgh.
Mr. T. Bannerman, Gr. to Lord Bagot, Blithefield, Rugely, for 3 bunches of Grapes, Muscat of Alexandria.
Mr. W. Bones, for 2 dishes of Peaches.
Mr. Grant, Gr. to J. B. Glegg, Esq., Witherington Hall, Chilford, for 2 dishes of Nectarines.

FLORICULTURAL CERTIFICATE OF MERIT.

Mr. Charles Turner, Royal Nurseries, Slough, for Carnation Scarlet Defiance.
Mr. Charles Turner, for Pink Lord Lyons.
Mr. Charles Turner, for Pink Harry Hooper.
Mr. Charles Turner, for Pink Shirley Hibberd.
Mr. W. Paul, Waltham Cross, for Rose Star of Waltham.
Mr. W. Paul, for Rose Magna Charta.
Mr. W. Paul, for Rose St. George.

INTERNATIONAL HORTICULTURAL EXHIBITION, at COLOGNE, from AUGUST 25 to SEPTEMBER 26, 1875.

We have commissioned the Firm of RUDOLF MOSSE, Cologne, with the Publication and Sale of the only Edition, as well as the Administration of Advertisements, of the "Official Catalogue" and the "Official Illustrated Guide" to this Exhibition; and all communications concerning the same are to be directed to that Firm. The Committee of the International Horticultural Exhibition.

Cologne, June 1, 1875.

In reference to the above announcement, I beg to request intending Advertisers to forward as soon as possible all Advertisements destined for these Official Handbooks.

The influx of visitors from all parts of the globe during this grand exhibition will undoubtedly be considerable, upon which the favourable geographic position of Cologne will have a great influence; and so is guaranteed a great circulation for the Illustrated Guide as well as for the Official Exhibition Catalogue. Thus Advertisements inserted in the same promise a large financial return.

Complete Prospectuses may now be obtained at all my Branch Establishments and Agencies here and abroad.

RUDOLF MOSSE, Cologne.

MAURICE YOUNG'S
NEW DESCRIPTIVE CATALOGUE

Is now ready, and may be had on application.

IT COMPRISES:—

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PRIMROSES, POLYANTHUSES, CANTERBURY BELLS, &c.

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CANTERBURY BELLS, New Strain (see p. 824, *Gardeners' Chronicle*), per packet, 1s. 6d.
STOCKS, Giant White Brompton, extra fine, pe packet, 1s. 6d.
,, Intermediate, Mauve Beauty, per packet, 1s. 6d.

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RICHARD DEAN,
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EDINBURGH.

Evergreen Shrubs for Present Planting.
Rhododendrons, Ivies in Pots, &c., &c.

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CRANSTON'S CRIMSON BEDDER: strong plants, in 5-inch pots, 30s. per dozen.

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Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.

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Amaryllis Hendersoni	Crowea angustifolia
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Blandfordia flammea elegans	Nerine rosea
Bouvardia bicolor (hybrid)	Plumeria bicolor
,, multiflora (species)	Sonerila Hendersoni
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Cyclamen Peakeanum	,, ,, marmorata
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MIMULUS, superb collection.
FUCHSIAS, Todman's new varieties.
TREE CARNATIONS, extra quality.
LOBELIAS, bedding, fine improvements, with other new Florist Flowers.

The above, first offered in Trade this season, are now ready for sending out. See full descriptions and prices in

E. G. HENDERSON & SON'S

SPRING CATALOGUE for 1875, which will be forwarded on application. Also their SEED CATALOGUE for 1875, containing over 200 Illustrations of Flowers, from which the following, for present sowing, can be supplied, of choice quality:—

CALCEOLARIA, mixed colours, 1s., 2s. 6d., and 5s. per pkt.
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,, ,, Double Red, 2s. 6d. and 5s.
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CYCLAMEN PERSICUM, 1s. and 2s. 6d.
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MIMULUS, 1s. PANSIES, 6d. and 1s. 6d.
SWEET WILLIAM, Perfection, 1s.
,, from named flowers, 1s. and 2s. 6d.
MYOSOTIS DISSITIFLORA, Cliveden variety.

The Wellington Nursery, St. John's Wood, London, N.W.

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(POST FREE).

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SUTTONS' SUPERB CALCEOLARIA.

This splendid strain has been most carefully selected from the very finest collections in cultivation. The plants are compact in habit, with beautiful green foliage and a profusion of bloom. The flowers are large, perfect in form and substance, and of every shade of brilliant colour.—Price 2s. 6d. per packet, post free.

From A. E. RUSSELL, *Esq., Dalnabreck, N.B., July* 10.

"My Calceolaria plants from your seed of last year are particularly fine, of very compact habit, and very fine in colour."

From Mr. A. ALLERTON, *Coleman's Prittlewell, May* 8, 1875.

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The Finest Strain of Cyclamen.

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The following varieties have been carefully selected from one of the finest strains in cultivation, and, as they remain in bloom from November till March, are invaluable for decorating the conservatory or drawing-room during the winter months. The flowers also are extremely valuable for bouquets, as they retain their freshness for a considerable period when kept in water.

ALBUM, pure white.
MARGINATUM, rose, edged with white.
ROSEUM, rose and carmine.
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RUBRUM, bright crimson.
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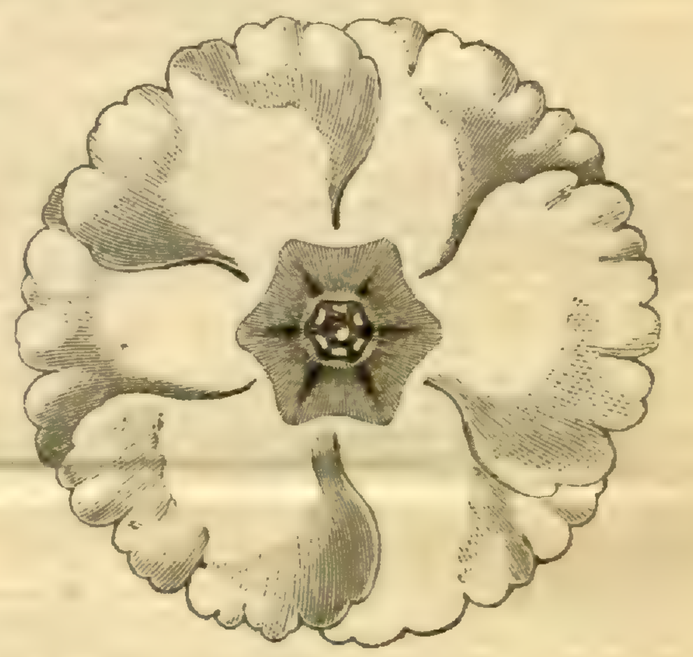
From W. H. MELLERSH, Esq., *Eversham Lodge, Cheltenham, Feb* 12.

"The Cyclamens I had from you last autumn have given me great satisfaction."

The Finest Strain of Primula.



SUTTONS' SUPERB PRIMULA.

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SUTTONS' SUPERB CINERARIA.

This will be found unequalled by any in cultivation, the seed having been saved from the finest named varieties only. Price 1s. 6d. and 2s. 6d. per packet.

From WALTER EDWARDS, Esq., *Wellington, Somerset, Jan.* 21, 1875.

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Sutton & Sons

READING.

CALCEOLARIA, CINERARIA, PRIMULA and CYCLAMEN.
The best strains in the kingdom, including James', Waters', and other well-known growers,
Price, per packet, 2s. 6d.; or one each of the 4 varieties for 7s. 6d.
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James' Prize, 2s. 6d. and 3s. 6d. each.
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ASCOTIENSIS.—The flowers are considerably larger than Jackmanni, and are well shaped, containing six petals each; colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit. 10s. 6d. each.
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The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.
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BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.
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CORN MANURE, for spring sowing.
PURE DISSOLVED BONES.
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SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
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J. SCOTT offers his well-known preparation to Fruit Growers at 1s. 9d. and 2s. 9d. per bottle, post free, on receipt of stamps. No one who has fruit to grow should be without it. May be obtained through all Seedsmen, or direct from
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A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied.
PROTECTION from the SCORCHING RAYS of the SUN.
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2 yards wide .. .. 1s. 10d. per yard run.
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2 yards wide .. 1s. 6d. and 1s. 10d. per yard run.
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TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3d. per yard, or 100 yards, 20s., 4 yards wide, 6d. per yard, or 50 yards, 20s.
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard.
TIFFANY, 6s. 6d. and 7s. 6d. per piece of 20 yards.
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BOOKS of DESIGNS, 5s. each.
☞ The Extensive Ranges of Metallic Hothouses in the Royal Gardens, Windsor and Osborne, were executed at this Establishment.

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Retail of the principal Seedsmen. Prices on application.

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THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

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4-inch Pipe, per yard .. .. .. 3s. 4½d.
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THE LARGEST AND BEST STOCK IN EUROPE.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above; also of his

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

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THE "OLD" NURSERIES, CHESHUNT N.,

RESPECTFULLY INVITE AN INSPECTION OF

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PAUL & SON do not remember so interesting a season. Several fine seedlings for distribution next and succeeding year may be seen beautifully in flower, and the general cultivation of the Rose adopted at this, one of the ancestral homes of the Rose, may be now correctly judged.

One Mile from the Cheshunt Station of the Great Eastern Railway.

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Single Plants	**7s. 6d.**	**Per 25 Plants**	**100s.**
Per Dozen Plants	**60s. 0d.**	**,, 100 ,,**	**£12**

The Plants, taken out of pots, may be sent, per Continental Parcels Express, at very little expense.

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JEAN VERSCHAFFELT,

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		£	s.	d.
PHŒNIX RECLINATA	per 100	2	8	0
PHŒNIX RECLINATA	per 1000	20	0	0
PHŒNIX TENUIS	per 100	2	8	0
PTYCHOSPERMA ALEXANDRÆ	per 100	4	0	0
SEAFORTHIA ELEGANS	per 100	2	8	0
SEAFORTHIA ELEGANS	per 1000	20	0	0
ARECA MONOSTACHYA	per 100	6	0	0

Trade WALTER MAC FARLANE & Co GLASGOW SARACEN FOUNDRY Mark.

Branded on every Casting.

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Architectural, Sanitary, and Artistic,

FOR ARCHITECTS, CIVIL AND MECHANICAL ENGINEERS,

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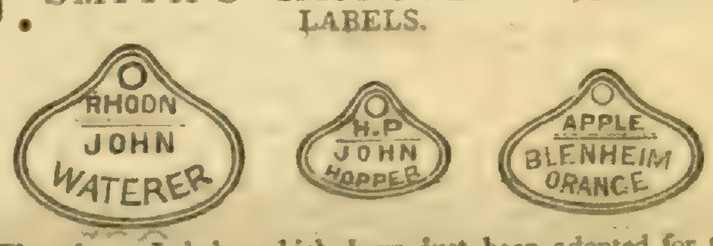

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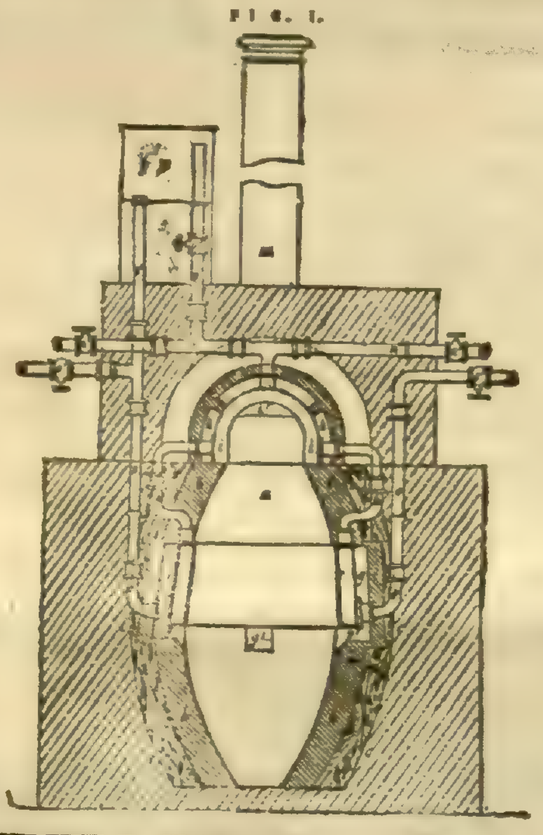

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Stanstead Park and Rutland Park, Forest Hill, S.E.

SATURDAY, JULY 3, 1875.

COLUMBINES.

AMONG the old-fashioned flowers, which are now becoming somewhat more appreciated than they have been of late years, the Columbine holds a prominent place. As yet, however, our common British species has scarcely attained its proper position, being somewhat eclipsed by the undoubted beauty and comparative novelty of Aquilegia glandulosa and other foreign members of the genus; and yet our Aquilegia vulgaris is a lovely plant, none the less so for having been relegated for a long time to cottage gardens, or poked away out of sight in out-of-the-way and neglected corners. Like many other old-fashioned things besides plants, these favourite flowers of old days only need to be known to be appreciated; and it shall be our pleasant task on the present occasion to advocate the claims of the Columbine to be again received as a popular favourite.

The foliage alone of this plant is very handsome, the leaves being what is technically termed biternate, with three-lobed, broadly-crenate segments. They are bold and striking in outline; and hence were employed by mediæval sculptors for decorative purposes—not, perhaps, as frequently as certain other types of foliage, but sometimes quite accidentally, as for instance in the panelling of the north side of the cathedral at Chartres, near the north porch. At first sight, the leaves might be taken for those of some large Umbellifer, such as Angelica—which indeed they much resemble—but at Chartres a close inspection and a little judicious removal of "the dust of ages" brought to light most unmistakable Columbine flowers peeping out from among the leaves.

The botanical architecture, so to speak, of these old churches would form an interesting study—we shall not soon forget the Mallow leaves which were employed in the capitals of some pillars at Auxerre, or the use of the foliage of Eryngium campestre near the west door of the principal church at Clamècy—but we must return to our Columbines.

The infinite variety in colour of the flowers of the Columbine constitutes another of their attractive features. Pure white, stone-blue, azure, purple, brown, pink, red, crimson, claret-colour, and a shade of purple which is almost black, are all to be found in a good collection, such as we have seen in a small country garden. Yet among them all there is no colour more beautiful than the fine azure-blue, which seems characteristic of the truly wild state of the plant. In the chalky woods of Buckinghamshire we have gathered magnificent specimens of Columbine in which the blossoms, both in form and colour, were handsomer than any of the more civilised garden varieties. Nor is this the only plant which has scarcely improved by cultivation. A yet more striking instance of this may be found in the Jacob's Ladder (Polemonium cœruleum), which abounds on the limestone rocks about Buxton. The wild plant is taller and more robust than the common cultivated form, and the flowers, although less numerous, are both larger and brighter.

When the Columbine was a more fashionable flower than it has now become, a yet greater range and variation in colour was attained. John Rea, the seventeenth century florist, says that the single Columbines "are not regarded," and even the self-coloured double ones "are not valued:" "those that are variegated, striped, sported, or powdered, are only entertained, whereof there are many diversities differing in colours or manner of marking from each other; some will be half white and half of another colour, as light blue, violet-purple, murrey, or light red; others striped, spotted, and variously marked with these colours upon white, in some more and in others less."

In form as well as in colour, Columbines offer considerable variety. Besides the ordinary double Columbine, there is a form less frequently to be met with, which Parkinson figures and describes as the "double inverted Columbine," which is, he says, as "double as the former, but that the heeles or hornes of these are turned inward, and stand out in the middle of the flowers together." Then there is the variety, also figured by Parkinson as the "Rose or Starre Columbine," in which regular star-shaped blossoms are produced, there being, as that author has it, "no heeles or hornes either inward or outward," the flowers being "like unto a small thick double Rose layd open, or a spread Marigold." Phillips in his *Flora Historica* mentions these three forms in more modern phrase. He says:—"It is a curious character in the natural history of this plant that it should take three distinct modes of doubling its flowers. It is sometimes seen doubled by the multiplication of the petals, to the exclusion of the nectaries; at others, by the increase of the nectaries, to the exclusion of the petals, and frequently by the multiplication of the nectaries while the proper petals remain."

To the curious form of the flowers, which seem to have suggested almost universally the idea of birds, the Columbine owes its scientific and popular names in various languages. The Latin Aquilegia, or, as Clusius calls it, Aquilina, gave rise to the German Akeley or Agley, the Dutch Akelei, and the French Ancolie—in reference, it is supposed, to the hooked claws of the eagle. In some parts of Normandy it is called Aiglantine, another name referring to the same bird; and it is no doubt the similarity of this title with that of Eglantine which has caused the Columbine to be substituted for the latter plant in the floral games of Toulouse. Our English word Columbine is a following of the old Latin name Columbina, and alludes to some resemblance between the curved nectaries and the neck of a dove. The Italians still call it Colombina. Culverwort, another English name, has a similar signification. Some have thought that Aquilegia signified a reservoir or drawer of water, in allusion to the way in which rain is retained upon the leaves; but this is not its meaning here.

Like the Snapdragon and other flowers which cannot be readily entered by bees, the nectaries are often pierced near the base by these ingenious insects, so that the honey may be obtained. The Columbine is referred to by several of our older poets, such as Spenser and W. Browne, the latter of whom seems to allude to some traditional association of the plant when he says:—

> "The Columbine, in tawing often taken,
> Is then ascribed to such as are forsaken."

The same author refers to "the white, the blue, the flesh-like Columbine." Drayton speaks of the "azured Cullambine," and the American poet Bryant mentions "the Columbine in purple drest." It will be remembered that Skakspeare includes it among the flowers of Ophelia's garland. *B. M.*

New Garden Plants.

PHÆDRANASSA (ODONTOPUS) RUBRO-VIRIDIS, *Baker, n. sp.**

This, in a Herbertian sense, would be a new genus. The perianth and general habit of the plant is just that of Phædranassa, but the filament is furnished with a pair of distinct little teeth above the middle, whilst in the proper Phædranassas there is nothing of the kind. But if, as I have already proposed

* *Phædranassa (Odontopus) rubro-viridis*, Baker, n. sp.—Bulbo ovoideo tunicis brunneis secus collum longe productis; foliis 3—4 post scapum productis linearibus acumi[illegible] nitide viridibus pedalibus vel ses[illegible] ancipito; umbello [illegible] cellis [illegible]

(*Refugium Botanicum*, sub t. 308), we join together Coburgia and Stenomesson, we can scarcely separate the plant on this account. I incline, therefore, to regard it as the type of a new section to be called Odontopus. The plant was purchased by Mr. Green, of Reigate, at a sale amongst a quantity of Andine bulbs, and he knows nothing more of its origin. He flowered it at Reigate this present spring, and had it under the specific name which I have adopted.

Bulb ovoid, above an inch thick, with dry brown membranous tunics produced 3 or 4 inches up its long neck. Leaves fully developed in May, in two tufts of three to four each in the specimen seen; bright green, rather fleshy in texture, acuminate, a foot or more long, 3—4 lines broad, without any distinct midrib, but with about fifteen rather raised parallel main veins. Flowers produced early in April. Scape slender, ancipitous, bearing a few-flowered umbel. Spathe valves linear, as long as the pedicels. Pedicels cernuous at the top, 9—12 lines long. Perianth 1¼ inch long, with a green obconic trigonous ovary as broad as deep, a very short narrowly funnel-shaped tube, and six oblanceolate acute segments permanently conniving in a narrow funnel. Segments an inch long, under a quarter of an inch broad a third of the way down, pale at the border, closely many-ribbed down the back, keeled with green in the upper quarter, and the rest with bright red. Filaments filiform, all six inserted on a level at the throat of the tube, just as long as the segments, furnished with a pair of sharp linear erecto-patent teeth above the middle. Anthers oblong, yellow, versatile, ⅓ inch long. Style filiform, 1½ inch long, with a small capitate stigma. *J. G. B.*

VENUS' FLY-TRAP.

BY THOS. A. G. BALFOUR, M.D., F.R.S.E., F.R.C.P.E.*

MY attention was specially directed to the subject of Dionæa, Drosera, &c., by certain articles which appeared in different journals, containing interesting accounts of what had been done in regard to these plants, and of the curious results which had been obtained. Some of these notices had an air of truth about them, while others seemed indebted for their existence rather to the vivid imagination of the writer than to careful scientific observation. The interest, however, attaching to the whole subject was such that I felt most anxious to test for myself the truth or otherwise of the observations recorded.

My observations are not complete, and though in some cases they refer to points which have been already carefully studied by others, the present paper also contains some original and independent observations, and hence may not be altogether wanting in scientific interest.

In dealing with my subject I shall regard the Venus' Fly-trap (Dionæa) as a carnivorous plant, and I feel warranted in doing so by the opinions expressed by those who have made this plant the subject of careful study. Ellis was one of those who, about 100 years ago, brought the peculiarities of the plant under the notice of Linnæus, &c. His letter to that famous botanist gave an excellent description of the structure and functions of the leaf, erring only in one or two points, such as in believing that the fluid secreted by the leaf was a kind of nectar to allure insects towards the sensitive part of the leaf, and in attributing to the hairs the power of transfixing the body of the captured insect. His opinion, however, was that the insect was made subservient to the nourishment of the plant.

Dr. Curtis seems to have been the next observer. He resided at Wilmington, North Carolina, where he had abundant opportunities of observing the plant in its native habitat. About forty years ago he gave an able and accurate account of it, and while he corrected Ellis' mistakes regarding the time when the secretion was poured out, and showed the sensitiveness of the plant to reside in the hairs, he believed with Ellis that the plant fed on the entrapped insect.

Mr. Canby, about seven years ago, while living at Wilmington also, confirmed the opinion of Ellis and Curtis as to the animal diet of the Dionæa.

Mr. Darwin holds a similar view, and when we know that for six or seven years this distinguished naturalist has been studying this subject, and recall his wonderful and minute powers of observation, his great practical sagacity, and the fertility of his resources in devising experiments, we must attach no ordinary importance to the researches which I trust he may soon give to the world. Dr. Hooker has also stamped this opinion with the weight of his deservedly great name in the address which he delivered in August last to the British Association. In speaking of the carnivorous habits of the Dionæa muscipula, I shall divide the subject into the five following heads:—1. Irritability; 2. Contraction; 3. Secretion; 4. Digestion; 5. Absorption, including assimilation. It may seem unphysiological to place secretion and digestion under separate heads, but there are some who admit the existence of the former, but deny the latter; hence I treat of them separately.

1. *Irritability.*—This is a wonderful property, not confined to Dionæa, but existing in the leaves of many plants, specially of the natural order Droseraceæ, to which the Dionæa belongs; also in the Leguminosæ, especially in the common Sensitive Plant of our hothouses (Mimosa pudica), and among the Oxalidaceæ, but in a peculiar degree in the sensitive Oxalis (Biophytum sensitivum). In the Dionæa, however, this irritability is, as first pointed out by Curtis, resident in six delicate hairs, which are placed three on each blade in a triangular form, with the apex pointing downwards; each has a peculiar bulging at its attachment to the blade. The position of these hairs is such that it is well nigh impossible for an insect to avoid touching them while crawling over the leaf.

To test the accuracy of this opinion I took a needle and touched almost every portion of the surface both above and below, and also the marginal hairs, and no response was given; but no sooner did I apply the needle point to the top of one of the six hairs than immediate closure of the leaf followed.

In the Sensitive Plant this property seems to have no apparent relation to the wants of the system; in the Dionæa, however, such a relation seems to exist, for when a certain amount of animal food has been consumed, the irritability disappears, at least for a considerable time.

On July 3, 1874, at 2.30 P.M., a large bluebottle fly was placed on a large Dionæa leaf; the diet was peculiarly acceptable, and was at once secured. Twenty-four days were required for digesting it, and when the remains were removed on the 27th the hairs were stimulated repeatedly, but no signs of irritability were manifested. On July 28, 29, 30, and on August 1 the same was tried, with a like negative result.

A similar result followed in the case of other leaves after sumptuous repasts of caterpillars and raw meat and spiders; but these will again come before us.

This irritability is also more or less influenced by sunshine and shade, though, so far as my experiments go, not in the manner that one would naturally expect.

On July 20, 1874, four plants of Dionæa were selected—two to be placed in the shade, and the other two to remain in the sunshine. Of those in sunshine, one plant had two leaves closed by irritation, and the other had three similarly dealt with. Of those in the shade one had four leaves closed by irritation, and the other had two thus treated.

July 21, 12.30 P.M.—All act equally well on irritation; only one of the plants in the shade had not its leaves quite so open as the others.

July 22, 3 P.M.—In sunshine all open, and respond readily and fully to irritation. In shade one plant has two leaves half open, and the other plant has two fully open, but all respond languidly and more or less fully.

July 23, 4 P.M.—The two plants in sunshine are not quite open but close well on irritation. The two plants in shade have their leaves scarcely half open (the lashes are touching), but they close pretty well.

I need not weary you with details, so I pass on to the record of August 1, when the plants were, in sunshine, all about half open, but closed on irritation; while in shade two were half open, but would not close by irritation of any amount. My appended note is—"The want of sun seems here to have impaired irritability."

Again, in some cases the nature of the substance applied seems to influence to a considerable extent this property of irritability. On July 16 chloroform was dropped on the sensitive hairs of a leaf of Dionæa, and it instantly closed exactly as an eyelid would have done had chloroform been applied to the eye. To test whether it was the peculiar nature of the fluid, or simply the fluid touching the hairs, that had caused the closure, another Dionæa leaf was chosen, and a large quantity of water was let fall on it, at first drop by drop, and afterwards in large quantity, but there was no sign of closing; but when chloroform was added, the closure ensued in two or three seconds. These plants had not been in direct sunshine.

On July 17 new experiments were made. One or two Dionæas which were in bright sunshine were held below a watering pan, and at first drops of water, and then a full stream, were directed on the sensitive hairs, and the leaves closed at once. This experiment, so different in result from the last, seemed entirely owing to the direct rays of the sun in which it had been placed; for on taking another Dionæa, which had not been so exposed, we found that, in this case, no amount of water would cause it to close, but the smallest amount of chloroform did so at once. Here, then, so far as the experiments go, was a distinct evidence of the irritability being in some instances dependent on the nature of the irritant. Only the other day (June 7) I saw the leaf of a Dionæa nearly full of water, in contact with all the sensitive hairs, and yet no closure had been effected, but on my touching a hair with the point of a knife immediate closure resulted.

If this be found generally true regarding water, we can see how admirably provision has been made to guard the plant against the frequent closure of its leaves after every shower, which would deprive it of many chances of a good meal. Nor does the closure of the one which had been in bright sunshine at all militate against this view, for in most instances we have the sun obscured by clouds for some time before any continuous rain begins.

Again, this property seems to exist in different degrees of intensity in different plants of Dionæa and sometimes in different leaves of the same plant. Thus I have found that the slightest touch of the top of a hair has been followed by instant closure, while in another leaf of the same plant this effect was only obtained after touching a hair twice.

How long is this irritability retained? The period seems to vary even in different leaves of the same plant, so that it is impossible to give a definite answer. On July 7 three leaves of one plant of Dionæa were closed by irritation; they were very lively and closed at once.

July 8.—Oopen by 10 A.M. at least; at 3 P.M. they were again closed at once on irritation.

July 10.—At 12 noon two leaves quite open, one leaf only half open, and closes languidly.

July 11.—One still close which was closed yesterday; the other two, which are open, responded somewhat languidly to irritation by a glass rod.

July 14.—Only closed very languidly; the other two responded better to stimulus, and closed firmly.

July 15 and 16.—One closes languidly; other two close at once vigorously.

July 20, 3.30 P.M.—All closed with slight languor.

July 21 and 23.—All closed slowly.

On July 25 the irritability is much exhausted.

From some of them remaining closed after this it was impossible to test further before August 1, when I left town.

We see from these dates that the irritability in one leaf began to show signs of diminution on the third day, and that the other two leaves did so on the day following. On the seventh day these two temporarily regained their irritability, and retained it till the eighth and ninth day, but it became again gradually impaired, till on the eighteenth day it was much exhausted.

No great importance can be attached to these experiments, as the irritation was only practised once a day, and sometimes, though rarely, once in two days.

Of the nature of this property we cannot, of course, speak, for we know of its existence only by the effect produced, viz., the contraction of the leaf; but there seems to be a co-ordinating power in connection with the irritability, for though one or more hairs on only one blade of the leaf be irritated, both blades will close synchronously. I shall have occasion to return to this subject under the second heading, and I now, therefore, proceed to speak of the effect of the irritability.

(*To be continued.*)

THE COFFEE-LEAF FUNGUS.

IN his report on the Botanic Gardens at Péradeniya and Hakgala for 1874, which we have just received, Dr. Thwaites writes, concerning the Hemileia vastatrix, described and figured by Mr. Berkeley in our columns, p. 1157, 1869:—

"It seems desirable that the present opportunity should be used to offer a statement of the result of further investigations made by Mr. Abbay and by myself into the nature and development of the leaf-fungus (Hemileia vastatrix) which has for several years so seriously affected the Coffee trees of the island. Infinite satisfaction would it have afforded me could I have reported anything to indicate its probable disappearance. Though requiring careful inspection for its detection, still it is unfortunately present upon all the Coffee trees I have examined. With the help of the microscope it is found at all times to pervade the greater part of the stems and older leaves in the form of very fine branching filaments (mycelium), its effects being apparent in the numerous somewhat translucent spots which may be observed when holding one of the older leaves against the light. These spots are no doubt due to the action of the fungus-filaments in drawing their nourishment from the substance of the leaf. The direct injury so caused to the Coffee tree is, however, probably very slight, as compared with the effect produced when the fungus attacks the young leaves, causing them to fall prematurely.

"As the presence of the fungus-filaments in such abundance on the outer surface of the tree is quite sufficient to account for phenomena which I at first thought must be attributable to the poisoning of the juices of the tree by an absorption of the fungus matter through its roots, I am constrained to give up the latter idea, and to consider the disease as external, except when it appears

ovario obconico-trigono: tubo brevi infundibulari: limbi anguste infundibularis segmentis lanceolatis acutis superne viridulo-inferne rubro-costatis: filamentis segmento æquilongis utrinque supra medium dente parvo lineari instructis; stylo breviter exserto.

* Condensed from a paper read at the June meeting (10th) of the Botanical Society of Edinburgh.

within the tissue of the young leaves. Into these it finds its way by the breathing pores (stomata) of the underside of the leaf, and there it grows rapidly, filling up portions of the intercellular spaces with dense masses of branched filaments, which derive nourishment from, and cause the discoloration of the green internal tissue of the leaf. Subsequently, from these enclosed masses of filaments short branches are produced which emerge from the stomata, and bear the conspicuous orange-coloured spores or reproductive bodies. Some of these spores have been observed by Mr. Abbay, as well as by myself, to germinate on the outside of the leaf, producing branched filaments of exceeding tenuity, which grow with marvellous rapidity all over the surface of the leaf, and beyond to the stems. The ends of some of these filaments, too, have been observed by both of us to enter stomata of the leaf, to form fresh disease-spots and fresh crops of spores.

"Happily, no doubt seems to be entertained by planters of experience that judicious cultivation enables the Coffee tree to produce a succession of profitable crops, notwithstanding it may suffer from periodical attacks of leaf disease."

ABERLOUR.

ABERLOUR, the seat of Miss McPherson Grant, is situated in Banffshire, about 70 miles north-west of Aberdeen, and bounded on the north by Morayshire. The general outline of the country here is triangular. The south-eastern parts are wild and mountainous. In the range is Ben Rinnes, which rises to the height of 2765 feet. From its summit the mountains of Caithness to the north are visible, and the range of the Grampians in the opposite direction. On the left there is the rugged Birch-clad mountain of Craigellachie (the Rock of Alarm), in former times the rendezvous of the Clan Grant, whose slogan or war-cry was—"Stand fast, Craigellachie!" About a mile to the south of the mansion there is the mountain burn of Aberlour: here it forms a beautiful cascade of 30 feet in one leap. The river Spey forms the western boundary of the estate. Here it is both rapid and deep. The scenery in the vicinity and along the reach of the river, and for miles below, is eminently beautiful. About a mile down the river stands the lofty picturesque quartz rock of Craigellachie. Here a handsome iron bridge of 160 feet span has been thrown across the river, and which connects Morayshire with Banffshire. A few miles farther down stands the pretty village of Fochabers in the neighbourhood of which is Gordon Castle, the fine seat and grounds of the Duke of Richmond.

Aberlour is approached from the high road leading from Craigellachie to the south, and is entered by a very neat gate and lodge. The approach is 16 feet wide, with a short grass edging 10 feet wide on each side, which is beautifully kept. The road curves gently to the left till it enters the plantations, where it curves again rather sharply to the right on to the mansion. There is a similar approach leading on to the south, in all parts similar to the former. In front of the mansion, and at equal distances of 15 yards apart, are placed some very large handsome vases, 7 feet high. These were filled chiefly with Bronze, Tricolor, and Variegated Pelargoniums. The mansion is a very handsome erection, in the Grecian style of architecture; it is superbly furnished, and covers a large piece of ground. In the entrance hall and principal rooms of the house there are placed some magnificent specimens of China vases. These are all filled with plants, which gives the house a very gay appearance. About 200 yards from the front door stands a huge tower, about 120 feet high, of Aberdeen granite. Its base is square, and 16 feet across. The body of the tower is round and 12 feet in diameter, with a ball of polished granite on the top, weighing one ton.

The kitchen and flower gardens lie a few hundred yards to the east of the mansion, on rather a high elevation, approached by a winding walk 10 feet wide. The garden is entered by a very handsome arched gateway, with two pillars of polished granite on each side, and a small gate on either hand for passengers. To the right of the entrance stands the gardener's house, a very handsome substantial erection. On entering the flower garden the visitor is struck with the immense quantity of bloom which meets the eye. Turning to the left there is a ribboned border about 200 feet in length, consisting of the following:—1 line at front, Cerastium; 2, Pansy, Yellow Bedder; 3, Viola Perfection; 4, Polemonium variegatum; 5, Dell's Beet; 6, Pelargonium Bijou; 7, Pelargonium Stella; 8, Ageratum mexicanum; last line, Hollyhocks, with Dahlias between, the colours being well mixed. The walk leads on to the glass range, which is of considerable extent, consisting of the following:—Entering from the west the first is a large span-roof greenhouse, 27 by 18 feet. In it I found some excellent specimens of Azaleas, Pelargoniums of the newer kinds, Coleus remarkably well managed, and Passiflora cœrulea, very neatly trained over the roof; 2, Peach-house, lean-to, 27 by 18 feet, very healthy trees, extra crop of fruit all over the house; 3, vinery, lean-to, also 36 by 18 feet, very heavy crop; 4, vinery, lean-to, 27 by 18 feet, mixed house, Hamburghs especially being very fine; 5, conservatory, span-roofed, with circular end—very elegant house, with very fine specimens of Azaleas of various kinds in the centre. This house was very gay with Pelargoniums, both Zonal and others. The strain of Balsams and Cockscombs here is extra fine, and the plants are remarkably well managed. The climbers in this house, principally Clematis, are doing well. No. 6, vinery, lean-to, 27 by 18 feet, principally Lady Downe's and Bowood Muscat, good crop of both varieties; 8, Peach-house, lean-to, 27 by 18 feet, heavy crop. In this house I found a very nice collection of Camellias, medium size. No. 9, span-roofed stove, 27 by 18 feet, with wall at north end covered with moss. In this house was a nice collection of Palms, &c. — Latania borbonica and Lomaria gibba were very conspicuous; also a very fine healthy collection of Ferns, among which I noticed some very nice plants of the following:—Adiantum farleyense, sancta Catherinæ, concinnum latum, and scutum (Ghiesbreghtii); Pteris scaberula, Cheilanthes elegans, Davallia tenuifolia, stricta, &c. This range stands on the north side of the flower garden proper, with a flat terrace reaching out about 50 feet. On the top of this terrace, and about 20 feet apart, are placed very elegant stone vases of large size. The border in front of the houses is ribboned as follows:—1, Golden Feather; 2, dwarf Chrysanthemums, Asters, dark sorts; 3, white Stocks, large flowering; 4, Pelargonium Frogmore, scarlet; 5, Calceolaria amplexicaulis; 6, Ageratum mexicanum; 7, African Marigolds, orange and lemon; 8, Dahlias, mixed, fan trained. The scroll in gravel and Box in front of the houses is composed of a chain of sixteen beds of serpentine shape, with a small round bed between each, one on each side of the centre walk running north and south are filled with Pelargonium Mrs. Pollock; then a pair on each side of that are filled with Pansy Blue King. The next pair on each are pans of Yellow Cliveden; the next pair are Magpie Viola. Then the extreme end beds are Brilliant Pelargonium. The round beds between each are thickly planted with Saponaria calabrica, which stands 18 inches high, and is scalloped on both sides with Cerastium, with a plant of Beet in each corner or point.

The next part to the south is a nice piece of grass about 20 feet wide, the whole breadth of the flower garden, to which you descend by a handsome staircase, and which is divided into four quarters. In each quarter there are nine large beds and two small ones, all cut out in the grass, with a standard Rose in the centre of the small ones, the beds being filled with Saponaria. Two quarters are filled as follows:—One bed Stella Pelargonium, edged with Alyssum variegatum; one mixed large flowering Stock, bound with yellow Pansy, and edged with blue Lobelia; one Crimson King Verbena, edged with Alyssum variegatum; one Chrysanthemum Aster, mixed, bound with yellow Pansy, and edged with Viola Perfection. The other five are formed into a shell shape, the centre one being Ageratum mexicanum, bound with Santolina incana, edged with Crimson King Verbena. One on each side is filled with Sparkler Calceolaria, with a mixture as a carpet and pegged down of Mangles' variegated Pelargonium. The outside two are planted about of Lobelia Paxtoni and Gazania splendens, edged with variegated Alyssum. This forms one-half the flower garden. The other two quarters are the same size and shape, and are filled as follows:—One bed Calceolaria aurea floribunda, bound with Perilla nankinensis, edged with Lobelia speciosa; one Pelargonium Dr. Lindley, edged with Alyssum variegatum; one Pelargonium Bijou, edged with Lobelia; one Pelargonium Stella, edged with Saponaria calabrica. Then the five beds that are placed so as to form a shell are as follows:—Centre one Verbena venosa, edged with V. Snowflake; one on each side, Calceolaria canariensis, edged with blue Lobelia; and the two outside ones are Purple King Verbena, edged with Sempervivum californicum. The two small round beds with the standard Roses in the centre are filled with pink Saponaria. The centre bed of the flower garden is a large mound surrounded with a walk, and is filled with sixty varieties of Pelargoniums of all colours, draped all round with Tropæolum canariensis and tall Nasturtiums; mixed in the top is a large Aloe. Then in the walks running north and south, and opposite the centre of each half of the four squares that are on each side of the centre of the flower garden, are two beds, surrounded with the walk, panelled, and edged with stone edging, the two ends being filled with Viola lutea grandiflora, and the two sides with Pansy Imperial Blue. These two beds are edged with Echeveria secunda glauca and Sempervivum calcareum. One line of each all round the beds is divided into the four parts with Santolina incana, with a large plant of Echeveria metallica in the centre; then the walks running east and west through the flower garden have two beds in the same place as the above two, but are larger and oval-shaped, well raised up, and have a large Araucaria imbricata in the centre. These two are filled all round the centre with Saponaria calabrica, with a few Gladioli at equal distances through it, edged with variegated Mint. In this department Miss McPherson Grant takes great interest, and has been long known in the district for her fine taste in horticultural matters. I may here mention that Miss Grant takes also great interest in the well-being of both old and young on her estates.

The kitchen garden lies to the east and south of the flower garden. It is about 2½ acres in extent. Here all sorts of bush fruits, vegetables, &c., are had in abundance. To the south end of the flower garden, and forming a fine background, lies the pinetum, with a gentle slope towards the north. Among the varieties I noticed the following as being very superior:—Pinus grandis, about 12 feet, noble specimen; P. Jeffreyi, 11 feet; P. nobilis, 13 feet, very fine; P. Cembra, 20 feet, extra fine; Picea amabilis, 10 feet, fine plant; P. lasiocarpa, 10 feet; P. Nordmanniana, 10 feet; P. Pinsapo, 5 feet; Abies Albertiana, 15 to 17 feet; A. Douglasii, 20 feet; A. clanbrasiliana, 4 feet; Cupressus Lawsoniana, 12 feet; C. fragrans, 7 feet, C. occidentalis, 17 feet; Juniperus fragrans, 11 feet; Thujopsis borealis, 10 feet; Thuja gigantea, compacta, decurrens, &c.; Araucaria imbricata, 15 feet; Wellingtonia gigantea, 22 feet; Cedrus Deodara, 12 feet; C. Libani, 13 feet; Irish Yews, several varieties, 12 feet. Mr. Comfort, who so worthily fills the position of head gardener here, is a great enthusiast in his profession, and everything under his care gives evidence of skill and taste. *John Downie, West Coates, Edinburgh.*

THE GRAPE PHYLLOXERA.

[WE take the following from Mr. Riley's seventh annual report of the noxious and beneficent insects of the State of Missouri, lately received. EDS.]

During the year the natural history of the species has been all but completed; as I predicted it would be, after Balbiani had paved the way by his remarkable biological studies of the European Oak-Phylloxera, made a year ago. It turns out, as was expected, that the Grape-Phylloxera agrees with its Oak congener in producing wingless and mouthless males and females; and the problematic winged individuals, with short bodies and relatively long wings and members, which individuals were looked upon by myself and others as the possible males, must necessarily be abnormal females.* The sexual individuals have now been traced in the Oak and Grape species (Quercus and vastatrix) in Europe by Balbiani; and I have traced them in three species (Rileyi, vastatrix and what is probably caryæcaulis) in this country.

The life-history of the Grape-Phylloxera may be thus epitomised: It hibernates mostly as a young larva, torpidly attached to the roots, and so deepened in colour as generally to be of a dull brassy-brown, and therefore with difficulty perceived, as the roots are often of the same colour. With the renewal of Vine growth in the spring this larva molts, rapidly increases in size, and soon commences laying eggs. These eggs in due time give birth to young, which soon become virginal, egg-laying mothers, like the first; and, like them, always remain wingless. Five or six generations of these parthenogenetic, egg-bearing, apterous mothers, follow each other; when—about the middle of July in this latitude—some of the individuals begin to acquire wings.† These are all females, and, like the wingless mothers, they are parthenogenetic. Having issued from the ground while in the pupa state, they rise in the air, and spread to new vineyards, where they deliver themselves of their issue in the form of eggs‡ or egg-like bodies—usually two or three in number, and not exceeding eight—and then perish.

* Balbiani (*Comptes Rendus, Acad. des Sc.*, Paris, Sept. 21, 1874), after a careful examination of these individuals, says that they play no special physiological *rôle* in the phenomena of reproduction; but that they have all the characters of the normal winged females, with, however, the generative organs atrophied; and may, in part, be compared to the neuters among bees and ants.

† During this virginal reproduction a gradual reduction in vitality and prolificacy is observable from generation to generation. Around the first virginal mother the eggs may accumulate by the hundred, but they decrease in number in succeeding generations until the individuals which—whether winged or wingless—lay the sexual eggs, give birth in no instance, yet recorded, to more than eight. From the true female, again, or at the end of the cycle, only a solitary egg is born.

‡ It has been a question whether the egg-like bodies from these winged females, or from the wingless mothers which produce them, can properly be called eggs, and M. Lichtenstein has proposed to call them pupæ, because they give birth, not to a larva but to a perfect insect. The term "pupa" is, however, manifestly incorrect as applied to these bodies, because, when first laid, they are transparent with a homogenous content; while the sexual individual developes within the covering very much as the embryonic larva developes within the egg. In fact, we have here, not as in Hippobosca, a larva hatching and nourished in the ♀ abdomen until full-grown and contracting to a pupa before delivered, but an insect hatching and undergoing its entire development within the egg-covering after the egg is delivered. Thus while the covering might more properly be called a sac just before the male or female creeps out of it, it is more truly an egg when first delivered; and so it is best to call it.

These eggs are of two sizes, the larger about 0.02 inch long, and the smaller about three-fifths of that length. In the course of a fortnight they produce the sexual individuals, the larger ones giving birth to females, the smaller to males. These sexual individuals are born for no other purpose than the reproduction of their kind, and are without means of flight, or of taking food, or excreting. They are quite active, and couple readily; one male being capable, no doubt, of serving several females, as Balbiani found to be the case with the European Quercus. The abdomen of the female, after impregnation, enlarges somewhat, and she is soon delivered of a solitary egg, which differs from the ordinary eggs of the parthenogenetic mother only in becoming somewhat darker. This impregnated egg gives birth to a young louse, which becomes a virginal, egg-bearing, wingless mother, and thus recommences the cycle of the species' evolution. But one of the most important discoveries of Balbiani is that, during the latter part of the season, many of the wingless, hypogean mothers perform the very same functions as the winged ones; *i.e.*, they lay a few eggs which are of two sizes, and which produce males and females, organised and constructed precisely as those born of the winged females, and, like them, producing the solitary impregnated egg. Thus, the interesting fact is established that even the winged form is by no means essential to the perpetuation of the species; but that, if all such winged individuals were destroyed as fast as they issue from the ground, the species could still go on multiplying in a vineyard from year to year. We have therefore the spectacle of an underground insect possessing the power of continued existence, even when confined to its subterranean retreat. It spreads in the wingless state from Vine to Vine, and from vineyard to vineyard, when these are adjacent, either through passages in the ground itself, or over the surface. At the same time it is able, in the winged condition, to migrate to much more distant points. The winged females, as before stated, begin to appear in July, and continue to issue from the ground until Vine growth ceases in the fall. Yet they are much more abundant in August than during any other month, and on certain days may be said to literally swarm. Every piece of root a few inches long, and having rootlets taken from an infested Vine at this season, will present a goodly proportion of pupæ; and an ordinary quart preserve jar, filled with such roots and tightly closed, will furnish daily, for two or three weeks, a dozen or more of the winged females, which gather on the sides of the jar towards the light. We may get some idea from this fact of the immense numbers that disperse through the air to new fields, from a single acre of infected Vines, in the course of the late summer and fall months.

If to the above account we add that, occasionally, individuals abandon their normal underground habit, and form galls upon the leaves of certain varieties of Grape Vine, we have in a general way the whole natural history of the species.

Different Forms presented by the Species.—The differences in form and habit which the species present will be best appreciated by recapitulating them in tabulated form:—

1. The gall-inhabiting type (gallicola—Sixth Rep., fig. 4), forming galls on the leaves, and presenting—
   - *a*. The ordinary egg (ibid, fig. 4, *c*), with which the gall is crowded.
     - *b*. The ordinary larva (ibid, fig. 4, *a*, *b*).
       - *c*. The swollen, parthenogenetic mother, without tubercles (ibid, fig. 4, *f*, *g*, *h*).
2. The root-inhabiting type (radicicola, Sixth Rep., fig. 5), forming knots on the roots, and presenting—
   - *aa*. The ordinary egg, differing in nothing from *a*, except in its slightly larger average size.
     - *bb*. The ordinary larva, also differing in no respect from *b*.
       - *d*. The parthenogenetic, wingless mother, the analogue of *c*, but covered with tubercles (ibid, fig. 5, *f*, *g*).
         - *e*. The more oval form, destined to become winged (ibid, fig. 5, *e*).
           - *f*. The pupa, presenting two different appearances (ibid, fig. 6, *e*, *f*, and fig. 8, *a*).
             - *g*. The winged, parthenogenetic female, also presenting two different appearances (ibid, fig. 6, *g*, *h*, and fig. 8, *b*).
3. *h*. The sexual egg or sac deposited by *g*, being of two sizes, and giving birth to the true males and females.
   - *i*. The male.
   - *j*. The true female.
4. *k*. The solitary impregnated egg deposited by *j*.
   - *bbb*. The larva hatched from *k*, which, so far as known, does not differ from the ordinary larva, except in its greater prolificacy.
     - *l*. The hibernating larva (ibid, fig. 5, *b*), which differs only from *b* in being rougher and darker.

Thus the insect is found in at least a dozen distinct forms, excluding the variation that some of these forms are subject to; while, in addition to what we already know of its power to change its habit, I will add that Balbiani reports having succeeded, by gradually accustoming the species to new conditions, in making the progeny of the root-louse live above ground, where, singularly enough, they did not form galls, but dwelt on the under-side of the leaves like the Oak species. This change of habit was brought about after the third generation: and while it may probably never occur in Nature, and finds its parallel in the well-known instances of rearing several generations on a thick piece of root in tubes and bottles, yet it forcibly illustrates the power of adaptation and change which the species possesses. It may be also stated in this connection that Dr. L. Rössler, of Klosterneuburg, Austria, has found the insect, of all sizes, above ground, under the loose bark near the base of the Vine—a position which is quite exceptional for it to assume.

ARUNDEL CASTLE, SUSSEX:

THE SEAT OF HIS GRACE THE DUKE OF NORFOLK.

To the archæologist, the historian, or the lover of a fine garden, there are few places in the kingdom that offer such a combination of attractions as Arundel. Its earliest origin obscured in ages remote, or based upon improbable legends, leaves the imagination free to wander back and speculate upon the unchronicled date of its earliest existence; but from the time that the first authentic records of the place date back to, for many hundreds of years subsequently, it may with truth be said that nothing of importance connected with the history of the kingdom has occurred without some member of the house of Arundel playing a prominent part in it. As we view these massive walls, whose strength almost seems to defy the inroads of time, we are struck by the thought that within them once abode the men ever foremost on the field, the deck, and in the senate, where alike have they exhibited their superiority, leading the irresistible charge on the battle-fields of France, at Flodden, and in many a momentous struggle wherein they have displayed their undaunted valour, often, moreover, deciding the fate of kings in the Council Chamber of the country. They have equally figured, when the country has been convulsed by party spirit, such as we of the present day, who live in more peaceful times, can but faintly estimate.

There is some uncertainty as to the date of the first reliable notice in history of the place, but enough exists to point clearly to a period long before the Conquest, previous to which it belonged to Earl Godwin and his brave but ill-fated son, Harold. The Conqueror, after the manner of his time, gave it and over 50,000 acres of land to his kinsman and follower, Roger de Montgomerie, with the title of Earl of Arundel and Earl-Marshal of England; his descendants through marriage became allied with the noblest families in the land, including the Fitz-Alans and Howards, who through so many generations, with slight interruptions, have held the title and estates down to the present Duke, Henry Fitz-Alan Howard, who is the eighteenth successor to the dignity. After the Conquest it was frequently, for a longer or shorter period, the abode of Royalty. Near the close of the eleventh century it was occupied by William Rufus; at the commencement of the next, Henry I. laid siege to and took Arundel; some thirty-eight years later Queen Adeliza was here when the Empress Maud, who landed on the coast at a point near, found shelter from the forces of Stephen. As the visitor approaches the Castle through the quaint, old-fashioned town of Arundel, his attention is diverted to the magnificent new church which stands to the left of the Castle as approached from the Arundel station. It has been built by the present Duke, and is unquestionably one of the finest ecclesiastical buildings of modern date. Its majestic spire and the beautiful proportions of the building cannot fail to strike the beholder. Turning to the Castle, he is at once impressed with the extent and commanding position of the building. The site was no doubt chosen for the natural strength of its position, at that time of much greater consequence than at the present day, such a building being well nigh impregnable to any engines of destruction then in existence, when in addition to the solidity and strength of its walls and outer works, the position, as here, was such as to be naturally easy of defence. The Castle and keep stand on the extreme southern point of a high narrow ridge of the South Downs, offering peculiar facilities for defence from the steep descent of the ground on the east, south and west; on the north it was secured against sudden inroads by a double vallation, cutting off communication from that quarter. After ascending a somewhat steep hill, the new entrance lodge is reached. It stands westward from, and at a short distance from the Castle. It was built in 1860, at a cost of £10,000, and, as might be supposed from such an outlay, it is a very imposing structure, the masonry being exceedingly massive, and in keeping with the princely building to which it leads. Passing on we are shortly in full view of the western front, also built in 1860, the architecture corresponding with the older parts of the Castle. The eastern portion of the building is supposed to be the oldest, the south-eastern is attributed to the middle of the fourteenth century, but there are sufficient evidences in some of the interior portions of their being of the early Norman period, more particularly the inner vaults, now used as cellars.

The Castle, as will be seen from the engraving (fig. 1), is an extensive building, covering a large surface, and the older parts are in excellent preservation, even the outer walls showing little of the inroads of decay. To the right stands the Ivy-clad keep, with its colour mast-high. The entrance from the north, through a large massive archway, is beneath a square tower of great strength and considerable dimensions, in which are a number of dungeon-like apartments that unmistakably show the purpose they were made for. At the outer part of this archway may be seen where was the portcullis, and also the drawbridge over the fosse; the gates are still hanging, and evidencing their antiquity, although apparently capable of much longer endurance. Near this point is the well, some 400 feet in depth, which supplied the garrison with water. To the left is the entrance to the keep; its walls, still in good condition, are from 8 to 10 feet in thickness: it is from 60 to 70 feet across inside. There are apartments in the walls lit from the inside; the footway round the top of the keep is reached by a circular stair enclosed in the interior wall. The summit is some 100 feet above the surrounding land, and from it there is a magnificent view of the country. At a short distance is the River Arun, winding through the fertile meadows, with Little Hampton and its shipping further away; still further may be seen the Isle of Wight. To the right, nestling amongst the distant trees, is the seat of Sir Moses Montefiore, once belonging to the Marquis of Abercorn. At the foot of the keep, immediately adjoining and inside the fortifications, is the flower garden; it is of large extent, and seen to great advantage from the top of the keep. The Ivy-clad walls, which answer as a framework to the floral picture, have a fine effect. At a short distance stands Bevis' Tower, another work of great strength and antiquity. It is entered from the keep by a covered way across the moat; it, as well as the entrance gateway, is supposed to have been built by Roger de Montgomerie. There are evidences on the walls of the effects produced by Cromwell's artillery at the time it was besieged by his soldiers. The flower garden, only separated from the keep by the moat, is over an acre in extent, and was once used as a kitchen garden; the beds are in gravel, edged with Box and filled with the usual summer bedding plants, and others of a more permanent description; the surface is well relieved by the use of numbers of standard Bays, Portugal Laurels, and pyramid Fuchsias, which here stand unscathed until their stems get several inches in diameter. Veronica Andersoni is also here a charming autumn plant, literally weighed down with its lilac-purple flowers. There is in this garden a splendid pair of Minorca Box, 25 feet in height, perfect pyramids, clothed to the ground. A great part of the walls, already alluded to, are from 20 to 40 feet in height, in some places covered with Pear and Plum trees that bear well; the rest is clothed with Ivy and other climbing plants, amongst which are Bignonia radicans major and Ceanothus azureus. Leaving this, turning to the right, we arrive at a piece of ground some 16 acres in extent, originally inclosed by a second line of earthworks; this was used as a kitchen garden, but Mr. Wilson, the present gardener, did away with it as such and laid it down in grass, planting on it a considerable number of coniferous trees, which are much more appropriate in the position in which they are placed. There is a carriage drive all round the inner space, bounded on each side by a row of Cedrus Deodara, Pinus insignis, and Pinus austriaca, all remarkably fine. The surroundings to this sheltered space consist of deciduous trees, in front of which are evergreen Oaks 30 feet in height, Portugal Laurels, Cedar of Lebanon, Yews, Bays, and Laurustinus; in fact there are few evergreens or shrubs that do not succeed here remarkably well, except Rhododendrons, which will not grow on the chalky soil. The land here is considerably elevated, and at the highest point the Duke has built a very large tank, which holds 20,000 gallons of water, and which supplies the Castle and the town of Arundel. The water is pumped up from the river by a wheel continually going: the water from this tank also blows the organ in the new church. Towards the western end of this space are a number of memorial trees, amongst which is an Oak planted by Her Majesty in 1846; it is a thriving tree, but not equal to another, also an Oak, standing near it, planted at the same time by Prince Albert: this has done remarkably well, girthing over 5 feet well above the ground. Near it is a Cryptomeria, planted in 1848 by the Duchess of Kent—a magnificent tree, densely clothed to the base. There is near this a Wellingtonia, planted in 1856 by the present Duke, when Earl of Arundel; it is a very fine tree.

At a short distance is another Wellingtonia, quite equal to the last, planted by Cardinal Wiseman in 1857. The moat at this point is some 60 feet in depth; near it is a walk—the sides, almost perpendicular, are clothed with a profusion of hardy Ferns, amongst which are quantities of Scolopendriums, growing in the most luxuriant way. On the side of a walk that runs parallel here with the moat are a number of large Citron trees in boxes, loaded with fruit. Near this there stands a very fine example of the Judas tree (Cercis siliquastrum), that flowers freely; here are also equally fine specimens of the Tulip tree (Liriodendron tulipifera), and in the same direction grand trees of Abies Morinda (Smithiana), Cupressus macrocarpa, and Picea Pinsapo. Some idea may be formed of the growth made here by trees of this description, by instancing two specimens of Cupressus macrocarpa, planted by Mr. Wilson in 1859, that stand a little way from the above mentioned. They are a perfect match pair, almost as dense in their branches as an Irish Yew, and are each 26 yards round the spread of their branches. Northwards we follow a straight road of considerable length, bounded by fine Elms and a large Cedar of Lebanon, the spreading under branches of which lay right upon the ground.

FIG. 1.—ARUNDEL CASTLE, SUSSEX, THE SEAT OF THE DUKE OF NORFOLK.

Near this is the ice house, drained into the moat, which lies below it, affording the first essential in ice keeping—efficient drainage; it holds some 300 loads, which keep well. This road leads to the New Park, containing 1200 acres. The natural undulations here have been made the most of by skilful planting, affording some beautiful views with an absence of the objectionable straight, narrow, avenue-like vistas too often seen, even in places of considerable extent. This park contains a fine herd of deer. Here are the higher tanks that will throw water to the top of the Castle. *T. Baines.*

(To be continued.)

ROYAL BOTANICAL GARDENS, MAURITIUS.

THE island of Mauritius is about 44 miles long by 32 miles in width, but though its area is thus limited it presents many variations of altitude and climate, and consequently of vegetation. According to a list lately published by M. Bouton in the *Transactions of the Royal Society of Arts and Sciences of Mauritius*, the number of species found on the island is about 12,000, of which no less than 235 species are Ferns. Cyperaceæ number sixty-six species, Orchids fifty, and other orders smaller numbers. The large trees of such of the native forests as remain are chiefly Myrtaceous. Fœtidia (the Stink-wood) is becoming very rare, and bids fair to be exterminated entirely. Other trees belong to the orders Combretaceæ, as Terminalia; Sapotaceæ, as Sideroxlyon, &c.; Ebenaceæ, as Diospyros; and Sapindaceæ, as Stadtmannia, which is also in danger of extirpation. In the most elevated districts Dombeyas, Crotons, and other plants are found. By the shore occur the Mangrove, Rhizophora Suriana, and a Composite, Microrhynchus sarmentosus, which by its creeping stolons serves to bind the sand together.

Other interesting plants are Xanthoxylon heterophyllus and Carissa xylopicron—both plants likely speedily to disappear entirely by the axe of the agriculturist. While the native vegetation is thus disappearing alien plants introduced from other countries are rapidly spreading and helping to oust the natives; such are various species of Litsea, Acacia, Rubus Hamiltonianus, Passiflora fœtida, &c. Casuarina equisetifolia, usually considered a native, was really introduced from Madagascar. "Vacoas," or Pandanads, still form an important feature in places, though most of them have disappeared. One of the plagues of the island is a Composite, Tridax procumbens, which has spread, by means of its pappus fruits and its offshoots, throughout the sugar plantations, and is so thoroughly established that it is now found throughout the island, to the despair of the planters. A complete Flora of the island and its dependencies is in preparation by Mr. J. G. Baker. It may be of interest to add in this place some extracts from Mr. Horne's report on the condition of the gardens for 1874—extracts which suffice to show the valuable nature of the services rendered by the Colonial Botanic Gardens generally, and the many points of interest to horticulturists which are recorded in the annual reports. The illustration (fig. 3, p. 19) shows a group of Travellers' Trees (Ravenala), and gives a good example of the grand effect produced by tropical vegetation.

Distribution of Plants, &c.—The number of plants propagated and sent out during the year was 387,842. Of that quantity about 258,000 were sent to the plantations in various parts of the island, and 129,000 were sold. The receipts for the latter were £191. Most of those sold are established in balls of earth. This is done as follows:—A handful of hay is spread out and laid on the ground; on it a small quantity of soil is placed, and on this the roots of the plant are spread out and covered with more soil. The edges of the hay are brought together, and then its ends are doubled up over the junction of the edges, forming a base for the ball to sit upon. The hay is held close to the earth, which it holds together in a ball, enclosing the roots of the plants, by a strip of either Pandanus or Aloe (Fourcroya gigantea) leaf.

The rare and most valuable young plants are put into pots made of Pandanus leaves. These pots are made thus:—A stake, the head of which is the diameter of what is to be the pot, is planted firmly into the ground, two leaves are doubled crossways over its head, their edges (overlying each other) are kept together by two strips of the before-mentioned leaves, which are passed once or oftener round, and, their ends being tied together, the edges of the leaves are kept in their places. The ends of the leaves are cut to the required depth of the pot. The plants are put into these leaf-pots in the same way as into the common earth or flower-pot.

Not only are most of the plants which are sold so established before they are sent out, but also those for the plantations are prepared in the same way at the different plantations. The advantages of this are obvious and need not be detailed. Men accustomed to the work will prepare from 400 to 500 plants each per day.

Hurricane.—The hurricane of March last caused a great amount of damage to the gardens, and from its effects many trees have not yet fairly recovered.

The hurricane caused a good deal of increased labour, and even with the assistance of twenty extra labourers it took from six weeks to two months to clear away the *débris* of broken branches and leaves, which covered the ground to an average depth of 3 inches all over the gardens.

The loss in large trees and shrubs was caused by the combined effects of wind and water. The swaying to and fro of the trees worked the soil at the roots into a puddle. Where the roots came into contact with stones they were barked by friction. In some instances the bark was rotted off the roots by the water, which remained stagnant about them for a week. Many trees injured in these ways seem at first to revive, but it is only for a time. Those most injured gradually die off as the dry weather sets in, and if the drought be either severe or prolonged the less injured ones follow four or six months after being damaged. Indeed they cannot be considered safe until the ground has been well soaked by the rains of the next season.

From what may be termed hurricane treatment trees and shrubs lose their leaves either during the gale or they fall shortly after it. Their lacerated condition

unfits them for performing their functions properly. Immediately after, the larger branches and frequently the trunk of the tree are covered with young shoots, from buds hitherto dormant. The springing to life, so to speak, of the dormant buds is, in all probability, caused by the sudden check which the active flow of the sap has received from the almost instantaneous loss of the leaves. Nor is this all. On examination large roots are found to be thickly covered with young rootlets. Hence it would appear that the returning sap had also been arrested in its flow to the extremities of the roots, owing probably to the injuries they received during the storm, or perhaps from excess of sap caused by little or no evaporation in consequence of the loss of the leaves at a period when the tree was in full vigour of growth. At all events both prove that the action of the roots and branches were simultaneous or nearly so, and that there was an extraordinary endeavour on their part not only to repair the injuries inflicted on the tree, but at once to restore it to its former healthy condition.

It has frequently been noticed that a hurricane causes some early flowering trees to flower twice during the same season. On examining some of these it was noted that the flowers, as well as the young branches upon which they were, had been produced by buds, which had lain at rest on wood the growth of a former year.

The loss of the young branches, which should have borne flowers this season, doubtless caused some of the early flowering trees—such as the Flamboyant, Poinciana regia—to flower later than they usually do. The hurricane having destroyed the young branches which were to produce the flowers of the ensuing (*i.e.*, this) season they were replaced by others, and these latter required time to grow and perfect their buds so as to produce flowers.

Fourcroya gigantea.—This plant yields the valuable Aloe fibre, or Mauritius Hemp. The plant grows almost anywhere in Mauritius, and many look on it as a plant that will successfully replace the Sugar-cane on estates where the droughts of late years have been the cause of unremunerative crops. Ropes made from it are stated to be stronger than those made from the best Russian Hemp.

Cocoa-nut Trees.—These have been affected by a species of coccus, a scale insect, which proves very destructive.

Sugar-canes.—Here we find it noted that of recent introduction the New Caledonian kinds are considered the best. It is also stated that the Fiji ribbon and another ribbon cane from New Caledonia frequently produce ribbon and green canes from one eye or bud. As the Sugar-cane is not propagated by seed, this production of sports is very interesting, as showing that, in this case at any rate, the hybrid theory of sports is not tenable.

FALLS OF TECHUNDAMA.

HEREWITH I send you a photograph (see fig. 2, p. 15), taken by M. Paródes, of Bogota, of the great waterfall of Techundama, which is 900 feet above sea level, in the eastern Andes, South America. The fall is 600 feet in depth, and is situated only a short distance from Santa Fe de Bogota, and is one of the most magnificent natural objects in New Granada. There are, however, many other such waterfalls to admire, and also to fear, as I learned from experience whilst recently travelling for Mr. Bull. Crossing the rivers below these falls is often extremely dangerous, especially after heavy rains, when the small streams speedily become transformed into immense rapids, which carry everything before them. If any man or beast should attempt to cross these dangerous waterss, they would probably be carried away and dashed against the jagged rocks and immense stones common to these districts. Many of the boulders in the streams are from 10 to 13 tons in weight, and as a rule stand in the middle of the stream, where they have apparently been from the earliest times. The fierce, musk-stinking Caiman (alligator) is common here with its dangerous maw, and whilst speaking of this beast I may as well relate an account of an excellent shot I recently saw directed against one on the River Magdalena. One of these horrid brutes, 15 or 16 feet in length, had just caught a fine large fish, and was emerging from the river with his catch crossways in his jaws, and making for a sand bank to regale himself on his fishy repast, when up went the rifle of a fellow traveller and the single death-shot, excellently directed at the brute, was the end of the alligator and fish at once. *E. Shuttleworth.*

The Villa Garden.

SUCH a fall of rain as we have lately experienced has exercised a wonderful quickening influence on vegetation, and an unceasing activity is now the order of the day in the garden; and while plants grow and flowers unfold weeds are not less active, and they must not be allowed to cumber the ground. There are many duties requiring immediate attention, and we will proceed to point out a few of them.

EARTHING-UP POTATOS.—No doubt this has already been done to the early varieties, though many have waited for the rain that has recently fallen. In the case of small gardens where only a few Potatos are grown, and chiefly of choice sorts, it is well to dispense with the hoe, and do the earthing-up with a fork, commencing at one end of the row and working backwards. When earthing-up is done with a hoe the soil is trodden down in places; but with the fork it is otherwise, and the soil can be nicely loosened and thoroughly beaten fine as the work proceeds. As a matter of course, in earthing-up with a fork care must be taken that the roots of the Potatos are not disturbed. All that has to be done is to cast some soil up to the haulm on either side of the row, leaving the soil nicely loose in the middle. This mode is also to be preferred in the case of small gardens, where Potatos are grown among pyramids and bush fruit trees. By using the fork the gardener can confine himself to the spaces where the Potatos are growing, and he is not so likely to damage the trees as when he has to get across the row to do the earthing-up with a hoe. If a few extra fine tubers are wanted it is a good plan to pull away some of the weaker shoots, leaving five or six only of the strongest. This, while it will lessen the number of tubers, will enhance their individual quality, and some fine and well-finished exhibition samples will result.

WINTER STUFF.—Under this general heading is comprehended Brussels Sprouts, Savoys, and Curled Greens; and as fast as the haulm of early Peas is cleared away the places should be filled with any of these just named, and advantage should be taken of a shower to get them into the ground. The London market gardener, whose system of gardening is well nigh perfect, always manures highly, and gets out his plants, such as Cabbage, Broccoli, and those above named, when showers are falling. He terms a week's showers of invigorating rain a dripping season, and it is wonderful what a start his plants get in the well-manured ground. No sooner is one crop exhausted than another takes its place. The Villa gardener should imitate him in some particulars, and especially in that of getting out Brussels Sprouts and Savoys at the earliest possible period. Unless Brussels Sprouts are put out early, so as to get a good start, they do not make headway, especially if dry weather sets in, and the crop is lost.

Brussels Sprouts can be planted out between the rows of Peas or Broad Beans, before the haulm of either is cleared away, and even while the crop is being gathered. This plan gains so much in point of time, which is a decided advantage. If the haulm of Peas be cleared away before winter stuff is placed out, the ground should be dug, the plants put in between the lines occupied by the Peas, and the soil pressed firmly against the roots by treading it down.

PEA-STICKS.—As good hazel pea-sticks will last a couple of years, let them be cleared of all haulm when pulled up, and stacked away snugly in an odd corner for another year. If they cannot be preserved they at least can be turned to account for fuel for the kitchen fire.

TURNIPS.—This is such a delicious and justly favourite vegetable that a small patch should be reserved for a crop. Sow if possible when rain is imminent, and sow thinly, so that the plants can come away quickly when they appear through the soil. For a good white Turnip nothing can surpass Beck's Improved Early Six-weeks, as it is of fine shape, medium size, has but a small tail, and comes in rapidly. There is a strong prejudice against yellow-fleshed Turnips, but they are much to be preferred in point of flavour. For our own eating we sow Beck's Golden Stone, which is of as fine quality as any white-fleshed Turnip in cultivation, and of excellent flavour.

GREENHOUSE.—Some seeds of Primulas, Calceolarias, and Cinerarias should now be sown, so as to have strong sturdy plants to keep through the winter, as well as for early flowering. These seeds can be raised with great ease, and the exercise of a little care. Pans made of common clay, as are pots, with holes in the bottom for drainage, can be used for the purpose. At the bottom of each place a layer of broken crocks, so as to come just above the holes for drainage, and over the crocks place a thin layer of decayed turf or moss. Then add a layer of rough soil, and fill up with fine soil made of sand, leaf-mould, and loam, all finely sifted. Gently press the surface till level, and then scatter the seed thinly over it, and add a slight covering of soil. Give a very slight sprinkle, put the pans on a shelf in the greenhouse, place a piece of glass over each, and lay a newspaper over the whole for shade. There is no difficulty at all in raising these seeds in this way. Cineraria seed especially is easily raised at this time of the year, and if scattered over the soil at the bottom of a cold frame, will grow as readily as under the greatest care. When the seedlings are large enough, they may be pricked off into other pans or pots, or shallow wooden boxes, and grown on till large enough to pot off singly in pots.

ROSES.—Despite the frequent and heavy rains, the leading shoots of these are becoming much affected with the greenfly. It is surprising how rapidly these creatures accumulate, and what a paralysing influence they exert on the growth. One simple plan is to brush them off with a rather stiff camel's-hair brush, and send them flying off into space, but they are not necessarily destroyed; and who knows but what, avenger-like, they may infest other growths, and cause interminable anxieties. We always keep by us that true friend to the Villa gardener—a bottle of Fowler's Insecticide. We mix a little of it, according to the directions set forth, and then by gently bending over the shoots, insert them in the mixture. Death—instant and complete—is the result, and if the shoots again become infested, it is by means of a new army of invaders.

We have mulched our Roses—nearly all dwarfs on the seedling Briar—with some good generous manure, and some grand flowers are resulting. The beautiful white Madame Lacharme, Etienne Levet, Louis Van Houtte, Madlle. Eugènie Verdier, one of the most beautiful of the new Roses, of a pale colour; La France, Marie Baumann, Richard Wallace, President Thiers, François Michelon, and others, are all remarkably fine, and we hope to shine at our local show presently. Our experience goes strongly in this direction—that for Roses in general, and weakly growers in particular, the seedling Briar proves an excellent stock. The difference between the same variety worked on the ordinary Briar stocks, as half standards, and on the seedling Briar as dwarfs, is something astonishing. But our experience may yet be partial, and not general.

Forestry.

THE forester's attention should now be closely directed to clearing away superfluous growths, and relieving all young plants of Whins, Brambles, Broom, and rank rough herbage of every kind. Not that either Whins, Broom, or Heath grow more rapidly or produce longer annual shoots than Larch, Spruce, or most descriptions of hard-wood trees do after they are fairly established and attain to full vigour of growth, which they usually do after the third or fourth year; but as those plants most noxious to forest trees are generally indigenous to the soil in which they are found growing, and, moreover, have their roots long and well-established in the ground, therefore, although closely cut over, burnt, or even grubbed previous to planting, they will spring up fresh and vigorous, and unless closely kept down by cutting, will soon check and destroy the young forest trees, or, at least, so far injure them as to render the crop ever afterwards sickly and profitless. To enable the young forest trees to develope every member in due proportion is a branch of forestry of first importance, and when it is borne in remembrance that the spread and development of the roots depends almost entirely upon the health and vigour of the lower side branches, the clearing away and relieving them of everything that would in any way obstruct their growth is a work the importance of which cannot well be over-estimated. It is not enough, as some erroneously suppose, that the top leader of the plant should be kept clear and open, for unless the lateral branches have equal freedom, the plant will not grow well for any considerable length of time. Indeed, if the side branches are unduly confined, or in any way injured so as to deprive them of proper vigour, the top shoots very soon experience the baneful effects. Spruce trees four years planted, if properly clothed with branches, frequently make annual top-growths of from 20 to 30 inches in length; and the same trees, if deprived of their side branches, will, the second or third season after being so deprived, make shoots of less than one third the above, increasing or diminishing according as the lateral branches regain or lose strength. Some years ago I made some interesting experiments upon Pine and Fir trees, with a view of discovering how much and how far the top growth was influenced by the side branches being deprived of vitality, and carried them so far at least as to leave no doubt as to the vital importance of the lateral branches in the economy both of top and root growth. The side branches, specially those near the ground, elaborate the sap that supplies and nourishes the roots, and the roots have no other legitimate and proper means of receiving supplies; hence the necessity of preserving in as perfect a manner as possible every branch, twig, and leaf upon the lower part of the stem of the plant. The necessity and importance of preserving the lower side branches of young forest trees is here chiefly enjoined upon foresters, but as no small amount of injury is sometimes inflicted before the plants come

under the forester's care, it is equally incumbent upon nurserymen to grow them in such a way as to preserve all the lower branchlets. The life of a plant often depends upon a single bud; if properly protected and cared for, the plant lives, grows, and becomes a magnificent tree, but if neglected and unfavourably treated, it yields to the unfavourable influences and dies. Whins, of all other vegetable productions, are the forester's greatest annoyance. They are difficult and expensive to grub and root out of the ground preparatory to planting it. They grow rapidly again, both from the root and seed, which lies long in the ground after being cut over or burnt down. Whins produce a twofold evil—namely, they check the plant and exhaust the soil by depriving it of those mysterious elements termed plant food. Beech and Sycamore do better amongst Whins than most other forest trees do, and possess this additional advantage—that they are easily discernible when cutting the Whins, for there is always a risk of cutting some of the trees in cutting the Whins to relieve them.

Some of the most luxuriant grasses also require to be cut, for although they may not, like the Whin or Furze, absorb the food of the plants, they at least injure them by confining the side growth. This is the best season of the year for relieving overgrown plants, both because it admits light and air in time to benefit the plants for the present season. The plants are still easily seen; at least, the herbage is not yet so rank as it will be a month hence, and, if cut now, will not require to be cut again this season. The instrument I prefer for clearing young trees is a sharp handbill, such as the woodcutters use in the South of England and elsewhere. It is light and easy work, therefore suitable for women, boys, and even girls, who, under the superintendence of a careful, steady man, do the work most cheaply, and sufficiently well for all practical purposes. *C. Y. Michie.*

Apiary.

FIRST SWARMS.—In your impression of the 19th ult., under the heading "Apiary," there are some remarks upon swarms, addressed to beginners in bee-keeping, which will, I think, convey to them an erroneous impression as to the time of day of the departure of first swarms. Your contributor says that he has never known a first swarm rise later than 12 A.M. My experience of twenty years as a bee-keeper near London is quite opposed to that of your contributor. I have frequently had a first swarm in the afternoon, and this season, on May 12, I had one at 2.10 P.M. The following authorities confirm my view, and give the usual hours for swarms, thus:—Bevan, 10 to 3 o'clock; Neighbour, 10 to 3; Taylor, 10 to 2 or 3; Langstroth, 10 to 2; Mons. Hamet (*Cours Pratique d' Apiculture*), 9 or 10 to 4. In none of these authors is there the slightest hint that the hours named do not fully apply to first swarms. *T. P. W.*

Notices of Books.

A Book for Beekeepers. By Alfred Rushbridge. Allen: Ave Maria Lane, E.C., 1875.

This is but a small volume, though written by an enthusiastic apiarian. He evidently thinks he has something worth communicating to his cottage friends, for whom the book is written, and he says it in a manner both pleasant and instructive. We can honestly advise our readers to purchase the book, if they wish to learn something new. The cottage bee-keeper would doubtless have liked it much better with a few illustrations, as it is next to impossible to convey the needful information on many practical points connected with apiculture, such as hive making or drone traps, without a few woodcuts. We wish Mr. R. every success in his wishes to extend bee-keeping amongst cottagers, who he states are treading in the steps of their forefathers, for they care only to keep about three hives, and think this is enough, but our author believes they may with a little more trouble easily make their rents by bee-keeping. He gains an average of 30*s.* per year with his colonies; this is a fair average, and not we believe exaggerated, for we have cleared as much as 40*s.* per hive in exceptionally good years, and seldom, we find, upon consulting our diary, less than 27*s.* each season by our stocks.

Many enthusiastic apiarians in the present day, like Mr. Rushbridge, seem to be puzzled to account for the fact that cottage bee-keepers never have more than from three to five hives; if they have kept bees for twenty years, they never seem to increase in the number of stocks: this is solely because they destroy their surplus, or best stocks every autumn, on the brimstone pit. If they succeed in retaining, say three swarms, then they select three hives for destruction in September; it is quite true as the author states—they follow strictly, if not conscientiously, in the steps of their forefathers, for what they judged to be right must be so, therefore the poor things are doomed to a fearful death.

This is the first book published in this country in which we are advised to use the "honey extractor." On the Continent the bee-keepers are far in advance in many things of our own; we are now, however, thanks to the late exhibition, taking a far higher position than we have held for many years. Why do we waste so much honey? Because it takes nearly 20 lb. of pure honey to make 1 lb. of wax. By the use of the extractor we turn our knowledge to an advantage. Mr. Rushbridge follows the veteran, Mr. Cotton, in advocating the humane management of our stocks; the reeking brimstone match is too cruel to be adopted by any except those who know no better method, and these are now fast becoming comparatively speaking few. We extract the following from p. 58, which will tend to convince the cottager it is to his interest to save his condemned stocks:—"Towards the end of October last a neighbouring apiarian, a staunch adherent of the old 'smotheration school,' gave me the offer of his bees, if I would remove them from the hives, which, to save the live of the poor bees, I at once accepted. Being thus late in the season, I put them into two boxes, each furnished with two feeding-holes on the top, keeping them well supplied *ad lib.* with food. In less than three weeks both were nearly filled with comb and syrup sealed over. These now constitute two of my strongest stocks. If the summer be favourable, it is very evident there will be from 40 lb. to 60 lb. or more in weight of honey in the supers. The cost of the food was under 30*s.*, so that in all probability there will be a large margin of profit accruing from the transaction."

We say to our bee friends, buy the book; we are sure they will be pleased with their purchase, and we shall be surprised if the enthusiasm (to use a common or local phrase) is not catching.

—— We have received the first part of the *Transactions of the Massachusetts Horticultural Society for* 1875, and we note among its contents several articles of considerable interest, including an article on the culture of the Azalea, with special reference to the production of new varieties, by Colonel Wilder; one on the Hardiness of Strawberries, by Mr. B. Smith; on Shade Trees in Towns, by Mr. J. G. Barker. In this article the writer specially recommends Elms, Maples, and Tulip trees for the purpose. Mr. Gray has a paper on the Culture of the Pelargonium, Mr. John Robinson one on the Cryptogamia in Cultivation, Mr. J. B. Moore one on Native Seedling Fruits, Mr. Rand on Parlour Plants, Mr. Hovey on Sports, Mr. Cartwright on Orchids for Greenhouse Culture. These papers naturally vary in extent of knowledge and the information they convey, but they are all good samples of what a horticultural society should do in this way, and the discussions are specially useful as affording an opportunity to many a man who has no leisure or inclination to write an elaborate paper to communicate his experiences. Would that such discussions were more frequent among ourselves.

—— The June number of the *Revue de l' Horticulture Belge* contains a coloured plate of Spiræa palmata, articles on the watering of plants grown in living-rooms, on the cultivation of Fuchsias, Pampas-grass, &c., a notice of the fine conservatory of Count Kerchove at Ghent, &c.

—— The April number of the *Gartenflora*, the last which has reached us, contains coloured figures of Streptocarpus Saundersii, Oncidium cheirophorum, and Tulipa sylvestris var. tricolor. An uncoloured lithograph is also given of Musa Ensete, as planted out at Vienna.

—— The seventh edition, greatly revised and enlarged, of *Ure's Dictionary of Arts, Manufactures, and Mines*, has just been issued in three volumes by Messrs. Longman & Co. This new edition of a standard work has been supervised by Mr. Robert Hunt and Mr. Rudler, assisted by numerous contributors. So useful and well tried a work needs no further commendation than the statement that, so far as we have been able to judge by incidental reference, it is more than ever worthy the confidence of the public.

—— A second edition of Dr. Atkinson's translation of *Ganot's Natural Philosophy* has been issued by Messrs. Longman. It is an exceedingly useful book for colleges and the higher schools.

—— The July number of the *Villa Gardener* opens with an imaginative article, *à propos* of the season, by Flora Many Eyes, to which follows an article on the garden of the future by Mr. INGRAM, whose motto seems to be *Ars celare artem.* Various other articles follow, which show that under new editorship the tone of the magazine is perceptibly raised.

—— In a discussion on the Phylloxera and the means of destroying it, reported in the *Annales de la Société d' Horticulture de l' Herault*, a certain Mr. Doumet says that Dr. Picot had observed that a few Vines which had not been pruned were not injured by the Phylloxera; but he did not consider that if there was no pruning there would be no Phylloxera. With regard to submerging the vineyards, it appears that although effectual in destroying the insect it induces a too vigorous growth and small crops of fruit. A mixture of sulphide of calcium 1½), sulphate of lime (4½), and brimstone (4 to 5) parts), was very efficacious.

—— The *Gardener* for June opens well, with a most suggestive paper on the propriety of shading or not under varied circumstances. This is followed by an equally good practical paper on the time to thin Peaches, a clever article on gardening fashions, and various other papers quite up to the average of this most useful periodical.

—— The numbers of the *Illustration Horticole* for March and April (English edition) contain coloured plates of × Sericobonia ignea, known in English gardens as × Libonia Penrhosiana—a name that has priority, though we regret that the name Sericobonia, as indicative of the hybrid origin between Libonia and Sericographis cannot be retained. Masdevallia polysticta is one of the less showy but interesting species. Vriesia sanguinolenta is a pretty species, with purple spotted leaves. V. guttata is similar but less attractive. × Codiæum (Croton) Andreanum is a hybrid between C. maximum and C. Veitchii. Its oblanceolate leaves are deep green, with the venation picked out with orange. Azalea Bettina della Valle is a double-flowered variety with white blossoms striped with pink. Trithrinax brasiliensis is a handsome Fan Palm from Brazil.

Natural History.

WASPS.—It is to be hoped that Mr. Grieve (p. 786, vol. i.) has not been victimised like my predecessor here, the late Mr. Mearns, in paying for wasps that had been killed in the autumn of the preceding year, and preserved in bottles of gin. Mr. Mearns had been giving 6*d.* a piece for all the queen wasps taken in April and May, but one year there was such an extraordinary increase that he had to reduce his tariff to 1*d.*, and then the supply fell off. The way in which this dodge was managed was to select some of the largest wasps from the nests in the autumn, and mix them when taken from the gin with the female wasps taken in the spring, when they were not so easily detected amongst the others. Although there are more female wasps about this spring than usual, 2566 dead bodies of them seem to be an immense number taken at one place after the severity of the late winter. We give 6*d.* here for each wasp nest taken in the summer months, but the nests must be taken by the finders, and brought to show that their inmates were properly destroyed either by wet gunpowder or by coal tar poured in the holes of the nests. *William Tillery.*

—— We have seen very few of these pests this year, which may be accounted for in this way:—My employer (the Earl of Radnor) has for many years back paid 1*s.* per nest for wasps, and 2*s.* per nest for hornets,—the queen, in each case, being invariably produced with the nests. It is a kind of harvest for the men: "the wasping season be." Upon referring to the books, we find that the sum of £506 2*s.* has been paid for the destruction of wasps and hornets within the last twelve years, being on an average £42 3*s.* 6*d.* per year. It is to be regretted that gentlemen whose estates are adjoining the noble Earl's do not do likewise. *H. W. Ward, Longford Castle Gardens, June* 28.

THE CINNABAR MOTH.—Amongst many insects more or less injurious to the garden one now and then occurs differing from its companions in being as beneficial as they are hurtful, but which, nevertheless, frequently receives the same treatment. The ladybird in its larval state is an especial sufferer; the yellow silky cocoons containing Ichneumon larvæ, which are particularly worth preservation as in some degree diminishing the numbers of the cabbage butterflies, are another point of attack; and just now the Cinnabar moth, Euchelia Jacobæa, deserves a word in its favour. In general appearance it much resembles the Burnet moth, but is rather larger, and distinguishable by its ashy grey upper wings, with a rosy crimson streak at the front edge, another along the inner margin, and two spots at the extremity, of the same colour, the under wings being also rosy crimson with a grey edge. Its stated food is the Ragwort, the Senecio Jacobæa, but it also greatly frequents the smaller Senecio, the common Groundsel, too often met with in neglected gardens; and at present the female may be found laying patches of round yellow eggs on the leaves in orderly rows, so as to economise all the space, and in due time the larvæ, which are of a full orange colour with black rings, will probably make their appearance in large numbers on the plants, their only chance of escape (from their conspicuous colouring) often lying in the probability of the weeds and insects being left unnoticed together. In some degree, where more powerful applications are wanting, the Euchelia plays a useful part, and may fairly beg to be left to work unmolested. *O.*

HORTICULTURAL EXHIBITIONS, 1875.

JULY.

14.—Royal Botanic Society, Regent's Park. Evening Fête. Sec., W. Sowerby.
14.—Woodford Horticultural Society's Third Annual Exhibition Hon. Sec., S. J. Taylor, Woodford.
14.—Loughborough Horticultural Society's Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.
14.—Croydon Horticultural Society's Exhibition. Sec., H. Coppin, Rose Nursery, Shirley.
14.—Exhibition of Flowers, Fruits, Vegetables, and Poultry at Oundle. Sec., Alfred King.
14 and 15.—Wimbledon and District Horticultural and Cottage Garden Society's Annual Exhibition. Hon. Sec., P. Appleby, 5, Linden Cottages, Wimbledon.
15.—Colchester and East Essex Horticultural Society's Show. Sec., W. Harrison, Colchester.
16 and 17.—Altrincham and Bowdon United Floral, Horticultural, and Rose Society's Exhibition. Sec., John Hams.
21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Zonal Pelargonium Show.
23 and 24.—Helensburgh and West of Scotland Rosarians' Society's Exhibition. Sec., W. Ure Waddell.
28 and 29.—Preston Floral and Horticultural Society's Exhibition. Hon. Sec., W. Troughton, 4, Church St., Preston.

THE

Gardeners' Chronicle.

SATURDAY, JULY 3, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	July 5	Meeting of the Entomological Society, at 7 P.M.
TUESDAY,	July 6	Grantham and South Lincolnshire Horticultural Society's Show at Grantham (two days). Brentwood Horticultural Society's Summer Exhibition (two days). Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	July 7	Royal Horticultural Society: Meeting of the Fruit, Floral, and Scientific Committees. Cut Rose Show. Leicester Floral and Horticultural Society's Show (two days). Brighton and Sussex Horticultural Society's Exhibition (two days).
THURSDAY,	July 8	Richmond Horticultural Society's First Show. Frome Rose Show. Manchester Botanical and Horticultural Society's Evening Fête and Exhibition of Roses, &c. (two days). Nottingham and Midland Counties Rose at Nottingham (three days). Sale of Orchids, at Stevens' Rose Show.
FRIDAY,	July 9	Oxford Rose Show.

ONE principal object of INTERNATIONAL HORTICULTURAL EXHIBITIONS—of such, that is, that deserve the name—is to afford an opportunity for each country to display its own special excellencies in the way of plant growing. At the same time the comparison thus afforded enables each to discover its weak points and the means of strengthening them. While, for instance, in specimen plants of Cycads, Palms, Tree Ferns, and such-like, our Continental neighbours, as a rule, excel us, there are certain classes in which the skill of our own gardeners is pre-eminent. This is especially the case with such things as pot Roses, Orchids, and specimen stove and greenhouse plants generally. Naturally, it is such plants that our foreign friends would like to see at their international exhibitions, such as that at Cologne in the coming autumn or at Brussels next spring. We do not overlook that there are considerable difficulties in the way of effecting this. The class of plants of which we speak are, with some exceptions, the property of amateurs rather than of nurserymen. Amateurs do not look for the ultimate pecuniary rewards which render these displays good advertisements for the plant merchant; they dislike the expense of sending plants across the water, they dread—somewhat unnecessarily—the risk of injury to their plants, they are suspicious that they will not have fair play shown to them, often they find the language an obstacle, and in various ways they are apt to manifest a John Bullish tendency to underrate anything foreign. There are some, however, who rise above such considerations, who have a patriotic pride in seeing their country well represented, and who place the interests of their favourite pursuit above purely selfish inclinations. Some there are who do not shrink from any personal trouble and inconvenience, as, for instance, Mr. WARNER, who at Brussels, and even at far-off St. Petersburg, showed the foreigners how Orchids are grown in England. What a loss it was when at Florence last year Orchids were represented by some half a dozen specimens, some with not even a single bloom on them! Dr. MOORE, of Glasnevin, we may add, contrived on that occasion to convey a living plant of Ouvirandra fenestralis, in addition to other plants, from Glasnevin to Florence—a feat for which he was appropriately rewarded with a medal. Let us hope, therefore, that others will be found sufficiently jealous of the honour of their country to put in an appearance at Cologne, and more particularly in the spring of the next year at Brussels. Belgian hospitality and cordiality have become proverbial. It is not once or twice that Englishmen have been received with effusion in Belgium, but it has become a custom. Common gratitude demands that we should recognise this friendly spirit, and reciprocate it as best we can.

It will be remembered that the London International of 1866 had its origin in the sense that some public recognition was called for on our parts of the hospitality shown us by our Belgian and Dutch neighbours. Since then another debt has accumulated, and as there seems no chance of paying it by means of another International in this country, at least for some time to come, those who can do so should seize any opportunity that is open to them. *À propos* of this matter we learn from authentic sources that the Belgians propose to establish special classes for foreign exhibitors, either separately, or in competition with their own growers. The committee are anxious to know in what classes of subjects our exhibitors would wish to exhibit or compete. The committee are also specially desirous of inducing English exhibitors to show those fine specimen stove and greenhouse plants which form so striking a feature in our own shows, and which are almost entirely unknown on the Continent. With this object the committee will establish special prizes for the purpose, and will enter into relations with the Royal Horticultural Society to ascertain the classes in which English exhibitors may be expected to show. The committee will also gladly receive any suggestion that may be made. As it is, they are inclined to offer prizes of double value (*prix doubles*) to amateurs and to nurserymen for collections of specimen stove and greenhouse plants, such as Ericas, Epacris, Roses, Azaleas, Nepenthes, Sarracenias, Orchids, &c. The object is to secure excellence in quality rather than quantity.

British exhibitors are reminded that the distance from London to Brussels is less than to Dublin, Belfast, Glasgow, or Edinburgh. Moreover—and this is a point to which we beg to draw special attention—the Royal Society of Flora, under whose auspices the forthcoming show is to be held, undertakes all expenses of transport going and returning by Belgian steamers and railways. This is a splendid offer, such as we might wait in vain either for our Government or our railway companies to make, but it is one which plucky little Belgium does not shrink from.

We presume the Royal Horticultural Society will shortly receive official communications, and will then take steps to organise a committee for the purpose of carrying out the wishes of our Belgian friends, and of maintaining our national *prestige* as horticulturists. In the meanwhile we commend the subject to the attention of exhibitors, and shall be glad to receive suggestions on the subject.

THE new POTATO DISEASE, to which Mr. BERKELEY called attention at the last meeting of the Royal Horticultural Society, will probably excite some alarm; but the facts, so far as they are at present known to us, hardly justify—if anything does so—panic. At Chiswick it is some of the American varieties, and not all, that are affected. Again, while the disease is very serious, it does not destroy whole rows at a time. At Chiswick may be seen half-a-dozen plants killed, and then a dozen perfectly healthy plants, then a few more diseased ones, and so on. Some of the plants are throwing out new roots, and seem in a fair way to recover. In most cases, the formation of tubers is totally arrested, but, in other cases, the tubers are formed, and we have before us some tubers perfectly sound, and as large as a medium-sized Apple, which we took from a haulm that was withered and flaccid. It appears to us that the roots and the underground portion of the haulm were the first to become affected, the cellular cortical portions being the first to show signs of decay; if severely so, then, of course, no tubers are formed, but if partially so, then tubers may be formed. The leaves seem to be affected subsequently to the underground portions; they become spotted with brown spots, the colour of which is deeper on the upper surface, and by-and-by the whole leaf withers and dries up: the lower leaves are first affected, the tops remaining green after the lower ones are dead. Microscopical examination has revealed to us nothing but the brown coloured tissue and brown masses, consisting probably of altered protoplasm. We have not been able to detect either fungus or insect, but on these points we should advise our readers to await Mr. BERKELEY'S more complete examination, as his large experience and vast stores of knowledge give to his opinion a weight greater than that of any other person. We may in the interim refer our readers to his note on p. 16. Meanwhile, it would be well to uproot and destroy all the affected plants, and in that sense to endeavour to stamp the disease out. A careful watch should be instituted to see if the disease shows a tendency to spread to plants that are now healthy. If it does, of course the most vigorous measures must be taken to destroy the infected plants, and even the adjacent healthy ones. There are many points, however, upon which further information is required, and Potato growers will await with impatience the reports of Mr. BERKELEY and Mr. BARRON. Specially do we hope that the latter may be able to tell us of the mode of origin and progress of the disease—give us, in fact, the history of the disease in its early stages. We may also caution our readers against the tendency to confound distinct diseases, one with the other, as there seems to be already a tendency to do.

THE obstructive action of the quaternion of councillors of the ROYAL HORTICULTURAL SOCIETY, who, having acknowledged the failure of all their own efforts to bring about a better state of the Society's affairs, and their intention to make way for others to try their hand, now refuse, as we intimated last week, to complete their resignation, has induced some Fellows of the Society to take steps for summoning a general meeting, with the object of taking such vacillating conduct into consideration, and to try whether a little moral pressure may have the effect of showing them the path of honour. Since it is quite clear that the Royal Commissioners will have no dealings with Lord BURY and his party, it becomes of vital importance to the Society that the gratuitous pledges made by them to the last general meeting should be fulfilled. We trust, therefore, that every Fellow who has the welfare of the Society at heart may be in his place on the 8th inst., the day fixed for the general meeting, in order by his presence and his vote to give his opinion on the obstructive obstinacy which has necessitated the summoning of this meeting. It may be added that

FIG. 2.—FALLS OF TECHUNDAMA, EASTERN ANDES, SOUTH AMERICA.

the resignation must be made to the Council and not to a general meeting.

—— THE following requisition, signed by more than twelve Fellows of the ROYAL HORTICULTURAL SOCIETY, having been presented to the Council, in accordance with the bye-laws, a special general meeting has been called for Thursday, July 8, at 3 o'clock P.M., in the Council-room of the Society at South Kensington :—"We, the undersigned Fellows of the Royal Horticultural Society respectfully request the Council of the said Society to summon a general meeting of the Fellows with as little delay as possible to consider the conduct of Lord BURY, Sir COUTTS LINDSAY, and Messrs. BONAMY DOBREE and BURNLEY HUME in reference to the non-completion of their resignations and other matters that it may be deemed necessary to introduce to the notice of the meeting under the head of acts and doings of the above-mentioned gentlemen during and in connection with their membership of the Council, and also for the purpose of conferring with the Council as to the steps that should be taken to extricate the Society from the difficulties under which it is placed from the obstructive position assumed by Lord BURY, Sir COUTTS LINDSAY, and Messrs. BONAMY DOBREE and BURNLEY HUME in the non-completion of their resignations."

—— We are requested to publish the following announcement relating to the CARTER CHALLENGE CUP, to be competed for on July 7 at the Royal Horticultural Society :—As some doubts have been expressed relative to the difficulty gardeners in the more northern parts of the kingdom will have in producing Carter's Champion Runner Bean at this early season, Messrs. CARTER, in order to make the competition as great and as general as possible, have kindly consented to make its production optional on the part of the exhibitor, as well as that of the Fern-leaved Parsley. The schedule is therefore thus revised :—"Scarlet Runner Beans, optional; any good variety of Parsley; eighteen pods of Beans in all cases."

—— EURYANGIUM SUMBUL KAUFFMANN, a very important plant, is flowering in the herbaceous ground of the Royal Gardens, Kew, for the first time in this country. It yields the drug "Radix Sumbul," introduced to Russia as a substitute for Musk about the year 1835, and then recommended as a remedy for cholera. It became known in Germany in 1840, and ten years later in England. It was admitted into the British Pharmacopœia in 1867, and is now prescribed, in the tincture form, as a stimulating tonic. It is said to be a nervine stimulant, like Valerian, and to possess antispasmodic properties. Further than the above its history has not been found traceable by the authors of the *Pharmacographia*. "The plant was discovered in 1869 by a Russian traveller, FEDSCHENKO, in the mountains of Maghian, near Pianjakent, a small Russian town eastward of Samarkand. The root, as found in commerce, consists of transverse slices, 1 to 2 inches, rarely as much as 5 inches in diameter, and an inch or more in thickness; the bristly crown and tapering lower portions often no thicker than a quill, are also met with. This specimen is nearly 8½ feet in height. The root-stock is somewhat fusiform in shape, about 3½ inches in diameter at the top, where it is thinly covered with the persistent fibres of the old leaves. Those of the present year commenced to wither soon after the flower-stem became visible, and were quite dead when its full height was attained. They are supra-decompound, much as in some species of Ferula, especially F. campestris, to the leaf segments of which those of the Sumbul have a very close resemblance. The panicle is composed of about ten alternate spreading branches, the lowest about 5 feet from the apex. The umbels are on short stalks, with 10—13 umbellules. The stem on being wounded exudes a milky sap, which at first has the exact flavour of Angelica, afterwards leaving a bitter taste. The resin of the root does not fully develope its musky smell until after contact with water. It is hoped that seeds may be perfected, and a stock raised for distribution; therefore, the treatment accorded to this plant may be of interest. The root came to hand in a dry and dormant condition, was grown in a pot for the first season, and healthy leaves were produced, but which on the slightest check died away. About three years ago it was planted in its present position on a small hillock of stones, with plenty of good loamy soil, and there it has since flourished without intermission. During winter, the protection of a hand-glass has been given against rain—doubtless an important point of attention; it has also been covered loosely with leaves, though, as regards temperature, it is apparently quite hardy. A mulching of litter is beneficial during summer, and when the stem rises weak manure-water should be given. In a state of rest the roots may be safely sent to a distance, packed quite dry, as a bulb would be. They seem to have a very persistent vitality, and are without fleshy ramifications.

—— Some idea may be gained as to the effects of TROPICAL HURRICANES by a statement in Mr. HORNE'S report on the Royal Botanic Garden, Mauritius, elsewhere alluded to, to the effect that twenty extra labourers were occupied between six and eight weeks in clearing away the *débris* of broken branches and leaves, which covered the ground to a depth of 3 inches. Some interesting physiological results are noted in Mr. HORNE'S report (see p. 11), which correspond with those observed at Calcutta, and which were reported in our columns at the time (1865, p. 1177).

—— The *Times* of the 24th ult. contains a long but very interesting letter from an officer of H.M. ship CHALLENGER, giving a sketch of the work done in the southern seas, and especially on the coast of New Guinea and neighbouring islands, by the officers and scientific staff. Soundings were obtained in one place at a depth of five miles, and from that and other soundings it has been established as a fact that while the surface temperature of the sea may be between 70° and 80°, there exists at a great depth a layer of water 2 to 3 miles thick, with a temperature little above freezing. The nature of the sea bottom is also ascertained, showing in places the deposition of clay, in others of chalk, and so on. In one place the proximity of a great river was inferred (as it turned out correctly) by the quantity of drift-wood seen floating in, and among which Mr. MOSELY, the naturalist, collected some fifty species of seeds and seed vessels. A good illustration this of the manner in which plants may be dispersed. The account given of the natives of some of these islands is very interesting, and in some cases extremely repulsive. It appears that the hostility they show to the white men arises from the abominable cruelties and injuries inflicted on them by kidnapping scoundrels of European or American extraction. The natives, who are not troubled with tailors' bills, nevertheless wear wigs or chignons and coronals of scarlet Hibiscus flowers [H. rosa sinensis probably], or a single flower, above the middle of the forehead. They wear necklaces of shells and seeds, boars' tusks, and the black and scarlet peas of Abrus precatorius. A band of tappa cloth encircles the middle of the arm, and into this they stick towards the outside of the arm, and a little to the back, large bunches of the fresh green and white leaves of a very beautiful, narrow-leaved, variegated Croton. These bunches of leaves look like large epaulettes or wings, and, contrasted with the dark skin and the scarlet flowers, are most effective. All the natives were well armed with strong bows of a heavy dark wood, probably a Casuarina, strung with a rattan, and arrows of cane 5 feet or 6 feet long, with long heads of hard wood viciously barbed for a foot or a foot and a-half from the point. In almost every canoe there were two or three very carefully prepared stone hatchets of different patterns, mounted on hardwood handles. The hatchet-heads closely resemble those found in Denmark and Iceland. They are made of a hard, close-gained, green stone, which takes nearly as high a polish as jade. The canoes are very narrow, scarcely wide enough to let in the legs of a burly European. As usual, the rowers sit in the canoe; the outrigger is about 5 feet off, and a square raised platform between is occupied by the passengers and cargo. Some of these interesting savages have, it appears, solved the problem of how to dispose of the dead bodies of the friends. They have no fear of intramural cemeteries, nor do they trouble themselves about cremation of the dead, as may be seen from the following extracts :—"They are very effective pantomimists, and when we inquired what became of the bodies, they made the most unequivocal signs that they cut them in pieces, boiled them, and ate them!" "On one occasion one of the officers, trying to find out about their mode of disposal of the dead, after a very effective pantomime of cutting up the body and cooking and eating it, was shown a lot of human bones in a pot. Once when several of the natives were on board they were repeatedly asked by signs if they would eat us, or if they would eat one another, and they indicated that they would do either with the greatest satisfaction; but when asked if they would eat a dog which happened to pass at the time, they expressed strong aversion. It is singular that they are totally ignorant of the use of tobacco and spirits."

—— Baron MUELLER has construed our note at p. 238-9, vol. i., on the inconvenience of applying the same specific names to different species without publishing the reasons for the change, into a personal attack on himself. Nothing was further from our thoughts, for we are well aware of, and have gladly drawn attention to, his labours in the cause of science, and fully appreciate the results. The presence of an energetic and accomplished botanist, such as Baron MUELLER, in Australia, in the early days of colonisation, saved, doubtless, many local species to science, and the distant explorations undertaken by him, or at his instigation, have been the means of making the botany of Australia better known than that of any other part of the globe of equal extent, except Europe. His experiments on useful plants are worthy of all recognition. We regret, therefore, that he should have regarded our remarks in a light different from their intended bearings, and hasten to disclaim any wish or intention to depreciate his invaluable contributions to the botany of Australia. Indeed, so long as systematic botany is studied, so long will the name of FERDINAND MUELLER maintain a prominent and honourable position as the most copious contributor to, and earnest promoter of, the study of the vegetable productions of his adopted country; and we do not doubt that future generations of Australians will more fully appreciate the value of his services than the present. We simply pointed out a case in which we think that a certain name ought to have been quoted in the *Flora Australiensis*. Perhaps the way in which we expressed the fact that Baron MUELLER rarely sends out specimens or seeds of plants without provisional names is liable to the construction he has put upon it. Our meaning was that he has been in the habit of giving names to new species, or what he believed to be such, and in cases where these names have for some reason been discarded, they are not quoted. This is done, doubtless, with the laudable intention of reducing the synonymy. Baron MUELLER'S views, like those of most naturalists, regarding the limits of species, have undergone a great change since he first began publishing, and the desire to suppress all names that have not actually been published does not deserve severe censure, even if the practice cause some inconvenience. The sentence, "Of this we might adduce numerous instances," refers to the preceding clause—"a plant once thoroughly known under a certain name by gardeners, retains it to the end." We believe, however, that we are right in stating that Baron MUELLER rarely sends out specimens without names, and those given to imperfectly known or new species must of necessity be provisional pending their publication. As might be expected, some of them are afterwards rejected, but which it is not so easy to ascertain, if they are not quoted. And when the same name is subsequently taken up for a really new species, it is confusing to those unacquainted with the nature of the change. Nevertheless, we regret that Baron MUELLER has regarded our strictures in the light of a personal attack, though we feel sure that no one else would take that view of the matter.

—— We learn that a dinner will be held at the HORTICULTURAL CLUB, 3, Adelphi Terrace, Strand, on Wednesday next, July 7, at 6 P.M. Members desirous of being present are requested to notify their intention to the Honorary Secretary, Rev. H. H. DOMBRAIN, at the above address, on or before Tuesday next. Members have the privilege of introducing visitors. Among those recently elected are Sir William Marriott, Bart., Messrs. Tyerman, Bruce Findlay, Colonel Puckle, J. E. Buchan, Wentworth Buller, P. Crowley, R. Warner, &c.; and among those who will be balloted for at the next meeting are :—Dr. Bennet, Mentone; Professor Thiselton Dyer, Assistant Director, Royal Gardens, Kew; J. T. McCullum, Glasgow; William Marshall, Enfield; Dixon Beverley, Burnaby Atkins, Sevenoaks; and others.

—— With reference to the NEW POTATO DISEASE we have received the following from Mr. BERKELEY :—"This seems a good opportunity of saying a few words respecting the disease in Potatos, which is now attracting attention, and which seems to be confined principally, if not entirely, to the new American varieties. The disease occurred here in the Early Vermont last year, but did not attract especial notice, as it was supposed to depend upon some peculiar climatic conditions, and the same variety is similarly affected now. The Early Rose within four days had flourished wonderfully, and was producing good-sized tubers,* but the condition is now entirely altered, the rapidity and degree of disease depending on the comparatively decomposed set. Where the set has become deliquescent, spots first appear at the base of the haulm; discoloured and cracking, the haulm at once decays, as the peculiar spots appear on the leaves; where the set is still comparatively healthy, no spots appear on the base of the stems, but the diseased condition is strongly visible on the leaves. I have carefully examined the leaf-spots, and though occasionally I find one or two bodies which I can refer to nothing save Protomyces, they are so inconstant that they cannot at present be asserted to be the cause, or justify one in saying that the disease is likely to be propagated by spores. Under the imperfect state of our knowledge on the subject, it would be better not to form too hasty a judgment, for it may be constitutional, but, unfortunately, constitutional diseases may sometimes be capable of diffusion. The point of interest for the present is to ascertain whether the malady occurs at all in the old varieties, and, if so, whether there is evidence to show that it has occurred

* Some of these are in an advanced state of decomposition, and after forty-eight hours the parts which seemed sound are covered with fungus.

in the neighbourhood of American diseased plants. It would be desirable also, if possible, to ascertain whether it differs from the 'curl,' which seems to be unknown to the existing generation. The greatest accuracy is requisite in such inquiries, and above all an absence of prejudice. As I was disposed in the first instance to presume from an examination of specimens received from Mr. ANDREW MURRAY, that it might be owing to a fungus, I must now fairly state that my presumption has not at present been sufficiently confirmed, though any one who is acquainted with the early stages of epiphyllous Rhytismas might well be excused for suspecting the agency of some fungus, the dark shining spots from which the cuticle is thrown off being quite distinct from the surrounding withered tissue. *M. J. B.* P.S.—I had an opportunity this (Wednesday) morning of again examining the Potatos at Chiswick, in company with Dr. HOGG and Mr. BARRON. The only American variety which has at present escaped is the Alpha, the Snowflake being perhaps the most affected. In many cases where the tuber had been cut, though still probably sound, the disease was virulent, though the worst cases are undoubtedly those in which the tuber, whether whole or cut, has decayed. The most curious matter is that the disease is at present confined to American varieties raised from sets of English growth, the plants raised from tubers imported immediately from America being at present quite healthy. It seems almost certain that it is the same disease which was formerly prevalent in this country, especially in the North, where it was too well-known under the name of 'curl.' One singular point is that in some cases where the disease has commenced below there is an effort to make a new growth, one side of the stem alone being diseased."

—— We are informed that Mr. SMYTHE, late of the Gardens, Elmham Hall, has undertaken the charge of the gardens of WILLIAM NICHOLSON, Esq., Basing Park, Alton.

—— Referring to Mr. WHITEHEAD'S Potatos (p. 791), Mr. BERKELEY writes:—"I have carefully examined Mr. WHITEHEAD'S POTATOS (see *Gardeners' Chronicle*, p. 791), which was no pleasant task, as many of them, though dry externally, were in a high state of putrescence. I did not expect to find any Peronospora, as that genus grows on living tissues, which it decomposes, and is not the produce of decomposition. In all the cases in which it arises from tubers it is on the sound parts, so far as my observations go, and not on those which are already in a state of decay. I have, however, placed sections of the only three sound tubers under a bell-glass, and will report if the mould in question is developed on them. The tubers seem to have been affected with the disease recorded by MARTIUS in 1842, before the well-known Potato murrain appeared. The characteristic little cushions are now covered with Penicillium candidum, instead of the Fusisporium, and the bodies considered by him as a Protomyces, but which DE BARY considered more properly to be a mere diseased state of the protoplasm, are abundant. In the most highly diseased tubers I find those little pellucid bodies, consisting of almost infinitesimally minute granules endowed with Brownian motion, which so often, under various colours, accompany putrescent matter. This, also, I have placed under a propagating glass, together with a section in a less advanced state of decay."

—— We learn that Dr. HOGG has been appointed Secretary to the ROYAL HORTICULTURAL SOCIETY, and that Dr. DENNY has accepted a seat on the Council, in the room of WILLIAM LONGMAN, Esq. We heartily congratulate the horticulturists on these appointments, not only on horticultural grounds, but because we believe a horticultural Council will be more equitable to South Kensington interests (which, as things go, must be considered) than the South Kensington element has proved itself to horticulture.

—— The SEVILLE EARLY LONGPOD BEAN is well maintaining its high character at the Chiswick Gardens of the Royal Horticultural Society. Mr. BARRON considers it to be at least four days earlier than the Early Longpod—an important consideration with market gardeners; and the pods are long, broad, and very handsome. It has, moreover, an additional value as an exhibition variety for early shows. Without being a heavy, it is yet a profuse cropper, and the character of the foliage is quite distinct.

—— In the March number of the *Bulletin de la Société d'Acclimatation* M. ED. RENARD gives an account of a "NEW SPECIES OF BAMBOO, with a square stem." The paper was read before the Society, and specimens of the Bamboo in question, together with various manufactured articles, were exhibited at the same time. This Bamboo is highly remarkable in having a square stem, though the angles are not very sharp. M. RENARD says he met with it only in the beautiful plains surrounding the large town of Osaca, in Japan. During all the author's extensive travels in China and Japan he saw it nowhere else; but the Chinese merchants assured him that it existed in the remote provinces of Honan and Lechwen. It naturally forms a square stem, which is not, as some suppose, the result of artificial pressure. To convince the members of the Society of the truth of his statement he had a bundle of the stems placed in the entrance hall, and he invited each member to provide himself with one, on going out, for a walking-stick. He describes it as growing to the height of 30 to 40 feet, and differing from all other Bamboos in not having a polished surface to the stem. The latter is of a deep green colour, becoming paler with age, but never changing quite white. The nodes or joints are rather close together, and are furnished with small protuberances similar to those of some of the round-stemmed species so much admired for walking canes. The stems are invariably square, though angles are sometimes rounded, and very straight and slender; and the foliage is ample and umbrageous. Some sceptical people have doubted the veracity of M. RENARD'S description; but it does not appear so very improbable when we remember that angular stems are not uncommon in the neighbouring family of Cyperaceæ, in which we have nearly all the forms technically distinguished as triangular, triquetrous, trigonal, quadrangular, &c. In Japan it is chiefly cultivated for its ornamental appearance and for shelter against wind, and the stems are used as walking-sticks, the root part being fantastically carved. M. RENARD sent home plants of this curious species, but they arrived during the war with Germany, and the captain of the vessel caused them to be thrown overboard into the Garonne, because he could see no signs of life in them. At the same time he sent some plants of the giant Bamboo, used as a vegetable by the Japanese, which form succulent shoots a foot high, and as thick as the thigh, and is commonly sold in the market.

—— Dr. THWAITES informs us in his annual report that the CULTIVATION OF TEA is progressing most rapidly IN CEYLON. Extensive clearings of forest land have been made in different directions for forming plantations, even up to considerable elevations upon the hills. Planters are generally obtaining their seeds from India, but a good many plants and seeds of both Assam hybrid and China Tea have been distributed during the past year from the Ceylon gardens. The plantings of the Assam hybrid kind are being extended both at Hakgala and Pérádeniya, in order that good fresh seeds may be available for distribution to those not willing to incur the risk of getting so perishable a seed from India.

—— The extensive TRIAL OF ONIONS now being carried out by Mr. A. F. BARRON, at Chiswick, and which is of the most promising character, is already of interest as affording opportunities for comparison at the present stage of growth. Of all the early Silverskin types the new Queen Onion, as it is termed, appears to be the earliest, bulbing-in quickly, and making but little top. Next comes the Early White Nocera and the Early White Naples. Judging from some of the samples now growing at Chiswick, it appears to be difficult to get a sample of the Queen Onion without any mixture of the Early White Naples, unless it is to be assumed that some plants will grow stronger than the others, and be later under any circumstances. All selections have to undergo a certain probation of time to secure fixity of character, and some of the samples of the Queen Onion at Chiswick may be passing through this probationary stage. The London seed trade, especially, should actively interest itself in the trial of Onions being carried out by Mr. BARRON; as the conditions under which they are growing appear to be so favourable to drawing an approximately correct estimate of the value of certain selections of the same type. After all, the excellence of any particular type of Onion is a question of intelligent and painstaking selection; and it may be assumed the choicest selections have been sown at Chiswick.

—— The *Hants Independent* reports that the ROYAL ISLE OF WIGHT HORTICULTURAL SOCIETY is about to die a natural death. Judging by the fact that it schedules prizes to the value of 3*s.*, 2*s.*, and 1*s.*, we should think that so far from dying a natural death it was suffering from absolute starvation. The Royal island, the garden of England, ought to possess a horticultural society second to no provincial society in the kingdom, but it would seem that the horticultural patronage and enterprise there is frittered away in the maintenance of several societies where only one large and prosperous one ought to be found. Looking over the awards of prizes at the Isle of Wight Rose Society's exhibition held last week—a title, by-the-by, that is somewhat a misnomer, as there were only three small classes for Roses—we find that the whole of the prizes in some thirty or so of classes for plants, cut flowers, fruit, and vegetables, are taken by about half a dozen exhibitors, so that it is evident that whatever may be the Society's subscription list its exhibitors are exceedingly limited. Would it not be better to throw what flower show energy that may exist into one united effort to establish a society that should hold exhibitions worthy of horticulture and of the Royal island?

—— At this season of the year, when the Carnation and Picotee are rapidly developing their flowers, the following remarks on CROSSING THE CARNATION AND PICOTEE, with a view of obtaining improved varieties, may be acceptable as showing the mode adapted by that well-known raiser, Mr. E. S. DODWELL, formerly of Derby. Crossing to assist fertilisation is but a simple operation. The grower has merely to collect the pollen from one flower, and apply it delicately, with a light touch, to the stigma of the flower intended to bear seeds. The pollen, which has the appearance of small round balls of whitish-grey powder, will be found upon the stamens springing from around the ovary, or germ, of the seed-vessels in the interior of the flower, and may be generally found in a mature flower protruding from amongst the centre petals. Should it not be so disclosed it may be lying in the interstices between those petals, and a slight shifting of their natural arrangement will suffice to bring it into view. When detected the pollen may either be collected upon the point of a very fine camel's-hair pencil, or the stamen with the anther upon it may be removed with a fine pair of forceps, and the farina may thus be brought into gentle contact with the stigma, commencing at the points and passing downward over the fine hairy appendage with which it is provided. The stigma consists of two bold curved horns, which rise almost invariably in a mature flower above and immediately between the centre petals. Much stress is generally laid upon the necessity for covering the flower operated upon with muslin, or of taking other means of preventing the access of bees, flies, or other insects. Where the flower must be left unwatched this may be advisable, otherwise it is of no consequence whatever, as the result will assuredly confirm the success or non-success of the operation. If impregnation has resulted, the flower will collapse within from twenty-four to thirty hours (earlier in a flower past maturity, and later in one barely arrived at puberty), otherwise not. It is, however, of great importance to remove the stamens from the flowers intended to bear seed, as otherwise impregnation may naturally ensue where a cross had been intended or assumed, and the result of course will mislead. The time most suitable for performing this operation is from 10 A.M. to 4 P.M. on a bright sunny day; if cloudy and dull, impregnation rarely follows, the pollen at such a time being heavy and adhesive in its character, and has not the light dusty powderiness requisite for fertilisation. In all cases the crosses should be between flowers of the same class, that is, scarlet bizarre with scarlet bizarre, purple Picotee with purple Picotee; even when this rule is most sedulously observed, the sportiveness of these flowers is wonderful. In dull seasons the pollen will frequently refuse to ripen in the open air. In such cases the flower from which the pollen is desired may be plucked and placed in water in a greenhouse or the window of a sitting-room with a southern exposure. There it will speedily become fit for the use of the operator, and thus enable him to obtain seed in a season otherwise barren.

—— Messrs. RIVERS & SON, of Sawbridgeworth send us beautiful examples of the EARLY RIVERS and EARLY LYONS CHERRIES, two varieties of great merit on account of their earliness and high qnality. The Early Rivers is a seedling raised at Sawbridgeworth, a most abundant bearer, with large heart-shaped fruit of a dark colour, almost black, and with a dark red sweet flesh. The Early Lyons, or Rose Hâtive de Lyon, is a large fruit, scarcely so dark in colour, but of a deep glossy blackish mahogany, and of a grand appearance for exhibition purposes, as well as excellent in quality. They are worth a place in every garden where Cherries are prized.

—— Beekeepers should cultivate the golden-flowered Sedum acre for blooming at this season of the year. A long strip of it, now in the fullest bloom, can be seen at Chiswick, and the bees frequent it in large numbers, and are very busy at work drawing from the flowers their supplies of honey.

—— We have received from Mr. WILLISON, of Whitby, a flower of his CLEMATIS WILLISONI, which is a double-flowered variety of the type of Countess of Lovelace, but considerably paler in colour. It has large guard sepals, eight in number, resembling those of the ordinary single-flowered sorts, and in the centre is a tuft of shorter and smaller sepals replacing the stamens. These smaller sepals, which are somewhat spathulate in figure, with a short acuminate apex, become narrowed at the base into a claw, which is shorter in the lower and about half an inch long in the upper series, the tuft consisting of about five tiers of these petaloid organs. The colour of the guard sepals is a delicate mauve, deepening to a full mauve

at the base, as seen when the inner petal-like bodies are removed, these latter being of a delicate mauve-lilac or silver-grey, which is the tone of colour generally evident in the flower. This novelty, which Mr. WILLISON states is sometimes 8 to 10 inches over, and quite full, is intermediate in colour between the bluish Countess of Lovelace and the pale lavender-tinted Belle of Woking, and of the same type as the former, while the colour is near that of Lady Londesborough and Albert Victor.

—— A handsome new Banana, MUSA VELUTINA, is figured in REGEL'S *Gartenflora*. It resembles M. sanguinea, figured in the *Botanical Magazine*, but is not quite so brilliantly coloured, and it is said to differ in its velvety perianth. It is a native of the same country—Upper Assam—and was introduced by Mr. G. MANN, who also sent the M. sanguinea to Kew.

—— NEMOPHILA ATOMARIA OCULATA CŒRULEA, as now seen growing at Chiswick, is a very pretty form of this favourite annual, of a darker hue of blue than N. insignis. Here and there is a plant with paler flowers, but on the whole it keeps very true. N. maculata and N. insignis are very effective also, and should be cultivated by all lovers of annuals. Scarcely anything can be more effective than the large beds of Saponaria calabrica raised from seed sown at the end of last summer. They in all the flush of their fresh beauty remind one of pools of undulating liquid colour, and the growth is very dwarf, attributed to the seeds being sown in the previous year, and the plants exposed during the winter. There is also a large and singularly bright-looking patch of the vivid coloured and dwarf Leptosiphon rosaceus that needs the clear sunlight to fall on it and bring out its exquisite beauty. In another part of the garden Campanula Lowei, dwarf in growth and covered with purple flowers, is also very effective. All such illustrations greatly tend to enhance the interest at all times attaching to a visit to the Chiswick gardens of the Royal Horticultural Society.

—— M. LINDEN has COLLECTORS abroad in NEW CALEDONIA, the new Hebrides, the forests of Casiquiari, and the EQUATORIAL REGIONS of the ANDES. The latter expedition is under the direction not only of a collector, but of a botanist, and great results are anticipated both to scientific and commercial horticulture.

—— In REGEL'S *Gartenflora* for March, it is stated without doubt that the RAJAH CANES, exported from Borneo, are nothing more than the aërial roots of a species of Eugeissonia. This information is given in reply to the query by HANBURY and OLIVER in the *Manual of Scientific Inquiry*, 1871, respecting the species of Palm producing the Rajah Canes of Borneo. The writer of the note in question evidently has something totally different in view, for the Rajah Canes of our acquaintance are certainly not roots. The same writer thinks that the Amboina, or Kyatocca wood of commerce, is a species of Pterocarpus, and the same as the Ambow or Singoa wood.

—— There is something very remarkable about the EXPANSION OF FLOWERS WITH CRUMPLED PETALS. During the last week or two we have been struck with the beauty of the beds of Cistus when passing by them in the morning, which at 6 o'clock each evening as we returned were perfectly stripped of their showy flowers. On examining the plants one would not expect to see any more fully expanded flowers for at least two or three days, that is, of course, taking the ordinary rate of development observed in expanding flowers. The flower-buds at this time show no signs of opening; here and there, perhaps, a small piece of petal may protrude, but all appear closed; and the following morning we are surprised to see the bushes almost covered again with fully expanded flowers. The equally evanescent petals of the Poppy are less rapid in opening, but in both cases the creases are scarcely out before they fall. We have had little opportunity of examining different species, but judging from those at which we looked, the process of fertilisation is equally the work of one day, as the pollen and stigmatic surface appeared to be ready in each morning's flowers. Cistuses are handsome and interesting shrubs, but not suitable for a suburban garden, whose owner can only visit it in the evening.

—— Respecting the cultivation of the CINCHONA IN CEYLON, we learn from Dr. THWAITES' Report on the Botanic Gardens at Pérádeniya and Hakgala, for 1874, that no less than 826,000 plants of Cinchona succirubra and Cinchona officinalis collectively have been distributed from the Hakgala garden during the year 1874. So great an abundance is there of stock plants from which suitable cuttings can be taken that, with favourable weather for striking them, there is little probability of the supply falling short of the expected demand for young plants. "Many planters," says Dr. THWAITES, "are now forming on their own estates nurseries of young plants raised from seeds and cuttings, and every necessary information is given at Hakgala to enable them to do so. Cinchona succirubra and C. officinalis continue to be in most demand, as they are known to succeed so well, and are so easily propagated by cuttings. Cinchona calisaya is not readily propagated by cuttings, and recourse must be had to seedlings, which are not likely to be so constant in character as cuttings, owing to the chance of their turning out hybrids. For those planters, however, who wish to try Cinchona calisaya, plants are being raised from seeds of our own trees; and Dr. KING, the superintendent of the Calcutta Botanic Garden, has promised any seeds that can be spared from a valuable variety of Cinchona calisaya cultivated in the Darjeeling Government plantations."

—— SELAGINELLA BRAUNII, of BAKER, is a very desirable, perfectly hardy species, from the mountains of North India, &c. It is commonly met with under the name of S. Willdenowii, which is a very different species. M. ANDRÉ, writing of the S. Braunii in the *Illustration Horticole*, says it thrives exceedingly well in his garden, in sandy peat, on a north rockery, raising its handsome emerald-green, elegantly cut fronds in fine contrast with the pale white of the rachis. With M. PELLIER, at Le Mans, this plant flourishes marvellously in the open air, fully exposed to the sun. It has stood ten winters without injury, and it increases in vigour. Indeed, it is only in the open air in our climate that it developes its full beauty.

Home Correspondence.

Philip Miller and Gilbert White.—Amongst the extensive correspondence of Gilbert White, kindly placed in my hands by members of the family, I met with a letter to him from Philip Miller, the author of the *Gardeners' Dictionary*, a copy of which I inclose, thinking that perhaps it may prove interesting to the readers of the *Gardeners' Chronicle*. In Gilbert White's *Garden Kalendar* for the same year, which I purpose publishing *in extenso* in my forthcoming edition of the *Selborne*, I find a consecutive and amusing history of the results of the present of the seeds of the Cantaleupe Melon, indicating the deepest interest in the progress of the plants and disappointment at their ultimate failure. After the almost daily account of their condition we find the following entry on September 8:—"Cut ye first Cantaleupe; it was finely embossed and weighed 3 lb. 11 oz., but when it came to be cut up it had hardly any flesh, and was rank and filthy." Again, on September 29:—"All the Cantaleupes cut: not one in perfection, though many were finely embossed and looked wonderfully promising. The canker, I suppose, had prevented their drawing any nourishment and getting any thickness of flesh. The largest Cantaleupe, though almost all rind, weighed 4 lb. 2 oz." Miller's letter is beautifully and almost elegantly written. *Thomas Bell, The Wakes, Selborne, Hants.*

Copy of letter from Philip Miller, author of the "Gardeners' Dictionary," to Gilbert White, dated Feb. 14, 1759.

"Sir,—I am much obliged to you for your favourable opinion of my performance; if what I have published has been of public utility, I shall think myself happy.

"The Cantaleupe Melon seeds here enclosed are from America, which is the country from whence the seeds were first brought to Cantaleupe. I have had the seeds from thence several years, and have found them much better than any of those which were sent me from Cantaleupe.

"I have made trials several times of tanner's bark for raising of Melons, and sometimes have had good success with it, but I have found in hot, dry seasons the plants of Cantaleupe have hung their leaves, and sometimes their roots have perished before all the fruit were ripe, so that I prefer good dung for the heat, and a proper depth of loam for the roots to strike into; but this, in my situation, is very difficult to procure, for we have very little loam within a reasonable distance.

"I do not know if you have seen the last edition of the *Gardeners' Dictionary*, which has been publishing in weekly numbers, and is now almost finished, in which there are all the improvements that have come to my knowledge in the culture of the Cantaleupe Melon. There is also a plan of a small stove for Pines, which is not very expensive to erect, and where tan and fuel are cheap may be maintained for a small annual sum.

"If in anything I can contribute to your laudable pleasure, you may freely command, sir, your most obedient humble servant, PHILIP MILLER.

"*Chelsea, Feb.* 14, 1759.

"P.S. Your letter did not come to Chelsea till yesterday."

(Endorsed by Gilbert White, "Letter from Mr. Phil. Miller.")

Culture of the Canon Hall Muscat Grape.—In reference to my communication respecting this Grape, on examining the organisation of the plant we shall find it a very gross feeder. The spongioles are very large, more so than in any other Grape—much more so than in any other of its class, consequently it requires more drainage and poorer soil than Muscat of Alexandria or any of its progeny. The plant is apt to become over-luxuriant. I will presume your correspondent's tree is planted in such soil as is usually prepared for the Grape Vine, if so there is very little chance of success; nevertheless with proper care it may be brought under control and a good crop obtained next season. The first step to be taken is to train all the side branches horizontally immediately. If the young branches have already been pinched back so much the better—say two joints above the fruit. Now allow the same branches to break out at the end bud, and train this young bud (and be careful to select the principal and not the lateral bud) on till it has made eight perfect leaves, then stop it at the eighth joint and allow the laterals to grow as usual. Keep the temperature of the house at 75° to 80° by day, 60° to 65° by night, and above all things see that the temperature of the soil never falls lower than 60°. All young branches which grow out of the trunk part of the tree may be allowed to remain till the end of July; should any of the young secondary branches show fruit—as no doubt they will—these may be allowed to remain, and more than ten to one; but they will set better than the first crop, and will be good, useful winter fruit. All Muscats may be classed as double bearers. I have invariably found the second crop to set better than the first. When the fruits are in full bloom keep the house constantly sprinkled with warm water—water at the root sparingly with pure rain-water only. *W. Prestoe.*

Medinilla magnifica.—When paying a visit a few weeks ago to Mr. Horton, the gardener at Mereworth Castle, the seat of Lord Falmonth, I was pleased to see a fine plant of the above, with fifty-seven grand spikes. The flower-spikes had burst out of the old wood down to the edge of the pot, which gave it a very nice appearance. *Wm. Bowman, Leybourn Grange.* [We shall be glad to have the notes. EDS.]

Vanda Lowii.—A plant of this very singular Vanda is just now flowering most superbly at the gardens of Mrs. Leech, Gorse Hall, Staleybridge. The plant, which is over 4 feet high, well clothed with its dark green leaves, and a strong break pushing up from the bottom, has thrown out two spikes of great length, which, by the time all the flowers are open, will not be less than 8 feet each; at present they are over 7 feet long, and as there are several flowers yet to open, we may fairly say that they will reach the higher figure. Just seventy flowers are showing on the two spikes, on one I counted thirty-six—the three flowers at the base of the spikes being of a peculiar yellow, spotted with crimson, whilst the others, which are somewhat lax on the spike, are of a reddish brown with lines of a greenish yellow. This plant, which is a native of Borneo, seems to delight in a strong heat with a good amount of moisture; it certainly has done well under the care of Mr. Goodall, the gardener. Here also we met with a nice plant of the new Cypripedium Parishii that has just flowered, with four flowers on a spike. A plant of Aerides Dayanum, 6 feet high, with several strong breaks to it, was just over, it having produced seven very strong spikes. Dendrochilum filiforme, in a basket, was in bloom, as also Dendrobium Wardianum, one of the old type, the sepals and petals being tipped with more than usual rosy purple. A plant of Dendrobium crassinode, lately imported, was also flowering, the colour in this instance being darker than is usually the case, that is, with what we must now consider the older type. *W. Swan, June* 29.

Strawberry Culture in Pots.—Mr. Bayman, at p. 822, says—"I see there is a dispute going on in your columns about wooden troughs, pans, and turf shelves for Strawberry forcing, but I do not see any reference made to Mr. Ward's old-fashioned plan of layering the runners in small pots—a point, in my estimation, of equal, if not more importance, than the other, considering it has to be done at one of the busiest seasons of the year: I allude to layering the runners into the fruiting pots." Now, Mr. Bayman seems to think that this "old-fashioned plan" of layering the runners into small pots ought to be discontinued altogether. But why does Mr. Bayman call it Mr. Ward's old-fashioned plan? for, undoubtedly, the plan is not mine; it is one which has been practised by most of the gardeners with whom I have lived, and am acquainted with. And I think "it being one of the busiest seasons of the year" is a very poor excuse for doing things by halves. Does Mr. Bayman mean to tell the readers of the *Gardeners' Chronicle*, that the proper way to layer Strawberry runners for forcing is to fill 32 and 34-sized pots with good stiff loam, such as the Strawberry delights in, and ram the same well together, as is practised in the potting of the Strawberry, and upon these to layer our runners? This, I suppose, is Mr. Bayman's "new plan." But we live in a very progressive age, and, consequently, may see and hear of strange things taking place; but nevertheless the "old-fashioned plans" are practised. Still—I daresay it will shock Mr. Bayman to hear it—we raise our Cauliflowers, Cabbages, Broccolis, Onions, Turnips, &c., from seed now, just in the same way in which our ancestors did 300 years ago.

Economy is to be, or at least ought to be, recommended in every establishment, but there is a way of overdoing everything. No doubt Mr. Bayman would economise time very much by putting his seedling Primulas, Cinerarias, Calceolarias, &c., into their flowering pots at the first onset, and thus save the trouble of shifting them. All this "dispute in your columns" has originated from an article of mine written some six weeks since, upon the culture of Strawberries in pots, &c. Well, and what a lot of information we have had upon the subject since then. One comes upon us with his thousands growing upon turfed shelves, which, we are told, are very ornamental; another writes to tell us how many "hundred pounds" he has gathered in a month; whilst another writes to say that he has grown them (the Strawberries) to perfection, placed in wooden troughs filled with water, from which they can imbibe freely. Oh! would that the vegetable and plant kingdom could say, is the case in too many establishments. I do not hold with the plunging of the plants in leaves during the winter months, as I prefer the plants to be not dust dry, but to be at rest from the time they have completed their growth until they are required for work, but of course as soon as Nature asserts her rights we assist her. But plants plunged in leaves during their resting season receive no rest—quite the contrary, in my judgment; the sap, which should be at rest, is kept in quivering motion, and, consequently, when they are expected to "pay for their keep" they fail to do so by producing a very inferior crop. But some people's estimate as to what is a good and what is a bad crop vary considerably. Much depends upon the experience of the individuals, and also where that experience has been obtained. I must here stop, for I am afraid that the subject has become rather dry of late, and that we are taking up valuable space. *H. W. Ward, Longford Castle, June 28.*

FIG. 3.—VIEW IN THE BOTANICAL GARDENS, MAURITIUS (SEE P. 11).

but speak—could but speak for the guidance of those who knew not when they wanted and had sufficient water—how often would they call for and refuse the same (water) when they had sufficient. Then, again, the same correspondent says "permanent trenches, plants naturally grown, fruit receiving a full current of fresh air, nine months' wet out of twelve," and concludes by saying, "nothing short of this will suit me." It seems to me that this correspondent has strayed from the forcing to the out-door culture of the Strawberry. Then, again, we find another of the "craft" who cuts on every side, and allows no "careless chap" in the forcing department. So much the better, but I have known some good men—by good, I mean men with a good knowledge of their business—men that knew when to apply water to and withhold it from a plant; and yet I have known these men to be careless at times. Well, this same correspondent is expected to have ripe Strawberries from "March" till they come in out-of-doors: well, this is nothing unreasonable, to be expected to have ripe Strawberries on the table in March, even where there are only Peach-houses and vineries to grow them in, and which, I am sorry to

Animal Dentition.—The sketch of the portion of a root of a tree from Mr. Ellacombe's garden (see fig. 171, p. 824) that has been gnawed by water voles reminds me that when I some time since sent a note to these pages respecting the barking of a number of large Elms by young horses, I was then unaware of the cause of their so doing. As the mischief was done during the winter months, naturally it was imagined that want of food was the reason. This, however, was not the case, as an abundance of food was provided. Then it might have been concluded that the barking was done by the colts out of their love of mischief, but this conclusion was wrong also, for I am now informed that the animals were just then cutting teeth, and in gnawing the trees they simply sought to procure that relief from pain so common with dentition. Were the water voles actuated by a similar reason? *A. D.*

New Marantas.—Although, perhaps, not so intended, Messrs. L. Jacob-Makoy & Co.'s remarks at p. 822 are calculated to convey a wrong impression and to mislead, so that a few words in reply are necessary. They say:—"We have lately received some Marantas introduced into commerce by Mr. W. Bull, and among them we find some species already previously introduced by us." Accepting the latter part of this statement, I have to remark that they have not introduced these Marantas to the public, and they are not announced in their catalogue, whereas mine were not only introduced so long ago as 1873 direct from South America, but one of the batch, M. concinna, was sent out in January, 1874, and another, a very handsome variety, M. leopardina, was exhibited as one of the six new plants that won the first prize at the Royal Horticultural Society's exhibition in June, 1874. They were also fully described in my catalogue published last April, and then introduced to the public—that is, put in commerce, obviously a very different thing from introducing a plant to one's private establishment, even though from a foreign country. Naturally it often takes a considerable time after the introduction of a plant from a foreign country to propagate sufficient of it to introduce it to the public. To these things, however, Messrs. L. Jacob-Makoy & Co. do not allude; nevertheless, I feel sure that no one reading their letter would for a moment suppose they had not so much as offered the Marantas in question in their catalogue. The object of their letter is probably to claim priority for their names, but their remarks might also be interpreted as claiming credit for introduciug them into commerce, which credit, it will be seen from the preceding statement, belongs to me. The priority of a name is always very properly understood to belong to the first published description. Now, my Marantas were named and fully described at p. 7 of my plant catalogue. I had not then seen the *Belgique Horticole*, but since reading Messrs. L. Jacob-Makoy & Co.'s letter I have hunted it up, but only to find, to my astonishment, that a claim for priority of names is founded merely on what appear to be a few passing notes (eight words only in one case), and which, in fact, cannot in any sense be called descriptions. A description should be sufficiently ample to permit of the plant being recognised from it, and I have too

high an estimation of Professor Morren to suppose he would think his passing notes on these three Marantas are sufficiently descriptive in a botanical sense to justify a claim for priority founded on them. As regards Messrs. L. Jacob-Makoy & Co. having exhibited the three Marantas in question under the names quoted, I can only say I was not at the Ghent Exhibition in 1874, or at that at Antwerp in 1875, and have not seen them, otherwise I should gladly have arranged as to a uniformity of nomenclature, for it is always to be regretted that plants should be known by two different names. *William Bull, Chelsea.*

Manley Hall, Manchester.—This palatial residence, situated near the Independent College, Whalley Range, on the high road from Manchester to Chorlton-cum-Hardy, until lately the residence of Sam Mendel, Esq., has been purchased by Ellis Lever, Esq. This noted establishment was kept so secluded that the bulk of the inhabitants of Manchester were not aware that such a charming spot lay so near the great city of Cottonopolis. The thousands of pleasure-seekers wending their way to the rural village of Chorlton-cum-Hardy during the summer months, to view the orchards and country cottage gardens, had to pass the grand entrance to this noble establishment, when a bird's-eye view could be obtained of a limited extent of carriage drive, with its avenues of Lime trees and Cupressus, with the tower of the Independent College in the distance, overtopping the trees and forming a pleasing object, so much and no more; but thanks to the liberality of the present owner, the hall, park, gardens, and farm are now thrown open on certain occasions to the public at a stated charge, for the purposes of a high-class recreation resort for the enjoyment of the Manchester public. Such a place has been long wanted in the neighbourhood of Manchester, where all well-disposed and respectable classes of society might enjoy the charms of the country, combined with gardens laid out with refined taste, and planted with care and skilled judgment for giving effect. The views of wood, rock, and water are very pretty, as indeed all will admit; and at the present time the grounds are a mass of floral beauty, and many of the walks are quite embowered in trees, which produce a delightful shade on a hot sunny day, with pleasant lawns closely shaven, and with a carpet-like pile. The thousands of Rhododendrons in the dell and shrubberies are a glorious sight, all shades of colour and markings, all arranged so effectively to enhance the other charms of this delightful place. There are nearly 40 acres of pleasure and kitchen gardens, and near another 40 acres devoted to park and farm. Manley Hall has long been celebrated for its collection of plants. There are two splendid ferneries, fitted up with rock bridges, stepping stones, fountains, waterfalls; a magnificent conservatory, aviary, and several ranges of glass for plants and fruits. A grand musical fête was given on June 4 and 5, by the bands of the Grenadier Guards and Scots Fusilier Guards, when a select programme of music was performed to thousands of delighted auditors. One of the large ferneries was illuminated for this fête with a host of Chinese lanterns, the house had to be darkened with tarpauling sheets for the occasion, but the subdued light thrown out by the lanterns was a complete failure. If the "Bowtun Loominary," and the "Manchester City Lantern," had been suspended in the fernery, they would have proved to have thrown more light than the Chinese lanterns. If the experiment is ever tried again, I would advise the use of the lime-light. The management of the garden, farm, park, &c., reflects the highest credit on the head gardener, Mr. Potts, who is a successful cultivator of choice fruits. The Grapes at Manley Hall are becoming as far-famed as the rest of its choice productions. *Thomas Campbell*, 11, *Thurza Street, Chorlton Road, Manchester.*

Potatos at Woodbine House, Beckenham.—Mr. Peter McKinlay is so well known as the leading amateur cultivator of Potatos for show purposes, that his doings in connection with the noble tuber cannot fail to have a special interest this season. Mr. McKinlay is cultivating over one hundred sorts, and all are grown with high-class culture. Generally the haulm is vigorous, clean, and healthy—stronger than usual, which may be in part attributable to the stimulants applied in the shape of manure; for the rain which has fallen so abundantly in most of the suburbs of London has been very sparingly experienced at Beckenham, judging from present appearances. The sweepings of the London streets, which has been largely used this season, seems to be a good manure for Potatos. Mr. McKinlay is also making experiments with Amies' and other manures, and will carefully note results as the crops approach maturation. One very interesting feature is the employment of tiles beneath the sets, as suggested by Mr. Shirley Hibberd, and these have been applied to certain parts of successive rows of various kinds of Potatos—simply one line of the ordinary arched roofing tiles, with the scolloped part downwards, and forming a continuous subterranean tunnel as far as they reach. The effect on the growth of the haulm is surprising, as it is in every case taller than shown by plants not grown on the tile system. In looking over the haulm of the American types one cannot help being struck with the family likeness presented by the foliage. A new American variety named Acme, having the Snowflake character, has a quick habit of growth, and promises to be one of the earliest of the Americans, and the remarkable evenness of growth of the Snowflake habit is at once apparent. What a contrast this presents to the Hundredfold Fluke, which is of a totally distinct character of top, and has a very ragged and uneven growth. It is cultivated by Mr. McKinlay solely for show purposes, being so handsomely banded with red and cream. It is, no doubt, of South American origin, as it came from there through Mr. Allen, of Shepton Mallet, under the name of Gleason's Late. Bresees' No. 6 and Carter's American Breadfruit appeared to be identical in every respect, and are of the Snowflake type. Of the newer American kinds there are in cultivation at Beckenham Early Dragon, Eureka, Alpha, Nonsuch, Breadfruit, American Pink Eye, Acme—very promising; Bresees' No. 6, China Orange—a peculiar and distinct variety, with orange and white tubers; Early Paragon—very promising; Early Gem—fine; and Early Oneida. Probably one of the most complete collections of American Potatos in cultivation is to be found at Beckenham. Of the newer English kinds there are Early Dimmick, having quite the character of some members of the American family; Early Market, Fenn's Early White Kidney, Prince Teck, Bountiful—very promising indeed; Baron's Perfection, Beckenham Kidney; Lady Webster appears as if it will be very fine; Pioneer, Rector of Woodstock, Rufus, Tanton's Premier Kidney; of the Lapstone group—Fenn's Early Perfection and Model, the last looking strong and healthy, but rather backward, and Mr. McKinlay states there is nothing like it for spring eating. In earthing-up the rows the hoe is not employed, but the soil is forked up between the rows, beaten finely if necessary, and thrown up on either side. There is no necessity for treading it down in such a method. The seed is all carefully sprouted before planting, and, in the case of cut sets, Mr. McKinlay holds that they should be planted, at most, three or four days after they are cut. He holds they lose much in vigour by being kept about. But one eye is allowed to remain in a set, the rest being all scooped out; and it is surprising to note the number of shoots a single eye will put forth under high-class cultivation. These are thinned out as deemed requisite. Mr. McKinlay has entered for competition for Messrs. B. & K. Bliss & Son's prizes for the largest produce from a pound each of Snowflake and Eureka grown in the United Kingdom. Each pound of Potatos furnished him with something like seventy sets in each case, and, if appearances justify predictions, Mr. McKinlay will not be far behind in the race. The fine development of the plants grown from these small eyes is something astonishing. As a matter of course, the ground was most carefully prepared previous to planting. *R. D.*

The Exhibition of American Plants at Manchester. — Rhododendrons, familiarly known as American plants, the Rose trees of the New World (*rhodon*, the rose, and *dendron*, a tree), have had a new light thrown upon them by means of various devices—Chinese lanterns, gas jets, and more than all by the lime-light—during the grey haze of the long summer eves of the middle of June. In order to give a stranger some idea of what this floral *fête* is like I will just give some data by which the field of flowers may be measured and counted. They are planted out under a large tent which is at least four times as long as its width, thus giving a glorious perspective; and by means of a raised mound the whole area can be taken in at a glance—but such a glance as has perhaps never been equalled in the provinces. Every one knows that the Rose tree of the New World blooms so freely as frequently to hide every leaf of the plant; and, in American phrase, I calculate that the Britisher possesses no plant, either native or exotic, that can "lick" the Rhododendron for blaze of bloom. The Roses of Europe, wild and tame, are now, and ever have been, held in the highest estimation for the beauty of their petals and the sweetness of their perfume, but the Rose tree of the New World can boast that it is a Rose without a thorn. The Rose of Europe carries its thorns concealed under its foliage, wounding the hand of him who would unwarily gather its sweets. The European Rose, with all its grand associations, gives way to the Rose of the New World on the score of lasting, for the Rhododendron is evergreen, whilst the Eastern Rose is horrid with hooked thorns, a naked rod for half the year. The Rhododendron arboreum of Nepal, robed in brilliant scarlet, is worthy of the remark that it "sets the hills on fire." Whoever admires the queen of flowers—and who does not?—must allow that the Rhododendron is worthy of being her Prime Minister. But to the point. Let us reckon 2000 Rhododendrons, all in full bloom, without waiting for a single one to come into blossom, or mourning over one gone to decay; and not 10 or 12 feet high, as we see them in old-established shrubberies, but all young, and under the eye, or at least at an easy distance above it. Now suppose 2000 plants, with only thirty trusses of bloom on each, this would give the enormous number of 60,000 trusses of the most gorgeously coloured blooms, and if we assign only thirty individual blooms to every truss, we have 1,800,000 open flowers. Reckoning each bloom at 2 inches across, something over an acre of gaudily coloured petals have budded out of the wood in holiday attire to meet our view. Scott says—

> "If thou wouldst view fair Melrose aright,
> Go visit it by the pale moonlight."

The light and shade of this living picture under artificial light was quite a fairy scene, deepening some of the colours and lightening others. Some persons have taken exception to these evening entertainments, but Tom Moore said wisely, though in jest, that

> "The best of all ways to lengthen our days
> Is to steal a few hours from the night."

The genius of this our city of Cotton is decidedly for late hours. "Go to bed at nine?—no, not I," says the song; and so, too, it must be admitted, is the practice of Manchester society. On the occasion of all great *fêtes* in the mansions of the nobility and gentry it is customary to entertain the guests by a display of artificial light in the conservatories. I counted 1400 candles lit at one time, illuminating the galleries and conservatory at Alton Towers, besides lamps and other lights; and at Kensington Palace not only were the Orange trees lighted up for great parties, but fruit that never ripened there was hung on the trees to produce effect, and it did so. There is, moreover, some truth in the old adage that linen, and even ladies—with all due respect be it spoken—look best by candlelight; and grave authors have left it on record that some affect the sun and some the shade, therefore let no one be surprised to see a sunlight picture lighted up where all around is shade. Let us hope that this new feature may be copied at other exhibitions; and as autumn's dewy eves draw on we may see our social gatherings crowding around the central fire, like the family circle, which has ever been the picture of the greatest human happiness. *Alex. Forsyth.*

Maize.—Cobbett's Improved Maize, sown here in the middle of April, and protected from the birds with a light covering of muck, is now from 12 inches to 20 inches in height, and proportionately stout, according to soil. This will indicate how it will thrive from early sowing in Middlesex. Probably the first week in May would be early enough for Lancashire and the North, but I gravely doubt whether it could be ripened there under such conditions. It would be best, as "A. F." suggests, to raise under cover, and transplant for garden culture. In any case green cobs could be had in abundance. If a table delicacy, will "A. F." tell us how they should be cooked and dressed. His assertion, that maize-meal is never likely to be relished in this country, I must dispute, for the simple reason that "corn flour," which is maize-meal, is already an important article of diet, and for puddings, jellies, cakes, &c., is highly esteemed. If any of our farmers will but grow a good crop of the corn, no doubt a market will soon offer itself. *Alex. Dean, Bedfont.*

An Ice Storm in the Eastern Counties on June 17, 1875.—The above title is true, but apt to mislead. The fall of hail and ice was most capricious, falling here and skipping over there, and sweeping in a sort of zig-zag fashion over a great portion of Suffolk. The thunderstorm and the rain were more general, but the sudden discharge of hail and fall of angular pieces of ice was more partial. The day had been hot and fine, with that feeling known by all old stagers as something in the air impossible to describe. From after 6 o'clock a severe thunderstorm passed from west to east, merely followed by heavy rain, and about 7 o'clock a terrific discharge of hail and pieces of ice fell here, extending but a short distance either way. At Stansted they had neither rain nor hail, at Drinkstone rain but no hail, at Shrubland neither, while at Woolverstone again, on the banks of the Orwell, the hail was like a discharge of grape-shot, clearing all before it. At Hardwicke it dashed the flower plants to ribbons, struck one bed of bloom off, and almost defoliated Calceolarias, Iresines, Pelargoniums, &c. and struck off hundreds of buds of Roses—a thing I never saw before. The hail and pieces of ice lay several inches thick on the ground during a great part of the night, and the effect on many plants is exactly the same as if they had been burnt or severely frozen, as no doubt they were. The effect on Calceolarias has been peculiar; stripped of their leaves the stems became brown, and died outright within a few days. The whole of the Roses that bent their heads to the ice shower are withered and decomposed, almost right through the entire depth

of the flower. This is especially the case with Maréchal Niel both on walls and as standards. The peculiar weakness of the flower-stem of this Rose enabled it to hang down its head on the approach of the storm; and the result is, as above stated, both the leaf and the petals are killed — from the outside inward. Vegetables suffered almost as much as the flowers; strong growing Onions were laid prostrate, the foliage of the Peas was riddled through, Lettuces were smashed by the hail, and Kidney Beans were chilled and arrested. Fruits have also suffered severely. Cherries and Strawberries, where at all exposed, were so battered that they have since rotted; Peaches, Nectarines, and Apricots were severely pelted; and Pears and Apples on pyramids and cordons so deeply indented that I fear many of them will rot. Much of the evil was wrought less by the mere weight than by the angularity of the ice pieces. There were, in fact, two showers—or rather three—discharging simultaneously; one of rain, a second of hail of the usual spherical form, and a third of ice of the most irregular size and form. No doubt the latter did the most harm, and they were probably the products of distinct clouds. The shower continued the greater portion of the night, and torrents of rain fell, but no more hail or ice. Fortunately but little glass was broken, as for years we have used no lighter glass than 16 or 21 oz. to the foot, and a large proportion of our houses are glazed, or old lights or roof sashes only 6 inches wide. Where the same glass was in squares a foot or more in width a good many were broken. *D. T. Fish.*

Vines.—Can any of your readers give me any information as to the probable cause of the following? A friend of mine in this neighbourhood went yesterday, at 11 A.M., into his vinery, in which five Vines were fruiting, having between them about thirty small bunches. At that time every leaf was perfect. He went in again at 12, one hour after, being attracted by a very offensive smell, and found every leaf of the Vines dead, except a small patch, about a yard square, which escaped, and in addition every plant on a stand, from forty to fifty, such as Crassulas, Azaleas, Fuchsias, Ferns, &c., were all as though they had been boiled. The Grapes do not appear to be touched, but of course are useless, as not a leaf is left on four of the Vines. There was no gas near, nor sewer, nor anything that can give the least clue to the disaster. Can it be that it proceeds from electrical or atmospheric causes? I enclose a leaf from the Vine attacked, and also one from the patch not so much injured. *Geo. N. Harris, Clifton.* [It seems to us to be a severe case of sun-scorching. Our correspondent does not say whether the killed leaves were wet with condensed moisture at 11 o'clock, nor at what time air was put on the house, so that we cannot say for certain. EDS.]

Reports of Societies.

Crystal Palace: *June* 26.—The great Rose show held on Saturday last proved to be as popular as ever with both growers and the public, the former coming out in greater numbers than for the last few years, while the Roses were of a very high order of merit throughout, and must have given an immense amount of pleasure to the throngs of people who crowded round them all the afternoon. There is no place in the world where the Rose has more gapeseed bestowed on her than at the Crystal Palace, and the managers must rejoice to see it.

The class for seventy-two was an uncommonly good one throughout, and the prizes went as follows:—Messrs. Paul & Son, 1st; Mr. Turner, 2d; Mr. B. R. Cant, 3d; an extra being awarded to Messrs. Cranston & Mayos. Mr. Keynes, and Messrs. Mitchell & Sons, Piltdown, also competed, The finest blooms in this class were of Niphetos, Sir Richard Wallace, Madame Berard, François Louvat, La Ville de St. Denis, Annie Laxton, Horace Vernet, Alfred Colomb, splendid in colour; Princess Beatrice, François Michelon, Antoine Ducher, Madame Lacharme, Etienne Dupuy, Oxonian, Marguerite Dombrain, Mrs. Baker, J. Stuart Mill, Lælia and Climbing Devoniensis. In the nurserymen's class for forty-eight distinct varieties, three trusses of each, Mr. B. R. Cant was 1st; Mr. John Keynes and Messrs. Paul & Son being equal 2d; and Mr. Turner, 3d; all showing a very fine lot of blooms of the above and other well known varieties. Mr. G. Prince, Oxford, was 1st for twenty-four varieties, three trusses of each, with some splendid blooms from his cultivated seedling Briars; Mr. Keynes was 2d, and Mr. Henry Bennett, of Stapleford, 3d. There was a very strong competition in this class, and the same also was the case in that for twenty-four varieties, one truss of each, in which Mr. G. Cooling, Broad Street, Bath, was 1st, and James Walters, Mount Radford Nursery, Exeter, was 2d; two equal 3d and an extra 3d prize being awarded.

The amateurs' classes were all heavily contested, and there were no less than ten exhibitors of forty-eight varieties, and five prizes had to be awarded instead of three. The best collection, and it was a very fine one, came from Mr. R. G. Baker, Heavitree, Devon, who was also very successful in other classes. He was followed here by Mr. R. Draycott, gr. to Sir B. Cunard, Hallaton Hall, Leicester; Mr. W. Nicholl, gr. to F. H. Powell, Esq., Drinkstone Park, Bury St. Edmunds; Mr. John Pearce, gr. to Professor Adams, the Observatory, Cambridge; and the Rev. T. H. Gould, Mortimer Vicarage, Reading, who took the prizes in the order named. Mr. Baker had also the best thirty-six and the best twenty-four, one truss of each.

In the first-named class there were fourteen competitors, and the other awards went to Mr. J. Mayo, Corn Market Street, Oxford; Mr. R. Draycott, and Mr. Joseph Davis, The Square, Wilton. There were no less than twenty-three stands of twenty-four blooms, and six prizes were awarded. The 1st, as above mentioned, was won by Mr. Baker, the remainder being voted as follows, in the order named:—Mr. H. Atkinson and Mr. J. C. Quennell, of Brentwood; Mr. W. Nicholl, Mr. J. Mayo, and J. L. Curtis, Chatteris, Cambs. In the class for twelve, Miss Anne Lloyd, Graslawn, Exeter, took the premier award; Mr. J. T. Smallbones, Chatteris, being 2d. Two equal 3d prizes and two extra prizes were also voted.

The open class for twelve blooms of any single variety was a remarkably good one, the following varieties being staged in splendid condition:—La France, Marie Baumann, Marguerite de St. Amand (very sweet), François Michelon, Charles Lefebvre, Mdlle. Marie Cointet (a rich flesh-pink, shaded with rose, and reflexed somewhat like a Camellia—a very showy and grand new Rose), Souvenir d'Elise, Baroness Rothschild, Baroness Adolphe de Rothschild, Marquise de Castellane, Madame Charles Wood, Beauty of Waltham, Horace Vernet, Maréchal Niel, and Comtesse d'Oxford. Mr. H. Bennett was 1st with his Mdlle. Marie Cointet. Mr. B. R. Cant had an extra 1st, Mr. James Mobsby, Colwood House, near Cuckfield, being 2d, and R. G. Baker extra 2d; Mr. G. Prince, 3d, and Turner extra 3d. Messrs. Paul & Son contributed the best collection of yellow Roses, and Mr. H. Bennett the best twelve trusses of any new Rose of 1873, the variety staged being Mademoiselle Marie Cointet. The best collection of twenty-four new Roses of 1872 and 1873 came from Messrs. Paul & Son; Mr. John Durbin, Englishcombe Rosery, Bath, 2d; and Mr. John Keynes, 3d. The leading varieties in this class were Emily Dupuy, John Bright, Madame Nachuary, Duchess of Edinburgh, Cheshunt Hybrid, Princess Beatrice, Emily Laxton, Empress of India, Madame Lacharme, S. Reynolds Hole, La Souveraine, Madame Marius Cote, François Courtin, Captain Christy, Peach Blossom, and Duke of Connaught.

Several very promising new seedling Roses were staged under numbers by R. B. Postans, Esq., Brentwood; and Messrs. Paul & Son had Floral Certificates for seedling Roses Duke of Connaught and John Bright. Mr. Turner had a similar award for his Oxonian, and Mr. Laxton for Mrs. Laxton and Lady Isabel Cecil, a charming flower in the style of Maréchal Niel.

The competition for the prizes offered for table decoration was a very extensive one, and the display altogether was most interesting, all the artistic productions, with one or two exceptions, being far in advance of what such things were but a few years ago. Mr. W. L. Buster, St. Mary Cray, Kent, was 1st in the open class, Mr. W. Seale, Sevenoaks, being 2d, and Mrs. James Hudson, Champion Hill, Dulwich, 3d. In the amateurs' class the last-named exhibitor was 1st, Mr. W. Soder, gr. to O. Hanbury, Esq., Weald Hall, Brentwood, 2d; and Mr. J. W. Chard, 3d. In the ladies' class the 1st prize went to Mrs. W. Seale, the 2d to Mrs. S. Hudson, and the 3d to Miss Edith Blair, Upper Bedford Place, Russell Square. For a Fern case furnished with suitable growing plants, Messrs. Dick Radclyffe & Co., High Holborn, were 1st.

Royal Botanic: *June* 30.—Prizes—and those but poor ones — were offered on this occasion for fruit and cut flowers, and in both cases the display was of a limited extent, and, on the whole, poor. The large show tent was almost entirely filled with plants from the establishment of the Pine-apple Nursery Company at Maida Vale, the remainder of the space—a very small quantity—being filled by the Society's own plants. Considering the great extent of ground to be covered to make anything like an effect, it speaks well for the resources of the Pine-apple Nursery that such a valuable lot of specimen plants, to say nothing of the ordinary decorative stuff, could be turned out for such a purpose, and the manager, Mr. Bester, must be complimented on the success of his exertions. The well-known grassy banks around the sides were almost entirely filled with specimen Palms, Ferns, Crotons, and such-like fine-leaved plants; while the Orchid bank and the slopes usually devoted to new plants were entirely given up to plants in flower—medium-sized useful stuff for general decorative purposes. Through the great preponderance of foliage, the general effect of the whole was, of course, not so good as we usually see it here, but we must not find fault: it was a great thing to do by one firm, and is deserving only of praise.

FRUIT.—The display of fruit was as poor as it well could be for a Regent's Park show, but still better than we had expected after a perusal of the schedule. There were only five exhibitors of three bunches of Black Hamburgh Grapes, and the 1st prize went to Mr. A. Johnson, gr. to the Marquis of Ailesbury, Savernake, who had good-sized, compact bunches, with evenly swelled berries, very fairly coloured. Mr. Akhurst, gr. to T. Copestake, Esq., Highgate Road, was 2d, with smaller bunches and larger berries of a very good colour, but not so cleanly finished off. Mr. Sage, gr. to Earl Brownlow, Ashridge, was 3d, with a nice sample. In the class for any other Black Grapes, Mr. G. Grimmett, gr. to J. Wilmot, Esq., Isleworth, showed the Madresfield Court Grape in exceedingly good condition; and Mr. Douglas, gr. to F. Whitbourn, Esq., contributed a very nice sample of the Royal Ascot. The best examples of Muscat of Alexandria were shown in the class for a single dish by Mr. Feist, gr. to J. Ashton, Esq., Staines. The bunches were above the medium size, and of nice form, the berries being well and evenly swelled, and very well coloured. Amongst other White Grapes Mr. Douglas showed some good Buckland Sweetwaters, and Mr. Sage, Ashridge, a good sample of Foster's Seedling. Mr. Sage was the only exhibitor of Plums, having Prince Englebert and M'Laughlan's Gage in fine condition. With the exception of some fine Black Tartarians, from Mr. G. Musk, gr. to Lady Baring, Fareham, Hants, and Bigarreau Napoléons from Mr. Douglas, the Cherries were very poor. There were six exhibitors of Strawberries, and the best fruits came from Mr. Douglas, Mr. W. Clark, Wellbrook, Farnborough, and Mr. Turner, Slough. The first-named had Amateur, Admiral Dundas, Duc de Magenta, and a seedling, all in fine size and colour. Dr. Hogg, British Queen, President, and Sir J. Paxton, in Mr. Clark's collection, were also very superior fruit. White Grapes in baskets of 12 lb. weight, principally Muscats of Alexandria, were shown by Mr. Douglas, Mr. Bond, Mr. Feist, and Mr. Bannerman. The corresponding class for Black Grapes was a very good one, both as to numbers and quality; Mr. Grimmett, gr. to A. Wilmot, Esq., had the Madresfield Court in equally fine condition to those above alluded to, and of Black Hamburgh the best samples came from Mr. A. Bridgman, gr. to F. Somers-Cocks, Esq., Thames Bank, Great Marlow; Mr. Johnson, Savernake; Mr. Sage, Mr. W. Bones, and Mr. J. Moore, gr. to F. Brandon, Esq., Brondesbury Park, Kilburn. Very fine Vines in pots of Buckland Sweetwater and Foster's Seedling came from Messrs. H. Lane & Sons. Peaches were a very poor class, but Nectarines were better. Mr. Johnson was 1st with beautiful samples of Violette Hâtive and Elruge, and Mr. E. Lake, gr. to Mr. Digby Boycott, Havesham Grange, Twickenham, came in 2d with the same varieties. The best two Melons in a poor class were the Eastnor Castle Green-flesh, and Read's Scarlet-flesh, shown by Mr. W. Coleman, Eastnor. Pines were also poorly represented. Mr. Sandford, gr. to the Earl of Bective, Kirkby Lonsdale, had some nice Queens; and so also had Mr. Bond; and a Providence weighing 9¾ lb. came from Mr. Ward, gr. to the Earl of Radnor, Longford Castle, Salisbury. The only exhibit in the miscellaneous class was a splendidly ripened bunch of Bananas, Musa Cavendishii, weighing 80 lb., and shown by Mr. Sage, Ashridge. This is the largest bunch that has been seen for a long time. It was perfectly ripened, and well finished off. [The largest bunch that has ever been exhibited in England was one weighing upwards of 129 lb., sent by Mr. Scott, Leigh Park, to a meeting of the Horticultural Society of London on October 3, 1843.]

The cut Roses were of excellent quality, but comparatively few in number, and, having said so much, we shall only stay to mention the principal exhibitors, the names of the varieties staged being pretty much the same at one show as at another. White Roses in stands of twelve were well shown by Mr. Cant, Mr. Keynes, and Captain Christy; and in a similar class for reds Mr. Chard, Mr. Cant, and Mr. Turner sent the best stands. In the class for yellows Mr. Cant had Maréchal Niel, very fine in colour; and this variety and Madame Lacharme, from the same exhibitor, were the best in the yellow and white class. For twenty-four varieties, three trusses of each, Mr. Turner, Mr. Cant, and Mr. Keynes competed amongst nurserymen; and in the corresponding class for amateurs, Captain Christy and Mr. Chard took the lead. The best class in the show was that for forty-eight varieties, three trusses of each, in which Messrs. Paul & Son, Mr. Turner, Mr. H. Bennett, Mr. J. Keynes, and Mr. John Fraser competed.

Floral Certificates were awarded to Mr. Turner for Carnation Scarlet Defiance, crimson-scarlet, a large and very neat flower; for Pink Lord Lyons, a bright rosy purple self; for Pink Harry Hooper, white with dark purple lacing; and for Pink Shirley Hibberd, a large, full flower, with lilac lacing and brown centre. To Mr. William Paul, for H.-P. Rose Star of Waltham; for H.-P. Magna Charta, a large full flower, dense rose in colour; and for H.-P. St. George.

Midland Counties Horticultural Exhibition, Birmingham.—(*By Telegraph, Thursday Evening.*)—This exhibition is held in Mr. Quilter's beautiful garden at the Lower Ground, Aston, Birmingham. There is a fine display, with an abundance of stove and greenhouse plants, not overpowered with foliage plants. Among the more striking objects is a noble plant of Cycas revoluta in fruit. Cut Roses are numerous and good, especially in the leading prize-stands. A remarkable specimen Fancy Pelargonium, 5 feet and upwards in diameter, is shown by Mr. Fleming of Liverpool. Among new plants, Gymnogramma Alstoni, from Mr. Brown, Elmdon Hall, was certificated. It is a golden Fern, with recurved pinnæ. Athyrium Filix-fœmina fissum var. elegans, an elegantly cut Lady-Fern, with fronds resembling those of Asplenium cicutarium, from Mr. Mapplebeck, was also certificated. Fruit is plentiful, and of very good quality, Melons in particular. Vegetables are abundant and good. The Silver Challenge Cups were awarded as follows:—For collection of stove and greenhouse plants, Mrs. Cole & Sons, Withington; for collection of fruit, Mr. Coleman, gr., Eastnor Castle; for collection of vegetables, Mr. Mills, gr., Wycombe Abbey. These exhibitors, having won the cups twice, become now the absolute owners of them. The cups for Roses have this year changed hands—that for seventy-two cut blooms being won by Messrs. Cranston & Mayos, of Hereford, in the nurserymen's class; that for the amateurs' class, forty-eight cut blooms, was won by Mr. Davis, Salisbury.

Enfield Horticultural: *June* 23.—The summer exhibition of this Society—for it holds two annually—was held in the pleasant grounds of Myddelton House, the residence of H. C. Bowles, Esq., the President of the Society. It is a charming place, and the tent being pitched almost close to the residence, and the grounds being thrown open also, made added attractions for the visitors.

The show was a very attractive one, though somewhat small, as might be expected. All the collections shown are small also, but the exhibits good, and the stove and greenhouse plants, Ferns, foliaged plants, &c., exhibited by Mr. W. Wilson, gr. to Mrs. Adams, Chase Park, Enfield, fully maintained his reputation as a good cultivator. Mr. Wilson had the best group of four, consisting of Stephanotis floribunda, covered with flowers; Bougainvillea glabra, finely bloomed; Ixora javanica, and a fine Vinca rosea. In other collections could be seen Lagerströmia indica, finely grown and flowered; Clerodendron Balfourianum, and Dracophyllum gracile, nicely done.

The best six plants remarkable for foliage came from Mr. Shaw, gr. to P. Twells, Esq., M.P., and consisted of good examples of Neottopteris australasica, Corypha australis, Chamærops humilis, Dracæna indivisa, very fine; Dicksonia antarctica, and a finely grown Yucca aloifolia variegata. Mr. Wilson was 2d, his best plants being Phormium tenax variegatum, Yucca aloifolia variegata, Pandanus utilis, and Croton interruptum. The three best foliaged plants in the class for that number were Pandanus elegantissimus, Dracæna lineata, and Latania borbonica. Mr. Farrow, gr. to G. Batters, Esq., had the best group of six stove or greenhouse Ferns, which consisted of Adiantum formosum, A. cuneatum, Dicksonia antarctica, Gymnogramma sulphurea, Lomaria gibba, and Pteris cretica albo lineata. In groups of twelve flowering and foliaged plants staged for effect, and confined to pots 8 inches in diameter, the best came from Mr. Wilson. The plants were necessarily small, but included many objects of interest. The best specimen plant was an exceedingly fine Stephanotis floribunda, staged by Mr. Wilson.

Some very finely grown and flowered Gloxinias were staged by Mr. Farrow, and some excellent Achimenes by Mr. Wilson. The latter group included such varieties as longifolia magnifica, longifolia alba, grandiflora, Mauve Perfection, and Margaretta, the latter finely done. Some well grown shrubby Calceolarias were staged by Mr. Gooderham, gr. to E. Ford, Esq., J.P., comprising old varieties like Sultan, Emperor de Maroc, and Sparkler—varieties seldom seen at flower shows now. Some well-grown specimens of variegated Zonal Pelargoniums were shown by Mr. Wilson, and one of the most effective was Prince Silverwings, a very distinct variety that does not appear to be appreciated as much as it deserves.

The best twenty-four cut Roses, a very fine lot, were staged by Mr. Wilson. It included blooms of La France, Alfred Colomb, William Griffiths, Gloire de Dijon, Oliver Delhomme, Lord Macaulay, Beauty of Waltham, Victor Verdier, Baronne de Rothschild, &c. The same exhibitor had a fine stand of twelve bunches of cut flowers, which included Cattleya Mossiæ, Hibiscus rosa sinensis, very fine; Odontoglossum Pescatorei, Oncidium leucochilum, Clerodendron Balfourianum, Lycaste Deppei, Anthurium Scherzerianum. Some nice stands of cut herbaceous flowers was also set up.

Fruit was sparely represented, but Strawberries and Cherries were very good. Baskets of twelve and six sets of vegetables were well done, the 1st prize for the larger number going to Mr. Wilson, who staged a collection of superb quality:—Cabbage, Cauliflower, Cucumber, Asparagus, Lettuce, Vegetable Marrow, Potatos, Peas, French Beans, Carrots and Turnips.

Groups of plants and cut flowers staged by local nurserymen much assisted the exhibition. Messrs. Paul & Son had a remarkably interesting group of plants, including Buxus latifolia aurea, a golden Catalpa, Acer polymorphum atropurpureum, Tacsonia exoniensis, Lilium Washingtonianum, and many others, also cut Roses, including fine examples of the following new kinds:—Sultan of Zanzibar, very dark; Cheshunt Hybrid, Robert Marnock, The Shah, S. Reynolds Hole, and W. W. Saunders. Mr. William Paul had some boxes of fine cut Roses, including fine blooms of Mademoiselle E. Verdier, John Hopper, Fisher Holmes, Maréchel Niel, Marie Baumann, François Michélon, Etienne Levet, La France, &c., and a group of single and double Zonal Pelargoniums. Mr. W. Rumsey contributed various plants and cut flowers, all of an interesting character.

The Stowmarket Horticultural Show was held on Thursday and Friday of last week, on the same days, though not in the same place, as the large show of the Agricultural Association. Horticulture and agriculture do pretty well together when they are within easy reach, and in the same field, and under the same management. But horticulture is mostly overshadowed when in an out-of-the-way place, and out of the direct line of communication with the agricultural show. It was so, we fear, on this occasion, though the show was a remarkably good one; the great bulk of the visitors streamed in and out to the horses, bullocks, machinery in motion—singular attraction that, which never fails to draw company, to the relative neglect of the fine-foliaged plants, bouquets, and Roses, that abounded in the horticultural show. The horticulturists in the eastern counties are, however, wise in their generation. If Flora cannot draw they try music, not only as a part of the programme of the show—that is common everywhere—but as a separate allurement in the evening. To make the music more attractive, and also help to pay the piper, the grounds are cleared at 6 o'clock, and a new charge made for the evening promenade concert.

With the exception of the 1st prize stand of Roses few were quite up to the average of merit. Mr. Nichol, of Drinkstone, took first honour easily in the special prize class for thirty-six Roses, and the best twenty-four Roses. In these stands there were some magnificent flowers of the Duke of Edinburgh, Charles Lefebvre, Niphetos, La France, Céline Forestier, Marie Baumann, Marie Rady, Souvenir d'un Ami, &c.

Mr. Blair, gr., Shrubland Park, swept off all the special prizes for fruit and vegetables. In his eight varieties of fruit were some fine Melons, extraordinary Bananas, good Grapes, Peaches, Nectarines, &c. His twelve varieties of vegetables were also most creditable productions, and included a choice dish of Mushrooms and Tomatos.

The cut flowers of Zonal Pelargoniums were remarkably good, and very numerously shown; some of the trusses being of enormous size. Two nice lots of Phlox Drummondi, of very bright colour and remarkably distinct, sustained the character of this fine old annual. Several stands of Sweet William were unusually good, while the twelve cut Verbenas shown by Mr. Baker, of Combes, and Mr. Tison of Stowmarket, were so unusually good, and so nearly alike in merit, that the judges after taking them one by one, decided that they were equal 1st.

There was also more competition for twelve herbaceous plants, which were unusually good, the annuals in bunches not being comparable to them. Mr. Hives, of Ipswich, had it all his own way in Pinks, Picotees, and Carnations, and doubtless would have stood fast had there been a score of competitors, instead of only two or three. The wild flowers collected by the children were pretty numerous, but not very tastefully arranged. Wedding and other bouquets were well done, the bouquets made by unmarried ladies for the special prizes being in some respects equal to the others, and the table decorations remarkably pretty. The contest was between grace and beauty, and for a time grace seemed about to win; but the judges to one went for the fuller furnishing and higher colouring, which brought another 1st to Mr. Nicholls, though Mr. Rose's decorations were the perfection of grace, and the Messrs. Gilbert's also pretty, but rather overloaded with flowers.

Two more collections of plants suitable for dinner-table were arranged in the centre of the table, and were then grouped as if in actual use.

Among the plants shown the finest were the Zonal Pelargoniums, remarkably well trained and flowered, and some very creditable stove, greenhouse, and foliage plants, including Palms and Ferns. The cottagers' exhibits—an invariable attraction at these provincial shows—were remarkably good, though we can by no means endorse the now almost hackneyed expression of the secular press that "the cottagers beat the gentlemen gardeners all round for vegetables," &c. It is ever, however, pleasing to note the general excellence of the flowers and vegetables, and to state that the Potatos, which were numerous and good in both sections of the show, were free from disease.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, JUNE 30, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
June	In.	In.	°	°	°	°	°	°			In.
24	30.02	+0.21	72.5	53.9	18.6	61.2	+ 0.3	52.6	74	N.: N.N.E.	0.00
25	29.86	+0.04	76.0	54.2	21.8	62.4	+ 1.3	55.7	79	WSW	0.00
26	29.74	−0.08	72.6	55.0	17.6	62.1	+ 0.9	50.7	67	S.S.W.: W.: WNW	0.00
27	29.82	0.00	71.6	49.0	22.6	58.9	− 2.4	49.6	71	S.S.E.: S.	0.00
28	29.66	−0.16	66.0	53.4	12.6	58.3	− 3.0	53.9	85	S.: S.S.W.	0.40
29	29.67	−0.15	70.5	56.3	14.2	61.1	− 0.2	55.9	83	S.E.: S.	0.05
30	29.67	−0.15	65.4	56.2	9.2	58.6	− 2.6	54.4	86	WSW: S.W.	0.01
Mean	29.78	−0.04	70.7	54.0	16.7	60.4	− 0.8	53.3	78	variable	sum 0.46

June 24.—Fine, but dull and cloudy in morning. Fine and bright afterwards.
— 25.—Fine, bright, and partially cloudy throughout.
— 26.—Overcast, and dull in morning. Fine and bright afterwards.
— 27.—A very fine clear day.
— 28.—Overcast, dull, and showery. Fine at times.
— 29.—Fine, but dull and cloudy throughout. Rain in early morning.
— 30.—Dull, and nearly overcast throughout. Occasional thin rain.

—— During the week ending Saturday, June 26, in the neighbourhood of London the reading of the barometer at the level of the sea decreased from 29.97 inches on the morning of the 20th to 29.82 inches by the morning of the 21st, steadily increased to 30.20 inches by the morning of the 23d, decreased to 30.18 inches by the afternoon of the same day, increased to 30.24 inches by the morning of the 24th, and decreased to 29.93 inches by the end of the week. The mean reading for the week was 30.05 inches, being 0.26 inches higher than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged between 58¼° on the 21st and 76° on the 25th, the mean weekly value being 69½°. The lowest temperatures of the air varied from 47¾° on the 22d to 55° on the 26th, with a mean for the week of 52¼°. The mean daily range of temperature in the week was 17¼°, varying from 7¼° on the 21st to 24½° on the 24th. The mean daily temperatures of the air and the departures from their respective averages were as follows:—20th, 57°, — 2°.9; 21st, 53°, — 7°.1; 22d, 57°, — 3°.4; 23d, 57°.9, — 2°.8; 24th, 61°.2, + 0°.3; 25th, 62°.4, + 1°.3; and 26th, 62°.1, + 0°.9. The mean temperature for the week was 58°.7, being 2° below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo placed on grass in sun's rays, were 135½° and 136¼° on the 25th and 26th; on the 20th and 21st 95° and 82¾° were the highest readings. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 47¾° and 46½° on the 21st and 22d; on the 20th 51½° was the lowest reading. The mean for the several low readings was 49¾°.

The direction of the wind was variable, and its strength gentle.

The weather during the week was dull, though fine at times and the sky generally cloudy.

Rain fell on one day; the amount collected was 0.08 inch.

In England the extreme high day temperatures ranged from 83° at Sunderland, 82° at Norwich, to 67° at Truro; the general average all over the country was 75°. The extreme low night tempera-

tures varied between 49½° at Liverpool, and 39½° at Bristol; with a general average of 44½°. The mean of the extreme ranges of temperature in the week was 30¾°; the greatest range being at Norwich, 39°, and the least at Truro, 19°. The mean high temperatures observed by day ranged from 74½° at Cambridge to 63½° at Liverpool, the general average being 69¾°. The mean low temperatures observed by night varied from 53½° at Truro, to 48¼° at Bristol and Norwich, with an average value of 51°. The mean daily range of temperature in the week was 18¾°, the greatest range being 24½°, at Cambridge, and the least 11°, at Liverpool. The mean temperature for the week was 58¼°, being 2¼° higher than the value for the corresponding week in 1874. The highest in the week occurred at Sunderland, 61°, and the lowest at Liverpool, 56¼°. The amounts of rain measured at the several stations varied from half an inch nearly at Bristol to two-hundredths of an inch at Wolverhampton and Bradford. At Leicester and Sheffield no rain fell. The average fall over the country was one-tenth of an inch.

The weather during the week for the most part was dull, and the sky generally cloudy. At Birmingham and Leicester it was very fine throughout.

In Scotland the highest temperatures varied from 74° at Aberdeen to 64½° at Glasgow, the general average being 68½°. The lowest temperatures ranged between 47¼° at Leith and 41½° at Aberdeen, the mean value being 44½°. The mean range of temperature in the week was 24°. The mean temperature for the week was 56½°, being 2° lowre than that of England, and ¾° higher than the value for the corresponding week in 1874. The highest was at Dundee and Leith, both 58¼°, and the lowest at Paisley, 55°. The fall of rain ranged from 1¼ inch at Glasgow to a quarter of an inch at Leith. The average fall over the country was three-quarters of an inch.

At Dublin the highest temperature was 74½°, the lowest 40¼°, the mean 56½°, and the fall of rain half an inch. JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

FRUIT HOUSES.

THE ORCHARD HOUSE.—Such fruit trees in this structure, as the *Peach*, *Nectarine*, *Plum*, *Pear*, &c., should all before this time have had their fruit carefully thinned out wherever found necessary, and will now be rapidly swelling off the portion left upon them for a crop; and in order to encourage this as much as possible the trees should have liberal treatment, such as rich mulchings and liquid manure. More particularly will this be necessary where the trees are in pots, and carrying a heavy crop of fruit. A genial moist atmosphere should also be maintained by copious syringings every evening when the weather is warm, and by closing the ventilators somewhat early, when in any degree cold, and during high wind. Examine the trees frequently, and disbud or pinch back strong shoots, so as to keep the trees in proper form; but at the same time avoid denuding the trees too much at any one time, as this is likely to throw them into an unhealthy condition.

Cherries in this house will now be ripe, and syringing in their case must be discontinued. It is necessary, however, that the trees should be kept perfectly clean, and if any portion of the hard-to-kill black-fly still remains upon them, they will increase very rapidly when the syringings are discontinued, to the great injury of the trees, as well as rendering the fruit unfit for use. If the trees are growing in pots it is advisable to move them into a separate structure if practicable, when fumigation, if necessary, could be applied, and when the atmosphere could be kept perfectly cool and dry, in order to keep the fruit in perfection as long as possible, and where it could be protected from birds and insects by the use of Haythorn's hexagonal netting; or the trees may be placed by themselves in some part of the orchard-house. As this is being done, they should be thoroughly cleaned, the end of each shoot examined, and if any aphis are found upon them, let such be well washed with the fingers, which should be frequently dipped in tolerably strong tobacco-water; or the infested foliage may be well dusted with Pooley's tobacco-powder during some calm evening, when on the following morning a thorough and final washing with the garden-engine should be administered.

Fig trees in pots, as well as those planted out, are this season bearing abundant crops of fruit, which is fast approaching the most critical stage of its development; and to prevent it from dropping off the plants should be well supplied with water, and every care taken to prevent them receiving anything like a check, which would be very likely to produce this effect. The points of all strong-growing shoots should be pinched out, while weak and unnecessary ones should be rubbed off altogether.

In nearly all orchard-houses there are spaces where the *Grape Vine* may to some extent be successfully cultivated, without in any way interfering with the growth or well-being of the other kinds of fruit trees. Should the structure be span-roofed, a single rod may be trained round the ends and under the apex of the roof, or to a wire stretched over the centres of the paths, &c. The shoots produced upon this rod should be stopped at the joint next to the bunch, and each shoot should be carefully drawn in and secured to this wire, so that the rod with the young shoots thereon will form a compact cordon, which will throw but little shade on the trees, &c., below, and from which the bunches of Grapes will gracefully depend, and produce a very pleasing effect. A bed of rich soil should be prepared for the roots of the Vines, and this may be either inside the structure or out, as may be most convenient; and the varieties of Grapes best suited or most likely to get thoroughly ripened in an unheated orchard-house will be such sorts as the *Black Hamburgh*, *Royal Muscadine*, *Sweetwater*, *Esperione*, *Black Cluster*, &c. *P. Grieve*, *Culford*, *Bury St Edmunds*.

MELONS.—As fast as houses become cleared of their crops root out the plants forthwith, pits and frames likewise, and make the necessary preparations by way of getting together the dung and soils previous to a fresh start. The old soil should be removed and where bottom-heat is supplied by fermentation only a portion of that should also be removed and a little more hot dung worked in, which will revive the bottom-heat sufficient for this season of the year. Make everything clean and sweet and observe cleanliness throughout; much of the after success of the plants depends upon having a good start. Plant on hillocks rammed down fairly tight, and maintain a moist humid atmosphere. Pot off the plants recommended to be sown in the last Calendar, and keep them sturdy. Continue to set the female blossoms every day and to earth up the roots directly that process is completed. I have previously recommended that the plants should not be fumigated, nor the knife used during the setting period; the only means of securing a full crop has also been pointed out. Little, therefore, now remains to be added. I would, however, caution the cultivator to be ever on the alert for canker at the collar, which, when once established, makes rapid progress, doing great mischief. The certain remedy is freshly-slaked lime pressed well into the affected parts. Still beware of cracked fruits, also, and maintain a much drier condition of both the roots and atmosphere directly any are manifest. In removing fruits slightly under-ripe, to prolong the season of supply, take care to remove a considerable portion of stem with them. Shade no more than is absolutely necessary. Feed liberally plants which are swelling off their fruits in pots and boxes, and keep the growths fairly thin. *T. Simpson*, *Chelmsford*.

VINES.—The principal work in vineries now will be to keep the lateral growths within reasonable bounds, and the Borders in a proper state of moisture. To late crops swelling their fruit give abundance of manure-water, or, better still, mulch the borders with rich manure, and water over it. The weather we are now having—dull and muggy, with occasional strong gleams of sunshine—is the worst that can be for varieties of Grapes that are at all liable to scald. The best preventive is a rather high night temperature, with abundance of air in the day-time. Be especially cautious about closing the houses early at this critical period. The liability to scald does not extend over a period of more than ten days, during which time special attention should be given to airing, &c. Grapes colouring should have plenty of air, air, and although the nights may be warm, a little fire-heat will be found of immense service in the perfecting of the crop. Pot Vines that have completed their growth should now have less moisture. Syringing should be discontinued, and the roots kept in a medium state of moisture, and free access of air and sunshine promoted. *W. Wildsmith*.

Answers to Correspondents.

ALSACE CUCUMBER: *Herm. Ludwicke Nachfolger*. We cannot say where seeds of this variety can be obtained, but you might apply to M. Carrière, Jardin des Plantes, Paris.

CALCEOLARIAS DISEASED: *D*. The disease is far from uncommon in Calceolarias, and in great varieties of soil. It is probable that the cause is of early date. In every case the part first affected seems to be the base of the stem, which has healthy tissue enough for a time to carry on vegetation, just as is the case with gumming in Apricots. At last it spreads so far, that the whole plant becomes unhealthy, and ultimately perishes. At what precise period it commences is very uncertain. If the above view is correct, the history of the whole progress, from the time that the cuttings were made to the death of the plant, can alone tend to ascertain the cause, which may, after all, be something over which your gardener has no control. *M. J. B.*

CONIFERS: *Cranbourne*. Grafting is generally done a little earlier than this, but it is not too late yet.

FASCIATED ANTIRRHINUM: *W. R.* Many thanks; a fine specimen—due to the formation of a number of flower-stems side by side.

GRAPES SPOTTED: *F. Cooper*. Your queries are quite unintelligible. Do you mean by spotted that there is rust upon them, or have you been syringing them? If the latter, the water from your slate tank is not so much at fault as your practice; if the former, the water is not the cause at all.

INSECTS: *A. D.* The beetle sent is not one which produces grubs like Nut maggots. It is Abax melanarius, one of the Carabidæ, which feeds on other insects and worms. *I. O. W.*—*J. C.* The insect sent, which is destroying the young shoots in your vinery, is the weevil, Otiorhynchus vastator. Lay sheets under the Vines, and visit them after dark with a lantern, when the beetles will fall to the ground as if dead. *I. O. W.*—*Ed.* The galls on Elm leaves are caused by an aphis, which buries itself within the gall, where it lays its eggs, and its progeny are hatched in considerable numbers. *I. O. W.*

KLEINIA REPENS: *X. Y. Z.* This is a succulent greenhouse plant, with short fleshy leaves of a glaucous blue colour, and frequently bedded out in a small state.

MASDEVALLIA TROCHILUS: *C. Lucas*. Many thanks.

MONSTROUS FOXGLOVE: *S., Bournemouth*. The fusion of several of the topmost flowers into one is not uncommon.

NAMES OF PLANTS: *Ignoramus*. It is not a grass at all, but Acorus gramineus variegatus.—*Amateur*. An Iresine, we cannot say which from such a scrap. Your other question is unintelligible.—*A. S. K.* Pyrus torminalis.—*B. Clifton*. 1, Too small, and washy in colour; 2, Scolopendrium vulgare ramo-marginatum; 3, Athyrium Filix-fœmina apicale; 4, apparently Adiantum Cunninghami.—*J. C. L.* 1, 2, 3, 4, all forms of Selaginella Martensii; 5, S. Ludoviciana; 6, S. apus.—*P. W. J.* Carex muricata.—*W. H. K.* Sclerochloa rigida: order Gramineæ, tribe Festuceæ.—*K.* Cyrtanthus Mackenii.—*Victor*. 2, Lindefofia spectabilis; 3, Sidalcea; 4, Aster; 5, Potentilla; 6, Campanula glomerata (?). It is impossible to name specifically such small scraps as those you send; if you send good specimens we can name them for you.—*A. G. G.* Rhododendron ferrugineum.—*W. S.* We have not yet been able to determine the name of your Orchid.—*A Very Old Subscriber*. Probably L. dauricum, but the flower was withered when we received it.—*E.* Atriplex patula, the wild Orach, a common weed in waste places. Might be used as Spinach.—*W. A. M.* We do not undertake to name garden varieties, such as your Coleuses.

PEACHES AND NECTARINES: *West End*. Your trees are, no doubt, in poor condition at the roots; and, indeed, we should judge from the exhausted condition of the shoots sent that the roots are doing nothing for the support of the trees. Whether this is the case or not, you are the best judge; we cannot suggest any other cause for their sad appearance.

PINGUICULA GRANDIFLORA: *C. E. F.* Dr. Hooker, in his *Student's Flora of the British Islands*, gives the distribution of this plant as follows:—West of France, Alps, and Pyrenees, Spain, and Portugal.

PROLIFEROUS ROSE-BUDS: *Erith*. Such outgrowths are very common, and are the result of growth continuing after the period when it is usually checked.

VINE CULTURE: *Anxious*. 1. Not unless the border is inside, and absolutely wanting water. 2. Air should be given night and day, and the temperature in the day-time by sun-heat may be as high as you like compatible with safety, which means plenty of air. 3. All depends upon the size of the bunches; about 14 lb. would be a fair crop for your canes. If you keep the laterals regularly stopped, and allow plenty of air, you ought to have no difficulty in colouring your Grapes.

COMMUNICATIONS RECEIVED.—J. R. J.—D. T. F.—A. M.—J. R. Hay (send the flowers packed in moss in a box, and through the post).—W. Hinds.—H. J. H.—B. C.—H. G. W. S.—B. W. J.—C. W. D.

Markets.

COVENT GARDEN, July 1.

Supply well kept up; a large quantity of Kent goods now being placed on the market, comprising Cherries, Currants, and Gooseberries. Importations of soft fruits have fallen off, with the exception of Apricots. Hothouse Grapes, Peaches, Pines, and Melons of English growth are in fair request, but there is not that life in the trade usual at this season. *Thos. Taylor*, *Wholesale Apple Market*.

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Leeks, per bunch ..	0 2	0 4
Asparagus, p. bundle	5 0	6 0	Lettuces, per score..	1 0	..
— French, p. bund.	4 0	15 0	Mint, per bundle ..	0 4	..
Beans, French, p. 100	2 6	..	Mushrooms, per pott.	1 0	2 0
— broad, per bushel	5 0	..	Onions, young, bun.	0 4	0 6
Beet, per doz. ..	1 0	2 0	Parsley, per bunch..	0 4	..
Cabbages, per doz. ..	1 0	2 0	Parsnips, p. doz. ..	0 9	1 0
Carrots, do.	0 6	..	Peas, per quart ..	1 6	..
Cauliflowers, spring, per doz.	2 0	..	Radishes, per bunch.	0 2	0 4
Celery, per bundle ..	1 6	2 0	Shallots, per lb. ..	0 3	..
Cucumbers, each ..	1 0	2 6	Salsify, per bundle ..	1 6	..
Endive, per doz. ..	1 0	2 0	Sprue, French, bund.	1 6	..
Herbs, per bunch ..	0 2	0 4	Tomatos, per doz. ..	4 0	..
Horse Radish, p. bun.	3 0	5 0	Turnips, per bundle.	0 8	..
			Veg. Marrows, doz.	2 6	..

Potatos, old:—Regents, 80s.; Flukes, 120s.; and Victorias, 120s. per ton. New: Lisbons, 6s. to 10s.; Kidneys, 10s. to 12s.; and Rounds, 7s. to 10s. per cwt. Old Potatos nearly finished.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	3 0–	4 0	Oranges, p. 100 ..	8 0–	12 0
Apricots, per box ..	1 0–	3 0	— Malta, per doz..	2 0–	3 0
Cherries, per lb. ..	0 6–	1 6	Peaches, per doz. ..	6 0–	24 0
Figs, per doz. ..	6 0–	12 0	Pine-apples, p. lb. ..	6 0–	10 0
Grapes, English, lb.	4 0–	10 0	Strawberries, per lb.	0 6–	2 0
Lemons, per 100 ..	8 0–	12 0	Walnuts, p. bush. ..	16 0–	..

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, 12 blooms	1 0–	3 0	Pæonies, 12 bun. ..	4 0–	12 0
— Clove, per doz ..	0 9–	1 6	Pelargoniums, 12 spr.	0 6–	1 6
Cornflower, p. doz. bun.	3 0–	6 0	— Zonal, do. ..	0 3–	1 0
Deutzia, per bunch ..	0 4–	1 0	Primula, dbl., p. bun.	0 9–	1 6
Eschscholtzia, 12 bun.	3 0–	6 0	Ranunculus, p. bun.	0 4–	1 0
Eucharis, per doz. ..	6 0–	12 0	Roses, indoor, p. doz.	2 0–	6 0
Gardenia, per doz. ..	2 0–	6 0	— outdoor, 12 bun.	4 0–	9 0
Heliotropes, 12 spr.	0 6–	1 0	— Moss, 12 bun. ..	6 0–	12 0
Lilies, white, p. bun.	1 0–	3 0	Spiræa, 12 sprays ..	1 0–	3 0
Mignonette, 12 bun.	4 0–	6 0	Stephanotis, 12 sprays	2 0–	6 0
Myosotis, per bunch	0 4–	0 9	Stocks, 12 bun. ..	6 0–	12 0
Nemophila, 12 bun. .	1 6–	3 0	Sweet Peas, 12 bunch.	4 0–	9 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz. ..	6 0–	12 0	Lilium lancif., p. doz.	24 0–	60 0
Bouvardias, do. ..	9 0–	18 0	Lobelia, do.	4 0–	9 0
Calceolarias, do. ..	6 0–	18 0	Mignonette, do. ..	4 0–	9 0
Crassula, do. ..	18 0–	30 0	Myrtles .. do.	3 0–	9 0
Cyperus, do.	6 0–	12 0	Pelargoniums, dble.,		
Dracæna terminalis	30 0–	60 0	per doz.	6 0–	12 0
— viridis, per doz.	12 0–	24 0	— Scarlet, do. ..	4 0–	9 0
Ficus elastica ..	1 6–	7 6	Petunia, per doz. ..	6 0–	9 0
Fuchsia, per doz. ..	6 0–	18 0	Roses, do.	12 0–	60 0
Gardenias, do. ..	12 0–	60 0	Solanums, do. ..	6 0–	18 0
Heaths, in var., doz.	12 0–	30 0	Spiræa, do.	12 0–	24 0
Heliotrope, per doz.	6 0–	12 0	Stock, do.	3 0–	6 0
Hydrangeas, per doz.	9 0–	24 0			

SEEDS.

LONDON: *June* 30.—The agricultural seed trade now exhibits its usual summer torpor. Just at present we have, of course, no consumptive demand, so that in the absence of all speculation business has come to a stand-still. We have had a few inquiries from France for new English Trifolium, the quality to be fair average, and the delivery to be made in four or five weeks' time; but hardly any actual transactions have as yet resulted. What will be the quality of our home grown seed is still a matter of doubt. Sowing Mustard and Rape seed are without change. With regard to the former the breadth saved for seed in this country is believed to be very narrow. Canary seed can now be bought at a decline of £4 per quarter from its recent famine price: the fall on the past week is fully half a sovereign per sack. In Hemp seed an advance has been established of 1*s.* per quarter; blue boiling Peas, having become scarce and being in good request, are easily placed. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday buriness was dull. The supply of English Wheat was small; and that of foreign was not extensive, but sales were difficult to close in both descriptions, and the rates of Monday last were not exceeded in any instance. Barley had a downward tendency. Malt changed hands slowly on rather lower terms. Oats experienced very little demand, and prices were not supported in all cases. Maize was flat, at a decline of from 6*d.* to 1*s.* per quarter on the week. Beans and Peas were nominally unaltered in value. The flour trade was inactive, and the quotations were hardly so firm.—There was little change in the market on Wednesday. The supplies of English Wheat were short, and holders seemed indisposed to give way in price, but there were liberal arrivals of foreign Wheat, and for this somewhat lower rates were accepted. Barley and malt remained dull, and the value of both Oats and Maize had a drooping tendency. Beans and Peas were quiet, while the quotations for flour were with difficulty upheld.

HAY.

From Whitechapel we learn that there was a small supply, and all descriptions of fodder sold steadily at very full prices. Prime Clover, 100*s.* to 136*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 136*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 35*s.* to 38*s.* per load.—From the Cumberland Market we have the following quotations:—Superior old meadow hay, 138*s.* to 147*s.*; inferior, 100*s.* to 112*s.*; new hay, 90*s.* to 110*s.*; superior old Clover, 134*s.* to 140*s.*; inferior, 110*s.* to 120*s.*; new Clover, 95*s.* to 110*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

The reports from the Borough and Spitalfields markets are to the effect that the trade for both new and old Potatos is very slow, and with a heavy supply prices continue to droop. Quotations:—Old: Regents, 50*s.* to 60*s.*; Victorias, 60*s.* to 80*s.*; flukes, 70*s.* to 100*s.*; rocks, 45*s.* to 55*s.* per ton. New: Round, 120*s.* to 130*s.*; kidney, 180*s.* to 190*s.*—Last week's imports nto London consisted of 415 bags from Antwerp, 141 tons, 2577 packages Jersey, 337 casks Barfleur, 558 boxes Malta, 120 tons, 2000 packages St. Malo, 21 tons Cherbourg, 115 tons Colberg, 262 bags Boulogne, 33 casks Bordeaux, 234 baskets, 948 sacks Dunkirk, 200 packages Lisbon, and 2890 baskets and 1003 packages Rotterdam.

COALS.

Trade has been steady at previous quotations:—Bebside West Hartley, 20*s.* 3*d.*; Seaham West Hartley, 19*s.*; West Hartley, 20*s.* 3*d.*; Walls End Hetton, 22*s.* 6*d.*; Walls End Hetton Lyons, 19*s.* 9*d.*; Walls End Kelloe, 20*s.*; Walls End East Hartlepool, 22*s.* 3*d.*; Walls End Tees, 22*s.* 3*d.*

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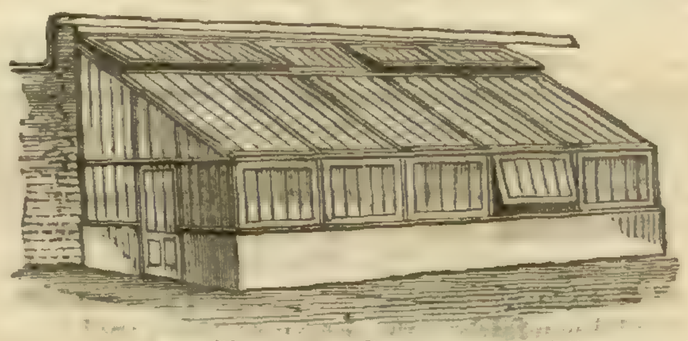

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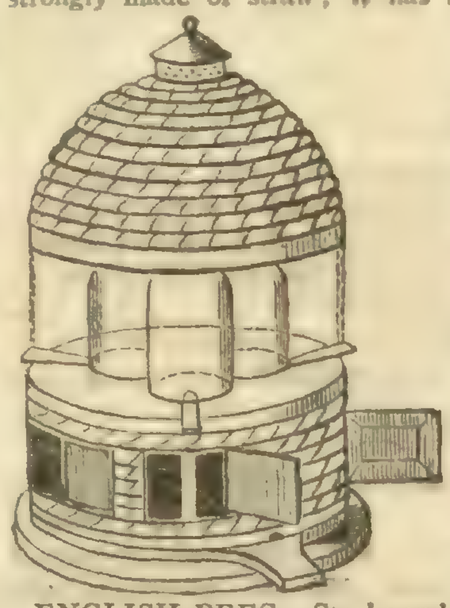

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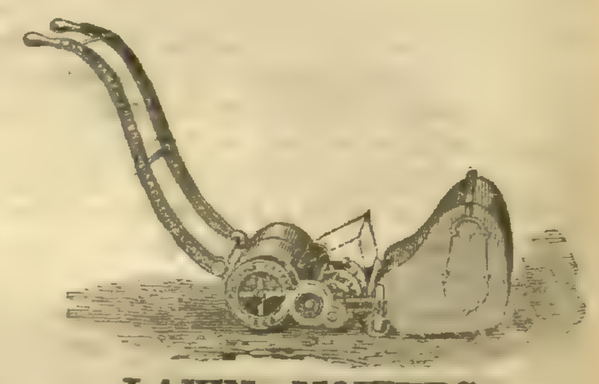

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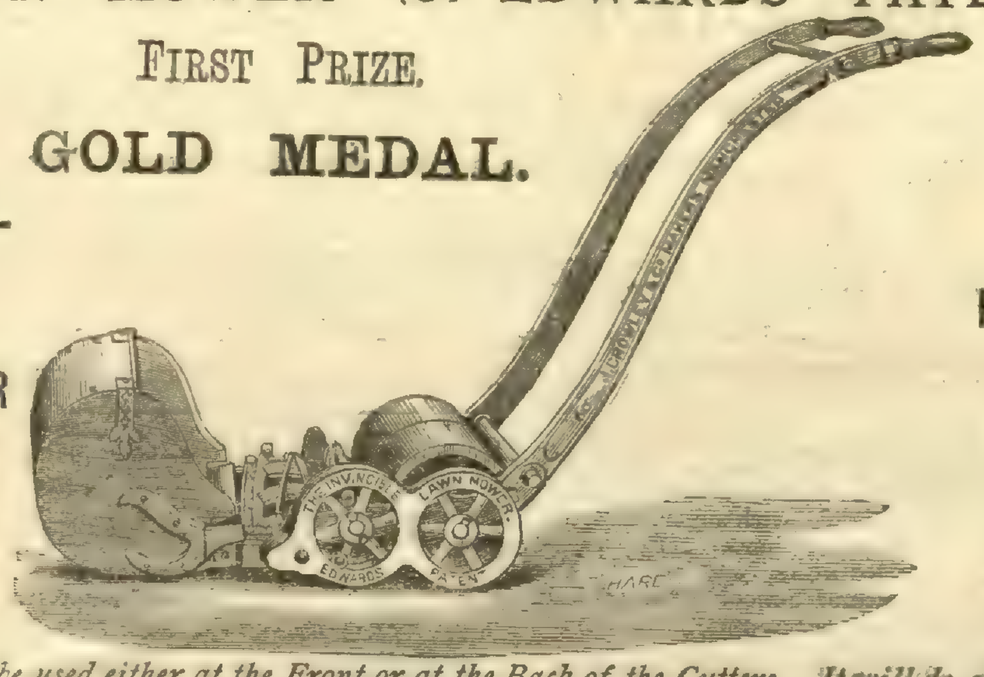

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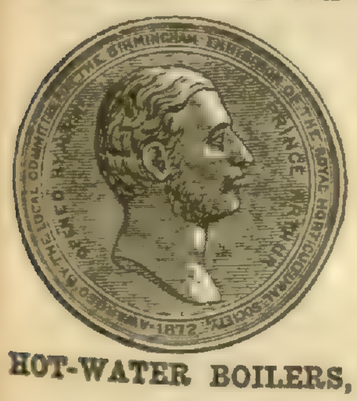

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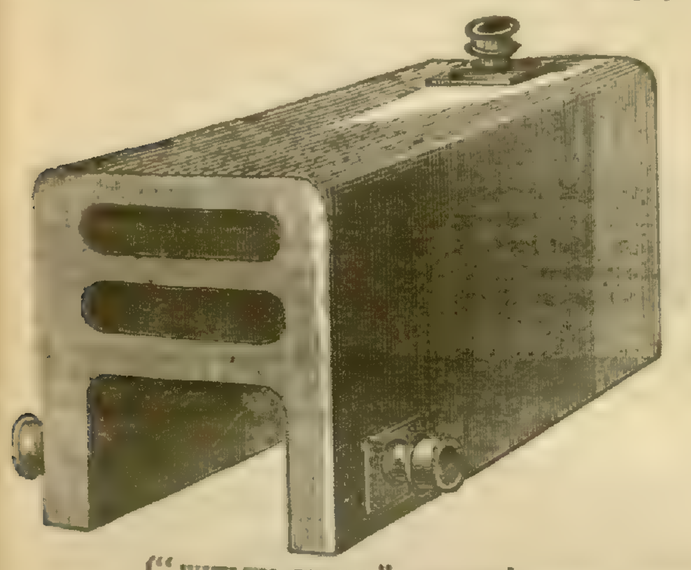

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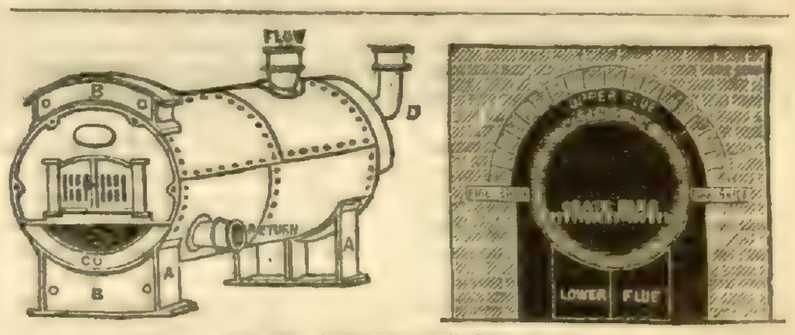

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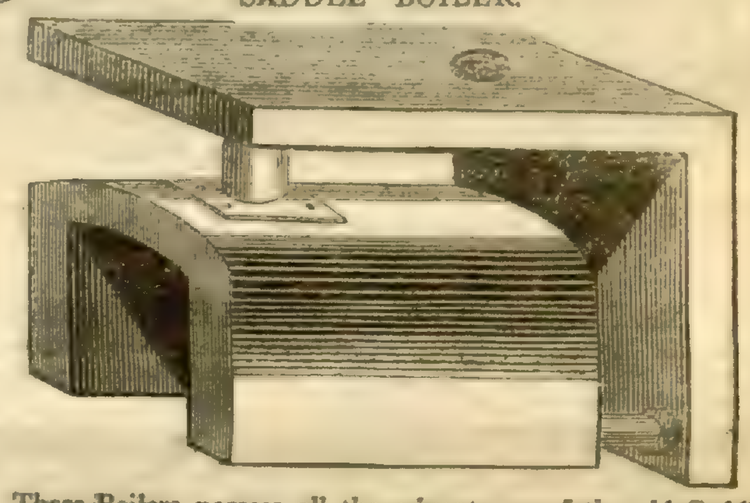

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Burial Board Office, St. Pancras Vestry Hall, July 1.

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Established 1841.

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NOTTINGHAM and MIDLAND COUNTIES GRAND ROSE SHOW and HORTICULTURAL EXHIBITION (open to all England) will be held at the ARBORETUM, NOTTINGHAM, on THURSDAY, FRIDAY, and SATURDAY, July 8, 9, and 10. The Mayor of Nottingham President; the Town Clerk Honorary Secretary. Prize List amounting to £750. Prizes for Roses upwards of £240. Space will be allotted for the exhibition of Horticultural Implements and Garden Furniture. Certificates of Merit awarded. Schedules are now ready, and may, with particulars, be obtained on application to

ALFRED KIRK, Municipal Offices, Nottingham.

LOUGHBOROUGH GRAND HORTICULTURAL SHOW and EXHIBITION of PLANTS, ROSES, FLOWERS, FRUITS, and VEGETABLES, open to all England, will be held on WEDNESDAY, July 14, when upwards of £250 will be awarded in Prizes. Schedules and further information may be had from

WM. PALLETT, Secretary.

ALTRINCHAM and BOWDON UNITED FLORAL, HORTICULTURAL, and ROSE SOCIETY, Cheshire.

The Exhibition this year will be held on FRIDAY and SATURDAY, July 16 and 17, when TWO HUNDRED POUNDS will be offered in Prizes. Several classes of Roses open to all England. SCHEDULES required as soon as possible.

JOHN HAMS, Secretary.

HEREFORDSHIRE AGRICULTURAL SOCIETY.

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Seedsman, Broad Street, Hereford.

WEST of SCOTLAND ROSE SHOW will be held in Westwood Park, Helensburgh, on FRIDAY and SATURDAY, July 23 and 24. Competition open to the United Kingdom. Entries close on July 17.

W. URE WADDELL, Secretary.

WESTON-SUPER-MARE and EAST SOMERSET HORTICULTURAL SOCIETY.—The THIRD ANNUAL FLOWER SHOW in connection with the above Society will be held on WEDNESDAY, August 4, 1875. TWO HUNDRED POUNDS in PRIZES. Schedules of Prizes can be obtained of

W. B. FRAMPTON, Secretary.

CLAY CROSS HORTICULTURAL SOCIETY, AUGUST 10.—Prizes open to all England for 20 Plants, £25, £20, £15, £10, £5. Other Prizes for Plants, Flowers, and Fruits in proportion. Total amount of Prizes, £363. Schedules and every information may be had on application to Clay Cross, near Chesterfield. J. STOLLARD, Sec.

HANDSWORTH (SHEFFIELD) HORTICULTURAL EXHIBITION will be held on WEDNESDAY, August 25. Class 4, open to all England. Schedules of prizes, and all particulars, may be had on application to GEO. LUNN, Secretary.

GREAT AUTUMN SHOW of 1875, in Burghley Park, Stamford, SEPTEMBER 15 and 16 NEXT.

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Lælias	Phalænopsis
Saccolabiums	Oncidiums
Dendrobiums	Masdevallias
Cypripediums	Sophronites
Cattleyas	&c., &c.

On view the morning of Sale, and Catalogues had.

Important Sale of Specimen Plants.

MR. J. C. STEVENS has been favoured with instructions from Ambrose Bassett, Esq., who in consequence of his intention to travel is parting with his plants, to SELL by AUCTION, on the Premises, Sister House, Clapham Common (unless previously disposed of by Private Contract), about the end of the month, his entire COLLECTION of PLANTS, consisting of upwards of 100 Azaleas, specimens of various sizes, all well trained plants, and in the best possible health—no expense has been spared to make this the best collection in the kingdom; a magnificent collection of Camellias, consisting of the best kinds in cultivation, all well set with bud, and varying in size from 2 to 10 feet high; a carefully selected collection of the greenhouse Rhododendrons—these are admirably adapted for decoration or for use as cut blooms; valuable Stove and Greenhouse Plants, consisting of Allamandas, Dipladenias, Crotons, Dracænas, &c.; also Orchids, Palms, Ferns, Tree Ferns, Specimen pot Roses of the best kinds, &c.

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MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL the above by AUCTION, without reserve, on the Premises, The Gardens, Burnt Ash Lane, Lee, Kent, S.E., five minutes' walk from Lee, and ten minutes' walk from Blackheath Station, on WEDNESDAY, July 14, at 12 for 1 o'Clock precisely, by order of John Pound, Esq., in consequence of a change of residence.

On view the day prior to the Sale. Catalogues may be had of Mr. BARNES, on the Premises; of Mr. B. MALLER, Florist, The Pavement, Lewisham; and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Important Preliminary Announcement.

To the NOBILITY, GENTRY, HORTICULTURISTS, &c.
ATTRACTIVE SALE of the Extensive and Valuable Collection of STOVE and GREENHOUSE PLANTS formed by the late Mr. Bewley, of Blackrock, County Dublin.

MESSRS. BENNETT AND SON respectfully announce that they have been favoured with instructions from the Executor of the late Thomas Bewley, Esq., of Rockville, Blackrock, County Dublin, to SELL by AUCTION, on the Premises, on WEDNESDAY, July 14, and following days, the entire important and valuable Collection of STOVE and HOTHOUSE PLANTS, which embraces some of the rarest and largest specimens of Ferns and Orchids in the United Kingdom, and for which this Collection has been so long and so justly celebrated, bearing, as it does, an almost European reputation, it having been formed, not only regardless of expense, but with a highly cultivated knowledge, as well as matured judgment and refined taste.

Full particulars will be duly announced. Descriptive Catalogues, price 1s. each, are now in course of preparation, and will be ready for distribution ten days previous to the Auction (without which the Collection cannot be viewed), and may be had only on application to the Auctioneers, BENNETT AND SON, 6, Upper Ormond Quay, Dublin.

Worcestershire, in the far-famed Vale of Evesham.

MESSRS. CHESSHIRE AND GIBSON have received instructions to SELL by AUCTION, on THURSDAY, July 15 inst., at the "Hen and Chickens Hotel," in New Street, Birmingham, at 4 for 5 o'Clock in the afternoon, in one lot, a very excellent FREEHOLD ESTATE of 240 Acres, known as "Seaford Grange," situated at Peopleton, within 1½ mile of the Pershore Station on the Great Western Railway.

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Full particulars and Plans may be obtained of H. G. GOLDINGHAM, Solicitor, or A. BUCK, Estate Agent, both of Worcester; Messrs. CAPRON AND CO., Solicitors, Guildford; or to the Auctioneers, Messrs. CHESSHIRE AND GIBSON, 93, New Street, Birmingham.

Maida Vale, St. John's Wood, N.W.

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MESSRS. TUNLEY AND BOYLE will SELL by AUCTION, at the Mart, Tokenhouse Yard, E.C., on JULY 22, at 1 o'Clock precisely, in one lot, the very valuable old-established Nursery Grounds known as VIDEON'S NURSERY, possessing a frontage to the Edgware Road of 121 feet, and to the St. John's Wood Road of 227 feet, together with the elegant Conservatories, Greenhouses, Forcing-houses, Propagating-houses, Forcing Pits, Potting Sheds, &c.: also the comfortable ten-roomed Dwelling House, conveniently placed within the Grounds, Stabling for six Horses, two Coach-houses, &c. The whole containing an area of nearly three-quarters of an acre, 10,000 feet of which is covered with Glass. Held for a long term at the very low ground-rent of £42 per annum. A large and lucrative trade has been carried on for many years, and a Property of this description is seldom to be obtained in such a desirable situation.

Particulars and Conditions of Sale may be had on the Premises; at the Mart; of Messrs. WEBB, STOCK, AND BURT, Solicitors, 11, Argyll Street, Regent Street, W.; and of the Auctioneers, 22, Budge Row, Cannon Street, E.C.

Aldenham Abbey, near Watford, Herts.

Valuable GREENHOUSE and STOVE PLANTS, FURNITURE, &c.

MR. JOHN D. WOOD (for Mr. Leonard W. Collmann), having let the Mansion, has to announce for SALE by PUBLIC AUCTION, on the Premises, on WEDNESDAY and THURSDAY, July 28 and 29, at 1 o'Clock punctually, the choice Collection of PLANTS, including some thirty Tree Azaleas, forty-eight smaller do., twenty-five Camellias, seven Rhododendron arboreum, Araucaria, Eriobotrya, Melaleuca, Cytisus, Deutzia, Agapanthus, Pelargoniums, Begonias, Fuchsias, Bedding Plants, &c.; also the useful FURNITURE.

May be viewed two days prior to Sale. Catalogues may be had at the neighbouring Hotels, and at the Offices of the Auctioneer, 19, Mount Street, Grosvenor Square, London, W.

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For further particulars, and to view, apply to Messrs. SCOTT AND ELLIS, Solicitors, The Arcade, Wigan.

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FOR SALE, Valuable FREEHOLD PROPERTY, situated on the London Road, East Grinstead, two minutes' walk from the Railway Station, possessing every facility for doing a large and profitable trade. Premises comprise Dwelling-house with Shop, Greenhouses, Forcing-house, Pits, Potting Sheds, and 2¼ acres of excellent Garden adjoining, well supplied with water.

The reason of its now being disposed of is the declining health and necessary retirement from business of the proprietor.

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FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

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ALBUCA AUREA	1s. to 2	0
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CRANSTON'S CRIMSON BEDDER; strong plants, in 5-inch pots, 30s. per dozen.
TEA-SCENTED, CHINA, NOISETTE, and HYBRID-PERPETUAL ROSES, in 4 and 5-inch pots, 9s. to 15s. per doz.
Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.
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Evergreen Shrubs for Present Planting.

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SUPERB STRAIN OF

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	Per packet.—s.	d.
CALCEOLARIA, Williams' superb strain, 1s. 6d., 2s. 6d., 3s. 6d. and	5	0
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GLOXINIA, saved from the finest drooping varieties ..	1	6
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PRIMROSE, extra fine high-coloured hybrids, per packet, 2s. 6d.

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THE LARGEST AND BEST STOCK IN EUROPE.

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MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

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First-class Certificate
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Is described by the Press as—"An exquisite carmine-crimson double variety of the Primula sinensis fimbriata type, of pyramidal form and vigorous habit. Admirably adapted for a dinner-table plant. It comes quite true from seed."

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ROYAL HORTICULTURAL SOCIETY

ROSE, &c., SHOW, JULY 7.

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1st, Messrs. J. Mitchell & Sons, Piltdown Nurseries, near Uckfield.

CLASS 3.—24 ROSES, Hybrid Perpetuals only, distinct, 3 trusses of each. (Nurserymen.)
1st, Mr. G. Prince, 14, Market Street, Oxford.

CLASS 4.—24 ROSES, distinct, single trusses. (Nurserymen.
1st, Mr. G. Prince.

CLASS 5.—48 ROSES, distinct, single trusses. (Amateurs.)
1st, Thomas Laxton, Esq., Stamford.
2d, Mr. J. W. Chard, Gr. to Sir F. Bathurst, Bart., Clarendon Park, Salisbury.

CLASS 6.—24 ROSES, distinct, single trusses. (Amateurs.)
1st, T. Laxton, Esq. | 2d, Mr. J. W. Chard.

CLASS 7.—12 ROSES, distinct, single trusses. (Amateurs.)
1st, Mr. J. Ridout, Gr. to W. S. Brown, Esq., Woodhatch Lodge, Reigate.
2d, Mr. J. W. Chard.
3d, Mr. J. Tranter, Upper Assenden, Henley-on-Thames.

CLASS 10.—12 ROSES, TEA-SCENTED and NOISETTE, distinct, single trusses. (Nurserymen.)
1st, Mr. G. Prince.

CLASS 11.—12 ROSES, TEA-SCENTED and NOISETTE, distinct, single trusses. (Amateurs.)
1st, T. Laxton, Esq.

CLASS 12.—12 ROSES, distinct, single blooms. (Open.)
1st, Mr. J. Tranter.

CLASS 15.—ROSE, PAUL NERON, 12 trusses. (Open.)
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CLASS 16.—ROSE, MADAME LA BARONNE DE ROTHSCHILD, 12 trusses. (Open.)
1st, Mr. G. Prince.

CLASS 18.—ROSE, MARECHAL NIEL, 12 trusses. (Open.)
1st, T. Laxton, Esq.

CLASS 19.—ROSE, MARIE BAUMANN, 12 trusses. (Open.)
1st and Silver Medal, Mr. G. Prince.

CLASS 21.—ROSES, 1 basket of, 2 feet in diameter, cut blooms set up with Rose foliage only. (Open.)
1st, Mr. J. W. Chard.

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1st, Mr. G. Prince. | 2d, Mr. J. W. Chard.

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CLASS 26.—For a Collection of VEGETABLES (24 dishes), to include Carter's Early Premium Gem Pea, Blue Peter Pea, Carter's Commander-in-Chief Pea, James' Prolific Pea, G. F. Wilson Pea, Carter's New Mammoth Long-pod Bean, Hardy's Pedigree Windsor Bean, Carter's White Advancer French Bean, Carter's Champion Runner Bean (Peas and Beans, half-peck of each variety), Carter's New Fern-leaved Parsley Little Heath Melon.
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1st, Mr. W. Cross, £1.

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All good stuff.

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PRIMULA and CYCLAMEN.

The best strains in the kingdom, including James', Waters', and other well-known growers,

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CYCLAMEN BULBS for Christmas blooming, James' Prize, 2s. 6d. and 3s. 6d. each.

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NEW PLANTS.

Amaryllis Hendersoni
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Asplenium nobile
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MIMULUS, superb collection.
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TREE CARNATIONS, extra quality.
LOBELIAS, bedding, fine improvements, with other new Florist Flowers.

The above, first offered in Trade this season, are now ready for sending out. See full descriptions and prices in

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CALCEOLARIA, mixed colours, 1s., 2s. 6d., and 5s. per pkt.
CINERARIA, mixed, or separate colours, 1s., 2s. 6d. and 5s.
PRIMULA SINENSIS FIMBRIATA, fine strain, colours separate or mixed, 2s. 6d. and 5s. per packet.
" " Double Red, 2s. 6d. and 5s.
" " Double White, 2s. 6d. and 5s.
AURICULA, 1s. and 2s. 6d. CARNATION, 2s. 6d. and 5s.
CYCLAMEN PERSICUM, 1s. and 2s. 6d.
HOLLYHOCK, 1s. and 2s. 6d. PINKS, 1s. and 2s. 6d.
MIMULUS, 1s. PANSIES, 6d. and 1s. 6d.
SWEET WILLIAM, Perfection, 1s.
" from named flowers, 1s. and 2s. 6d.
MYOSOTIS DISSITIFLORA, true variety, 6d. and 1s.

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RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
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DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

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PURSUANT to a Decree of the High Court of Chancery, made in a cause MASTERS against JEAKINS (1875, M., No. 132), the Creditors of JAMES JEAKINS, late of Potton, in the County of Bedford, Market Gardener, deceased, who died in or about the month of April, 1875, are, on or before the 28th day of July, 1875, to send by post, prepaid, to Mr. ARTHUR CHARLES RHODES, of 63, Chancery Lane, in the County of Middlesex, a member of the firm of Rhodes & Son, of the same place, Solicitors of the Defendant, Charles Henry Croot Jeakins, the Executor of the deceased, their Christian and Surnames, Addresses and Descriptions, the full particulars of their Claims, a Statement of their Accounts, and the nature of the Securities (if any), held by them, or in default thereof they will be peremptorily excluded from the benefit of the said Decree. Every Creditor holding any Security is to produce the same before the Vice-Chancellor, Sir Richard Malins, at his Chambers, situated at No. 3, Stone Buildings, Lincoln's Inn, Middlesex, on MONDAY, the 2d day of August, 1875, at 12 of the Clock at Noon, being the time appointed for adjudicating on the Claims.

Dated this 5th day of July, 1875.

ALFRED RAWLINSON, Chief Clerk.
RHODES AND SON, 63, Chancery Lane, Middlesex, Plaintiff's Solicitors.

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ASCOTIENSIS.—The flowers are considerably larger than Jackmanni, and are well shaped, containing six petals each; colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit. 10s. 6d. each.

MRS. QUILTER.—A magnificent white flower, containing eight petals; it is the largest, smoothest, and purest of all the whites, and a very free bloomer, with strong habit. 10s. 6d. each.

The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.

Royal Nurseries, Ascot, Berks.

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PRIZE SEEDS OF FLORISTS' FLOWERS.

CALCEOLARIA, "the best," per pkt., 2s. 6d.

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PRIMULA, "the best," per packet, 2s. 6d.

Post Free.

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Large Arrival.

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Have now ready for delivery, in fine dry condition—
CORN MANURE, for spring sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
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SUPERPHOSPHATE.
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NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.

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SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6s. Supplied to Seedsmen and Chemists.

Prepared by JOHN KILINER, Wortley, near Sheffield.

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Scott's Wasp Destroyer.

J. SCOTT offers his well-known preparation to Fruit Growers at 1s. 9d. and 2s. 9d. per bottle, post free, on receipt of stamps. No one who has fruit to grow should be without it. May be obtained through all Seedsmen, or direct from

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N.B. Beware of spurious imitations.

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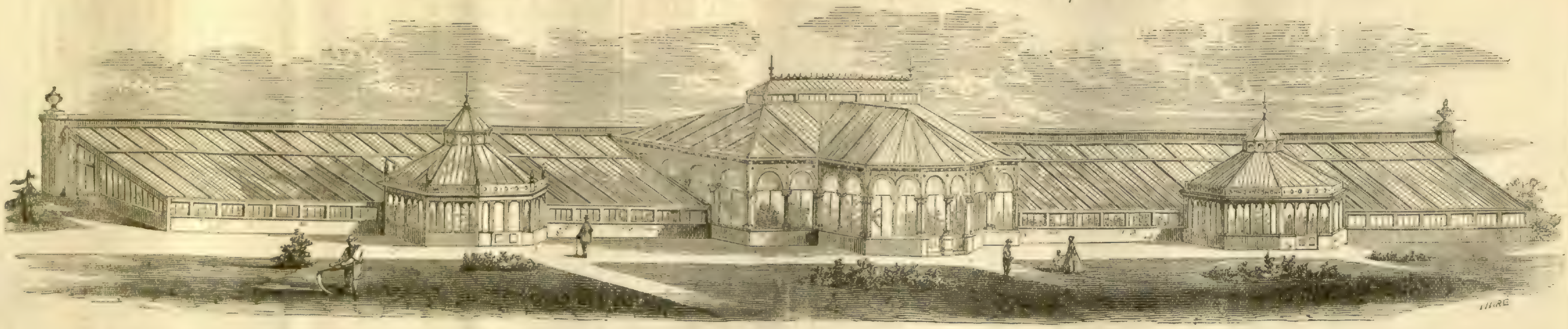

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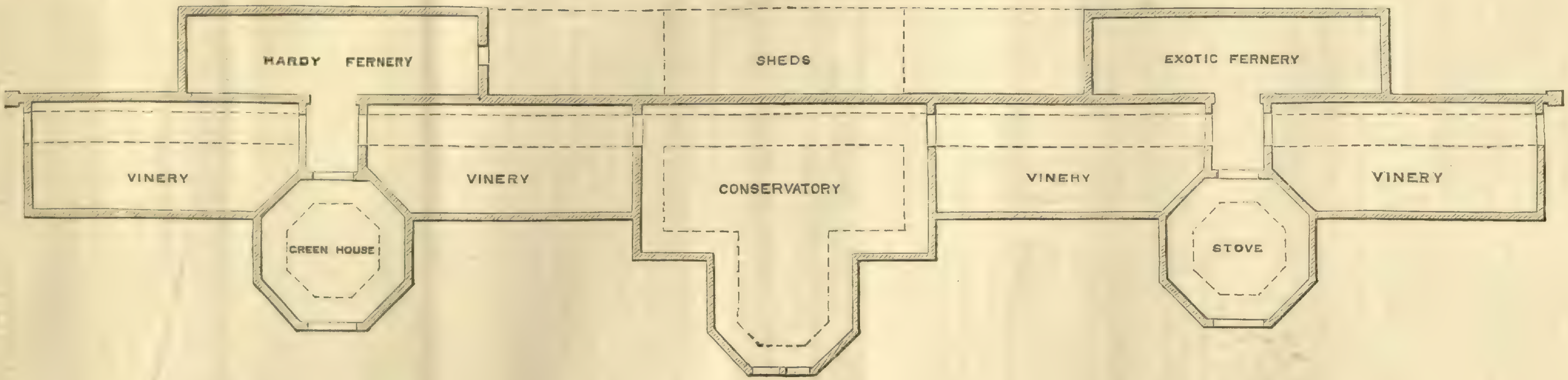

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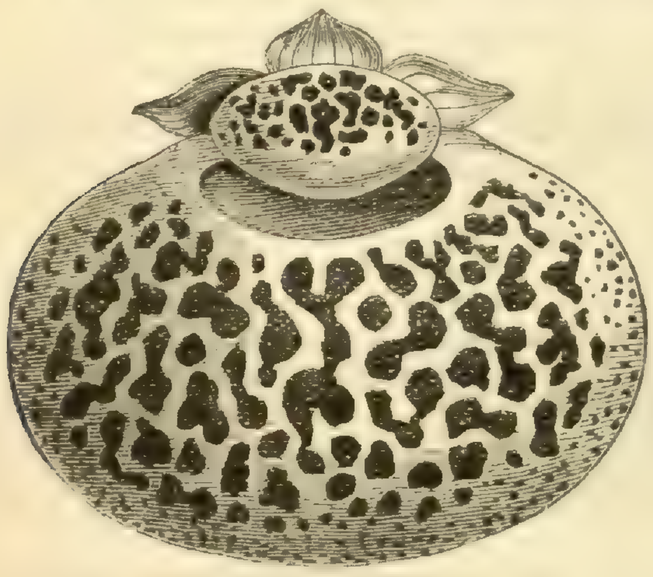

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From WALTER EDWARDS, Esq., *Wellington, Somerset, Jan.* 21, 1875.

"A more beautiful strain of Primulas than I have had this winter, from the seed you supplied me with last spring, I never saw."

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From Mr. A. ALLERTON, *Coleman's Prittlewell, May* 8, 1875.

"Our Cinerarias this year, from your seed, are splendid; far surpass any I saw at the Botanic Gardens yesterday.

The Finest Strain of Cyclamen.

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The following varieties have been carefully selected from one of the finest strains in cultivation, and, as they remain in bloom from November till March, are invaluable for decorating the conservatory or drawing-room during the winter months. The flowers also are extremely valuable for bouquets, as they retain their freshness for a considerable period when kept in water.

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RUBRUM, bright crimson.
PURPUREUM, purple.

Price 5*s.* the Collection, post free.

From W. H. MELLERSH, Esq., *Eversham Lodge, Cheltenham, Feb* 12.

"The Cyclamens I had from you last autumn have given me great satisfaction."

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THE QUEEN'S SEEDSMEN, READING.

SATURDAY, JULY 10, 1875.

THE RESTING-SPORES OF THE POTATO DISEASE.

THE Potato disease in this country is rarely seen before the month of July, but this year I received some infected leaves for examination from the Editors of the *Journal of Horticulture* at the beginning of June, and my reply to the correspondent was printed on June 10. The leaves were badly diseased, and I detected the Peronospora in very small quantities here and there, emerging from the breathing pores. This was a week or ten days before Mr. Berkeley brought the matter before the Scientific Committee of the Royal Horticultural Society (see *ante*, vol. i., 1875, p. 795), and when I heard Mr. Berkeley's remarks about the Protomyces, I immediately accused myself of great carelessness in possibly overlooking it; but I was equally certain of the presence of the Peronospora in the specimens I examined.

On receiving authentic specimens of diseased plants from Mr. Barron of Chiswick, the brown spots on the Potato leaves at once reminded me of the figures of some species of Protomyces, and the dimensions agreed tolerably well with some described plants of that genus, but the spots, when seen under a high power, appeared very unlike any fungus, and they were very sparingly mixed with other bodies much smaller in diameter, and with a greater external resemblance to true fungus spores. These latter spore-like bodies were of two sizes—one transparent and of exactly the same size as the cells of the leaf (and therefore very easily overlooked), and the other dark, reticulated, and much smaller. A few mycelial threads might be seen winding amongst the cellular tissue, and these threads led me to the conclusion that the thickened and discoloured spots were caused by the corrosive action of the mycelium, in the the same way as Peach, Almond, Walnut, and other leaves are thickened, blistered, and discolored by the spawn of the Ascomyces, as illustrated at the last meeting of the Society.

My opinion, therefore, was soon formed that the "new" Potato disease (as it has been called) was no other than the old enemy in disguise, or, in other words, that it was the old Peronospora infestans in an unusual and excited condition. That climatic conditions had thrown the growth of this fungus forward and out of season was probable; but the idea that the pest would not at length attack all and every sort of Potato was to me most unreasonable, though the more tender sorts might be the first to suffer.

Suspecting the two-sized small bodies before mentioned to be of the nature of spores, and remembering my experiments during last autumn with ketchup, in which I observed that the spores of the common Mushroom might be boiled several times, and for lengthened periods, without their collapsing or bursting, I thought I would try to set free the presumed spores of the Potato leaves by macerating the foliage, stems, and tubers in cold water. This maceration was necessary because the tissue of the diseased leaves was so opaque and corroded, and the cell-walls were so thickened that it was difficult to distinguish the threads and suspected spores from the cellular tissue. I did not treat the leaves with boiling water, because I wished to keep the threads and spores alive.

From day to day I kept the diseased leaves and stems and tubers wet between pieces of very wet calico, in plates under glass, and I immediately noticed that the continued moisture greatly excited the growth of the mycelial threads; this to me was quite unexpected, as I had merely wished to set the spore-like bodies free. So rapid was now the growth of this mycelium that after a week had elapsed some decayed parts of the lamina of the leaf were traversed in every direction by the spawn. Thinking the close observation of this mycelium in the now thoroughly rotten and decomposed leaves might end in some addition to our knowledge of Peronospora infestans, to which fungus I had no doubt from the beginning that the threads belonged, I kept it under close observation, and in about ten days the mycelium produced a tolerably abundant crop, especially in the abortive tubers of the two-sized bodies I had previously seen, and measured in the fresh leaves. The reason why these objects, which undoubtedly occur in and about the spots, are so extremely few in number in those positions is, I imagine, because they require a different set of conditions for their normal growth, and these conditions are found in abundant and continued moisture.

The larger of these bodies, the measurements of which I shall give, with a woodcut illustration, in an early number of this journal, I am disposed to consider the "oospore" of the Potato fungus, and the smaller bodies I look upon as the "antheridia" of the same fungus, which are often terminal in position. The filaments of the latter are commonly much articulated, and sometimes more or less moniliform or necklace-like. Both oospore and antheridium are very similar in nature and size to those described as belonging to Peronospora alsinearum and P. umbelliferum, and this is another reason (beyond my seeing undoubted P. infestans on Potato leaves at the beginning of June) why I am disposed to look upon these bodies as the oospore and antheridium of the Potato fungus.

The larger bodies are at first transparent, thin, pale brown, furnished with a thick dark outer wall, and filled with granules; at length a number (usually three) of vacuities or nuclei appear. The smaller bodies are darker in colour, and the external coat is marked with a few reticulations, possibly owing to the collapsing of the outer wall. At present, I have been unable to detect any fecundating tube (described as belonging to the antheridium of other species of Peronospora), but I have observed the two bodies in contact in several instances. After fertilisation has taken place, the outer coat of the oospore enlarges, and appears to be cast off. Both antheridium and resting spore are so slightly articulated to the threads on which they are borne that they are detached by the slightest touch, but with a little care it is not really difficult to see both bodies *in situ*; and my observations lead me to think that conjugation frequently takes place after both organs are quite free. The antheridia and oospores are best seen in the wettest and most thoroughly decomposed portions of the tissue of the decomposing tuber, but they occur also in both the stem and leaf. I consider Mr. Alexander Dean's remark, as reported in *Gardeners' Chronicle* for June 19 last, p. 795, to have a distinct bearing on this point, where he says:—"In all cases where the seed tubers were cut they were quite rotten."

Before I referred to De Bary's measurements of similar organs in other species of Peronospora I was disappointed with the results of my observations, and felt disposed to refer the bodies and threads in the Potato leaves to Saprolegnia, but a glance at the figures which I shall shortly publish and the similar figures copied from De Bary to the same scale, will show that if the bodies observed by me are Saprolegnia-like, the oospores and

antheridia figured by De Bary show an exactly similar alliance. Still, as the Saprolegnieæ are at present defined, I am by no means inclined to describe the bodies observed by me as really belonging to that tribe of plants.

The Saprolegnieæ have the habit of moulds and the fructification of Algæ, and they live on organic matter, animal and vegetable, in a state of putrefaction in water. One of the best known of these plants is Botrytis Bassiana, the parasite which causes the disease of silkworms. Now the genus Botrytis amongst fungi is almost or quite the same with Peronospora, to which the Potato disease belongs; and I consider it a strong argument in favour of my Saprolegnia-like bodies being the oospores and antheridia of the Peronospora when such an authority as Mr. Berkeley (*Micrographic Dictionary*, p. 6) considers one of the Saprolegnieæ (Achlya) "may be an aquatic form of Botrytis Bassiana" —the silkworm disease.

The common fungus which attacks flies (so frequently seen on our window-panes in autumn), Sporendonema muscæ, Fr., is said to be a terrestrial condition of Saprolegnia ferax, Kutz., which latter only grows in water; and if a fly infected with the fungus be submerged the growth of the Saprolegnia is the result. It would now seem to be somewhat the same with the Potato when diseased, in the fact that when submerged a second form of fruit is produced.

Between the two moulds, Botrytis and Peronospora there is little or no difference; the characters of Corda, founded upon the continuous or articulate filaments, cannot be relied upon, and even De Bary himself figures P. infestans with articulate filaments, like a true Botrytis. The intimate connection, however, between the Saprolegnieæ and some moulds cannot be denied, as the instances above cited clearly show; and I am therefore disposed to think that the fungus which produces the Potato disease is aquatic in one stage of its existence, and in that stage the resting spores are formed.

Reference should here be made to the bodies found germinating in the intercellular passages of spent Potatos by Dr. Montagne (Artotrogus), and referred by Mr. Berkeley to the Sepedoniei. Ever since Mr. Berkeley first saw these bodies he has had an unswerving faith in the probability of their being the secondary form of fruit of Peronospora infestans, but unfortunately, as far as I know, no one has ever found a specimen of Artotrogus since Montagne.

The question may, therefore, be naturally asked, in conclusion—How does Artotrogus agree with the presumed resting spores here figured and described? And has Mr. Berkeley been right or wrong in clinging so tenaciously to his first idea? Fortunately for the investigation of the Potato disease (which can never be cured till it is understood), Mr. Berkeley has given in the *Journal of the Royal Horticultural Society* the number of diameters his figures are magnified to, and I have here further enlarged those figures so as to correspond in scale with my own drawings, which latter are sketched with a camera lucida. It will be seen that they are the same with each other both in size and habit, with the exception of the processes on the mature spore of Artotrogus—which processes may possibly be mere mycelial threads, or due to the collapsing of the inflated epispore. The reason these resting-spores have evaded previous search is that no one has thought of finding them amongst leaves which had been macerated for a long period in water. There is, however, nothing unreasonable in fruit being perfected in water or very damp places, as it is common in the Saprolegnieæ and amongst Algæ in general. To sum up, there are four reasons why the bodies here described belong to the old Potato disease:—

1. Because they are found associated with the Peronospora and upon the Potato plant itself.

2. Because they agree in size and character with the known resting-spores of other species of Peronospora.

3. Because some other moulds are aquatic in one stage of their existence.

4. Because they agree in size with Artotrogus.

I will only say in conclusion that it affords me great pleasure to lay these additional notes on the Potato disease before the Society which thirty years ago published Mr. Berkeley's original and excellent memoir on the same subject. *Worthington G. Smith.*

[For some remarks on this most important communication, kindly forwarded to us for publication by the author, see p. 44. EDS.]

New Garden Plants.

ORNITHOGALUM (HELIOCHARMOS) GLAUCOPHYLLUM, *Baker, n. sp.**

A new species, of which bulbs were brought by Mr. Elwes from Asia Minor last spring, one of which flowered in the Kew collection in an open frame at the latter end of May this present year. It is one out of a very large number of closely allied species, which have exactly the general habit of the common Ornithogalum umbellatum. This one may be known from all the rest at a glance by its flat, linear, very glaucous leaves, without any trace of a central vitta.

Bulb ovoid, without accessory bulbillæ. Leaves 5—6 to a bulb, linear, very glaucous on both sides, flat, entirely glabrous, half a foot long, half an inch broad at the base, narrowed gradually to the point, entirely destitute of any pale central midrib. Scape about an inch long. Flowers 10—15 in a deltoid corymb, about 4 inches broad by 3 inches deep, the permanently erecto-patent pedicels 1—2 inches long. Bracts linear, half as long as the pedicels. Perianth segments lanceolate acute, 8—9 lines long, 2½—3 lines broad, pure white on the face, green all over the back, except a narrow border. Stamens a third of the length of the perianth; filaments uniform lanceolate, connivent round the ovary. Ovary bright yellow, globose, 6-sulcate; style half a line long. *J. G. B.*

PHALÆNOPSIS LUDDEMANNIANA, *Rchb. f.*; — PULCHRA, *n. var.*

When I obtained this curious plant from M. Luddemann, and afterwards from many English correspondents, all the varieties were regularly striped with transverse bars. I took the splendid variety with amethyst colour on the base of sepals and petals to be the genuine plant, since it appeared in the greatest quantity. The sepals and petals were covered over with dark brown transverse broad bars. A variety with very narrow bars and circles was called "delicata"; one with pallid, yellowish bars "ochracea." The very numerous flowers I have seen since that time all belonged to two of those varieties, chiefly to the one which I took to be the genuine plant. The variety ochracea I never saw any more. Now, it appears that those P. Luddemanniana which Mr. Low imported with his surprising amabilis and Schilleriana lot do not follow the old rules; at least, what I have obtained now is very different. The flower is violet outside, with a white hue; the bars inside on petals and sepals are nearly washed away. You may only understand them when holding the flower to the light. The upper part of the sepals and petals is of a port-wine colour; at least, what botanists use to call so since Dr. Lindley introduced the term. The inferior part of the sepals, petals, lip, and base of the column, are of the most shining blue-amethyst. The whole is very beautiful. The plant described is in the collection of John T. Barber, Esq., of Spondon, near Derby. *H. G. Rchb. f.*

PINGUICULA GRANDIFLORA.

THE group of plants of this charming Butterwort, so admirably illustrated by Mr. W. G. Smith (fig. 4), has been grown here under such simple modes of cultivation as to render it a matter for wonder how it is that so very pretty and interesting a plant should not be more frequently met with. That it is not common is evidenced by the fact that comparatively few gardeners have ever seen it, and although a British plant it is even more rare than are thousands of exotics. The observations made and published both by Mr. Darwin and Dr. Hooker on the insectivorous properties of the Pinguicula, have of late aided in drawing attention to the Butterworts, but its beauty gives it a special interest to horticulturists. Perchance the simple and unaffected floral beauties the plant developes may induce many to cultivate it as an object of floral interest, and eventually it may be found in every good collection of hardy plants. My stock of this Butterwort came to me from Northumberland, and was the gift of a thorough enthusiast in hardy plants, who sent me with it one or two simple notes as to its cultivation. I hear from Mr. Smith, Mr. L. Clark, and others, that this variety is much finer than any other they have seen. Whether the Irish Butterwort is larger than the English kind I cannot say, but I incline to the belief that the cultivation has something to do with it, and the fine blooms I have produced result as much from its mode of growth as from any other cause. I have it now in a 10-size pot growing in good ordinary pot soil, such as I should use for any other hardy plant, but having a considerable addition of white sand in it. I think pans about 4 inches in depth would suit it better, as the plant does not require depth of soil so much as plenty of moisture and room to expand its side shoots, which are thrown out in abundance in the autumn.

In the winter it can be safely housed on a shelf in any cool place, say in an ordinary greenhouse, where it should be kept sufficiently moist to keep it alive without causing the plants to damp off. The month of March it will be a good time to pull the plants to pieces and plant them out in pans of fresh soil, just fixing them to the surface, and from that time forth sprinkling freely with water twice a day. When once growth takes place the plants soon establish themselves and blooms appear about the middle of April. The length of time the plants remain in flower depends upon the strength of the crowns, as if three or four blooms are sent up the blooming period may extend to six weeks. Where so desired it may be grown entirely in any cool shady place in the open air if kept well watered. My own plants are now out-of-doors in a shady place, and being kept liberally watered will develope into a perfect mass of growth ere the winter again comes. Because the Butterwort is termed a "bog plant" it is doubtless the practice to grow it in poor hungry peat; this is a mistake, for, whether it prefers a diet of insects or not, at least it likes its soil to be both rich and moist. *Alex. Dean.*

[To this note we add Mr. Darwin's summary of observations on P. lusitanica, from his recently published work, elsewhere referred to (see p. 44):—"P. lusitanica is a more potent fly-trap than P. grandiflora—its naturally incurved leaf margins are excited to curve still farther inwards by contact with organic and inorganic bodies; albumen, Cabbage seeds, bits of Spinach leaves, and fragments of glass, cause the glands to secrete more freely; albumen is dissolved by the secretion, and Cabbage seeds killed by it; and, lastly, matter is absorbed by the glands, from the insects, which are caught in large numbers by the viscid secretion." EDS.]

NUTS AND BERRIES AS FOOD.

IN the grounds of Syon House, the princely seat of the Dukes of Northumberland, there is, or at all events there was in my time, an old Mulberry tree, said to be the first introduced into England, and according to Loudon that was in 1548. About the year 1836 it was carefully propped, and still bore heavy crops of excellent fruit. Now if we set it down as yielding only 2 bushels of berries annually, for 300 years, what a blessing it was to get such a source of profit introduced, not to mention it as a luxury; and if we do not now sufficiently appreciate the importance of the Mulberry, that is no fault of the delicious berry. The fruit, however, is but little known, and the tree seldom seen, and this is by no means the only spoke in the wheel of fruit that is out of order.

There was a time, then, before 1548, when the inhabitants of this our native land had no Mulberries; it has even been said that they had sometimes to eat Beech-mast for want of better provender; and when we consult ancient Herbals of high repute, we find plenty of quackery under the name of medicine, so that the art of healing was in no better hands than the art of fruit growing. I gathered some very fine Blackberries near Crossgar Station on the County Down Railway, and offered some to people there, but they declined to eat them. Those I took to Belfast were wasted, as the innkeeper's lady never liked the bush on which they grew; and she was not to blame, for the Bramble bush is armed, and able to hold its own against all comers.

Those who have the means I recommend to plant a few Mulberry trees. A small patch of garden ground will give this article a fair trial, and, as I have stated above, it seems quite at home in the climate of

* *Ornithogalum* (*Heliocharmos*) *glaucophyllum*, Baker, n. sp.—Bulbo ovoideo simplici; foliis 5—6, linearibus planis ubique glaucis glabris semipedalibus nullo modo vittatis; scapo brevi; floribus magnitudine mediocribus 10—15 corymbosis; pedicellis 1-2 poll. longis ad finem erecto-patentibus; bracteis pedicellis duplo brevioribus; filamentis conformibus lanceolatis; stylo brevissimo.

London, while it grows and ripens fruit as far north as Manchester. A Mulberry tree in the garden at Alderley, Cheshire, the seat of Lord Stanley of Alderley, bore ripe fruit in warm summers; and notwithstanding the delicate character of the Fig generally in our climate, a standard Fig tree in the garden at Hedsor Lodge, the seat of Lord Boston, bore excellent crops of Figs; while a Vine, of the Black Esperione variety, ripened its fruit in the Royal Garden, Kensington, against the wall of a gentleman's house. I grant that these effects were all produced on the very northern selvage of the belt or zone of climate for such plants to grow and ripen their fruits; but still the stubborn fact stands unchallenged, that our forefathers got Mulberries, Figs, and Grapes with no better appliances than the good weather that a kind Providence provided for them. But

"The ancient sons of glory were all great men, they say."

On the score of eatable nuts I need only instance the important timber tree, the Chestnut (Castanea vesca). This tree has merits of no ordinary kind, for its wood is almost everlasting. On that part of the subject I need not say anything here, but confine my observations to the nutty portion of the subject. The Potato ever since its introduction has monopolised the vegetable diet, so that we have had whole colonies of people almost entirely fed upon Potatos; and even when rich people fared sumptuously every day, the Potato furnished a large percentage of the culinary esculents, so that when the Potato disease set in it was evident that a mainstay had given way, and let us down. Now, when I have gone out in London, for a stroll or on business, in the evening, I have found two articles provided for the Cockney palate, both hot, and bearing a good deal of resemblance to each other. The one was roasted Potatos, and the other roasted Chestnuts. Now, the Potato in its best of days could not equal the Chestnut, and as this tree thrives, apparently, all through Central Europe, and ripens its fruit abundantly in the climate of London [?], I can see no reason why it should not ease the burden of the Potato, in the same way that curled green Kale in Scotland eases the weight of the Potato in feeding the people. We have all seen the misfortune of relying upon the Potato by itself, and knowing that the same evil may befall us at any time in future, I cannot help thinking that it would be wise in this case to cast about for anything likely to be a substitute for the Potato, and, looking the enemy full in the face, hold a sort of "Wappenshaw," and being fore-warned, to be also fore-armed.

The Araucaria imbricata, when it has got some size and age, will, no doubt, astonish our grandchildren by its Nut-bearing; for it is not improvident, like other Nut-bearing trees, dropping their Nuts with their leaves, but hoards them as in a granary; and as every leaf of this tree is armed with a dagger, it is no child's-play to rob such a nest of its treasure.

The great charm of the Potato plant lies in its quick return, for if we put an early kidney Potato into the soil in spring, we may look for a return of ten to twenty-fold in four or five months; but in the case of the Chestnut and the Araucaria they have to arrive at long years of discretion before they begin to feed the people; but once they have begun they go far beyond the Potato, and may reasonably be depended on for at least a hundred years. At Oakhill, East Barnet, Herts, the eatable Chestnut trees bore fruit abundantly, and might be thirty years planted.

I have purposely avoided quoting from foreign accounts of the use of Chestnuts, and have confined my remarks to my own experience and observation. I do not anticipate any new taste setting in to cause a demand for eatable Chestnuts; but it cannot be denied that we are all biassed by example in our choice of articles of food. The London Cid must have his beef and beer—that is, porter black as ink; salt cod, carried in bulk from Newfoundland, with a beverage of some cider, satisfies the Devon hind. The Tipperary Boy can dance and fight on "praties," and the hardy Scot will tax the kail-yard for a cheap and wholesome meal, and has often been twitted by his southern neighbours with his proclivities for horse corn in the form of oatmeal, and for swallowing proof spirits enough to turn the stomach of a Greenland bear. Yet all these various beef, fish, Kale, and Potato eaters inhabit this small kingdom, between the latitude of Land's End and Cape Wrath, marry and intermarry, and live happily together, notwithstanding caste and differences in their modes of serving the table.

What a blessing Tea must have been to the community, living as they did on such an inferior cookery; whereas Tea was, is, and always will be well cooked; indeed, it could not be otherwise, and it was ushered in with everything that was tempting, not to speak of the adjuncts, the toast and "muffins hot," but the pure beverage by itself—warm, of course, from being infused in boiling water, sweet from the addition of lump sugar, and fat with the addition of good cream. If the Tea-leaf only gave colour and flavour, not to mention its theine, the cookery was perfect. These were the weapons that brought down the whole nation to the drinking of Tea. The longest list that has ever been made of persons addicted to the use of alcoholic drinks is but a shabby sum by the side of Tea drinkers; and yet I question if my grandmother ever used Tea, so new is the custom, and yet so universal, that I name it here to show what custom will do in one or two generations. I might also name Tobacco as another instance of foreign substances obtaining a firm hold of people with very little provocation, so that no one need be surprised if we are caught some day dining on roasted Chestnuts, and having Mulberries either by way of dessert or expressed as wine.

The market price of Chestnuts at Knotmill Easter Fair in Manchester was *2d.* per lb., but this low price was no doubt owing to the competition among so many dealers; for *3d.*, and even *4d.* per lb. is the usual price in fruit shops. I hear, however, that we are likely to lose Knotmill Fair, as Donnybrook and Bartholomew Fair have disappeared; and

10¼ INCHES

FIG. 4.—PINGUICULA GRANDIFLORA—BUTTERWORT.

if the householders in the neighbourhood have their way we may have to pay more for our nuts than we do now, not to speak of the accompaniments of music and dancing, the "gay go up" and the "merry go round," the sea of gaslight, and the sound of the showmen touting to the rustics, "Walk up!—roll up!"

On the score of cooking I need not say anything, as Chestnuts are eatable as they lie under the tree, and professed cooks serve them up in various ways. One thing is certain, and that is that they are quite respectable, being used at the tables of the rich; and that recommendation ought to silence the peevish and the grumblers, for both rich and poor can vouch from experience how good eatable Chestnuts are; so that if we can only get some trees planted now there will be a rich harvest of nuts for the rising generation to climb for and to roast. *A. Forsyth.*

OPIUM CULTURE IN CHINA.

A GOOD deal has been said of late on the cultivation of Opium in China and its use amongst the natives. The attention of the British consuls at the various Chinese ports has consequently been directed towards it, and from them we gather that while in some districts it is becoming a very important product, in others it does not meet with so much favour or prove so profitable as an article of culture. This, of course, is due to many causes, amongst them the practice or experience of the growers and the nature of the soil or climate. Throughout the whole of Manchuria its cultivation is largely on the increase. The prohibition of its growth is, in most cases, a dead letter, the action of both the Imperial and local authorities being very irregular and uncertain. Proclamations are from time to time issued forbidding its growth, while, on the other hand, the existence of the native drug has been recognised at Newchwang, and a tax of one-third less than that levied upon the foreign article fixed upon it. In spite of this, however, no revenue seems to be derived from native Opium, it still remains an underhand trade, and can be purchased only to the extent of one catty (1⅓ lb.) at a time. Small quantities are constantly smuggled in, either concealed about the person or stowed away in bags of grain or other produce. No organised system of action to prevent this exists amongst the authorities, indeed, while some of the officials are zealous to suppress it others wink at its growth. The crops are never safe, but are liable to devastation at any moment. Thus we are told that in the summer of 1872 portions of the crop were deliberately destroyed in the Kiriu province, in consequence of the representations made by a Mongol prince, who, on a journey through Mongolia and Manchuria had been shocked to find how large an area was under Poppy cultivation. These occasional prohibitions, however, do not avail much, for the cultivation, though often in the aggregate large, is usually in small patches scattered over an immense tract of country, "and the large proportion of the agricultural population concerned, together with the fact that the petty officials have a direct interest in what is to them an inexhaustible source of plunder and a standing excuse for the exercise of petty tyranny, render proclamations commanding the destruction of the crop a dead letter, beyond the purely local effect of a first display of vigour." Notwithstanding the increased production of the native drug, the consumption of Indian Opium is very slightly affected. In Newchwang and the surrounding district the Chinese product is used only for mixing with the Indian, usually in the proportion of seven parts of the latter to three of the former. Amongst the Chinese comparatively few smoke the native Opium, and these few are either the poorest classes, or those who live in the interior, far away from towns, or from the principal arteries of traffic.

Many smokers begin with the native drug, but as they become confirmed in the habit of smoking they usually take to the Indian product. The choice of the Indian over the native is said to be not merely because the latter is deficient in strength, but that it has a bitter and disagreeable flavour, and its exclusive use is considered by some to be injurious to health, producing eruptions of the skin, boils, ulcers, and dysentery, which, however, are said to be cured by the use of Indian Opium for a few days. A great deal more reliance can be placed in the quality of the Indian drug than in that of the Chinese, which is almost constantly adulterated. It, however, has some points of superiority, inasmuch "that the best kind yields cent. per cent. of prepared drug, and it can be resmoked three or four times. The drug prepared from the ash of the first smoking is stronger than the fresh drug, but at the same time it gets the credit of possessing the noxious properties above referred to in a more especial degree." Mr. Consul Harvey says the whole future of the opium trade with China hinges upon the quality of that grown in China. "As far as our present knowledge and experience goes, it would seem that the inferiority ascribed to it is absolute and inherent as being due to soil and climate; but if it can be accounted for by want of skill on the part of producers, or by the practice of adulteration amongst the dealers, it is evident that improved cultivation and greater honesty must in time render it a serious rival to the Indian drug."

As an instance of how native Opium is smuggled from one part of China to another, may be mentioned the fact that in 1873 the triennial examinations for the M.A. degree took place at Hankow. This of course brought in a great number of candidates, many of whom came from districts producing Opium. These persons are said to have brought in their baggage—which in such cases is, as a rule, exempt from Customs examination—considerable quantities of Opium.

With regard to the effects of Opium-smoking, the following notes of Mr. Vice-Consul King, of Kewkiang, founded upon his own obervation, may be of interest. He says:—

"The effects have been represented as invariably undermining the constitution, destroying the appetite, and incapacitating the body for labour; and, to a certain extent, my observation has led me to form the opinion that Opium-smoking had, for the most part, though not invariably, these results. I had, however, made no special inquiry into the subject, and ordinary observation had of course been chiefly attracted by striking examples, and the case of one who has smoked with moderation or with impunity is naturally more unobtrusive than that of one who has injured himself by the practice. But during my tour on the Upper Yangtsze and in Szechnen, I was thrown into the closest relations with junk sailors and others, almost every adult of whom smoked more or less, and I was much struck with the effect it had on them. Their work was of the hardest and rudest, rising at four and working with hardly any intermission till dark, having constantly to strip and plunge into the stream in all seasons, and this often in the most dangerous parts. The quantity of food they ate was simply prodigious, and from this and their work it seems fairly to be inferred that their constitution was robust. The two most addicted to the habit were the pilot and the ship's cook. On the incessant watchfulness and steady nerve of the former the safety of the junk and all on board frequently depended; while the second worked so hard from 3 A.M. to 10 P.M., and often longer, and seemed so independent of sleep or rest, that to catch him seated or idle was sufficient cause for good humoured banter. This latter had a conserve of opium and sugar, which he chewed during the day, as he was only able to smoke at night."

Mr. King further says that he does not imagine that the Szechnen drug differs sufficiently from the Indian to account for these instances of harmless smoking; nor, on the other hand, does he wish to express it as his opinion that Opium smoking does no harm; but his opinion with regard to it has been much modified, and he is bound to recognise the fact that the habit can and does exist without detriment to health or capability, merely affording a solace and a stimulant.

GOURDS: USEFUL AND DECORATIVE.

IN *The Wonders of Nature in all Parts of the World* we read, "About Niger there is the Gourd which grows, like Pompions, from the bigness of an egg to that of a bushel, of which they make several sorts of vessels, to eat, drink, and wash cloths in." Although our climate rarely ripens Gourd skins to a toughness fitting them for powder-flasks, dram-bottles, and wash-tubs, we beat the Nigerians in the range of magnitude at our command, as we can grow Gourds from the size of a tailor's thimble to the bulk of Cinderella's carriage before her fairy god-mother had mounted it on wheels. But if we use Gourds neither as vessels nor as vehicles, it does not prevent our employing them for requirements, one of which is as old as the human race itself, for the most prehistoric of tribes did not live without eating. The other, ornamentation, in the form and mode it now takes, is of quite recent and contemporary application.

In speaking of Gourds, a little liberty must be allowed of including with them the Cucurbitaceæ in general, especially in a family so apt to intermix and interchange their features, and to slide or jump from one normal type to another. While a Melon and a Cucumber may grow on the same plant, precision of language can no more be exacted than precision of form and kind. On a botanical chart the frontier line separating Cucumbers, Melons, and Gourds would be somewhat hazy. If a Cucumber is sweet-fleshed is it a Cucumber? Nevertheless, we have Cucumis Anguria, an annual with slender, ramified branches, and rough deep-lobed leaves, producing yellow-green bristly fruits the size of a small hen's egg, whose prodigious fecundity and whose sweet and pleasant pulp render it a great favourite during the heats of the Antilles. Amateurs desirous of determining its place may grow it with ordinary Cucumber-house culture. C. Dudaïm, or odoratissimus, produces a spherical fruit, varying from the size of a Plum to that of an Orange, turning orange-yellow when ripe, sometimes speckled or streaked with red, and exhaling a very strong smell of Melon, which is warranted by the flavour of the flesh.

"No marvel it is," says Sir Thomas Browne, "that the Israelites, having long been acquainted with the noble water of Nilus, should complain for water in the dry and barren wilderness. More remarkable it seems that they should extol and linger after the Cucumbers and Leeks, Onions and Garlick of Egypt; wherein, notwithstanding, lies a pertinent expression of the diet of that country in ancient times, even as high as the building of the pyramids, and is also answerable unto their present plentiful diet in Cucumbers, and the great varieties thereof, as testified by Prosper Alpinus, who spent many years in Egypt." The best of those varieties, the Queen of Cucumbers, Cucumis Chate, is thus described by Hasselquist:—"It grows in the fertile earth round Cairo, after the inundation of the Nile, and not in any other place in Egypt, nor in any other soil. It ripens with Water Melons; its flesh is almost of the same substance, but is not near so cool. The grandees eat it as the most pleasant food they find, and that from which they have least to apprehend. It is the most excellent of this tribe of any yet known."

As food the use of Cucurbits is, perhaps, more restricted in our islands than in any other country lying in or about the same latitude. With the exception of the Cucumber proper, our middle and upper classes are as good as limited, at home, to their Vegetable Marrows and Creams, mostly gathered in too advanced a state for their intended purpose—boiling, and quite past the better mode of cooking them—namely, frying, either whole, halved by splitting down the middle, or in transverse slices. Every one to his taste. Some like white bread, some like brown, and therefore not a word shall be said in disparagement of those who enjoy big plain-boiled Marrows, masked with melted butter; certainly, if taken young enough, they make a delicate, if insipid, dish; but the present writer may, without offence, suggest that, even for the same style of dressing, there are other Gourds, as the Turk's Cap and the Elector's Bonnet, which, to his own palate, are still better and quite as easy to grow, besides being much handsomer—which part of the subject, however, is not in hand at present. Still, it may be mentioned that the Elector's Bonnet race of Gourds (Patisson of the French gardeners) does not run about, like Cucumbers, Pumpkins, and the great majority of its family, but forms a tuft, consisting of erect or half-erect short stems, bearing numerous, diurnal, large yellow flowers, succeeded by fruits which attract the eye both by their eccentricity of form and their contrast of colours. It thus deserves a place, as a single specimen, on a lawn or in a garden, quite as much as some foliage plants in vogue which have neither remarkable bloom nor edible produce to recommend them. The flavour of the young Elector's Bonnet is likened to that of Artichoke bottoms; indeed one of its French names is Artichaut de Jerusalem.

The Turk's Cap, or Turban Gourd (also Giraumon of French seedsmen's catalogues), does not run about with great vigour of growth. The name denotes its singular form and the artificial-looking mixture of its brilliant hues. An inexperienced beholder might fancy it to have been cast in a mould and painted by hand. Of easy culture, for kitchen purposes it is among the best. Of this and the preceding there are several sub-varieties, and perhaps there may be more before the world comes to an end.

To our working people residing in large towns cooked Cucurbits may be said to be unknown, while Melons are completely out of their reach. The agricultural labourer has his Pumpkin pie as an occasional treat, whose alimentary services are greatly augmented by Apples and raisins, not to mention the crust. It is probable, however, that the cottager grows his Pumpkins quite as often for show and for the pleasure of growing them as for use. If we were a soup-eating nation, which we are not, especially in summer and early autumn, we might derive great assistance in material, besides variety of flavour, from Gourds. In many parts of the Continent (the more the further south we go) Gourds are sold in every market, during the season, in quarters, portions, or slices, for soup-making. The large Portmanteau Gourd and others in Italy is baked, when full-grown and mature, in a very slow oven, so as to retain its sugary juice, and is retailed cold, in slices, to street urchins, like cake or gingerbread, at the price of a centesimo (the tenth of a penny) the slice. The seeds, far from being wasted, fulfil, in the hands of popular pastry-cooks, the same ends which we obtain through almonds. The favour with which Gourds or Squashes are regarded in America is evident from a glance at their horticultural or culinary literature. In the East, their home, Cucurbits, if not quite the staff of life, form a very convenient walking stick. An excellent variety, called Pain du Pauvre (Poor Man's Bread), little known though ancient, has solid

yellow flesh. Pliny, Loudon tells us, is minute in describing the mode of cultivating and the use of Cucurbita claviformis (Hercules' Club), "which is supposed to have been the real Gourd of Jonas." They grow rapidly when well watered, and wither immediately when left dry; in a few weeks forming dense shady arbours, under which the people of the East sit and smoke. When the fruit is young, it hangs down inside the arbour like candles. In this state it is cut, and boiled with forced meat, stuffed in the hollow part with rice. It is then called Dolma by the Turks, and is in such general use that a large district in the vicinity of Pera is called Dolma Baktché, or Gourd gardens, from the cultivation of these plants. But although the fickleness of Engish summers would not allow us to depend on Gourds as a reliable article of food, it is certain that we might grow them to a much greater extent as an additional variety to our vegetables, if people would but consume them.

With the prevailing taste for applying to indoor decoration the products of the vegetable kingdom, it is strange that greater use should not be made of the multifarious and striking varieties of Gourds—the smaller as table or sitting-room ornaments, the larger for entrance-halls or vaster apartments. While flowers and foliage are so profusely employed, fruits, one would think, even though not edible, might not less appropriately take their part and place, especially as at certain seasons we welcome a few, and notably the berries of Holly and Mistleto, and sometimes of Privet, Symphoricarpus, and Cratægus Pyracantha. These, however, are comparatively fleeting, and, unless the stems are placed in water, soon shrivel up into ugliness and decrepitude; whereas Gourds, if not a joy for ever, remain so for consecutive months, admitting, meanwhile, to be practised upon them all the combinations and permutations of grouping that ingenuity can devise, and only requiring to be dusted now and then, and to have their faces wiped with a moist cloth once or twice a week. A pile of Gourds in a corner of the writer's dining-room has held its own, with few defaulters, from October to January, and even in February is admired by those who did not see it in its pristine freshness. As soon as an individual fruit is seen beginning to mould (much will depend upon the completeness of its ripening), of course it is removed and the seeds, if good, extracted and saved. The survivors close the ranks and continue to do duty, as if no gap in their number had occurred.

Very many decorative Gourds, not being larger than the winter fruits ordinarily produced at dessert, are consequently adapted for supplying a centre-piece, which they will fill admirably if helped by a little evergreen foliage. They have quite as much right to make their appearance as the uneatable (while uncooked) Belle Angevine Pears which are stuck in Covent Garden shops and Paris restaurant windows to catch the eye, and are said to be let out to public and private dinners at so much per evening. Among the Colocynths only there is the Orange, so nearly resembling that fruit as to deceive at first sight, and so abundant a bearer as to enable those who are fond of giving to gratify that weakness to their heart's content; the pear-shaped, all yellow, striped with a lighter shade; ditto, all green, ditto; and ditto, half bright yellow and half bright green, or yellow with a broad tropical zone of green covering its equator. The writer has had all yellow and all green fruits growing at once on the same plant, so fickle is their coloration. Then there is the Goose's Egg, quite white (please not to confound it with the Egg plant, a Solanum); the Plover's Egg; the flattened Colocynth, striped dark and light green; the warted Colocynth, yellow with green warts; the Cricket-ball; the Powder-flask; the Pilgrim's Bottle; and, for those who like plenty of a thing, C. myriocarpus, the thousand-fruited, otherwise C. grossularioides, or Gooseberry Gourd. Suppose the "thousand" to be an exceptional crop, the plant is still not to be despised if it gives 200 or 300 pretty little playthings. To specify all would make the list too long, but C. metuliferus, the Stud-bearer, must not be omitted: fruit smooth, the size of a turkey's egg, dark green at first, ripening to bright scarlet, covered with thick, conical, recurved bumps. Few, if any, of these small fancy Gourds are edible.

The large varieties—the Patissons, Citrouilles, Turk's Caps, Cannon Balls, Elector's Bonnets, Siphons, Portmanteaus, Hercules' Clubs, Pumpkins or Pompions, and the like—are excellently adapted for combining with architectural ornaments—such as large vases and cornucopias, or for heaping up into trophies—to complete the scenery of banqueting rooms or exhibition halls. Only, be it observed, the said vases or cornucopias must not be white, as plaster-casts mostly are, but bronze, coloured marbles, or imitations thereof, with which the decided, strongly contrasted, and gaudy colouring of the Gourds would harmonise better than with the raw whitewashed urns so often seen. There is a black Gourd which sets off other colours, but which would look strange in an alabaster vase. Grey Gourds, and others speckled white and pale green (which exist), would be less offensive to the eye, by their tone, when contained by a light-tinted recipient. Almost all the large Gourds are good to eat at some stage or other of their growth. All, great or small, are not only ornamental when grown, but make decorative plants while growing. They will climb up sickly or stunted trees, cover trellises, make roofs of arbours, from which their fruit hangs pendent; hide heaps of rubbishy masonry, or climb up rows of stout pea-sticks, like Runner Beans. They do not demand much "subtropical" gardening, and are not nice about situation, if it be but calm and sunny. They are unsuited for exposed spots near the sea coast, not that they fear the saline quality but the mechanical force of winds blowing straight from the sea, which break their leaf-stalks and tear and parch their leaves, with the inevitably fatal consequences. They do not ask to drive more useful crops from the kitchen garden, but most country houses have some old gravel pit, or unused back yard, or neglected quiet nook, in which a few ornamental Gourds would luxuriate. There are gardens, or parts of gardens, from which when the crop is taken in May or early June, nothing more (for some reason or other) is done with the ground till autumn. For such blank places, Gourds would be quite as desirable occupants as weeds.

The surest and least troublesome way to grow them is to plant, at the end of March or beginning of April, a single seed in a single pot (not too small). Such seeds may be started, in default of a hotbed, in any warm place, as a sunny window or a mantelshelf. As soon as the cotyledons are above ground let them be exposed to as much light as possible, and not be stinted of air. When spring frosts are over, the pots will be full of roots, and they may be planted in the open ground with the balls turned out entire. The partial shelter of a handlight may be given until established. So treated they will not flag, whereas plants transplanted as seedlings from hotbeds are apt to droop, get sunburnt, or fall a favourite prey to slugs and insects, and even if they survive, receive a serious check to their growth. Of course this applies only to the annual Cucurbits, which they almost all are; nevertheless, there is the Cucumis perennis, or perennial Gourd, with a large fleshy root, said to be hardy, suitable for covering walls, verandahs, or arbours, with its handsome and striking foliage, and its particoloured or mottled fruits. Trial also may be made of the Cucurbita argyrosperma, a charming Mexican species, notable for the form, size, and variegation of its flattened round fruit, but principally for its silver-white bordered seeds, which take their place at dessert as helps or subsidiaries to Hazel Nuts. *E. S. D.*

ARUNDEL CASTLE.

(*Concluded from p.* 11.)

On the summit of a gently rising knoll stands High Horn Tower, built in Duke Charles' time. The prospect from this westwards is fine and uninterrupted, extending as far as the eye can reach.

Returning by the same road the forcing and kitchen garden, with the fine orchard, are arrived at. The forcing garden is about 4 acres in extent, and contains the numerous fruit and plant-houses. Entering it we come to a lean-to range of three houses, each 45 feet by 18. These are the earliest forced. The first vinery is started in November; it consists of Hamburghs and Muscats. Started thus early, there is no difficulty in colouring the Muscats thoroughly. These Vines have each two or three rods. The roots occupy an inside border and about 12 feet outside. They were planted by Mr. Wilson seven years ago.

The next house is similar to the last, with the exception of the Vines being all Hamburghs. They are strong and healthy, and, like the preceding, have several rods to each.

Adjoining is a Peach-house containing some splendid old trees. They are planted inside, and occupy a trellis covering the whole of the roof; nothing could be finer than their condition. There is one in particular—a Nectarine, which, although hollow in the stem, is as strong and vigorous as possible, and promises lasting much longer: it covers a large space.

At a short distance stand two vineries, each 54 feet by 16. The first is filled with Hamburghs and Muscats, planted over twenty years. The roots occupy a border inside, and about 12 feet outside. They are in good strong bearing condition.

The adjoining house is similar to the last, filled with Muscats and Hamburghs. These houses are started alternately about the end of February, the other on each succeeding year being allowed to come on naturally. Amongst gardeners there is much difference of opinion as to the merits of metal *versus* wood in the construction of hothouses. Some are in favour of the former, others condemn it. As these are the best-constructed metal houses I have ever met with, and have also stood long enough to give fair evidence of their lasting capabilities, a short account of them may not be out of place. The bars are all copper, with iron frames. There is an iron wall-plate upon stone; each alternate roof-light slide being worked by a rack and pulley. The front lights swing. There are ventilators in the back walls, near the top, affording an opportunity for air-giving even in wet weather. They are well and sufficiently heated with six rows of 4-inch piping. These and the next range to be noticed were built at the same time, and they are now as good as the day they were put up.

The first of the next range of houses is planted in front with Peaches and Nectarines, consisting of Royal George, Barrington, and Noblesse Peaches; Elruge, Hunt's Tawny, and Stanwick Nectarines: they cover a trellis near the glass—the wood strong, hard, and ripe. The back wall is covered with Figs. In this house were some half-dozen large plants of the white-flowered Eucharis amazonica, placed here to rest previous to being put into heat for flowering. The Figs were in good condition. This is the latest Peach-house.

The adjoining house is similar, but forced. It contains two rows of umbrella-shaped trees, occupying the body of the house. The wall is covered with very fine trees, not being shaded by those in front, which are kept low; they are principally old, well proved sorts. These houses are similar in size, construction, and ventilation to the last range.

We now come to a span-roofed vinery, 50 feet by 20 feet, two years planted, on both sides of the house, with such late sorts as West's St. Peter's, Alicante, and Lady Downe's. They are strong and promising, bearing a few good bunches. This house and the next are all copper bars and iron frames. Such houses are costly to commence with, but there are no objectionable rotten sashbars and rafters afterwards.

The next house is similar in every way, except that the majority of the Vines are considerably older, a few only having been recently planted—the older (consisting of Lady Downe's, Hamburghs, and Muscats) were at the time of my visit carrying a useful crop, well thinned out for keeping through the winter.

We then come to the Pine-pits, three in number. They are hip-roofed, and 45 feet by 12 feet each. The sorts grown are Queens, Smooth Cayenne, and Charlotte Rothschild. There was a lot of fine fruit coming on in this house, especially the Cayennes and Charlotte Rothschilds. The adjoining is also a fruiting-house, in preparation for a fresh lot of plants.

Next is the succession-house, filled with a lot of young plants.

We now come to a new Pine pit, half-span, 50 feet by 15 feet, filled with plants newly transferred to their fruiting-pots. They were stout and strong, with broad short leaves, promising a crop of heavy fruit.

Then comes a number of new houses mostly devoted to plant growing—things of moderate size for decorative purposes, for which they are well adapted, being low and light. The first of these houses, 50 feet long, is used for Melon growing in the summer and for Cucumbers in winter. It was filled with a strong lot of plants for the winter, Telegraph being the sort principally used.

The next of these new houses, hip-roofed, 60 feet in length, is filled with stove plants, amongst which were quantities of Eucharis amazonica—a plant that can scarcely be grown too much where white flowers are in continual demand, for it is so accommodating that with a sufficient number of plants it can be had always in flower: it has no particular blooming season, but will come in at any time after making growth with a short subsequent rest: with it were Bougainvilleas, Dracænas, screw Pines, Yuccas, Gardenias in quantity, Allamandas and Begonias.

In the next similar house were numbers of the useful autumn flowering Cypripedium insigne and Dendrobiums—plants that are indispensable for furnishing cut flowers even where Orchid growing in the shape of a collection of these plants is not attempted: here also in quantity were Epiphyllums, Salvias, and Caladiums.

The following house, half-span, 80 feet long, fitted up with slate shelving on iron supports, which are in the end the cheapest interior fittings for houses where there is heat and moisture continuously, so destructive of wood. This house was filled with quantities of Gesnera zebrina, Euphorbia Jacquinæflora, Crotons, Adiantum farleyense, A. tinctum, Dieffenbachias, Palms, and Nepenthes.

Near it is another new stove, span-roofed, 60 feet in length, filled with plants similar to the last, of which very large quantities are required.

At a short distance are five new span-roofed pits, each 60 feet by 10, all occupied with plants, principally Solanums, Poinsettias, Pelargoniums, and a large quantity of Richardia, newly taken up from the open ground, being planted out in the spring, which is by far the best way of treating them; so grown they are much shorter in their leaves and leaf-stalks, which gives them a nicer appearance when in flower.

On the left of the broad walk, leading from the Castle to the garden, stands the old Orangery, 75 feet by 20; this is now used as a sort of winter garden. Three very large low vases occupy the middle of the house, these are kept filled with plants, the remainder grouped on the floor. On the back wall are some immense plants of Habrothamnus, planted out in company with equally large scarlet Pelargoniums. I noticed one that covered a space of 18 feet by 12;

these, not being subject to the attacks of insects, and from their incessant flowering disposition, are not only appropriate for the place they are in but are useful for producing cut flowers through the winter. Standing out in an open space were a large number of specimen and half-specimen Azaleas, as also a quantity of smaller plants for flowering through the winter. Here also were some 4000 of the best grown Strawberries in pots I have ever seen; the crowns extraordinarily strong and plump, evincing the attention they had received through the summer. They are forced on shelves over the paths and in any place where room can be found. There was also here in beds, ready for lifting and transferring to pots, some hundreds of Gladiolus; they are planted out late in the season, and so treated are amongst the most useful decorative pot plants grown. They are mostly the variety Brenchleyensis, a hardy constitutioned sort. Gladiolus do not on this soil suffer much from the disease.

The remaining portion of this 4-acre garden, not occupied with glass erections, is laid out in the usual way with a magnificent lot of pyramidal Pears, grafted on the Pear stock, and bush Apples. The trees are models of skilful management, not the wretched victims of the unnatural shoot-pinching system, but trees that are allowed to grow to a fair size, and, if necessary to restrict their growth, they are operated upon at the right end—their roots; they were loaded with magnificent fruit. Plums were equally fine, as also standard Figs (a novelty to Northern eyes), loaded with bushels of fruit. They grow and fruit in the form of standards as freely as Gooseberries; at the time of my visit—in the first week in October—some of the second crop were ripe. On the walls were some grand Apricots, Late Admirable Peaches and Plums. All the best varieties of Pears and Plums bear here abundantly.

Just outside this garden the Hickory-nut (Carya alba) grows as a standard tree, almost as large as a Walnut, fruiting plentifully. Under the shelter of a wall I noticed a fine plant of the Blue Gum tree (Eucalyptus) that has stood out four years. At a short distance from this is the new kitchen garden, about 7 acres in extent; it slopes quickly to the south, and is well laid out with good broad walks. It was filled with quantities of the usual winter vegetables required for a large establishment; the margins of the walks are mostly planted with Apples. There is frequently hesitation in moving fruit trees that have been long planted without removal, as also some difference of opinion as to the best time for moving them—early in the autumn or later on in the winter. The trees in this garden, numbering some 400, were removed here by Mr. Wilson, after having been undisturbed for twenty-five years where first planted; they were moved early in the autumn, before the leaves were off, and well they have succeeded; as might be supposed they made little growth the first season, forming quantities of fruit spurs. Further alterations necessitated some of them being again moved three years after, which had little effect upon them, being then well furnished with feeding roots, produced by their previous removal. The successful removal of a number of trees like the above, after being so long planted, is one more evidence of the advisability of performing the operation early in the autumn, whilst there is still enough time for the formation of feeding roots that, even if in small quantities, are sufficient to support life the following summer. On the walls in this garden are scores of young Peaches and Nectarines in a thriving condition. The orchard, which is adjoining the forcing-garden, is about 5 acres in extent, and contains a grand lot of well-managed trees, in fine bearing condition. The whole are gone over every year, the branches sufficiently thinned out, and anything in the shape of moss scrubbed off the stems. The collection, especially of Apples, is very complete; the soil and climate appear particularly suited to this most useful of fruits; scarcely a variety can be named that does not succeed well. Very noticeable as being above the ordinary size and colour were such sorts as Ribston Pippin, Blenheim Pippin, Margil, King of the Pippins, Hollandbury, Alexander, Hambledon, Deux Ans, Pott's Seedling, Prince Albert, Gloria Mundi, Alfriston, Wellington, and Lord Nelson. This is an example of a thoroughly well managed orchard, and here, as in each department of this fine place, are ample evidences of Mr. Wilson's abilities as a gardener.

Near the orchard is the frame ground, which in an establishment such as this is no small affair, and plays a very important part in the working of the place. Here are frames and pits, amounting to some hundreds of lights, in use for propagating and wintering the thousands of bedding plants required, as well as vegetable forcing, seedling raising, &c.

Few fruit rooms can lay claim to such antiquity as the one at Arundel; it is what once was the chapel of St. Mary's-at-the-Gate, and, as its name implies, is directly at or over the massive archway where was the gate leading into the town. There still exists in perfect condition the finely-carved lofty roof. The whole of the inside of this old chapel is surrounded with shelves up to the top, and the centre is filled with drawers filled with choice Pears.

Eastward from the Castle, and a little above the bend of the river, is the Pond Garden of 4 acres, devoted to the growth of hardy fruits and vegetables. This is the garden that was attached to the Priory, to the yet standing ruins of which it adjoins. We often hear of gardens wearing out by the length of time they have been under cultivation, if such were really the case we might have supposed this would have been exhausted some hundreds of years ago; yet both fruits and culinary vegetables grow in it luxuriantly. *T. Baines.*

GUSTAVE THURET.

Gustave Adolphe Thuret, whose sudden death we lately announced, and whose portrait we are pleased to be able to give in the present number, was born in Paris on May 23, 1817. He was the third son of Isaac Thuret, Netherlands Consul at Paris, and who sprang from a French Protestant family who took refuge in Holland at the time of the revocation of the Edict of Nantes. He was educated at home by a tutor. During this time he visited twice with his family Switzerland and Upper Italy. Admitted *bachelier ès lettres* in 1835 he travelled by himself in Great Britain, traversing during four months England,

Scotland, Ireland, the Orkneys, the Shetland Islands, and the Hebrides, seeing everything that could be seen, and bringing back from his journey an ample harvest of reminiscences. From 1836 to 1838 he studied at the School of Law, and obtained the diploma of Licentiate. In 1837 he made with his family a long journey in Germany and Holland, and in his leisure intervals he occupied himself with drawing, painting, and especially music, which he cultivated with ardour. The greater part of the year he lived with his father at the Château of Rentilly, near Lagny (Seine et Marne). One of his friends, who shared with him his taste for music, M. A. de Villers, also drew his attention towards botany. The two botanised together in the neighbourhood of Rentilly, determining by means of the *Flore Parisienne* of Bautier the plants they met with. In case of difficulty or doubt the question was submitted to M. Decaisne. At the end of the summer M. Thuret returned to Paris, and received instructions from the botanist just mentioned. Under his auspices he acquired a solid acquaintance with the organography and the anatomy of plants, and he formed with his master a friendship which did but strengthen as time went on.

During the winter of 1839-40 Thuret made his first visit to Constantinople. On his return to France he accompanied his family to Lyons, and devoted himself seriously to the study of plants, botanising with Messrs. Jordan and Seringe, and occupying himself with microscopical researches. One of his first discoveries was that of the locomotive organs of the antherozoids of Chara. In October of the same year he returned to Constantinople as *attaché* to the Ambassador of France. He visited the environs of Constantinople, Broussa, Mount Olympus, &c., and made a collection of plants, among which M. Boissier discovered some new species. At the expiration of a year he took a holiday in order to visit Syria, Palestine, and Egypt; but this voyage, so full of interest, and the incidents of which he loved to recall, was nigh to having a fatal termination. M. Thuret became ill at Thebes, was with great difficulty brought back to Cairo, and thence to Alexandria, whence he set sail for France. Having now established himself in his paternal home he devoted himself to the study of Algæ, under the direction of M. Decaisne, who was occupying himself at that time with the classification of these plants. A stream which ran through the park at Rentilly furnished abundance of material for this purpose. He was soon able to announce that the spores of certain Algæ—whose spontaneous movement had been long observed, although its cause had not been ascertained—are provided with locomotive organs or cilia differently arranged in different genera. It has been long thought, and some still think, that the clear and refracting cells, the heterocysts of the Nostochineæ, perform the functions of reproductive organs. M. Thuret showed in 1844 that it was not by these globules, but the beaded filaments (*chapelets*) that the Nostocs are reproduced. He observed the breaking up of the filaments set at liberty by the solution of the surrounding gelatinous matter, and noticed their fragments moving across the field of the microscope, even when they were composed of three segments only. Finally, he followed the development of these filaments, and their transformation into young Nostocs. He completed these observations many years after by discovering the same phenomena of dispersion and reproduction in all the general of Nostochineæ, in Lyngbya as in Nostoc, in Scytonema as in Rivularia. In the conceptacles of Fucaceæ authors had described two sorts of reproductive bodies—large brown spores and smaller organs, which were called microphytes or sporidia. Suspecting that these so-called sporidia were antheridia, MM. Decaisne and Thuret paid a visit in 1844 to the northern coasts of France, to clear up this question. They ascertained at first that the conceptacles of Fucus contain at one and the same time both sorts of organs, or that each kind was contained in a different conceptacle on the same or on different plants. They made out subsequently that the sporidia placed in a drop of sea-water set free a number of mobile transparent corpuscles, each provided with a red point and two cilia, and they ascertained that these corpuscles did not germinate. It was clear that these corpuscles were of the same nature as the antherozoids of Chara. They ascertained, moreover, that in certain species of Fucus the contents of the sporangium is not simple, but is divided into two, four, or eight parts, each of which constitutes a spore capable of germinating. The facility with which large quantities of spores and of antherozoids may be obtained from the dioicous species of Fucus enabled M. Thuret to give in 1853 the experimental demonstration of the sexuality of Fucaceæ. Kept apart, the two organs decomposed without germinating; if, on the other hand, they are mixed together, the spores surround themselves with a membrane or coat and germinate. Since that time the nature of the relation between the male corpuscle and the spore at the moment of fertilisation has been more completely determined, but nothing essential has been added to the clearness of M. Thuret's demonstrations of the sexuality of these plants. In 1857 M. Thuret, in continuance of his former observations, ascertained that the action of the antherozoids on the spore is instantaneous. By means of appropriate reagents he discovered that the membrane is recognisable six or eight minutes after contact, and at the expiration of an hour it presents the chemical characteristics of cellulose. From 1845 to 1847 he followed out his researches on the antheridia of the higher cryptogams, on the zoospores of fresh water Algæ, and made a series of visits to the seaside with M. Riocreux. The result of these researches, enriched with marvellous drawings by M. Riocreux, was presented to the Academy of Sciences in 1847, and obtained three years later the great prize for researches in natural science.

It may be said, without exaggeration, that the memoir containing these researches, of cardinal importance in the history of Algæ, is one of the most complete that has ever been published. In 1847 M. Thuret left Rentilly, and established himself at Versailles with his family. The political troubles which followed interfered with, but did not entirely suspend, his botanical investigations. He published in 1849 a note on the antheridia of Ferns and of Equisetum. The following year M. Thuret resumed his seaside excursions, preparing, with the skilful and devoted co-operation of M. Riocreux, materials for a great publication on seaweeds. More than forty plates have already been engraved. These temporary sojourns on the coast did not suffice to slake M.

Thuret's thirst for knowledge. He associated himself with Dr. Bornet, and established himself at Cherbourg in November, 1852. The demonstration of the sexuality of Fucaceæ, a note on the Ulva Lactuca and U. latissima, and researches on the antheridia of Algæ, the discovery of the germination of the spores of Nostochineæ, constitute the apparent results of this sojourn of five years in Normandy; but they are not all. Botanising unceasingly at all times, studying the Algæ in all stages of development, he acquired a profound acquaintance with these plants; and when his friend and companion, M. A. le Jolis, undertook the publication of his list of the seaweeds of Cherbourg, he found in M. Thuret an assistant and a guide whose knowledge was rarely in fault.

Seriously affected at intervals by the climate of Normandy, M. Thuret's health became so much impaired that he was compelled to live in the South of France. Antibes, placed on a shore rich in Algæ, and in an admirable situation, seemed to him a propitious site for a residence. He built there a house, a large portion of which was consecrated to books and collections, and he laid out a garden, several views from which we have been already privileged to publish, and of which, through the kindness of Dr. Bornet, whose skill as a photographer is only equalled by his ability as a microscopical observer, we now present an additional illustration (fig. 7, p. 45). For many years M. Thuret's delicate health prevented him from following his microscopical researches. He therefore occupied himself busily with his garden, and set to collecting in it the plants which were perennial, hardy, evergreen, and which flowered from October to June. In spite of these restrictions, he collected more than 3000 species. He took particular care to have his plants well named; sought for each the situation that appeared appropriate; and had them planted under his own inspection.

The illustrations we have already given, and the incidental notices in volumes ii. and iii., and elsewhere, will show that this garden has quite an Australian aspect, from the numbers of Eucalypts, Acacias, &c. Banksias and other New Holland plants thrive to perfection, while Agaves and succulent plants find a home than which none can be more congenial. The splendour of the belts and mounds of succulents has often been alluded to in our columns. Nor must we omit to mention the numerous experiments on hybridisation carried on by Dr. Bornet, especially in the genus Cistus, to the cultivation of which a large area is devoted. In fact, this garden is decidedly one of the most remarkable in Europe, and in its own special department quite unrivalled.

On the re-establishment of his health M. Thuret resumed his studies. Every year during the summer he passed two or three months at the seaside in order to study certain questions of physiology or of classification. The fecundation of the Red Sea weeds, which he had for a long time sought in vain, is one of the discoveries made by him at this period, and the only one hitherto published; but if he published little, he placed with great liberality his observations, his drawings, and his information at the service of those who addressed themselves to him. The extreme care he took in verifying the smallest details, the desire he experienced to revise and verify his observations over and over again, and which seemed to him always incomplete, the difficulty of expressing himself with satisfaction to himself—difficulties which would not be suspected in reading his memoirs—are the principal cause of the relatively small number of his publications. Nevertheless if these are not numerous, they are of such a nature that little else is left to do, and it may of them be truly said *Non multa sed multum*.

The interest felt by M. Thuret in botany was not limited to Algæ. He interested himself more or less in all the cryptogams, and did not fail, when he changed his residence, to make as complete an herbarium as possible of the flowering plants of the district. It is in great part on the materials that M. Thuret collected on his arrival in Provence that M. Ardoino founded his Flora of the maritime Alps.

M. Thuret took great interest in history, literature, and the fine arts; he was also greatly interested in the religious questions, both theological and ecclesiastical, which are now exciting so much attention in Europe, bringing to the consideration of these matters a calm and impartial judgment, and a noble and always liberal spirit. If we were to omit to mention the generosity of M. Thuret to the poor and unfortunate, we should pass over one of his most characteristic traits. Careful in not allowing his generosity to be made public, he practised to the letter the maxim of the Gospel, not to let the left hand know what is done by the right. In fine, we may say in a word that M. Thuret furnished a type of a *savant* and a gentleman.

To this notice we may fitly add the portrait of Dr. Bornet, the friend and fellow-labourer of Thuret. Of late years the two combined their researches in cryptogamous plants, and in the maintenance of the garden; while Dr. Bornet's skill as a photographer, of which our readers have had many examples, enabled him to keep permanent records of a large number of the more interesting plants in the garden, in which both were so much interested.

Natural History.

PULEX IRRITANS, or the common Flea, and several of the allied species, though not injurious to vegetable growths, are especially unpleasant to vegetable growers from their frequent occurrence amongst various matters in connection with the garden; and, once in existence, however much their presence may be apparently ignored, their powers of annoyance do not rest here—to borrow the words of one of their Continental observers, they "frequent the palaces of the rich as well as the huts of the poor, and seek their tribute alike from ladies in silk attire or beggars in dirt and rags."

The dirt and rags, however, are the more congenial locality—neglected straw and dust, the presence of some of the domestic animals more especially allowed the range of the gardens and adjacent yards, and the frequent and, in some cases necessary, absence of cleanliness occurring in farmyards from which the materials for garden use are procured, all subject the practical horticulturist especially to the annoyances of this insect; and one of its most powerful antidotes being to be found in vegetable scent, it may fairly take a place amongst the noticeable insect visitations of the garden, that, as far as possible, it may be kept in check.

The flea itself is too well known for all general purposes to require description, its peculiar laterally compressed form, dark brown and shiny appearance, and the activity of its sudden spring, usually at once showing and removing its presence; whilst the two pair of thoracic scales which represent the absent wings, the adaptation of the posterior pair of legs for leaping, and the peculiarities of structure which give the appearance of the forelegs proceeding from the head, and also the minute details of the sucking apparatus by which it effects its wounds, require the aid of a magnifying glass to make them out clearly.

The female of P. irritans is given by Professor Kollar as producing from sixteen to about twenty small white eggs of oval shape, from which, after the expiration of six days in summer and a longer period in winter, there creeps a small whitish maggot, about half a line in length, which, after attaining its full growth, spins a silken cocoon, from which after eleven days there emerges the perfect insect.

The larvæ of the dog flea may be found only too frequently. In the case coming most under my own notice these maggots were found in extraordinary quantities in the carpet round an ottoman, where a spaniel was allowed to lie in his master's room during his occasional visits—in household parlance, "maggots all about." The white worm-like grubs coincided exactly to general examination with the description given by Professor Westwood of the same kind of larvæ, somewhat similarly found in the carpet of his own study; but I was not fortunate enough to find the silken cocoons, and occasionally these (as mentioned by Rosel) are not spun by the larvæ.

Of the numerous species of which the genus is composed, those most commonly met with in England, besides the mole flea, Ceratopsyllus talpæ (said to be the largest of the British species), are the P. irritans, and also P. canis, felis, and gallinæ.

Hedgehogs, bats, and a few other animals have also each their flea, but coming little in contact with human industry, give no personal annoyance, and in the case of the mole the specially large flea is so difficult to procure as to be popularly supposed to live solitarily.

The food of the flea grub is various, the scraps of hair, wool, feathers, and such like matters accumulating in the chinks of boards and other localities where the larvæ are to be found, all serving for diet, as well as blood, which appears to be especially attractive; and the worst case of flea visitation with which I have met was close to a pen in a farmyard, where the animals required for domestic supply were killed. Here the numbers were so great, one had only to stoop down to see the insects leaping in all directions; and on tracing the matter up, the centre from which they spread appeared simply the accumulations of blood which had been left, not properly cleared away for a considerable length of time.

In all such cases an attention to cleanliness in the first instance, and the removal of harbouring matters, if they have been allowed to collect, is the preventive or the cure, followed up by thorough washings with scalding water, lime washings, filling up cracks and chinks in floors or walls, and similar applications. Dog-kennels, which often cause a deal of annoyance, may be sunk for four and twenty hours in a pond with the best results, but with regard to pet poultry (which often are allowed the range of some part of the flower garden), and their ornamental pens, the insect accompaniments will always more or less co-exist with them. Still, clearing away all harbouring materials, and general attention to neatness in all the details, will do much to keep them in bounds.

For personal defence still, as in the days of Tusser, the rule holds good:—

"Where chamber is swept, and Wormwood is strewn,
No flea for his life dare abide to be known."

It is said that Ragusa enjoys an immunity from fleas on account of the cattle being littered down with Wormwood, and practically, amongst ourselves, whether used as powder or in sprays fresh from the bush, the use of Wormwood is a great defence, and a bunch of leaves carried in some part of the dress, or laid in a handkerchief beneath the pillow, is often enough to drive away these unpleasant intruders. When some more decided protective is requisite, a small quantity of the common soap liniment with laudanum, rubbed into the skin, usually stops all further attacks on that spot, and a single drop of tincture of iodine placed on a bite is usually equally successful in allaying the irritation, which, however unimportant to the strong, or during the day, is no light matter when the multitude of punctures with which the flea will attack a new victim banish sleep, or fall on an invalid or a delicate child.

With the insects that attack our crops there is usually some point of interest to all in their history—often something of great beauty in their method of work, or its result; but with the flea, save the anatomical peculiarities of its structure, not noticeable by unaided observation, all is repulsive; and even its presence so suggestive of untidyness and neglect as only to bring it under notice with a view to keeping it in check. *O.*

Apiary.

BEESWAX AND COMBS. — I find many strange notions still prevail amongst the present race of bee-keepers, although there are a great number of very intelligent persons who take a pride in their apiary. Many of our cottage bee-keepers hold the antiquated and rather crude notion that beeswax, or the combs in the hive in the cells of which honey is stored, is prepared or made from pollen. Watching by the stand on a fine day, they have observed the bees carry in a large amount of the farina from open flowers, botanically called pollen, and they have at once either jumped to the conclusion, or learned it from some old woman, that this was to make wax; we are glad the majority have learned the important fact in bee economy that wax is made by the working bees from honey. The pollen is gleaned to feed the young in the cells, and not even employed mixed with honey, as Huber once imagined, to make into comb-wax.

Another important truth, worthy of notice and of thought to all who care to make their apiary profitable, is that although wax is chiefly manufactured from pure honey it can be made from common brown sugar. When a new swarm is hived they should, for about a fortnight, be liberally fed with syrup; for the reason that it takes 20 lb. of honey (in round numbers) to make 1 lb. of wax: the bees are compelled, unless liberally fed, to roam the fields in search of the honey. A little thought will convince the most ignorant

of the immense loss we incur by our carelessness, or rather, perhaps, want of thought. Save the honey, for your industrious subjects will gather all they can find, and store it for future use in the cells, and use the syrup for comb-building. Now, if you are wise ponder over the following results, arrived at by most careful experiments :—It is found that bees fed with different kinds of sugar produce wax sooner and in greater abundance than those fed with pure honey. A pound of refined or lump sugar reduced to syrup produced 10 dr. 52 gr. of wax, of course much darker than that extracted from honey. An equal weight of dark brown sugar produced 22 dr. of very white wax ; that is, 2 oz. 6 dr. ($2\frac{3}{4}$ oz.) was the greatest quantity of wax obtained from a pound of sugar, or nearly one-sixth part of the entire weight.

Mark the above result. It is cheaper, more economical, and evinces far greater wisdom to feed them with common brown sugar than even the best white lump sugar, because the brown makes more wax, and finer in quality.

I have found by experience that it is wise, if you are to make the most of your bees, to run all the combs in the autumn (of course I am careful not to do this until the honey harvest is over) through the honey extractor, and so deprive them of all the honey. This honey I sell for 1*s.* 6*d.* per lb., for use at the breakfast-table, and give the stocks syrup instead, which costs only about 3*d.* per lb. Some friends have questioned my wisdom in doing so, but it seems strange that my apiary is always more flourishing than others which are fed with honey.

Taking this view of bee management, condemned stocks are useful and should not be despised. In the month of September I regularly visit all our cottage apiaries, and obtain the promise of all their condemned stocks. I have in one instance placed seven stocks in one hive, this afterwards made a profitable and most valuable colony. When I first commenced working up our condemned stocks I was made a laughing stock, by some of our intelligent bee-masters, for the simple reason they could not understand or believe they could make sufficient comb for storing food for winter use. Mark—I do not advise any one to commence building up colonies from single stocks; in such a case I do not wonder at numerous failures, simply because there are not sufficient bees to raise the heat necessary for wax-making or enough wax-workers to carry on the operation successfully. My advice to all is, never try to build up a stock at this late season with less than three stocks in each hive. Do not all, or nearly all the workers die by the following April? I believe they do. Then is it not folly to place so many together? No, I reply, for by the time named the queen has got a good start for the season ; if she is young and vigorous the workers will have prepared cells perhaps more in number than she can fill. If the colony is weak in the autumn it will never do any good; destroy it, or add it to some other stock : it will pay you better to be without it.

Until very recently the honey extractor has not been so well known amongst English apiaries (I now refer more particularly to our cottage bee-keepers). I am glad, however, to perceive that recently published books contain descriptions of it, and I trust its importance will soon be understood. I speak feelingly on this point, for I kept bees until by losses, &c., I felt quite disheartened. It did not need many arguments to convince me that "it was impossible to become rich by bee-farming," but since the introduction of this useful instrument I have found it far more profitable. Now by judicious and careful management any cottager can make large returns for the capital invested, and I honestly believe they might make a fair income by bee-keeping. *R.*

Forestry.

BEECH TIMBER.—A Yorkshire correspondent of the *Agricultural Gazette*, writing regarding the price of Beech timber, says :—

"I may state that we sold some clean-grown trees at our auction sale in the middle of April at 1*s.* 4*d.* per foot. The trees were of from fifty-six to sixty years' growth. Although nominally the price per foot may be the same in different districts of the country, there is sometimes a great difference in the actual value of a tree measured after the custom of the respective districts. In some cases the timber is sawn across where it begins to be knotty, and only the clean bole sold, the top being classed separately. In other cases an allowance of an inch on the side of the square is allowed for bark. The price quoted above is for timber measured out as far as it will measure 2 feet in circumference, and no allowance given for bark. Beech timber of small dimensions is of comparatively little value ; trees 10 inches in diameter and under are worth about 10*d.* per foot. Perhaps I should state that the timber sold here was two miles from a railway station, and from twenty to twenty-five miles from the principal market.'

From the same source we learn that in Shropshire the average value of Beech timber is 8*d.* per cube foot. Their correspondent says ;—

"I have no doubt in the vicinity of large hardware manufacturing districts the value is much higher, as it is extensively used for handles for all kinds of tools, also for planes and Windsor chairs, but not much for gun-stocks ; it is used also for bottoms of boats, as it is very endurable when it is always in water. I have known it used for felloes for cart-wheels that were always in use, and answer very well ; but for agricultural purposes it is next to worthless ; but for any purpose where it is always in wear it will last until it is entirely worn out by friction ; but if it lies on the ground, or if kept in the dry and not in use, it will decay sooner than any other kind of wood."

Home Correspondence.

The Potato Disease.—I can confirm all that Mr. Shirley Hibberd says in his communication which appeared in the *Times* of the 1st inst. The day previous to that date I had carefully examined examples of the above manifestations growing in a sandy soil, and found them, as he points out, caused by some enemy having eaten out a furrow from the haulms immediately above the roots. I also (in the garden of Dr. Bennet at Weybridge) found a creature in this *sulcus*, which I supposed to be the depredator, but as he turned out to be, on a too superficial examination, what I supposed a common centipede, I dismissed the notion. However, to-day I made careful examination for the "wireworms." I did not find any of what I have been accustomed to consider wireworms, but found large numbers of the larvæ of some insect, and I suppose identified by Mr. Hibberd as the click beetle. Wherever the tops indicated it, I found very many of these centipede-like creatures, and I also found a very active kind of beetle, one or two near plants, doubtless depositing eggs which, when changed into larvæ, will be a trouble next year. At the first examination the plots of Potatos presented an alarming appearance from the withered, death-struck appearance of many of the plants ; but to-day a large proportion of the wounded haulms have recovered themselves, owing (as Mr. Hibberd points out) to the rain ; and the plants, having put out numerous rootlets above the wounds, have recommenced a luxuriant growth. Three descriptions of American Potatos are thus affected in Dr. Bennet's garden, but all the other varieties are quite free, and as yet I cannot find any indication of what Mr. Hibberd calls the old "murrain." I wish he could enlighten us as much as to the physiology of it as he has on the above. The murrain appeared first in 1845. We too well know its manifestations, but as to its causes we are as ignorant as we were on its first appearance. As Mr. Hibberd observes, in it the disease, in contradistinction to the above, proceeds from above downwards. It is, in fact, disease of the life blood of the plant, whilst in the other there is simply an organic lesion destructive of its "circulation," and traceable to a material and obvious cause. As to the old murrain, after having experimented on it and watched it from the second year of its appearance, and studied the literature on it, I can learn nothing beyond the fact that all the different speculations as to the causes and cure have been failures. I believe that the disease arises from some shock to that department of the vital energy of the plant presiding over its power of exhalation and absorption, particularly exhalation, which appears to be arrested ; the plant becomes dropsical, the sap ferments, diseased life blood is circulated, the tubers then become diseased, the cells in the haulm burst, and it rots. The result of my experience and study is the conviction, which I earnestly urge on all Potato growers, that after the first murrain spot appearing in a plot there will be no further growth of the Potatos—on the contrary, if the circulation of diseased sap is allowed to continue the crop will be lost ; but if the stalks be immediately cut off the disease will be drained off by bleeding and the whole crop saved—such as it is, for the tubers will not, of course, increase in size, but they will ripen and have repaid all those who I have induced to follow the practice by a crop of useful Potatos, as well as liberating the ground for various plants that may be dibbled in between the rows. *Arthur Sarjeant, Weybridge, July* 2. [As we have already intimated, Potato growers are mixing up different things. The effects produced by wireworm are quite different from what has been observed at Chiswick and elsewhere. Our correspondent must also materially modify his opinions as to the cause of the disease, which is more than ever confirmed by the results of Mr. Smith's investigations, published in the present number. EDS.]

Columbines.—An interesting circumstance in the history of Columbines is not mentioned in the article on this subject in the *Gardeners' Chronicle* of last week. I allude to its employment in heraldic blazonry. It occurs in the crest of the old Barons Grey of Vitten, as may be seen in the garter coat of William Lord Grey of Vitten (Camden Society, 1847), and is thus described in the painter's bill for the ceremonial of the funeral of William Lord Grey of Vitten (MS. Coll. of Arms, 1, 13, fol. 35*a*) :—"Item his creste, with the farvron, or, sett on a leftehande glove, argent, out thereof issuynge, caste over theade, a braunche of collobyns, blue, the stalk, vert." Old Guillim also enumerates the Columbine amongst his "Coronary Herbs," as follows :—"He beareth, argent, a chevron, sable, between three Columbines slipped, proper, by the name of Hall of Coventry. The Columbine is pleasing to the eye, as well in respect of the seemly (and not vulgar) shape, as in regard of the azury colour thereof, and is holden to be very medicinable for the dissolving of imposthumations or swellings in the throat." *P. de M. Grey Egerton, 28b, Albemarle Street.*

Culture of Strawberries in Pots.—I am sorry to think that your correspondent "W. P." should have suffered any compunction or imagined for a moment that his "all-sufficient" remedy for watering Strawberries in pots should have disturbed my equanamity. Such is not the case : on the contrary I am delighted to have the privilege of discussing the subject with one who is likely to be able to afford me some valuable information. Even if the practice be now obsolete, it is gratifying to a young gardener like myself to hear how things were done thirty years ago, but I cannot express deep sympathy with any one who allows this world of progression to stride on and still clings with such tenacity to his old associations. When I coupled "W. P.'s" practice as a Strawberry forcer with the days when he used to strike Tom Thumb Pelargoniums in bottom-heat, I simply did so to illustrate to your correspondent how far he was behind as compared with the productions which now grace our employers' dinner-tables and exhibition rooms. The temperature of the soil in July and August is old news to me. It seems to be an unpardonable offence with "W. P." for one to utilise means at their command, or endeavour to keep pace with the times by growing fruit of high-class quality. Let me ask "W. P." if he has ever met with an employer who preferred a small well-flavoured fruit to a large well-flavoured one, or if he has ever awarded a prize at a fruit show to a small fruit in preference to a large one, other points being equal? And further, let, me ask your correspondent if he thinks that the application of liquid manure to Strawberries after the fruit is set will not increase the size, and if withdrawn at the proper time will the fruit deteriorate in flavour in consequence of its application? With respect to varieties I think there are few young gardeners, much less old ones, who would discard Keens' Seedling either for indoor or outdoor work, but in this neighbourhood (on the banks of the Mersey), and in many places in Yorkshire, Keens' Seedling has proved an absolute failure both indoors and out : and now the question arises, which a veteran gardener like your correspondent will surely be able to answer, Is this state of things owing to spurious varieties being supplied, or do old varieties degenerate—or may we attribute this change to atmospheric influences? I presume I am the individual to whom Mr. Ward alludes when he takes exception to the practice of plunging Strawberry plants in leaves during winter. I only wish to say a very few words upon that point, and then—for the present—I have done with the subject. Careful observation has taught me that in too many cases, after plants have been well grown through the autumn, they lose the greater portion of their roots during winter through over-dry treatment. I am no advocate for extremes, and must submit for Mr. Ward's consideration that packing the pots round with leaves is no violation of Nature's laws. Every practical man can tell at a glance when a Strawberry plant has perfected its growth, and thoroughly developed and ripened its crown. Then comes the period of rest, but it must not be at the expense of losing your best roots. This is the time that I have my plants taken to their winter quarters, and upon this point let me be distinctly understood. The pots are set upon a bottom of riddled cinders, and the vacancies between them filled up with leaves. This I find an excellent plan to preserve the roots intact until the plants are required in their respective batches for forcing. I layer my runners exactly the same as Mr. Ward does, but, under certain circumstances, I have had quantities taken and put in boxes filled with nothing but leaf-mould. In this they root quickly, and lift with nice little balls, and finally potted at once. To satisfy disputants, would it not be a good plan to test the matter practically, by showing a dish of say fifty Strawberries on an early day next April at South Kensington? This would give the believers in semi-aquatic treatment a chance to assert the advantage of their sods, saucers, and turf shelves. *W. Hinds, Otterspool Gardens, Liverpool.*

—— I am sorry to see I have vexed Mr. Ward by my allusion to his old-fashioned plan ; perhaps I erred in using the word "his," but he recommends the practice in his article, and that is the reason I used it personally. He is quite right to disclaim the honour, and I cannot do better than follow his

example, and lay no claim to the plan of layering Strawberry runners into their fruiting pots. I may, however, at once say, "I do mean to tell the readers of the *Gardeners' Chronicle*" that the way to effect a saving of time and labour, and at the same time to be successful even in early forcing, is to layer the runners into the fruiting pots, and to ram in the soil as firmly as in the case of potting-off the plants. I also beg to say we do not do things "by halves" (how does Mr. Ward make this appear? and in another place he says, "There is a way of over-doing everything"); but as we live in a progressive age we endeavour to profit by the hints we obtain from the horticultural Press, and also by the experience of other eminent practical men. It does not "shock me to hear that we raise our Broccoli, Onions, &c., from seeds now in the same way our ancestors did 300 years ago." It is so natural, and I am at a loss to see where the analogy exists between raising such seeds and the *modus operandi* of potting a Strawberry plant for forcing. With regard to the potting of Cinerarias, Calceolarias, &c., to which Mr. Ward alludes, I should be pleased to adopt the same method, and I believe with equally good results, were it not for the danger arising from over-watering. Practical men know there is no danger of this with the Strawberry. I had no thought of entering into this discussion beyond pointing to a simple method at a seasonable time of year. If there is any doubt about it, as Mr. Ward seems to intimate, I shall be glad to describe the way we do it, and I venture to say that no one who gives this "new-fashioned way" a fair trial will be willing to go back to the old. *Edward Bayman, Holmbury, Dorking.*

Pot Campanulas.—I have now in bloom Campanulas turbinata, turbinata alba, and turbinata hybrida, and shall soon have in bloom a large pot of Campanula Barrelieri. C. turbinata is the dwarfest of all, the foliage rising only an inch or so above the pot, the large bell-shaped deep blue flowers are raised above the foliage about 4 inches, on stiff erect stems. C. turbinata alba has slightly diverse foliage, is rather more robust, and the flowers are similarly borne, but, instead of being white, are in colour pale mauve. C. turbinata hybrida has a remarkably robust but compact growth, soon filling a large pot; the foliage much resembles that of C. turbinata alba, but is rather smaller. The flowers are as large as those of the other kinds, perhaps rather larger, are mauve-blue in colour, and borne on stems from 6 to 10 inches in length. Campanula Barrelieri makes a charming basket or pot plant, as its long creeping branches when covered with bloom hang down and produce a beautiful and graceful object. The flowers are medium-sized, and in colour pale blue. All of these varieties make good pot plants for the summer, and would be equally nice if grown in vases. They are easily propagated by division, which should be done in the autumn, and each piece potted in small pots and placed in a cold frame for the winter. If wanted to produce effect, about a dozen of these small plants should be blocked into a large pot. *A. D.*

Potatos at Woodbine House, Beckenham.—In "R. D.'s" description of these in last week's *Gardeners' Chronicle* I read that Mr. McKinlay got as many as seventy eyes from 1 lb. of seed of Snowflake and Eureka Potatos. I also had 1 lb. of each variety; from Snowflake I got fourteen sets with twenty-eight eyes, from Eureka thirteen sets with twenty-five eyes. Now I do not mean to say it was not possible to get seventy eyes from 1 lb. of seed, but I do say it is most improbable, looking at the size of the Potatos and the distance of the eyes apart, and most certainly it does not say much in favour of any Potato that it has such an enormous quantity of eyes in 1 lb. of tubers; besides, I think our American friends are too keen to attempt to palm off upon us such an ungainly article. I beg to ask, too, does such treatment comply with the conditions by which the produce are to be judged—the conditions being that they should receive such culture as is usually given to crops in a well managed garden or farm? *J. C.*

Culture of the Canon Hall Muscat Grape.—Is your correspondent, Mr. Prestoe (p. 18), not mistaken when he says that one of the most important points in its successful cultivation is the training of its shoots horizontally? Training horizontally the strong shoots of all Vines I should say is the right thing to do if they are wanted for future fruiting, for this reason—that the buds all along the shoots get better developed, and, when they break the succeeding year, of a certainty they make a better show, and give the cultivator so many more chances for success, because he has so many bunches to choose from. I do not think that the training of the shoots in any particular way will ensure success in the cultivation of this Vine. The greatest uncertainty with it is in its setting, and this must be in or owing to the delicacy of the sexual organs, which makes it so liable to be rendered abortive by circumstances. Sometimes I have had bunches as well set as could be desired, and at other times I have seen the bunches but very poorly set. All Muscats have a tendency to set imperfectly if the weather is sunless and the temperature too cold; so the Canon Hall variety appears to be one run to the extreme in delicacy. In its cultivation I should certainly advise the retaining of some good wood to work upon. Another Vine which I would secure still more to insure a crop is the Barbarossa, which is usually shy in another way—not showing bunches at all, they being usually cut off in pruning. This year a Vine of the latter is here which showed towards two dozen bunches by the system of laying in some good wood; these I have reduced to eight, which, if they finish well, should be a fair crop, and in weight about 30 lb. Is not your correspondent treading upon uncertain ground when he entertains the view of second crops of Muscats? Every good cultivator will be satisfied with one good crop, and many do not even succeed so far. *R. M.*

Gooseberries.—Will any of your readers kindly say whether 12 lb. weight of Gooseberries is considered a large picking from one tree? We gathered this quantity on June 30 from an "Ironmonger" bush standing 2 feet high, and measuring 39 inches in diameter above the galvanised iron, with which all our bushes are hooped. I may add that some of the trees give evidence of larger crops than the one collected. Our neighbourhood is Seaforth, on the seaside, the land low and flat, and the soil sandy. *R. J. M., July 2.*

Strawberries for Forcing.—I find the plan I adopt in preparing Strawberry runners for forcing simple, successful, and expeditious. It is as follows: So soon as the runners can be found pushing out young rootlets, cut them off and pot them into 4-inch pots, keep them in a close frame, shaded when necessary, and, of course, sprinkled occasionally; in a few weeks they may be transferred to their fruiting pots. This system saves a deal of time watering, and trampling upon the fruit is avoided. If any one doubts the result, let them try one hundred plants at once, they will then satisfy themselves. *A. S. Kemp.*

The Ice Storm in the Eastern Counties.—In the afternoon of June 29 a storm, similar in its effects, only, if possible, more disastrous than that noticed by Mr. Fish at p. 20, swept over Chelmsford and especially the north side of it, making sad havoc amongst all growing crops and glass-houses. At Broomfield Lodge about 300 squares of glass were broken, and at the Broomfield Nursery, a few hundred yards higher up, nearly a thousand squares shared a like fate, while the streets and cellars of Chelmsford were completely flooded. The oldest inhabitants declare that they have never witnessed such a scene before, and believe that never since the Deluge has Chelmsford been visited with a like storm. Three slight shocks of earthquake were also experienced the following evening about 10.30. At Broomfield vegetation has suffered quite as much or more than at Hardwicke, and the flower-beds are complete skeletons. In regard to the glass-houses, it is singularly strange that whilst Mr. Fish has suffered most on houses having squares of glass a foot or more in width, the exact reverse should be the case in this district, the small squares falling a complete wreck. Of course the 16-oz. glass suffered most, and parties about to build will do well to use nothing lighter than 21-oz. glass, of second or third quality, and insure against a recurrence of these disastrous storms. The cost of insurance is very slight. *Thomas Simpson, Chelmsford.*

Wasps.—In the various articles about wasps and the devastation they commit in orchard-houses that have latterly appeared in the *Gardeners' Chronicle*, no mention is made of a preventive remedy which I learnt from your journal a year or two ago, viz., the cultivation of Tomatos in the house. It was therein said that if Tomatos were grown in an orchard-house the wasps would desert it. I have one filled with Grapes and Peaches, the fruit of which was formerly much injured by wasps, which abound in my vicinity. I used to have numerous soda-water bottles, half filled with beer and sugar, suspended all over it; and although these said bottles were always half full of dead wasps, yet they continued numerous, and did much mischief. Last year I had Tomatos planted early in the border, and we never saw a wasp in the house summer or autumn. This year the Tomatos are again growing there, and no wasps are present. My gardener says that he has long been acquainted with the practice, and has never known it fail. He says that even in the open air a few Tomato bushes at the foot of a fruit wall will greatly protect the fruit. He thinks that the wasps object to the rather penetrating odour of the Tomato bush. The remedy is certainly very simple, and, as shown above, appears to be efficacious. *Henry Bennet, M.D., Weybridge.*

Spring and Summer Pruning.—In an article of your journal which appeared some time ago on forestry, it was stated that spring and summer is really the best time for pruning most trees, better than autumn, and that the latter period has merely been chosen because most convenient. The author states that in spring and summer the tree or shrub being full of life, sap, and energy, repairs with ease a wound inflicted, and rapidly covers it over with bark; whereas, in autumn and winter, the active life of the tree being in abeyance, dormant as it were, the wounds caused by pruning do not heal, the exposed wood often dies, and large unsightly scars with dead wood at the bottom are seen. This remark struck me forcibly, and I went out into my little wood to investigate. I am abroad in the winter, returning every year at the latter end of May. Now, one of my delights is to sally forth after breakfast and prune my own trees, a course of proceeding which commences the day after my arrival; indeed, I seldom go out without my snippers, saw, and knife. My gardeners have always warned me against thus cutting and clipping trees at this time of the year, asserting that the autumn and winter were the time; but I despised their opinions and went on my own course, because, firstly, I was not there in the autumn; and secondly, because I wished to do the pruning myself. Moreover, I had an idea of my own that the trees would not suffer but recover with the summer's growth. Rather severe pruning was required, especially in the case of the Spanish Chestnuts, Beeches, Birches, and Scotch Firs, which principally form the wood, inasmuch as I have had to denude them of all their branches up to 10 feet, in order that the eye might reach more distant woodland. I have also a small orchard of fruit trees which suffer severely from spring frosts. To avoid the latter, I thought of getting the fruit-bearing part of the tree into a warmer atmospheric region by growing standards and running them up with clean stems 10 feet from the ground. This plan appears to have succeeded this year, as they are full of fruit. Thus all my own pruning work has been done in June and July, whereas that of my gardeners has been done in November and December. On examining the results of the two kinds of work, it appears to me that the statement in the article on forestry, which I have quoted, is quite correct. All the pruning wounds which I have inflicted in June and July have healed over so completely that they can scarcely be perceived, the trees having nice clean stems, without deformity and but slight scars. Those, on the contrary, pruned in November by my gardeners, even years ago, mostly show large ugly wounds or deformities, with rings of swollen hypertrophied bark surrounding pieces of black wood. I would add that I have never been troubled with bleeding in any case. The Fir trees throw out a little turpentine, it is true, but not enough to damage them. The above results correspond with all we know of the laws of vegetable as well as of animal nutrition. To repair a wound or loss of substance in either case energetic vital action, vigorous life are required; and such life in the vegetable world is present in summer, all but absent in winter. *Henry Bennet, M.D., Weybridge.*

Aphis lanigera.—And now for a bit of personal experience, although probably it is not new. Some of my Apple trees are, and have long been, infested with the Aphis lanigera. Some years ago I had painters at work, and bethought me of smearing over the diseased part with paint. I found this simple plan a complete success, only the trees have to be watched, and the application of paint has to be renewed for a week or two every few days wherever the disease has appeared to have escaped or to reappear until all germs have been destroyed. In spring the trees should be watched, and the paint applied on the first appearance of the Aphis. The patches of paint do not appear to do any damage whatever to the tree. I use Carson's anti-corrosive paint, the kind I generally employ on my preserves. *Henry Bennet, M.D., Weybridge.*

Starting Early Vines.—According to Thompson, if you wish to see very early Grapes, it is better to start in August than in October. My Grapes were gathered this year, *i.e.*, finished cutting, by June 18, but of course the leaves are still green, though the wood has ripened exceedingly well, owing, I think, to the hot May. Now, if I were to start this year in August, I presume I ought to prune at once. But would it not be better first of all to strip off the leaves? My own plan would be to lower the Vines at once, so as to stop the flow of sap, to strip off the leaves, to prune the last week in July, to start the last week in August. Would there be much danger of bleeding? *J. L. S.* [No doubt properly ripened Vines started in August are easier to manage afterwards than those that may be started in October. If you are really anxious to try the experiment, which we do not in any way recommend, prune the Vines as soon as you may be satisfied the wood is thoroughly ripened. This may be the case before the leaves have quite all fallen off. Do not strip off unripened foliage in any case in the hope of forcing the wood to ripen, for you may just as well prune the shoots off as cut off their lungs. The Vines, if properly ripe, may be started almost immediately after pruning without much danger. EDS.]

HORTICULTURAL EXHIBITIONS, 1875.

JULY.

21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Zonal Pelargonium Show.
23 and 24.—Helensburgh and West of Scotland Rosarians' Society's Exhibition. Sec., W. Ure Waddell.
28 and 29.—Preston Floral and Horticultural Society's Exhibition. Hon. Sec., W. Troughton, 4, Church St., Preston.

AUGUST.

2.—Peterborough Flower Show. Sec., F. G. Buckle.
4.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
6 and 7.—Manchester Botanical and Horticultural Society. Exhibition of Carnations, Picotees, New Plants, &c. Manager, Bruce Findlay.
6 and 7.—Cheadle Floral and Horticultural Society's Eighth Annual Show.
7.—Rossendale Floral and Horticultural Society's Exhibition. Sec., M. J. Lonsdale, Newchurch.
10.—Clay Cross Horticultural Society's Eighteenth Annual Exhibition.
12.—Canterbury Horticultural Society's Exhibition. Sec., Charles Sendell.
17.—Coventry and Warwickshire Horticultural Society's Show at Combe Abbey. Sec., Thomas Wigston, 3, Portland Terrace, Coventry.
18.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
24 and 25.—Metropolitan Floral Society's Exhibition at the Alexandra Palace.

THE
Gardeners' Chronicle.

SATURDAY, JULY 10, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY,	July 14	Royal Botanic Society's Evening Fête at Regent's Park. Woodford Horticultural Society's Third Exhibition. Loughborough Horticultural Society's Show. Croydon Horticultural Society's Exhibition. Exhibition of Flowers, Fruit, &c., at Oundle. Wimbledon Horticultural and Cottage Garden Society's Show (two days). Sale of the late T. Bowley's Collection of Plants at Blackrock, Dublin.
THURSDAY,	July 15	Colchester and East Essex Horticultural Society's Show. Sale of Orchids, at Stevens' Rooms.
FRIDAY,	July 16	Altrincham and Bowden United Floral, Horticultural, and Rose Society's Exhibition (two days).

WE beg leave to call the attention of our readers to a discovery of the first importance, made by Mr. WORTHINGTON SMITH, in relation to the POTATO DISEASE, and brought under the notice of the Scientific Committee of the Royal Horticultural Society on the 7th inst. We offer our heartiest congratulations to Mr. W. G. SMITH on his discovery, which is narrated in his own words in another column, and we heartily felicitate the Society that in this period of deep depression and dire confusion a member of its Scientific Committee should have, by his brilliant discovery, cast so much lustre on it. To those who with ourselves have consistently advocated and done their best to promote the scientific character of the Society it must also be a matter of profound satisfaction. It is specially interesting also to see how the practical remarks made by Mr. A. DEAN at the former meeting have been confirmed by this discovery of Mr. SMITH'S. One mode of fructification of the fungus producing the Potato disease has, as our readers are aware, been long known through the researches of MONTAGNE, BERKELEY, DE BARY, and others; it has been reserved for Mr. SMITH clearly to demonstrate the existence of the resting-spore and of the antheridium by whose contact it is fertilised. Mr. SMITH has witnessed and depicted the union of the two bodies just mentioned. We hope to be able to publish a woodcut illustration of this in a subsequent number, and we trust Mr. SMITH will, stimulated by his success, pursue his researches and complete what little now remains to be known of the life-history of this fungus. The classical memoir of Mr. BERKELEY was published in the *Journal* of the Society in 1846; Mr. SMITH'S observations were brought under the notice of the Scientific Committee of the same Society the other day. Both are honourable to the Society, and whatever fate befall it, it has earned the gratitude of scientific men throughout the world, for providing the means of making these discoveries public. It is now for the practical men to turn these discoveries to account, and though the prospect is not hopeful, they need at least be no longer led off on a wrong track. Not long since it was surmised that we might have to look to Clover or other plants as the nidus for these resting-spores. We cannot say that this may not be so, but in the meantime Mr. SMITH has found them at home in the Potato, and has conclusively shown that the "new Potato disease," concerning which so much has been lately written, is merely the old disease in a new guise. By some this phase is considered to be the old "curl." We offer no opinion on this matter, but if it be so, then the interest is heightened, as it would prove the existence of the Potato fungus in this country long before the date of its usually assigned appearance. The great difficulty, from a practical point of view, lies in the fact that the fungus and its resting-spores grow and reproduce themselves in the interior of the tuber, leaf, or haulm, where they cannot be got at.

SOME short time since we had occasion to allude in a cursory manner to the great additions to our knowledge of plant-life and vegetable physiology that had been made directly by Mr. DARWIN, and which had accrued indirectly from the great impulse which his zeal and genius had given to other workers. We also took occasion to allude to the benefits that practical horticulture must inevitably derive from his researches when the knowledge of them shall have become sufficiently known to, and appreciated by, gardeners. It must also happen that many will in future modify their practice or adapt their procedures in consonance with the discoveries of Mr. DARWIN, without being at all aware that they are indebted to him in the first instance. A work now before us from the same master hand, supplies additional confirmation to these remarks. The book in question, which is entitled INSECTIVOROUS PLANTS,* is marked in a very strong degree with many of those characteristics which have made Mr. DARWIN'S previous works so remarkable. We have the same clear statement of facts, the same evidence of patient and laborious research, the same simple modesty of expression, the same scrupulous care to give due credit and acknowledgment to the researches of others, the same excellent practice of repeating and summarising important details, the same weaving together into one strand of all the facts and all the inferences; the same unconsciously exerted persuasiveness, which leads the reader on from point to point, and at the end leaves him no choice but to accept the author's conclusions. Our readers have been prepared for this book by the numerous forerunners that have appeared in the shape of different memoirs and records of observations that have been made from time to time of late years in this country and in America.

The address of Dr. HOOKER on carnivorous plants, at the last meeting of the British Association at Belfast, served in a peculiar manner to attract the attention of the public, and to prepare the way for Mr. DARWIN. We must, however, refer to the volume itself for the history and bibliographical references pertaining to the subject, as we can only indicate, and that briefly, some of the leading points in this new work, and equally briefly point out their bearing on scientific horticulture.

The work, then, is a record of experiments and observations made on the common Sundew, Drosera rotundifolia, and on some allied plants, such as Dionæa and Aldrovanda, as well as on Pinguicula and Utricularia.

These observations and experiments may be counted by hundreds upon hundreds; many of them must have required very great care and most delicate manipulation. To avoid risk of error they have been repeated and controlled over and over again. It is necessary to mention this, though no idea can be formed of the great labour and unwearying patience that have been bestowed without reading the work itself. The object of these experiments was to ascertain how the plants in question capture insects, and what they do with them when caught. The results in some cases are very extraordinary. An entirely new light is thrown upon some phenomena of the nutrition of plants, and in several particulars the results are so remarkable that when we first heard of them as matters of rumour we were disposed to be incredulous and sceptical. With the full record before us doubt is no longer possible. There may be occasionally a wrong rendering of facts, there may be a faulty interpretation here and there, or the circumstances may occasionally bear an explanation different from what is put on them; that may be so, but, taking the book as a whole, we venture to say no physiologist will question its main facts, nor the inferences derived from them.

It is not necessary for us to describe the general appearance and outer mechanism of the Sundew, the Venus' Fly-trap, or the Utricularia, as we may safely assume that they are known to most of our readers, while in the case of the rarer Droseras, the Aldrovanda, and other plants mentioned in this volume, there is the less necessity for us to refer to them, as the general results (allowing for a few differences of detail) are the same as in the case of more familiar plants. The greater part, indeed, of the book is devoted to the common Sundew, Drosera rotundifolia. We cannot pretend to follow Mr. DARWIN in all his varied experiments on this plant, but we may say in brief that the leaves of this plant are studded with glandular hairs, which secrete a viscid fluid which serves to detain any unwary fly or insect which alights upon the leaf. The hairs then gradually bend inwards towards the centre of the leaf. More than this, if on the central portion (the disc of the leaf) be placed any small object, organic or inorganic, then, in the course generally of from one to four or five hours the marginal hairs—tentacles, as Mr. DARWIN calls them—bend inwards also, so that an impulse is conveyed from hairs that are directly affected by the impact of any substance to hairs at a distance that are not directly touched. This is a parallel case with the Sensitive Plant, where a similar impulse is conveyed from one leaflet to others at a distance. Having become bent inwards over the captured insect, the viscid secretion before observable in the glands changes its character—it becomes acid; it becomes, in fact, analogous to the gastric juice, and performs the same office—viz., that of digesting animal matter.

But digestion involves not only solution but absorption of the solution, and Mr. DARWIN'S experiments go to prove that both processes take place. Some physiologists, while admitting, from the researches of NITSCHKE and others, that the hairs were sensitive and mobile—that they caught insects by virture of their viscid secretions—yet hesitated to admit that the insects caught were dissolved by any secretion from the plant, still more that that solution could be absorbed. But Mr. DARWIN'S experiments leave but little doubt on our minds that, under the conditions he mentions, the leaves of these plants can and do digest, *i.e.*, dissolve and absorb insects and other nitrogenous matters brought in contact with them, and in this way a considerable side light is thrown on a still vexed question—the power of leaves to absorb water by their surface.

Now if the leaves of this plant can obtain

* *Insectivorous Plants.* By Charles Darwin, M.A., F.R.S. With illustrations. Murray. Pp. 461.

their nitrogenous matter in this way there is the less need of the roots, and as a matter of fact we find that Drosera grows in peaty marshy soil where there is little or nitrogenous matter; and we find, moreover, that the roots are inordinately small—there is relatively little work for them to do, and their size is proportionately insignificant.

Inorganic substances and such as contain no nitrogen cause inflection of the tentacles, but much more slowly; thus, while minute flies placed on the discs of some leaves, and retained there by the viscid secretion, caused the tentacles to infold in a few hours, pieces of paper and moss placed on the leaves caused only a very partial inflection after twenty-five hours: yet these very same leaves energetically responded to the attractions of raw meat. By hundreds of experiments it is shown that it is nitrogenous substances in particular which cause inflection and secretion, and which are absorbed. Light, heat, or moisture *per se* have no direct effect on the process. On the other hand, the extreme smallness and lightness of particles which will by their impact bring about motion of the tentacles is astounding. In one case a piece of human hair $\frac{8}{1000}$ of an inch in length, and weighing only $\frac{1}{787\,40}$ of a grain, excited a motor impulse. On the other hand, drops of water, as in the case of rain, do not cause the tentacles to move.

We have not space to do more than mention the numerous experiments by which it is shown that fluids containing no nitrogen—such as gum, sugar, starch, alcohol, oil—produced no inflection of the tentacles; while milk, albumen, fresh meat, mucus, urine, saliva, isinglass, all produced inflection when the precaution of experimenting on young leaves was taken. Green Pea soup and decoction of chopped Cabbage leaves act in a similar way. Salts of ammonia in solution act most powerfully, even in cases where, when absorbed by the roots, it manifested no such power. Even the vapour of ammonia proved a powerful stimulant. Phosphate of ammonia acts in extremely minute doses. Less than the twenty-millionth of a grain absorbed by a gland of one of the exterior tentacles caused it to bend. This result appeared so incredible that the observations were repeated during fourteen years, but there is no good reason for doubting it, for it is matched, and more than matched, by the astounding results of the spectroscope.

In addition to various salts of ammonia, about fifty other salts, alkaline, earthy, and metallic, were tried; and with the result that, while some did, others did not cause motion of the tentacles. It is most curious to see the antagonism, as it were, between certain substances, *e.g.*, between sodium and potassium—the soda-salts all causing inflection, the potash-salts all being inert or poisonous. Magnesia and lime salts cause no inflection. The one, salt of iron, produced only partial inflection. These results, which are given in full detail, appear to us as likely to be most valuable when corelated with similar observations on the use of the same substances as manurial agents. Nineteen diluted acids caused inflections, while gallic, tartaric, and citric acids produced no effects. A large number of other substances were tried, some producing inflection, others being inert. Camphor is specially noted as increasing the sensitiveness of Drosera.

The experiments we have been alluding to in the last few paragraphs had reference more especially to the power that certain substances have of causing movement in the sensitive tentacles. It is time now to allude to that other series of experiments by which it is proved that the leaves of Drosera "act on albuminous compounds in exactly the same manner as does the gastric juice of mammals; the digested matter being afterwards absorbed." Well may Mr. DARWIN speak of this as "a wonderful fact in the physiology of plants." Our impression is, that here we have the origin of a new theory of plant nutrition, and that many other plants, by means of their root-hairs, or other organs, will eventually be shown to possess properties now known to be possessed only by a very few plants. Be that as it may, it has been conclusively proved that albumen (white of egg) is dissolved by the secretion of the leaves of Drosera; that if an alkali be added digestion is stopped, but is immediately restored when the alkali is neutralised by an acid. Cooked meat, fibrin, cartilage, fragments of bone, even dentine and enamel, phosphate of lime (a most powerful stimulant), were all dissolved, aud the solution absorbed. Raw meat is injurious—causes indigestion, in fact—while skin, fibro-elastic tissue, cellulose, gun-cotton, chlorophyll, starch, fat, and oil, are not acted on.

From pollen grains and living seeds the interior nitrogenous portions are dissolved out just as in insects the hard shell, or wing-case, is unaffected, while the juices and soft tissues are dissolved. The absorption of the dissolved substances depends, as in the case of animals, not only on the presence of an acid, but also of a ferment like the pepsin of animals.

There are many other points to which we might call attention, but it is far better that the reader should consult the book itself. We have said enough to show the exceeding interest of the volume to physiologists and plant cultivators.

From the striking facts elicited with reference to the glandular hairs of Drosera, it was natural to turn to the similar hairs of other plants. Accordingly Mr. DARWIN has put on record a comparatively small number of experiments with Saxifrages, Pelargoniums, Primula sinensis, &c. These glandular hairs have hitherto been thought to be secreting organs only, but we learn from these experiments that they have in some cases the power of absorbing ammonia, both in solution and in vapour.

In regard to this question of glandular hairs, Mr. DARWIN has pointed out a subject for research which will doubtless be eagerly seized by many who have the requisite leisure and ability, and from which great results may be expected. The pitcher-plants, Nepenthes, Sarracenia, &c., did not form the object of Mr. DARWIN'S researches, but we know, from the few observations already made by others, that similar phenomena are exhibited by them.

FIG. 7.—M. THURET'S GARDEN AT ANTIBES.

THE meeting of the ROYAL HORTICULTURAL SOCIETY on the 8th inst. was not a little stormy, but its results will be accepted with great satisfaction as the forerunner of a more hopeful era. The necessity for insisting on the resignation of the four members of the Council, who have at length formally completed this process, is made sufficiently

apparent from the remarks made at the meeting, and specially by what fell from the gentlemen themselves. It is to be regretted that a great many harsh words and disagreeable passages have occurred in the course of these discussions, but they may as well be considered by all parties now as wholly withdrawn. Let bygones be bygones, and let the horticulturists once more rally round the old Society, and prove their zeal for its welfare by making as successful an exhibition on the 21st inst. as circumstances will allow them to do.

—— WE are requested by Messrs. JAMES VEITCH & SONS to publish the following communication :—

"In consequence of the more favourable turn of affairs at the Royal Horticultural Society we beg to state our intention, so far as we are concerned, of doing our best to make the exhibition on the 21st inst. a great success ; and we trust that we may be supported by our fellow-exhibitors on that occasion. *James Veitch & Sons, Chelsea.*"

—— The RECENT FINE RAINS have not proved to market gardeners an unmitigated blessing, as the weather has seriously interfered with the gathering and sale of fruit ; indeed, we have heard of half sieves of excellent Strawberries being sold at the ridiculously low figure of 1*s.* 6*d.* and 1*s.*—scarcely sufficient to pay for the picking. The late hay-making is also seriously interfered with, and much otherwise good hay is now quite spoilt. On the other hand, a finer time for getting out green crops can hardly be remembered. It would be hard to speculate upon the number of thousands of plants put out within a radius of 20 miles of Charing Cross during the past fortnight, but certainly nothing less than seven figures, and probably eight figures, would give an approximate estimate. The second early and late crops of Peas are very great: from West Middlesex alone they pour into the London market by thousands of bushels weekly ; and Beans of all kinds look now as though they would produce an immense crop. Potatos are being largely lifted—Myatt's, as the Early Ashleaf is proverbially known, being still most extensively grown, and as the crop escaped frost there is a good produce being lifted. Perhaps, as a rule, the lifting of early Potatos is commenced too hastily, as the tubers are at the first but half grown and can hardly be wholesome diet. Our growers have, however, formidable competitors in the Continental market gardeners, who send their Potatos into the market long before ours are ready, and thus they promote, on the part of the public, a demand that home growers haste to satisfy.

—— The thirty-second anniversary festival of the GARDENERS' ROYAL BENEVOLENT INSTITUTION was celebrated at the London Tavern on Friday, July 2, ROBERT BROADWATER, Esq., in the chair. About 150 gentlemen sat down to dinner, among whom we regretted to see so few horticulturists. The financial results were, however, we are glad to say, satisfactory.

—— The valuable collection of stove and greenhouse plants formed by the late THOMAS BEWLEY, Esq., at Rockville, Blackrock, Dublin, is to be sold by auction, on the premises, on Wednesday next. The auctioneers are Messrs. BENNETT & SON, Dublin.

—— We learn that, in consequence of his recent appointment as Assistant-Director of the Royal Gardens, Kew, Mr. W. T. THISELTON DYER has resigned the office of Professor of Botany to the Royal Horticultural Society, and Curator of the Lindley Library. We greatly regret that the Society should lose the services of so energetic and capable an officer, but trust that some means may still be found whereby his connection with the Society may be still maintained, even if in a modified form.

—— VERBENA PULCHELLA, a dwarf-growing species with numerous trusses of small striped flowers, is used by Mr. RECORD at Vintner's Park, Maidstone, as an edging to beds of flowers on the terrace garden, and with charming effects. The pretty Nierembergia gracilis is used in the same way, and is most effective, being so free of bloom and so continuous. Sedum acre elegans, with its variegation of silver-grey and creamy white, is employed for panelling purposes in beds of low-growing succulents ; and notwithstanding the dry weather that preceded the recent rains, and the exposed position of the terrace garden, it was most effective, keeping its colour well, and growing very dense.

—— CLASSES IN SCHEDULES OF PRIZES are sometimes found expressed in singularly confused language. We met with one the other day which read as follows :—"Six cut blooms of any Rose, no necessity to be distinct varieties." The uncertainty in the minds of the exhibitors was expressed in their exhibits, some showing six blooms of one variety, others a single bloom each of six distinct varieties. Clearness in language was certainly wanting here. The design of the donor of the prize was to get six blooms of any Rose. If he had stopped there, the condition of the competition would have been comprehensible. Schedules of prizes frequently afford illustrations of the most eccentric literary construction. Here is a case in point—"Twelve Antirrhinums in bunches of three spikes." What is really intended is twelve bunches of Antirrhinums, three spikes to a bunch.

—— A fine form of the Great Thrift, known as ARMERIA ALPINA GRANDIFLORA, is an extremely useful plant for cutting from at this season of the year. It is rather later than the common Thrift, and, like it, it can be used as edgings to walks or beds, doing best in a rather gravelly soil. Well established clumps of it produce a large number of large pale rose-coloured flowers, of large size, borne on erect stalks, and which last a long time after being cut. It is a plant well deserving the attention of those who grow flowers for market.

—— The award of a First-class Certificate to PINK LORD LYONS, made at the last meeting of the Royal Botanic Society, serves to illustrate the sometimes tardy recognition of undoubted merit in really good plants. This fine Pink, raised by Mr. JAMES CLARKE, Bury St. Edmunds, was exhibited at a meeting of the Royal Horticultural Society in June, 1867 (about the time it was sent out), and awarded a Second-class Certificate of Merit. After undergoing a kind of eclipse, its high-class merit is being recognised, it is being more generally cultivated, and it has at last succeeded (when no longer a new plant) in gaining a First-class Certificate. It is invaluable either for forcing or border purposes, and it is not excelled by any other variety of the same character in cultivation. "Better late than never," would be a fitting motto for its raiser. But what constitutes a new plant at the exhibitions of the Royal Botanic Society?

—— The *Revue Horticole* announces the flowering of BAMBUSA THOUARSII in the Jardin des Plantes, and gives an illustrative woodcut. This species, unlike many others, does not die after flowering.

—— The great success that attended the BRITISH BEE-KEEPERS' ASSOCIATION'S first apiarian exhibition at the Crystal Palace last year has encouraged the committee to announce a second exhibition to take place this year, and they hope that the experience gained in 1874 will aid them in making the prize show of 1875 a still greater success than its predecessor. The work that has been done by and through the means of the Association has awakened throughout the United Kingdom so great an interest in bee culture that the committee trust the industry will in a little time acquire as great attention and be as much valued for the poor man's harvest as it already is on the continents of Europe and America. About £100 has been allotted for the prize schedule now announced. which the committee hope will be voluntarily subscribed by the friends of the movement ; but they would like to see the present number of members (about 250) so increased that their annual subscriptions would be sufficient to obviate the necessity of a special appeal for the prize fund, which at present they are obliged to make, and they ask all who are interested in the objects of the Association to join as members (if they have not already done so), and to use their influence to induce their friends to do so likewise. The committee only await the financial means to extend their operations in various ways that have been pointed out as desirable, and to consolidate the Association as a national institution. The honorary secretary is Mr. JOHN HUNTER, Eaton Rise, Ealing, Middlesex.

—— The *employés* at the Waltham Cross Nurseries were entertained on Tuesday last by Mr. ARTHUR W. PAUL, son of Mr. WM. PAUL, on the occasion of his coming of age. A holiday followed by a supper in one of the greenhouses lasted till 9 P.M., when the gates of the nurseries were thrown open to the public, the principal walks being illuminated with variously coloured lamps and Chinese lanterns. An agreeable promenade of nearly a mile in length was rendered additionally pleasant by the presence of the West Essex Yeomanry band, which performed during the evening. Between 5000 and 6000 visitors availed themselves of the opportunity of viewing the flowers under these delightfully novel conditions. In the evening a handsome inkstand was presented to Mr. PAUL, jun., by the *employés*.

—— Those of our readers who are annoyed by the presence of CROWS may be interested to know of a method of getting rid of them which has proved at once novel and effective. At Hempriggs, a few miles south of Wick, in Caithness-shire, the crows have become the cause of numerous complaints from neighbouring proprietors, and a consultation having been held to consider the best means of evicting them without killing them, DONALD CALDER, the gardener, hit upon the happy idea of sending a few squibs up amongst their nests, which are in trees some 20 or 30 feet high, and the result up to the present time is that out of a large colony which made a speedy exit, leaving nests and young ones behind when the squibs went amongst them, not a single bird has returned, and consequently DONALD is rather proud of his achievement.

—— On the walls of a house at Gladswood, near Melrose, the residence of Mrs. MEIKLAM, there is a very fine GLOIRE DE DIJON ROSE tree, which has this season a crop of 850 blooms on it. The height of the wall on which it grows is 15 feet 6 inches, and the width 24 feet, so that Mrs. MEIKLAM has much reason to be proud of her plant.

Reports of Societies.

Royal Horticultural Society: *July* 7.—The Hon and Rev. J. T. Boscawen in the chair. There is such a pressure on our space this week that we are unable to say more of this meeting than that the Rev. M. J. Berkeley announced the awards made by the Fruit and Floral Committees ; and, first alluding to the good work being carried out at Chiswick, Mr. Berkeley remarked that the Society had great reason to congratulate itself on the important work done by the Scientific Committee, a member of which body—Mr. Worthington G. Smith—had discovered the resting-spores of the Peronospora in connection with the "new" Potato disease: the details of which very important discovery will be found below, and at p. 35.

SCIENTIFIC COMMITTEE.—Dr. Maxwell T. Masters, F.R.S., in the chair.

Potato Disease.—The Rev. M. J. Berkeley, in alluding to this matter, announced that what he had taken to be Protomyces was, in reality, as Mr. Worthington Smith had just ascertained, the resting-spore of the Peronospora, which had been so long sought. Mr. Berkeley had seen both the bodies described by Mr. Smith, and his measurements coincided with those made by Mr. Smith. Mr. Berkeley also showed a drawing of an oospore attached to a stalk. At first he had only seen them free. Mr. Smith's discovery was thus one of very great scientific importance.

Mr. Worthington Smith then read his paper, printed in full in another column (p. 35), and exhibited drawings and specimens; at the conclusion of which Mr. Smith was warmly congratulated by the Chairman and other members of the committee, and a short discussion followed, in the course of which Mr. Berkeley stated his opinion that probably all the species of Protomyces are resting-spores of some fungus ; while Mr. Renny doubted whether the Artotrogus of Montagne, which had been supposed to be the resting-spore of Peronospora, was really such.

A few other subjects were brought before the committee—such as a nest of a humble-bee, flowers of Carex vulpina deformed by the larva of Cecidomyia—and the meeting adjourned.

THE ROSE SHOW.—With one exception the principal Rose growers held aloof to-day, and consequently, as regards numbers, what used to be "the Great Rose Show, with which is incorporated the National Rose Show," was a very insignificant affair. There was only one lot of seventy-two put up, and these were of poor quality. Mr. Prince, of Oxford, was the largest exhibitor, and his blooms being in very superior form, he had no difficulty in obtaining 1st prizes for twenty-four single trusses, and twenty-four Hybrid Perpetuals, three trusses of each. Mr. T. Laxton had the best dozen Tea-scented and Noisette, and the best dozen Maréchal Niel ; and 1st in the amateurs' class for twelve was Mr. J. Ridout, gr. to W. S. Brown, Esq., Woodhatch Lodge, Reigate. Mr. Prince's stands contained some very fine blooms, and especially of Marie Baumann, Comtesse d'Oxford, Auguste Rigotard, Madame Hippolyte Jamin, and Duc de Rohan. A dozen blooms of Paul Néron, shown by Mr. Prince, were also of very high quality, and first-rate samples of the same variety came from Messrs. Mitchell & Sons, Piltdown. Mr. Prince also sent very fine blooms in dozens of Madame la Baronne de Rothschild and Marie Baumann ; and Mr. Chard, gr., Clarendon Park, was the only exhibitor of a basket of cut blooms.

THE SHOW OF VEGETABLES.—The competiton for Messrs. Carters & Co.'s valuable Challenge Cup and liberal money prizes was the means of providing a grand field day for vegetable growers, and an exceedingly fine display was the result. There were nine competitors, and with one or two exceptions the produce staged would have graced the tables of any exhibition, and the highest praise is due to Messrs. Carter & Co. for the substantial encouragement of high cultivation in connection with our humble vege-

tables which they have thus afforded. The very high quality apparent in most of the collections, and the very close and even exciting competition for the 1st prize, must have given the Messrs. Carter a great deal of pleasure, as it certainly did the visitors; and it is a matter for sincere gratification that their great liberality should have met with such an abundant reward.

It is unfortunate that at the previous show at Bath a precedent should have been set of allowing exhibitors to stage more than the stipulated variety of Melon, as the precedent was followed by two or three exhibitors to-day, and caused their disqualification, though, as regards the 1st prize, had the objectionable Melons been omitted, we do not think it would have affected the judgment. The disqualified collections being out of the question, the great competition lay between Mr. Gilbert, gr. to the Marquis of Exeter, Burghley; Mr. D. Arkell, gr. to A. J. Skinner, Esq., Swindon Road, Cheltenham; and Mr. Pragnell, gr. to G. D. W. Digby, Esq., Sherborne Castle, Dorset. Long and patiently the judges—Messrs. Barr, Woodbridge, and Douglas—worked out by comparison the merits and demerits of each individual article; and so close was the contest between them, that we believe Mr. Gilbert, to whom eventually the cup was awarded, had only a few points more than his opponent. Mr. Arkell was placed 2d, Mr. Pragnell 3d, and Mr. Osman, the South Metropolitan District Schools, Sutton, 4th. We may state, to give an idea of the sort of things staged all round, that Mr. Gilbert's collection contained the following varieties of Peas:—Carter's Early Premium Gem, Laxton's Fillbasket, G. F. Wilson, James' Prolific, and Carter's Commander-in-Chief; the new Mammoth Longpod Bean, the Hedsor Bean, Carter's White Advancer French Bean, and a splendid sample of the Crimson Flageolet Bean; Covent Garden White Cos Lettuce, Asparagus, Mushrooms, Bailey's Selected Cauliflower, White Tripoli Onions, James' Intermediate Carrots, American Strap-leaved Turnip, Mona's Pride Potatos, Solid White Celery, Fern-leaved Parsley, and the Little Heath Melon, &c. Few men have worked harder than Mr. Gilbert to infuse enthusiasm into such a common-place subject as the culture of vegetables, and we heartily congratulate him on his success.

Messrs. Carter & Co. also offered prizes for six dishes of Peas, and to show that the competition was a popular one it may be mentioned that there were six competitors, the production of each being of a very high order of merit. The 1st prize went to Mr. W. Cross, gr. to J. B. Lousada, Esq., Sidmouth, who had splendid samples of James' Prolific Marrow, Laxton's Superlative, Hundredfold, G. F. Wilson, Commander-in-Chief, and Laxton's Omega. Mr. W. G. Pragnell was 2d.

Messrs. Sutton & Sons' prizes for six dishes of Peas brought out four competitors, and Mr. Pragnell came in 1st, with well filled pods of Hundredfold, Commander-in-Chief, Duchess of Edinburgh, Duke of Edinburgh, Best of All, and Suttons' Giant Emerald Marrow. The next best collection was staged by Mr. H. Elliott, gr. to J. Hibbert, Esq., Braywick Lodge, Maidenhead, and very good samples they were.

Messrs. Hurst & Son also offered four prizes for any six varieties of Mr. Laxton's new Peas; including two of each of those sent out by them during the last three years; and also for twelve plants each of certain named sorts. There was a good competition in both cases, and especially for the six dishes, in which there were nine collections—Mr. Miles, gr. to Lord Carrington, coming in 1st, with very fine examples of Fillbasket, Supplanter, Superlative, William the First, Dr. Hogg, and Laxton's No. 1; and Mr. W. Cross, gr. to J. B. Lousada, Esq., 2d, with Superlative, Dr. Hogg, Popular, Fillbasket, Laxton's No. 1, and Unique. The last-named exhibitor also took the 1st prizes in the classes for the best dozen plants of Dr. Hogg, Laxton's No. 1, Omega, and William the First; Mr. Gilbert being 1st with Supplanter, Mr. Chard with Fillbasket, and Mr. Miles with Unique.

Amongst miscellaneous subjects we may mention a large and particularly well grown collection of Lettuces, from Messrs. Carter & Co.

FLORAL COMMITTEE.—Dr. Denny in the chair. First-class Certificates were awarded to Messrs. Cripps & Son, Tunbridge Wells, for Clematis Fairy Queen, pale flesh-tinted pink, with a very delicate shade of purple at the base of the bar, an almost indescribably beautiful colour. The flowers measure 9 inches across, but the sepals are rather narrow for blooms of this size. To Mr. A. J. Hardy, Stour Valley Nurseries, Bures, for very fine double varieties of Clarkia elegans, named Salmon Queen and Purple King. To Messrs. J. and C. Lee, Hammersmith, for Begonia Coltoni and B. Rodwelli; the former vermilion-red, the latter orange-scarlet, and both of exquisite form. From Mr. Bull came Phalænopsis rubescens, white, with a very beautifully marked lip, and flowering specimens of Masdevallia Estradæ; Lilium columbianum, L. Brownii, L. californicum, L. canadense, and its variety flavum. The thanks of the committee were voted to Mrs. James Bateman for a cut spike of Lilium Bloomerianum oscillatum, orange-red, heavily spotted; to Mr. Croucher, gr. to J. T. Peacock, Esq., Sudbury House, Hammersmith, for a plant of Masdevallia Harryana, with a dozen very fine flowers; to Mr. J. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, for a cut spike of Cattleya gigas, exceedingly beautiful in its rich colour; and to Mr. R. T. Veitch, of Exeter, for a fine pan of Nertera depressa. Seedling Pelargoniums were shown by Mr. George and Mr. Laxton.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. From the Society's garden at Chiswick Mr. Barron sent fifteen varieties of Currants, and samples of the Orleans Gooseberry, a much superior variety to the Early Sulphur. Mr. R. Dean, Ealing, sent samples of Peas Robert Fenn and Dean's Dwarf Marrow, and of Dean's Early Snowball Cauliflower. Mr. Mills, market gardener, Chiswick, sent cut branches of the Monarch Gooseberry, to show the wonderful crop which the trees are bearing this season. He grows an immense quantity of this variety, and his trees all alike are literally loaded with fruit. It is a large hairy red variety, of good quality, and, having a tough skin, it is one of the very best for market work—besides, the birds are said not to touch it, from what cause we cannot say. Mr. William Paul, Waltham Cross, was awarded a First-class Certificate for a new Strawberry named Waltham Seedling, a large, high-coloured, conical-shaped fruit, which has been proved at Chiswick to possess a hardy constitution and free bearing habit. A dish of Early Beatrice Peaches was brought by Mr. Miles, gr., Wycombe Abbey. This is perhaps the earliest Peach grown, as the specimens shown were ripe on the open wall, and on a tree that had not been thinned, on July 5. A vote of thanks was awarded.

A SPECIAL GENERAL MEETING of the Fellows of the Royal Horticultural Society was held on Thursday, in accordance with the requisition which was published in the last number of the *Gardeners' Chronicle*. Viscount Bury took the chair, and there was a very full attendance of the Fellows. The Assistant-Secretary read the advertisement calling the meeting, and then was about to read the minutes of the last meeting, when—

The CHAIRMAN said: Is it your pleasure that the minutes of the last meeting be taken as read?

Several FELLOWS: Yes, taken as read.

Mr. S. H. GODSON: How can you take these minutes as being read when this is a special meeting?

Mr. BRAGGE (Birmingham) protested against the reading of the minutes, this being a special meeting, called for a special purpose.

The subject was dropped, after a short discussion, and then—

The CHAIRMAN said that the meeting had really been convened to consider the conduct of Lord Bury (himself), Sir Coutts Lindsay, Mr. Bonamy Dobree, and Mr. Hume with respect to the non-completion of their resignations. Now, he was quite sure all these gentlemen—at least, he could speak for himself—would listen patiently to any charges which had to be brought against them, and, as a matter of course, he should reserve for himself and for his friends the right of reply to anything which might be said. No doubt something which had occurred had given pain to his former colleagues, and not only that, but to several members of the Council. He was going to make an explanation which might possibly be agreeable to those gentlemen. It did appear that an impression went abroad that members of the Council of which he had the honour to be a member formulated the accusation against him and some of his colleagues. Now, with respect to that, he begged to say that explanations had been offered to him which had removed that impression from his mind. The Council had not promoted this meeting, but the Council, in accordance with the requirements of the charter, were obliged to call the meeting. Having thus briefly alluded to what brought about the meeting, he thought a few words from him would make the whole matter straight, and——

Mr. J. R. PEARSON, of Chilwell, near Nottingham (interrupting), said he had travelled 120 miles to be present at the meeting, and, as a horticulturist, he felt that this was a most important meeting. He was never more surprised in his life than to see his lordship in the chair. He thought, as others with him thought, that his lordship had resigned his position as chairman of the Council. In fact, he and his friends considered the chairman was gone.

A FELLOW: No, not at all.

Another FELLOW: Certainly not.

Mr. PEARSON: Well, I thought Lord Bury had resigned, and that three other members of Council had resigned. If I am wrong correct me, but really I thought Lord Bury had vacated that chair, and that some other member of the Council would have taken it on the present occasion. The fact was this—Lord Bury's carriage stopped the way. Did Lord Bury think, after publicly giving up his office, that he was entitled to take that chair again?

Mr. S. H. GODSON: Unless the gentleman concludes with a motion, I object to him saying anything more.

Mr. BATEMAN said he was sorry to anticipate the speech of the gentleman who had been addressing the meeting, but he could now simply say that he thought the noble lord in the chair was going to speak of the resignations of himself and his colleagues which had been sent in; and, more than that, to explain why those resignations had not been completed. He had no idea what explanations the noble lord had to offer, but of one thing he felt certain, and that was that the crisis in the interests of the Royal Horticultural Society ought to be met, or put an end to. It was perfectly natural that under all the circumstances the local Fellows should take alarm: they all knew they were in the agony of a great crisis, but the question was, what were they to do? What was the state of their Society? It was knocked about between the Council and the Royal Commissioners, and he thought the interests of horticulture had suffered most grievously under the administration of Lord Bury and some of his colleagues. Nothing could be possibly more depressing than walking through the gardens of the Society. How much easier it was to destroy than to create. Nothing could be more painful than to compare the present Wednesday's meetings with the former ones.

The CHAIRMAN: The meeting appears to be under a great misapprehension—that is, that I and my three colleagues do not intend to resign. That is a great mistake. There (handling several papers) is my resignation and the resignation of the others. We are met here to explain why we did not resign before.

A FELLOW: Why did you not do it before?

The CHAIRMAN: When you have done talking I will tell you.

Another FELLOW: Is there any resolution before the meeting?

The CHAIRMAN: Well, the resignation of my colleagues and myself is before the meeting.

Mr. GUEDALLA argued that the greatest calamity which could befall the Society was the resignation of his lordship in the chair and his colleagues. His lordship could, no doubt, exercise very great influence with respect to the negotiations with Her Majesty's Commissioners. He distinctly told them that if they did not keep those gentlemen in office the Royal Horticultural Society would be extinct in a very few years. The Royal Horticultural Society had been made a catspaw to bolster up the falling fortunes of the International Exhibitions.

A FELLOW: We came here, my lord, to receive the resignation of the President and other members of the Council.

Mr. GUEDALLA: I came here to ask you—I being a very old Fellow of the Royal Horticultural Society—to reconsider your determination with respect to resigning your offices. You have conducted the affairs of the Society with great ability. I appeal to you, my lord, who have so much practical experience in public business, not to leave the Society, but stick to the helm.

At this point much interruption ensued from a warm personal altercation between Mr. Liggins and Mr. Peter Barr; and the language employed was of so unparliamentary a character that at one time a breach of the peace seemed imminent. On tranquillity being restored,

The CHAIRMAN said that there was really no business before the meeting but the one, and that was to consider the conduct of Lord Bury and his colleagues, who tendered their resignations. The resignations were before the Fellows, but the resignations were not completed.

A FELLOW: When will they be completed?

The CHAIRMAN: Those who called this meeting will have to say "Lord Alfred Churchill, I should like to call upon you to justify the circular which was issued." If he does so, I shall reply, "We have placed our resignations in the hands of the Assistant-Secretary, but they are not yet completed."

Lord ALFRED CHURCHILL remarked that the whole difficulty in which the Society was placed was one resting upon the question of "£ *s. d.*" At the present moment the Society was in debt some £5000 to £6000. After the Society had been placed in very great difficulties, his lordship in the chair had been made the catspaw of a certain party, and through that party the Society had been gradually brought into difficulties, especially as regarded the relations between it and Her Majesty's Exhibition Commissioners. He had been told that when a certain letter from the Commissioners was read, his lordship's conduct was so violent that he had to retire. He hoped the report was not true. He had signed the requisition for calling the meeting, because he thought it was one which it was his duty to sign.

Mr. H. J. VEITCH said that early in June the noble Chairman said he should resign. At the time he (Mr. Veitch) thought it would be to the advantage of the Royal Horticultural Society that his lordship and his colleagues should resign. His lordship said his policy had failed, and that he and his friends

could not get along with the concern. There could be no doubt they were losing a great number of Fellows, and that they had alienated a large number of exhibitors. The Royal Horticultural Society had lost a great deal of money through not having provincial shows. Now four gentlemen had resigned, and it was for the Society to elect from the body of the Fellows gentlemen to fill their places. The best thing which the meeting could do would be to accept the resignation of the gentlemen he referred to, and to confirm the appointment of their successors. It would not do for the Society to go on in an uncertain way, and with respect to prizes he did not think there could have been a greater case of hardship than that of Mr. Wilkins. It was not to the credit or the honour of the Society that cases like that of Mr. Wilkins should be made public. He knew of no case in which the matter of a gardener's salary entered into the question of taking prizes, and he did not think that a great Society like that ought to drop the pure study and practice of horticulture, that they ought not to have individual quarrels, but that they all should pull together, and endeavour to retrieve the almost broken fortunes of the Society.

Mr. MACKENZIE said that he thought no one ought to be elected as President of the Society who had not a perfect knowledge of horticulture. He hoped that in the selection of their future President that would be borne in mind. With respect to the Royal Commissioners, he felt satisfied that they would not place themselves in any way in opposition to the Royal Horticultural Society. The great thing was to get some better men to do the business of the Council.

Mr. SHIRLEY HIBBERD rose to move a resolution, but amid a good deal of interruption and confusion resumed his seat.

Mr. H. G. QUILTER reminded the Chair and other members of the Council that they had not completed their resignations. They said, however, that as men of honour they would resign, but they had deceived the Fellows upon that matter.

The CHAIRMAN: Not at all. We did nothing of the sort.

Mr. QUILTER: Oh, yes. You stated that as men of honour you felt it your duty to resign, but as men of honour you have done nothing of the sort. I have watched the progress of this concern, and I agree with Lord Alfred Churchill that you, my Lord Bury, have been made the catspaw of a certain party. There can be no doubt of this, that, no matter what I say on the one side or the other, something should be done to place our Society upon a sound and firm basis.

The CHAIRMAN: I shall ask the meeting now to consider the accusation brought against us, and if the meeting does so I shall be prepared to answer it.

Mr. SHIRLEY HIBBERD said he rose to move that Viscount Bury, Sir Coutts Lindsay, Bart., Mr. Bonamy Dobree, and Mr. Burnley Hume be requested to complete the resignation which they had tendered to the Society. He said it was not a pleasant thing to have to offer such a resolution to the meeting. They had a great many intelligent men who could be well placed upon the Council, but he felt bound to remind them that the gentlemen named in the resolution had been, from the time they acceded to office, loyally supported by the Fellows of the Society. There could be no doubt that to those gentlemen there had been given most loyal support, and that there never had entered into the action of the Fellows anything like party feeling in these matters. Well, a complaint had been made about the way in which this requisition had been got up, but the honourable gentlemen mentioned in his resolution should remember that the Fellows took their word as gentlemen, when they said they would resign. Amid loud cries of "Time," "Time," Mr. HIBBERD went on to say that the gentlemen who had tendered their resignations had no sympathy with horticulture.

Mr. A. F. GODSON asked whether those gentlemen who had given in their resignations were now members of the Council or not?

Mr. SHIRLEY HIBBERD formally moved his resolution.

Mr. BRAGGE, Birmingham, said he had great pleasure in seconding the resolution of Mr. Hibberd, but said he did not think it was courteous to make the allusions which had been made to the noble Chairman. He believed there was a great future for the Society. He had no feeling in the matter except that as a young Fellow he had a sincere wish for the welfare of the Society. He should only say that if the Council would inaugurate a system by which large towns like Birmingham, Manchester, Liverpool, and Derby could co-operate with the Royal Horticultural Society, they would be doing a great service to themselves and to the interests and wishes of horticulturists. He did hope that even after those gentlemen had completed their resignations, if they did not stay in office, they would use their influence in promoting horticulture in the midland counties.

The CHAIRMAN said that there could be no doubt about the fact of his three colleagues and himself completing their resignations. It should be remembered that at the last meeting he stated that another meeting would have to be called for the purpose of dealing with the resignations. The special general meeting had now been called, and the resignations were now in. Resignations ought not to be handed in except at an annual meeting, but, at the same time, they could announce at an ordinary meeting their intention of resigning. When they got to the Council-room he found that a list had been prepared, in which the four vacancies were filled up by certain gentlemen, irreproachable in themselves, but not appointed according to proper order, because the whole thing should have been submitted to a general meeting. Without saying a single word against those gentlemen who had been nominated, and placed upon the Council, he thought it was highly desirable that such a matter should be submitted for the general discussion of the Society.

Lord ALFRED CHURCHILL observed that it was perfectly competent for any twelve members to sign a requisition such as that referred to.

The CHAIRMAN said that he was aware of that, but some allowance should be made for gentlemen who went upon the Council and devoted their whole time to its business.

Mr. W. A. LINDSAY: Will you allow me to call attention to the fact——

The CHAIRMAN: No, I will not. Do you sit down, sir. If you want to make a speech you can do so afterwards.

The CHAIRMAN then said he would tell the meeting why he and his friends had not resigned to the Council. It was because the Council was a clique, composed of horticulturists. [Uproar.] It might be very possible that every section of the Council would be filled up by horticulturists. He was perfectly willing that every member of the Council should be a horticulturist, but that should not be done until the general body of the Fellows had sanctioned it. He did not believe, however, that the South Kensingtonians would have confidence in such a Council. [Cries of dissent.] In that there is a difference of opinion, and in his opinion if an arrangement was not come to with the Royal Commissioners the Society would go to pieces. He hoped that by-and-by the Society would be placed in a good and sound position, and he had now only to place in the hands of the Assistant-Secretary his own resignation and that of Sir Coutts Lindsay. He then took farewell of the Society in a few well-chosen and conciliatory words.

Admiral HORNBY said he had come to the Council, and had found no cliqueism in its composition. He had been an active horticulturist for many years, and although he believed that the South Kensingtonians might create in the minds of horticulturists a jealous feeling, yet they all wished to see the Society placed upon a sound footing, so that the science of horticulture might be usefully pursued. There was nothing to prevent the people of Kensington and the horticulturists from going on hand in hand in a mutually satisfactory manner. It was not fair to say that there was any class feeling in the Council, and he did not think that any member of that Council would say one word which he did not firmly believe. He had come there without being attached to any party, and without any other object than the promotion of the interests of the Society. In spite of all that had been said he believed there was a bright future for the Society, and that they had no reason whatever to despair. He felt perfectly certain that the Royal Commissioners, actuated by a good spirit, would meet the Society in a proper way. There was not the least reason why the Society should not be a prosperous and well-doing one. He could not conceive anything better than to put a wet sponge over what had passed, so that they could resume their position, honourable to themselves and beneficial to the Royal Horticultural Society of England.

Mr. BONAMY DOBREE alluded to the remarks of Mr. Veitch with respect to the gardeners, and spoke of a gardener who had been receiving £70 a year for four years, who obtained many prizes, and who when he found the Society short of funds, took an action against it.

Mr. BURNLEY HUME repudiated the idea of being a nominee of the horticultural or any other party in the Society. He denied also that he and his friends were obstructives. No doubt they had failed in their mission, simply because they had been unable to come to terms with Her Majesty's Commissioners. The Council had never intended not to pay the prize money, and they were rather surprised to have received a back-handed blow which forced them into the County Court. He could not see in what respect they could be called obstructives. They had done their best to carry the Society through its difficulties. The Council, he might say, had been most loyal to him in every way, and nothing could exceed the harmony which existed between him and his colleagues during the time he had served with them.

Mr. W. B. KELLOCK said that they had put upon the Council Lord Lawrence (who declined on the plea of ill health), Mr. Grote, Admiral Hornby, and Dr. Hogg. That would show that the horticultural party would be well represented on the Council, and that Kensington interests would not be neglected.

Mr. LITTLE said that, when he was asked to take a seat upon the Council, he was told he could be useful to horticulture. He had done what he could for the Society, and he asserted that Lord Bury's policy was to keep the South Kensington Garden entirely for South Kensingtonians, and that the horticultural world should know nothing about them. However, that was not the general feeling in the Council, and he denounced such a policy as being utterly wrong. The policy of Lord Bury had failed, and so long as the South Kensington element preponderated the Council would not be extricated from its difficulties.

Mr. POWNALL rose to ask whether they were going to rip up the whole proceedings of the Council. The business they had to do now was to deal with the resignations.

Lord ALFRED CHURCHILL: I beg to move a vote of thanks to Lord Bury and the other gentlemen who have tendered their resignations.

The CHAIRMAN: I do not see why a vote of thanks should be passed to us, and I will not accept a vote of thanks passed in the shape of an insult. [Loud cries of "No, no!"]

Mr. PINCHES said it was not really the fault of those gentlemen who had retired that they had not been successful. Surely Lord Bury and the other gentlemen had given a great deal of valuable time to the business of the Society, and he was not out of place now in proposing a vote of thanks to the Chairman.

Mr. GUEDALLA seconded the motion, which was carried, and the proceedings terminated.

Midland Counties Grand Horticultural Exhibition: *July 1 to 5.*—This fine exhibition was held, as we briefly reported last week, in the beautiful Lower Grounds of Aston Park, where Mr. Quilter so worthily combines a display of high-class gardening with various harmless amusements, such as the dense population of smoky Birmingham know how to appreciate. The present exhibition is one of a proposed series intended for the benefit of the local institutions. This year the Birmingham and Midland Institute, which was established to provide scientific instruction for the artisan population of the town and neighbourhood, by means of lectures, scientific instruction, museums, a mining record office, newsrooms, and libraries, is to share the profits, which, in the interest of such a model institution, as *Nature* calls it, we trust may be very large. The show, as regards its horticultural aspect, may be said to have been mainly characterised by the abundance and excellence of its stove and greenhouse flowering plants; its grand banks of cut Roses, and its very respectable display of fruits and vegetables.

STOVE AND GREENHOUSE PLANTS.—In the class for sixteen Messrs. E. Cole & Sons, of Withington, and Mr. J. Cypher, of Cheltenham, took the prizes in the order named. Messrs. Cole had some grand Allamandas, Hendersoni and grandiflora; Phœnocoma prolifera, fresh and full, about 4 feet high and as much across; a well-bloomed Erica Candolleana, 5 feet across; Clerodendron, Vinca, and others. Mr. Cypher had Allamanda Chelsoni, a free-flowering, highly-coloured sort, not sufficiently known; Combretum purpureum and Rondeletia, species each about a yard across; a good Kalosanthes,—altogether a fresher but a smaller lot of plants. In the class for ten the same exhibitors were respectively 1st and 2d, and Mr. F. Perkins, of Leamington, 3d. Messrs. Cole showed in this group a good Allamanda nobilis, its noble deep yellow flowers quite eclipsing those of its companion, A. Hendersoni; Bougainvillea glabra; a grand Erica Massoni major, a little past but a thicket of bloom, 4 feet over; and E. obbata, somewhat smaller. In Mr. Cypher's lot were a good Allamanda grandiflora and a Dipladenia amœna; while Mr. Perkins had small but vigorous plants of Dipladenia amabilis and amœna, an attractive plant of Brassia verrucosa, with fourteen spikes of bloom; and good examples of Statice Holfordi and S. profusa. There were five exhibitors in the amateurs' class of ten plants. — Mr. Chapman, gr. to J. Spode, Esq., Hawkesyard Park, Rugely (1st); Mr. Pilgrim, Fern Lawn, Cheltenham (2d); Mr. Parkes, gr. to J. Marriot, Esq., Coventry (3d); Mr. Tudgey, gr. to J. F. Williams, Esq, Henwick Grange, Worcester (4th); and Mr. Chadwick, gr. to C. Nelson, Esq., Kenilworth. Mr. Chapman's were all large well-flowered plants, but showing evidence of crowding; the most conspicuous were a large Bougainvillea glabra, a broad-headed Phœnocoma, Clerodendron Balfourianum, Dracophyllum gracile, Erica Aitoniana superba, and E. Parmentieriana rosea. Mr. Pilgrim had a beautifully-flowered Phœnocoma, 4 feet over and about 2½ feet high; Anthurium Scherzerianum, with about sixty spikes, but a little past its best; a good Stephanotis floribunda; Hedaroma tulipiferum, beau-

tifully grown, and nicely fringed with young sprays; and Ixora Colei. Mr. Parkes had Sobralia macrantha, with fourteen expanded flowers; a small but good Dipladenia amabilis; Statice profusa, dwarf, and profusely bloomed; Eucharis amazonica, and Clerodendron Kæmpferi. Mr. Tudgey had a remarkably full Phœnocoma, in which the second growth was bristling with young heads; and neat good examples of Allamanda grandiflora, Dipladenia splendens, Statice profusa, and Dracophyllum gracile. In Mr. Chadwick's group was Chironia ixifera, a pretty plant with opposite linear glaucous spreading leaves, and rosy pink flowers. For a specimen stove plant in flower Messrs. Cole were 1st, with a grand Ixora Colei, 5 feet by 4, densely flowered; Mr. Foster, gr. to E. Greaves, Esq., Avonside, Warwick, 2d, for a finely bloomed Stephanotis floribunda; and Mr. Webb, gr. to J. Gulson, Esq., Stoke, Coventry, for another good Stephanotis. The 25 guinea silver Challenge Cup for sixteen plants was for the second time won by Messrs. Cole & Son, so that they now become its possessors.

FINE-FOLIAGED PLANTS.—In the nurserymen's class for nine, Messrs. Cole (1st) and Mr. Cypher (2d), and in the corresponding amateurs' class, Mr. Foster, gr. to E. Greaves, Esq., Warwick (1st), Mr. Pilgrim (2d), and Mr. Brown, gr. to Mrs. Alston, Elmdon Hall, Birmingham, were the prize winners. Messrs. Cole's most conspicuous plants were a very large Phormium tenax variegatum, Yucca aloifolia variegata (5 feet high, and densely clothed down to the pot), Dasylirion acrotrichum, and Croton pictum. Mr. Cypher had Pandanus Vandermeerschi (the dark-coloured edges and keels of whose leaves give it a distinct aspect), the showy Eurya latifolia variegata, and a good Croton pictum. Mr. Foster had a grand and densely-furnished Cycas revoluta, fully 9 feet across, with a globular female cone, upwards of a foot in diameter; Crotons angustifolium and pictum, densely furnished pyramids, 6 to 7 feet high; Cocos Weddelliana; Cyanophyllum magnificum, Encephalartos villosus, Phœnocophorium sechellarum, Maranta Veitchii, and Areca Verschaffeltii, a very fine lot indeed. Mr. Pilgrim had Cordyline indivisa, a handsome plant that seems to be getting scarce; Dasylirion acrotrichum, and the variegated Phormium and Eurya. Mr. Brown had a Maranta Makoyana, 3 feet across, with the leaves thrown well up, and a Phormium tenax variegatum with a flower-spike 10 feet high. Mr. Parkes, who showed in this class, had a good pair of Alocasia Jenningsii, which were very effective. In the smaller groups of six, the nurserymen's prize went to Mr. Cypher; the amateurs' to Mr. Pilgrim (1st); Mr. Jones, gr. to C. E. Matthews, Esq., Edgbaston (2d); and Mr. Brown, Elmdon (3d). Mr. Cypher had a fresh-looking lot, including a good Croton Weismanni. Mr. Pilgrim had Cordyline indivisa and Theophrasta imperialis in good condition. Mr. Jones had a finely-coloured Caladium Belleymei; and Mr. Brown a nice Alocasia metallica, which was very sparingly represented, with a good Caladium Belleymei, and a Cocos Weddelliana. In the class for specimens Messrs. Cole & Sons were 1st with their grand old Cocos Weddelliana; Mr. Cypher 2d, with another plant of the same; and Mr. Parkes 3d, with Alocasia macrorhiza variegata.

DRACÆNAS, CROTONS, &c.—For six coloured Dracænas Mr. B. S. Williams, Holloway, was 1st; he showed a fine D. amabilis. Mr. Brown, Elmdon, was 2d, and had fine examples of D. regina, D. imperialis, and D. magnifica. Mr. Jones, Edgbaston, was 3d. Messrs. Cole had the best specimen Croton, a mass of C. angustifolium of a beautiful golden hue; Mr. Cypher was 2d, with a very good golden-hued C. variegatum; and Mr. Parkes 3d, with C. interruptum, finely grown, but rather dull in colour.

FERNS.—Collections of eight stove and greenhouse Ferns were shown among nurserymen by Mr. B. S. Williams and Mr. Cypher (equal 1st); and, amongst amateurs, by Mr. Brown, Elmdon (1st); Mr. Jones, Edgbaston (2d); and Mr. Coleman, gr. to W. Baylis, Esq., Walsall (3d). Mr. Williams had a very large spreading plant of Cibotium regale, Gleichenia Mendelii and semivestita, Davallia Mooreana, and Cyathea dealbata. Mr. Cypher had a smaller but fresher Cibotium regale, Gymnogramma peruviana argyrophylla, Adiantum cardiochlæna and Gleichenia speluncæ. Mr. Brown had an immense Leucostegia immersa, fully 5 feet across; Todea superba like a bunch of plumes of green velvet; Davallia Mooreana, and Gymnogramma peruviana argyrophylla, all the plants very well handled. Mr. Jones, Gymnogramma Laucheana gigantea, a young Dicksonia squarrosa, and Davallia Mooreana. In Mr. Coleman's lot was a Pteris serrulata cristata, 4 feet across. Mr. Williams had no competitor in the class for two Tree Ferns, and carried off the prize with well-formed plants of Dicksonia antarctica with 8 feet stems. The best specimen stove and greenhouse Fern was Mr. Williams' Alsophila australis Williamsii, remarkable for its head of drooping fronds. Specimen Adiantums were contributed by Mr. Cypher (1st), who had a fine A. farleyense nearly 4 feet through; Mr. Parker, Coventry (2d), for A. farleyense, but little inferior; and to Mr. Peevor, gr. to E. J. Hayes, Esq., Handsworth (3d), for a good A. cuneatum, fully a yard through. For twelve hardy Ferns Mr. Mapplebeck, Moseley, was 1st, with a group of splendid plants, among which were Lastrea Filix-mas cristata, 5 feet high; Athyrium Filix-fœmina Elworthii, 4 feet high; A. F.-f. robusta multifidum, 5 feet high; A. F.-f. coronatum, 4 feet high; A. F.-f. Pritchardii, 5 feet high; Osmunda regalis cristata, 5 feet high; and others, all densely furnished with fronds. Mr. Brown, Elmdon, was 2d, with a neat lot, including Blechnum Spicant cristatum, Scolopendrium vulgare Cliftii, and Athyrium Filix-fœmina Victoriæ. Mr. Coleman, of Walsall, was 3d.

CYCADS.—Collections of six were shown by Mr. B. S. Williams and Mr. Cypher, who were placed in the order named. Mr. Williams' plants were the larger, having for the most part fairly developed stems; they consisted of Encephalartos Ghellinckii, E. Lehmanni, E. villosus, E. horridus, Dion edule, and Cycas revoluta. Mr. Cypher's group included Encephalartos Vroomii, Cycas circinalis, and C. imperialis.

PITCHER PLANTS were not very well represented. Mr. Tudgey was 1st with a tall Nepenthes Hookeri, a neat N. distillatoria in flower, and a pan of Sarracenia purpurea. Mr. Williams was 2d with smaller plants of N. Hookeri, N. Sedeni, a red-stemmed kind with long, narrow, mottled red pitchers; and N. phyllamphora, a neat species with green stem, and long pale green pitchers.

PALMS.—Two fine groups of six were shown by Mr. Williams and Mr. J. H. Ley, Croydon, the former having a good Phœnicophorium, the latter an elegant Chamærops tomentosa. The amateurs' class of six was filled by Mr. Brown (1st), who had some very nicely grown small plants, including Cocos Weddelliana; and Mr. Pilgrim (2d), who had Welfia regia, the bold, pinnate, bronze-coloured young leaves of which were very effective; Phœnicophorium sechellarum, Livistona altissima, and Cocos Weddelliana.

NEW PLANTS of the last three years were contributed by Mr. Williams (1st), who had the brilliant Bertolonia Van Houttei; Adiantum gracillimum, Dipladenia Brearleyana, Croton majesticum, Cyathea Dregei and Dracæna Baptistii. Mr. Cypher (2d) had a 4-foot plant of Adiantum peruvianum, Dipladenia Brearleyana, Croton majesticum, well-coloured; Phyllotænium Lindeni and Aralia Veitchii. Mr. Ley (3d) had in his group Zamia Lindeni, a handsome bold-looking pinnate-leaved species. Messrs. Barron & Son, Elvaston, showed a group of hardy coniferous subjects, in which we noticed seedlings of Picea concolor; and Mr. Tudgey had in his group a small plant of Anthurium Scherzerianum album.

ORCHIDS were very scanty, and below average quality. Mr. Williams had a Masdevallia Harryana, with ten flowers, and the rarely exhibited Pilumna fragrans.

SUCCULENTS.—Groups of twenty-five, to include Agaves and Cacti, were shown by Messrs. J. Dickson & Sons, Chester (1st), who had a neat lot, including the rare Agave Richardsii, while Mr. E. Pilgrim had a nice pair of Agave filifera, A. Corderoyi and A. Roezlii, and Echeveria pulverulenta.

FUCHSIAS were shown abundantly, and some very fair examples were staged. For nine plants Mr. Caldicott, gr. to W. Mathews, Esq., Edgbaston, was 1st; and Mr. Cushon, gr. to W. E. Wiley, Esq., Erdington, was 2d. In the group for six the same exhibitors took the leading prizes in reversed order. Several collections were staged.

PELARGONIUMS.—In the collections of twenty, Mr. Turner, Slough (1st), showed a batch of neatly-grown plants, which indicated the advance in quality made during the last few years. Some of the most striking sorts were Claribel, white; Blue Boy, lilac lower petals; Ruth, bright lake-rose; Protector, similar but with large spot; Highland Lassie, paler rose; Scottish Chieftain, Imperator, and Senator, ma-

FIG. 8.—PELARGONIUM (FANCY) "ILLUMINATOR." (SPECIMEN PLANT, 16 FT. IN CIRCUMFERENCE.)

roon and crimson; Woman in White, crimson top petals, very effective. Mr. Turner was also 1st in the classes for nine and six plants respectively, Mr. Quarterman, gr. to T. Gladstone, Esq., Edgbaston, being 2d. In Mr. Turner's other group, Pompey, Pericles, Prince Leopold, Emily, and Prince of Prussia, were conspicuous for their colours and quality. Mr. R. Fleming, gr. to R. Houghton, Esq., Sandheys, Liverpool, staged a specimen Fancy Pelargonium, probably the finest which has ever been shown (fig. 8), of the variety named Illuminator; it was 16 feet in circumference, 5 feet 3 inches across the base, 2 feet 2 inches in depth, and 7 feet 2 inches measured over the crown. The plant was finely bloomed, and notwithstanding its long journey and gumless flowers, it was staged in a very respectable condition. It was awarded a special prize (silver medal, we believe), and well deserved such a mark of distinction. Mr. Farmer had a nice little group of six Fancies, which took the 1st prize, and consisted of Princess Teck, Delicatum, and Duchess of Edinburgh, light-coloured sorts; The Shah, Jewess, and Ann Page, darker flowers. The Zonals, Tricolors, &c., were feebly represented, and call for no special remark.

CUT ROSES.—These, as we have already intimated, were not only abundant, but of remarkably fine quality. In the class for seventy-two single trusses Messrs. Cranston & Mayos, Hereford (1st), were the winners of the silver Challenge Cup (gained last year by Messrs. Paul & Son); Mr. Cant, Colchester (2d); Messrs. Paul & Son, Cheshunt (3d), and Messrs. Davison & Co., Hereford (4th). Amongst the darker flowers in the 1st prize stand, the following were conspicuous:—Charles Lefebvre, Alfred Colomb, Louis Van Houtte, Reynolds Hole (best in bud), Sénateur Vaisse, Marie Baumann; and amongst the lighter sorts, Lælia, La France, Madame la Baronne de Rothschild, Marquis de Castellane, Capt. Christy, and Mad. G. Schmidt. Mr. Cant's best flowers were Prince Camille de Rohan, Sénateur Vaisse, Duchesse de Caylus, Marie Baumann, Louis Van Houtte, John Hopper, Charles Lefebvre, darks; and Elise Morel, Mons. Noman, Princess Beatrice, La France, Madame Lacharme, Capt. Christy, lights. Messrs. Paul & Son's best blooms were Madame Victor Verdier, Duchesse de Caylus, Charles Lefebvre, Lord Macaulay, Thomas Miles (almost scarlet), Sénateur Vaisse, darks; Abel Grand, Captain Christy, and Edouard Morren, lights. In the class of forty-eight sorts, three trusses, Mr. Turner was 1st, with a fine fresh lot of flowers, in which Marie Baumann, Sénateur Vaisse, Beauty of Waltham, Alfred Colomb, Charles Lefebvre, La France, and Madame la Baronne de Rothschild were conspicuous. Messrs. Cranston & Mayos (2d) had Sénateur Vaisse, Duke of Edinburgh, Lord Macaulay, and Marie Baumann, very fine. Messrs. Paul & Son were 3d. The prizes for twenty-four blooms, three trusses, H.P.'s only, went to Mr. Prince, Oxford; Mr. Cant, Messrs. Cranston & Mayos, and Mr. Turner, in the order named; those for twenty-four single trusses to Mr. Turner, Mr. Prince, Messrs. Cranston & Mayos, and Mr. Cant.

The principal amateurs' competition, the group of forty-eight, lay between Mr. Davis, Wilton, Salisbury (1st), who gained the silver cup; Mr. Baker, Heavitree, Devon (2d); Mr. Stark, gr. to Rev. C. Evans, Solihull (3d); and Mr. T. Laxton, Stamford (4th). The other amateur classes were well contested, and the flowers good. For twelve Roses of 1872-4 Mr. Turner (1st) showed Oxonian, Rev. J. B. Camm, Captain Christy, Royal Standard, Dean of Windsor, Miss Hassard, W. Gaiter, Madame C. Kuster, J. Stuart Mill, Prince P. Demidoff, Mrs. Baker, and Cheshunt Hybrid. Messrs. Paul & Son (2d) had Cheshunt Hybrid and The Shah, a bright crimson; Mr. Cant was 3d. For six trusses of any Rose of 1872-4, Mr. Cant was 1st with Claude Levet; Messrs. Cranston & Mayos (2d), Captain Christy; Messrs. Paul & Son (3d), Cheshunt Hybrid; Mr. Corp, Oxford (4th), Captain Christy. For twelve trusses of Alfred Colomb, Mr. R. T. Veitch, Exeter, took 1st prize. For twelve Duke of Edinburgh, Messrs. Cranston & Co., 1st; Messrs. Paul & Son, 2d. For twelve Baroness Rothschild, Mr. Jowitt, Hereford, 1st; Mr. F. Perkins, Coventry, 2d. For twelve La France, Mr. Turner, 1st; Messrs. Davison & Co., 2d. For twelve Marie Baumann, Messrs. Paul & Son, 1st; Mr. Turner, 2d. For twelve Maréchal Niel, Mr. Cant, 1st; Mr. Starte, 2d. For twelve Devoniensis, Mr. Cant, 1st; Mr. Turner, 2d.

CUT FLOWERS.—A fine display was made by twelve stands of eighteen bunches of cut flowers, consisting in many cases of the choicest exotics. In the stand showed by Messrs. Cole & Sons (1st) we noticed Nymphæa Devoniana and dentata, Ixoras, Allamandas, Stephanotis, Anthurium, &c. Another stand had Musa coccinea and Metrosideros floribunda conspicuous, and the contents in most cases were choice, rendering the display very effective. The prizes for Carnations and Pinks were taken by Mr. Turner and Mr. H. Hooper, Bath.

BOUQUETS.—There was a spirited competition for the prizes offered in this class. Mr. F. Perkins, Coventry (1st), showed particularly well. His bouquet consisted of Gardenias, Eucharis, Pancratium, Stephanotis, Menziesia polifolia alba, Bouvardia jasminiflora, Astilbe japonica, white Roses, with Adiantum, and here and there a blade of Pteris cretica albo-lineata. The arrangement was as nearly perfect as possible. In that staged by Messrs. Felton & Sons (2d), the white Primula sinensis was very effectively used. Messrs. Turner Brothers, Liverpool, came in 3d. The prizes for ball bouquets went to Messrs. Pope & Son, King's Norton (1st); Mr. Cypher, Cheltenham (2d); Messrs. Felton & Sons, Edgbaston (3d); and Mr. Jackson, Kidderminster (4th). In table decorations, three pieces, Mr. Cypher (1st) had his flower groups plentifully fringed with Adiantum; Mr. Cooke, gr. to Mrs. Abercrombie, Cheltenham (2d), had an otherwise neat arrangement spoilt by long pieces of Feather-grass; Mr. Jackson (3d) had an arrangement quite overdone with grasses. The prizes for a centre-piece went to Mr. Cypher (1st), Messrs. Turner Brothers (2d), Mr. Jackson (3d), the two latter being overdone with stiff grasses. The gentlemen's buttonhole prizes went to Messrs. Pope & Son (1st), Mrs. Finch, Handsworth (2d), Messrs. Turner Brothers (3d), and Mr. R. Fleming, Sandheys (4th).

MISCELLANEOUS GROUPS.—Though outside the schedule, one of the finest features of the show was a group of new and rare plants exhibited by Messrs. Veitch & Sons, Chelsea. It included most of their novelties of the present and preceding years, and to the lovers of plants must have been full of interest from beginning to end. We cannot even enumerate its contents, but we noticed in it Croton Disraeli, the new trifid golden-veined sort first shown in the present spring; × Sarracenia Stevensii, which improves greatly as it acquires size, taking in much red colouring, and altogether by far the handsomest of the new Sarracenia; Begonia Emperor, one of the novelties of the tuberous section, with very large cinnabar-red flowers; a fine panful of Goniophlebium sepultum, a Fern now seldom met with; another of Darlingtonia californica, doing remarkably well; Sarracenia psittacina, variolaris, and × Moorei, the latter in flower, and resembling in its pitchers an indifferently coloured Drummondii; Dracæna hybrida, one of the most effective of the creamy-striped varieties, flushed with purplish rose; and Nephrolepis davallioides furcans, a fine show Fern, with the ends of the segments divided in a furcate manner. Another fine mixed group, furnished by Mr. Williams, contained his new Acalypha marginata, and the pretty Reidia glaucescens. Mr. Vertegans had a fine group of hardy Conifers placed near the entrance to the tents; and also a group of Palms and other tender plants inside.

FRUIT.—Some twenty classes provided for fruits brought together a very creditable and moderately extensive display. The leading prize was the silver Challenge Cup, for a collection of eight dishes of fruits, which being won for the second time by Mr. Coleman, gr. to Earl Somers, Eastnor Park, Ledbury, now becomes his property. The competitors, in addition to the 1st prize in the class, were Mr. Coleman (1st); Mr. J. Clark, gr. to the Marquis of Ripon, Studley Royal (2d); Mr. Bannerman, gr. to Lord Bagot, Blithfield (3d); Mr. Beecher, gr. to L. Foster, Esq., Walsall; and Mr. A. Parkes. Mr. Coleman showed Hamburgh and Muscat Grapes, Queen Pine-apple, Bellegarde Peach, Elruge Nectarine, Brown Turkey Fig, Eastnor Castle Melon, and President Strawberry, all good and in fine condition—the Hamburgh Grapes, Peaches, Nectarines, and Figs being especially noticeable. Mr. Clark had Muscat Hamburgh and Golden Champion Grapes, Queen Pine-apples, Lord Napier Nectarine, Stirling Castle Peach, fine Purple Guigne Cherry, Ne Plus Ultra Strawberry. In Mr. Bannerman's group were some compact bunches of Black Hamburgh Grapes, and good Royal George Peaches and Elruge Nectarines.

Pine-apples, two Queens, were shown by Mr. Meredith, gr. to the Viscountess Downes, Baldersley Park, Thirsk (1st), and Mr. G. T. Miles, gr. to Lord Carrington, Wycombe Abbey (2d). In the class for six Pine-apples the same exhibitors took the prizes, in the same order, with fruit of average quality, not large but neatly swelled, the first lot having the advantage in ripeness. Mr. Coleman gained a 1st prize for a Cayenne in the class for any other variety.

Grapes.—The prizes for Black Hamburghs, three bunches, went to Mr. Coleman (1st); Mr. Wallis, gr. to A. M. Murdy, Esq., Shipley Hall, Derby (2d); Mr. Bannerman (3d). Mr. Coleman's were splendid examples of good cultivation, being short well-shouldered clusters, of large, even, densely coloured and high-flavoured berries. Mr. Wallis also had good examples of compact well-coloured bunches, with less shoulder than Mr. Coleman's, as also had Mr. Bannerman, whose clusters were compact and well-swelled. For three bunches of Black Grapes other than Hamburghs Mr. Coleman was 1st with handsome examples of Black Prince; Mr. Wallis was 2d with Black Frontignan; and Mr. S. Evans, gr. to C. N. Newdegate, Esq., M.P., Arley, Nuneaton, 3d, with Black Prince. For Muscats, three bunches, Mr. Bannerman (1st) had good, but not over-ripe bunches; while Mr. Fleming, Sandheys (2d), had better ripened, but less evenly swelled berries. In the class for White Grapes, not Muscats, Mr. Bannerman (1st) had some very handsome bunches of Foster's Seedling; Mr. Coleman (2d) had good White Frontignan, and Mr. Cushon (3d) had large Buckland Sweetwater, not sufficiently ripe. A class was provided for six varieties of Grapes; and here Mr. Bannerman (1st) had Madresfield Court, Buckland Sweetwater (of a beautiful clear amber colour), Black Prince, Muscat of Alexandria, Foster's Seedling, and nicely shaped clusters of Black Hamburgh; Mr. Coleman (2d) had smaller bunches of Foster's Seedling, Muscat of Alexandria, Black Prince, Black Hamburgh, White Frontignan, and Buckland Sweetwater.

Peaches, &c.—For six Peaches, the prizes went to Mr. Coleman (1st) for beautiful samples of Grosse Mignonne; Mr. Jackson, gr., Texull Hall, Stafford (2d), who had fine Early York; Mr. Barnewell, Garnons, Hereford (3d), for Noblesse. In six Nectarines, Mr. A. Parkes (1st) showed Elruge; Mr. A. Grant, gr. to J. B. Clegg, Esq., Withington Hall (2d), had Violette Hâtive; Mr. Bannerman (3d) had Elruge. There was thirteen exhibits amongst the Peaches, and ten amongst the Nectarines.

Cherries, fifty Black, were shown by Mr. G. T. Miles (1st), who had Black Eagle; Mr. Maher, gr. to C. Albheysen, Esq., Stoke Court, Slough (2d); and Mr. J. Clark, Studley Royal (3d), Purple Guigne; fifty white were shown by Mr. Cox, gr. to Earl Beauchamp, Madresfield Court (1st), who had Elton; Mr. G. T. Miles (2d), who had White Heart; and Mr. Maher.

Strawberries.—Of these, twenty-five of the British Queen type were invited in one class, and this was responded to by Mr. James, Kenilworth (1st), who had grand samples of Dr. Hogg; Mr. Cox, Madresfield (2d), who had British Queen, well coloured; and Mr. Coleman (3d), who showed Dr. Hogg. In the class for twenty-five of any other variety, Mr. James was again 1st, with Oscar, grand fruits of the deepest crimson; Mr. Winstowe, gr. to H. B. Preston, Esq., Kenilworth (2d), had highly coloured examples of Sir Joseph Paxton; Mr. Taylor, Malpas, Cheshire (3d), had Sir Joseph Paxton. Extra prizes were given to Mr. Turner, Slough, who exhibited a collection of thirty-one varieties; and to Messrs. Veitch & Sons, who had a collection of six sorts, amongst them enormous berries of James Veitch, a cockscomb-shaped pale red.

Melons of excellent quality were produced, nineteen being exhibited. The prize for green-fleshed went to Mr. Coleman (1st), who had very finely-flavoured fruits of the Eastnor Castle variety; Mr. Tudgey (2d), who showed a seedling; Mr. Finlay, gr. to Colonel North, M.P., Banbury (3d), who showed Gilbert's Green-fleshed. For scarlet-fleshed, Mr. Maher was 1st; Mr. Brown, gr. to Earl Howe (2d), and Mr. Coleman (3d)—both had Read's Scarlet-fleshed.

VEGETABLES.—There was a very fine display of these, but the space already occupied forbids to notice them in detail. The silver Challenge Cup for a collection of ten sorts was won for the second time by Mr. G. T. Miles, and becomes his property. The prizes in this class were allotted to Mr. Miles, 1st; Mr. Holden, Prestbury, Cheltenham, 2d; and Mr. Turk, Cheltenham, 3d. Mr. Miles, who made an excellent display, showed American Strap-leaf Turnip, large red Tomato, Giant White Tripoli Onion, Canadian Wonder French Bean, James' Prolific Pea, Green Globe Artichoke, Rivers' Ashleaf Potato, James' Intermediate Carrot, Bailey's Selected Cauliflower, and Asparagus. In the class for eight dishes the leading prizes was taken by Mr. Arkell, gr. to A. G. Skinner, Esq., Cheltenham, 1st; Mr. Bloxham, gr. to Sir P. D. Duncombe, Bart., Brickhill Manor, Bletchley, 2d; and there were three other collections. Fourteen lots of kidney Potatos, and as many of round Potatos, three dishes, were staged, and nineteen kidney and eighteen round single dishes. There were twenty single dishes of Peas, eleven dishes of twelve Onions, twenty-four brace of Cucumbers, the best being Tender and True; eleven dishes of Carrots, sixteen of Turnips, thirteen of Cabbages, sixteen of Cos Lettuces, ten of Cabbage Lettuces, fourteen of Cauliflowers, ten of Broad Beans, and six of Tomatos, besides various others.

The show of Roses and cut flowers, together with some of the classes of fruit, was replenished on the 5th, in the interest of the Monday visitors. The sub-tropical garden and the flower garden give promise of becoming highly attractive in due time. The latter, represented in its spring dress in a figure in our columns in 1870, has recently been planted out for a summer display. A line of Bluebell Viola, which has escaped removal in the summer rearrangement, is, however, still extremely attractive.

Tunbridge Wells Horticultural: *July 2.*—The annual exhibition of this Society was held in the new Public Hall and grounds near to the railway station. As compared with previous years it was on the whole

uite up to the average, and the horticultural displays : this charming town are always of a very high class rder, second to few of the provincial meetings. The chedule of prizes is most liberal—sufficient to in-uce the great growers from a distance to compete, ie arrangements and management are excellent, and ie site, inclusive of the great hall, all that could be esired. It is extremely gratifying, also, to observe ow thoroughly the good people of Tunbridge Wells ppreciate and enjoy that which is provided for them, s testified by the thousands of visitors admitted uring the course of the day, and that for simply the usic and flowers—no extra aids in the way of fire-orks or Punch and Judy shows being required, as, e are sorry to see, are becoming so much the fashion t other places.

All the plants and cottage productions were dis-layed under large tents on the grass — the cut owers, Roses, bouquets, dinner-table decorations and uit being placed in the great hall on low tables overed with white cloth, which lent an air of neat-ess and cleanliness that was quite pleasing.

The display of stove and greenhouse plants was ery good, these forming one of the chief features of ie show, the chief honours being carried off by Mr. Vard, gr. to F. G. Wilkins, Esq., of Leytonstone; fr. Moore, of Epsom, making a good 2d. The lants were of the usual excellent character as belong-ig to these gentlemen, and which have been already oticed in our columns. In ornamental-foliaged lants a new local exhibitor, Mr. H. Berwick, gr. to . J. Barrow, Esq., Holmwood, Tunbridge Wells, ppeared for the first time, and it seems a pity that such bilities as he evidently possesses for plant-growing nould have been so long obscured. The specimens f Croton angustifolium variegatum and C. aucubæ-olium in each of the classes were from 8 to 10 feet height, of perfect pyramidal shape, and in the adest possible health, the leaves large and finely-oloured. No more splendid examples of Crotons ave ever been exhibited. The same exhibitor's xamples of Maranta roseo-picta and Veitchii, about feet in diameter, and his Alocasia metallica, were plendid examples of good plant culture. Mr. Gilbert, f the Springfield Nurseries, Hastings, staged a large nd fine plant of the old Kalosanthes coccinea. Ieaths were fairly well represented. Fuchsias, which ave usually been exceedingly well represented, were omewhat wanting. The 1st prize lot, from W. Butler, gr. to W. Blackburn-Maze, Esq., were small ut exceedingly well bloomed. Zonal Pelargoniums ere largely and well shown, the best in all the classes oming from Mr. Crump, gr. to F. Harris, Esq., amberhurst. Mr. Mundell, gr. to G. Sanders, Esq., taged some good Achimenes, and Mr. Smith, gr. to Mrs. Byass, some very fine Caladiums. A few good Cockscombs were also shown, and were well worthy f notice.

A special feature of the Tunbridge Wells shows onsists in prizes for groups of miscellaneous plants ccupying a certain space. There is always a keen ontest for these, and this season the medal is worthily arried off by Mr. Berwick.

Roses were shown in considerable numbers, but ith a few exceptions from Messrs. Mitchell, of the iltdown Nurseries, and W. Bennet, they were of enerally inferior merit, owing, no doubt, to the very eavy rains lately experienced in this district.

Bouquets, vases of cut flowers, and dinner-table deco-ations are invariably well shown at Tunbridge Wells. Ve cannot speak too highly of the extreme grace and legance of the stands set up by Mrs. Seall, of Seven-aks. This lady seems to carry off all the honours herever she competes. She was, however, in this nstance closely followed by several others. Another t leasing feature here are the groups on stands of wild lowers only. Nowhere is the art of making these common Poppies, Ox-eye Daisies, &c., look so neat nd elegant as at Tunbridge Wells. They are worth oing a long way to see, and it is to Miss Rachel ox, the daughter of our much esteemed friend, Mr. Cox of Redleaf, we have to tender our best thanks or these pretty "wild bouquets."

Fruit was fairly well represented, the Black Ham-urgh and Muscat Grapes, from Mr. Wilson, gr. to . Ashby Dodd, Esq., to which the 1st prizes were warded, being especially good. Mr. Williams, gr. o R. Elliott, Esq., Ashford, showed some very fine Black Alicante. Mr. Burt, gr. to H. B. Mildmay, Esq., was 1st for the three varieties, and very fine hey were. A few good Pine-apples were also hown, and Peaches and Nectarines were especially fine. Melons proved of particularly good-flavour, and the trawberries and Cherries were very largely shown, and articularly fine. For the collection of fruit, Mr. Iopgood, who very worthily obtained the 1st prize, taged a fine Queen Pine-apple, good Black and White Grapes, Peaches, Strawberries, &c., all of ood quality. We must not omit to mention the plendid exhibition of fruit and flowers—a dinner-able arranged complete for ten persons (although not or competition)—from Mr. Rust, gr. to the Earl of Abergavenny, Eridge, which attracted great attention.

The show of vegetables by the cottagers was also deserving of special notice, if our time and space would admit of it.

Great praise is due to the indefatigable exertions of the worthy secretary, Mr. E. F. Leaf, and it is something in the way of even newspaper enterprise to say that, before the awards of the judges had been one hour made, a full report of the whole show was printed in the *Kent and Sussex Courier*, and circulated in the grounds.

Ipswich and East of England Horticultural: *July* 1.—This Society held its first summer exhibition in the grounds of the Lower Arboretum on the above date. For several years past this Society has been singularly unfortunate in its weather, and on the present occasion the Fates were not more propitious, as rain fell heavily during the greater part of the day. Were it not for the support afforded by an extensive list of subscribers such adverse circumstances must have caused a collapse long since. The state of the weather on Thursday, however, did not appear to exercise any deterrent influence on exhibitors, as the tents were well filled, and the show was one of the largest and best that the Society has had.

Stove and greenhouse plants were well represented, the 1st prize for six falling to Mr. Rose, gr. to E. Packard, Esq., of Birkfield Lodge, who was one of the principal prizetakers, and who bids fair to keep up the reputation Mr. Packard's place attained under his late gardener for good plant growing. The collection contained splendid plants of Allamanda Hendersoni, Hoya bella, Clerodendron fallax, and Dracophyllum gracile. Messrs. Gilbert, nurserymen, of Ipswich, were 2d, with a good half dozen, containing a grand plant of the old Erythrina Crista-galli.

In fine-foliage plants the competition was very close, and the 1st prize fell to a new exhibitor in that class—viz., Mr. Carey, gr. to F. Fish, Esq. The collection contained a superb plant of Caladium Prince Albert Edward, and a finely-variegated Alocasia macrorhiza. Mr. Southgate, gr. F. G. Pettiward, Esq., of Finborough Hall, was 2d; the Messrs. Gilbert 3d. Mr. Pettiward's collection contained a fine plant of Dracæna Youngii, and the Messrs. Gilbert's were a nice clean uniform lot. Stove and greenhouse Ferns were very well done, Mr. Berry taking 1st honours, Messrs. Gilbert 2d. Hardy Ferns were in splendid condition, as every frond was perfect in health and colour. Mr. Rose showed a fine plant of Adiantum pedatum and Osmunda regalis cristata, while Mr. Berry had splendid plants of the different varieties of Athyrium, of which his collection principally consisted, the best of which were Craigii, Moorei, and Vernoni.

In specimen foliage plants the 1st prize was awarded to Mr. Carey for a grand plant of Adiantum farleyense, nearly 5 feet through, and perfect in colour. Messrs. Gilbert were 2d with Alsophila excelsa. For specimens in bloom Mr. Rose was 1st with a fine well bloomed plant of Rhynchospermum jasminoides, 6 feet high and 4 feet through; and the 2d went to Messrs. Gilbert for an Erythrina. The plants for table decoration were of unusual merit, Mr. Rose taking 1st with a splendid half-dozen containing beautifully coloured Dracænas and Croton interruptum, one of the best plants for decorative purposes of this kind when properly coloured. The same exhibitor took 1st for Gloxinias with a good half-dozen, the best of which were Perfection and Augustine. Cut Roses were good and brilliant in colour, the season having favoured them in this respect. Mr. Rushmore, gr. to Sir C. Rowley, of Tendring Hall, took the premier prize for the best twenty-four, containing the usual popular varieties; and Mr. Southgate was 2d in this class. For the best twelve the Rev. J. B. Tweed, of Capel, was 1st, with a capital lot of flowers; and Mr. Keen, gr. to J. G. Sheppard, Esq., of Campsey Ashe, 2d.

Herbaceous cut flowers, always quite a feature at the Ipswich shows, were represented by a grand stand exhibited by the Messrs. Gilbert, who always take leading honours in the eastern counties in this class; and the same firm were again 1st for the bridal bouquet, in which art they are great adepts, and also in table decorations — in which class they generally take the lead, but on this occasion they were defeated by a stand containing both fruit and flowers. The fruit appeared to have a weight with the judges that should not be attached to it in that position, as it is generally considered out of place in an arrangement of the kind; and if so, it ought to be discouraged and expunged from the schedules. The 1st prize ball-room bouquet was one by Mr. Southgate, and showed great taste in arrangement; while the 2d, by Messrs. Gilbert, ran it very close, and was greatly admired.

The show of fruit was good, especially of Strawberries and Cherries, both of which were unusually fine. The British Queens shown by Mr. Wallis, gr. to Colonel Tomline, of Orwell Park, and which deservedly took 1st prize, were unapproachable, being of large size, and perfect in colour and flavour; the same may be said of his dish of Knight's Early Black Cherries, in which class he was run close by Mr. Sheppard of Woolverstone. For white, Mr. Austin, of Ipswich, carried off the 1st prize with a dish of large highly-coloured Eltons. In the class for Black Grapes, Mr. Sheppard, as usual, took the lead, with three well-coloured bunches of Black Hamburgh, and Messrs. Wright and Mill contributed the same variety. The latter had the largest bunches, but a little deficient in colour. For Whites there was no competition, and Mr. Mill took the only prize awarded. For the collection of eight dishes Mr. Blair was 1st with a choice lot, containing well-coloured Black Hamburgh Grapes, good Nectarines, a fine dish of Bananas, and superb Strawberries and Melons. Mr. Robins, gr. to Sir N. Kerrison, was 2d with a nice collection, containing fine Peaches and Nectarines, and two dishes of Plums; Peaches and Nectarines were fairly good, and the prizes fell to Mr. Blair and Mr. Rushmore, of Tendring. In Melons Mr. Keen was 1st for flavour with a small, well-ripened fruit; and Mr. Blair took 1st in the other class with a handsome fruit of the Golden Perfection type. In the collection of vegetables Mr. Blair was again 1st with a good lot, containing a nice dish of Tomatos, Asparagus, fine Cauliflower, and Cucumbers; and Mr. Rushmore was 2d with a very creditable collection. No less than thirty-five lots of Peas were shown, many of these consisting of Laxton's varieties, all of which the judges passed over, pronouncing them inferior in flavour; and although looking so full as to be ready to burst, they were all pod, and mere wind-bags. The prizes in every case were awarded to a variety called Magnum Bonum, of the Ne Plus-Ultra type, and apparently a first-class Pea. Potatos were clean and good but not a large show, but Cauliflowers were in full force, and of first-rate quality. The cottagers made a highly creditable display, and this was not at all the least interesting part of the show, and is one which ought to be encouraged by all provincial societies, as tending to foster a proper feeling of emulation among the labouring classes and cause them to take a greater interest in their gardens.

Law Notes.

AN ACTION AGAINST A MARKET GARDENER FOR ILL-TREATMENT TO A HORSE.—(*Invernayv. Hale.*)—This was an action, brought in the Bloomsbury County Court, before Mr. Judge Russell, in which the plaintiff, a horse dealer of Kentish Town, sued the defendant, a market gardener of Finchley, to recover the sum of £5 for damage done to the plaintiff's horse when in the defendant's possession. Mr. Charles Williams, solicitor, appeared for the plaintiff, and Mr. Pain for defendant. The plaintiff said that he had a horse worth £14 which he wished the defendant to purchase but who said he would prefer a trial of it, and would pay the plaintiff £1 a week for its use for a week or two; and that if he liked it and was able to take his goods to Covent Garden, he would buy it. The plaintiff had the horse three weeks, and returned it in such an emaciated condition that he considered he had lost £5 from the value of the horse. In cross-examination by Mr. Pain, the plaintiff said that although the horse was returned in such an exhausted condition he afterwards worked it in the street, although it had been condemned by the police as unfit for work, and had subsequently sold it for £8. Thomas Bass, a greengrocer, of 30, Circus Road, Haverstock Hill, was called to prove the value of the horse, and stated that the horse, when the defendant had it, was well worth £14. This was the plaintiff's case. Thomas Hale, the defendant, said the horse was sent merely on trial, and that if found useful he agreed to buy it for £14. He only worked it a few days during the time he had it, and found it wholly unable to draw his van to Covent Garden Market. He wrote and told the plaintiff so, requesting him to send for the horse. The defendant said he returned the horse in a better condition than he received it, and called William Hughes, in his employment, to corroborate this statement, upon which the learned Judge said that he could not, in the face of this evidence, give judgment in favour of the plaintiff, but ruled in favour of the defendant, to whom he allowed the costs of attorney and witnesses.

EQUITY COURTS, LINCOLN'S INN (before Vice-Chancellor Sir C. Hall): *July* 7.—*The King of Portugal* v. *Carruthers.*—This suit came on again to be heard to-day, after standing over with a view to a compromise. It has, as our former report fully sets forth, reference to certain collections made by the late Dr. Welwitsch, who was employed by the Portuguese Government, of insects, herbs, flowers, and other objects of natural history in Africa. The plaintiff claimed that the collections belonged to him, but the claim was disputed by the executors. After hearing arguments from Mr. Southgate, Q.C., and Mr. Philimore on the part of the plaintiff, a compromise to the effect that the best or "study" set of objects should be handed over to the plaintiff; the next best to the British Museum, the next best to the plaintiff, and the next to the legatees, and the residue to the plaintiff; that each

party should pay his own costs of the suit; and that the plaintiff should pay one quarter of the salary which would have accrued due to Dr. Welwitsch in case he had remained in the service of the plaintiff up to the time of his death, was again suggested, and, after some discussion, the Vice-Chancellor desired that the suggested compromise should be fully and carefully considered by all parties, and with that view the case was again ordered to stand over. Mr. Dickinson, Q.C, and Mr. D. Jones were for the defendants. *Daily News.*

Variorum.

CULTIVATION OF CINCHONAS IN THE ISLE OF BOURBON.—Although the French Government has hitherto shown itself indifferent to the acclimatisation of this invaluable febrifuge in its dependencies, private enterprise has not been wanting to effect so desirable an object. Bourbon, in spite of its character for salubrity, has experienced very severe visitations of fever, which has induced private individuals to attempt a task which the State has neglected. Dr. Vinson, one of the first to try the culture of Cinchonas in Bourbon, recently addressed a report of the progress made, and the probabilities of success, to the French Acclimatisation Society. The first seeds were received from Dr. Hooker in 1869, and trees raised from cuttings of the first seedlings have attained a height of 12 to 18 feet in four years. Both C. calisaya and C. officinalis are under trial. Dr. Vinson's plantation at Salazie numbers 300 subjects, of which about one half are not less than 10 feet high. Leaves of the species named, measuring 15 inches long by 13 broad, were sent to Europe. Bark of C. officinalis grown in the island has been analysed, and gave the following result:—Quinine 14.3 grammes, and cinchonine 0.5 grammes, in a thousand grammes of bark. "It was to be expected," Dr. Vinson observes, "that some native insect enemy would appear, but we were not prepared for it at all in the form which it came, and were not a little surprised one fine morning to find the large leaves of some of our trees completely riddled and destroyed by the enormous blue-green caterpillar of the Oleander sphinx, Deilephila Nerii." In view of the success achieved in the trials yet made, Dr. Vinson thinks that the Cinchona may be profitably cultivated in the Isle of Bourbon, although the English have failed in Mauritius, because the climatal conditions and altitude of some parts of the former island are more favourable, and approach more closely to the requirements of the plant. In the localities where the trials are being made, the cyclones have not seriously damaged the trees, and there would be little risk, and probably great profit, attending their cultivation on a large scale on a commercial basis. Formerly the island was in a prosperous state, and supplied Mauritius with a large proportion of provisions, but of late it has been declining, and some fresh and remunerative industry alone can save it from sinking lower.

LOCOMOTIVES ON ROADS IN IRELAND. — The Larne traction engine nuisance case has occupied a great deal of time in its hearing, and a very considerable amount of our space. We do not say that either the time or the space was wasted; but we feel sure that even our good friends in the neighbourhood of Larne must be gratified that the case has at last been concluded. The magistrates gave their decision yesterday. It was adverse to the plaintiffs, as the Court held that a traction engine traversing the public road did not constitute a nuisance. Railways frequently ran close to public roads; and their engines might practically be regarded as forming a nuisance equally with traction engines, supposing these were nuisances; but railways run under Acts of Parliament, and could not be prosecuted as nuisances. The magistrates held that traction engines also had the sanction of Parliament, and did not think that in this particular instance a nuisance had been proved. In particular it was remarked that though the engine was regularly driven through the town of Larne, none of its inhabitants had come forward to complain of it. The charge was, therefore, dismissed; and we think there is substantial justice in the decision. It is, no doubt, very annoying to owners of horses to have them frightened on the public road; but the evidence on this point was not particularly strong, and without a very strong case indeed the Court would not have been justified in giving a judgment which would have had the effect of prohibiting the use of traction engines altogether. *Northern Whig, Belfast.*

ANCIENT TREES. — In the February number of *Science Gossip* there appeared a note in which G. O. Howell states that the Cypress of Somma, in Lombardy, is the oldest tree on record, dating from the year 42 B.C.; but at Anuradhapura, in Ceylon (noted for its ancient palaces), there is a Bo-tree—a very famous object in connection with Buddhism—which was planted 288 B.C., and is by far the oldest tree in the world. It would have been blown down long ago but for a thick wall built round the trunk, and all its main branches are supported by pillars. The leaves that fall off are collected by the Buddhist priests every day, and are kept in a holy part of the temple. They are offered to their deity on festival occasions, also sold to the poor ignorant natives, who believe the money paid for these holy leaves will buy them the righteousness of saints. This tree is held in such reverence that it is often visited by numbers of pilgrims. *A. F. Maingay, in "Hardwicke's Science Gossip."*

GARDENING UNDER DIFFICULTIES. — Peggotty's garden in its way is quite a marvel, and is a monument of an indomitable struggle with adverse circumstances. It is not a very large plot of ground, and perhaps looks unduly small by reason of being packed in by a high paling made of the staves of wrecked barrels, and designed to keep the sand and grit from blowing across it. But it is large enough to produce a serviceable crop of Potatos, which, with Peas and Beans galore, occupy the centre beds, Peggotty indulging a weakness for Wallflowers and big red Tulips on the narrow fringe of soil running under the shadow of the palings. The peculiarity about the garden is that every handful of soil that lies upon it has been carried on Peggotty's back across the four mile waste of shingle that separates the sea coast from Lydd. That is, perhaps, as severe a test as could be applied to a man's predilection for a garden. There are a good many people who like to have a bit of garden at the back of their house. But how many of them would gratify their tastes at the expense of bringing the soil on their backs, plodding on "backstays" over four miles of loose shingle? One important change has happened in this little household since it was, more than two years ago, introduced to readers of the *Daily News.* Ham is married, and is, in some incomprehensible manner, understood to reside both at Lydd with Mrs. Ham and at the cabin with his mother. As for Mrs. Peggotty, she is as lively and as "managing" as ever—perhaps a trifle smaller in appearance, and with her smooth clean face more than ever suggestive of the idea of a pebble smoothed and shaped by the action of the tide. *Daily News.*

THE AUSTRALIAN COLONIES.—Speaking at the Royal Geographical Society lately Sir George Bowen said:—Victoria was the smallest in size, but the most important and richest of all the Australian colonies, having a revenue of £4,500,000, which was much larger than that of the kingdom of Portugal, twice as large as that of Denmark, three times as large as that of Saxony; a revenue, moreover, which was raised only in a small degree by taxation. It was derived chiefly from the public lands, and from the State railways and waterworks. The taxation was only about the same sum per head as in England, namely, about £2; and of the money actually raised by taxation, one-third was spent on public education, including not only primary and secondary schools, but the University of Melbourne, and schools of mines, schools of design, schools of art, and other literary and scientific institutions. He went to Queensland as the first Governor of the colony in 1859, and Sir Charles Nicholson went with him as first President of the Council. On his arrival he found the large and munificent sum of 7½*d.* in the public chest; and some thief, supposing, perhaps, that he had brought with him a sum of money to the colony, broke into the chest, and stole the 7½*d.* the first night he was there. During his eight years' administration in Queensland, that sum of 7½*d.* swelled into an annual public revenue of £800,000. When Sir Charles Nicholson and himself first went to Brisbane, the only settlement between Brisbane and the Gulf of Carpentaria was Rockhampton, about 500 miles to the north of Brisbane; but, at the present time there were settlements the whole way to Cape York, 1200 miles to the north; and he hoped that Western Australia would similarly progress. Of course Western Australia had not the same great resources in arable land, in land fit for Sugar and for Cotton, and in gold-fields, which Queensland possessed; but still Western Australia might follow the example of Queensland, and he hoped that, fifteen years hence, some Governor of Western Australia would be able to give as good an account of the progress of that colony as he himself was able to give of the progress of Queensland. People must not be deterred by the unpromising appearance which the interior of Australia presented to a first explorer. There was a time when everybody said that Queensland was too hot for sheep, and now there are 11,000,000 of sheep in the colony. In Queensland the flow of pastoral occupation had gone on almost like the flow of the tide. At the end of every year some 200 miles had been added to the domain of Christianity and civilisation; and in the course of five or six years pastoral occupation had spread over the whole of that vast territory, three times the size of the French empire. Such were the triumphs of peaceful progress. They were triumphs in which Englishmen might well rejoice, for they were victories without pain or bloodshed. Their conquests were not only over men but over Nature: not for England only, but for all the world; not for this generation simply, but for all posterity.

Notices of Books.

Seventh Annual Report of the Noxious and Beneficial Insects of the State of Missouri for the Year 1875. By Charles V. Riley, State Entomologist.

This, like its predecessors, is full of sound, accurate information on the subjects on which it treats. These reports redound to the credit of the Board under whose auspices they are published, and they are honourable to their compiler. Would that we in this country could boast a similar series of such useful publications to serve for purposes of reference. The present number is specially interesting as containing reports in continuation of the history of the Colorado beetle, the Chinch bug (Micropus leucopterus), whose ravages in the cereal crops in a single season have been estimated at 19,000,000 dollars in the State of Missouri alone; the flat-headed Apple tree borer, the canker worms, the Rocky Mountain locust, and the Grape Phylloxera. The information given on these heads is so valuable that we shall be doing good service to our readers by reproducing from time to time certain portions of special interest to our readers. To begin with the Colorado beetle, Mr. Riley reiterates his belief that if it ever gets alive to Europe it will most likely be carried there in the perfect beetle state, on some vessel plying between the two continents.

"While the beetle, especially in the non-growing season, will live for months without food, the larva would perish in a few days without fresh Potato tops, and would, I believe, starve to death in the midst of a barrel of Potatos, even if it could get there without being crushed; for while it so voraciously devours the leaves, it will not touch the tubers. The eggs, which are quite soft and easily crushed, could, of course, only be carried over on the haulm or on the living plant; and while there is a bare possibility of the insect's transmission in this way, there is little probability of it, since the plants are not objects of commercial exchange, and the haulm, on account of its liability to rot, is not, so far as I can learn, used to any extent in packing. Besides, Potatos are mostly exported during that part of the year when there are neither eggs, larvæ, nor Potato vines in existence in the United States. There is only one other possible way of transmission, and that is in sufficiently large lumps of earth, either as larva, pupa, or beetle. Now, if the American dealers be required to carefully avoid the use of the haulm or shaw, and to ship none but clean Potatos, as free as possible from earth, the insect's transmission among the tubers will be rendered impossible; and when such precautions are so easily taken, there can be no advantage in the absolute prohibition of the traffic in American Potatos. As well prohibit traffic in a dozen other commodities, in many of which the insect is as likely to be taken over as in Potatos, and in some of which it is even more likely to be transported. The course recently adopted by the German Government in accordance with the suggestion made in my last report, is much more rational, and will prove a much better safeguard. It is to furnish vessels plying between the two countries with cards giving illustrated descriptions of the insect in all stages, with the request that passengers and crew destroy any stray specimens that may be found. Let England and Ireland, together with the other European Governments, cooperate with Germany in this plan, and have such a card posted in the warehouses of seaport towns, and the meeting rooms of agricultural societies, and a possible evil will be much more likely avoided. Some of the English journals are discussing the question as to whether, with the more moist and cool climate of that country, our ten-lined Potato beetle would thrive there, even if imported. There cannot be much doubt that the insect will rather enjoy the more temperate clime; for while it thrives best during comparatively dry seasons, both excessive heat and drought, as well as excessive wet, are prejudicial to it."

It is somewhat satisfactory to learn that, in Mr. Riley's opinion, the ravages of the insect, bad as they are, have been exaggerated. We are specially singled out as having given too gloomy a picture. Anything we have said has been derived from the testimony of an entomological eye-witness. Mr. Riley adds, "It should not be forgotten that the American farmer, by means of intelligence and a little Paris green, is pretty much master of the Doryphora."

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

PLANT STOVE.—Any fine varieties of *Gloxinia* that there happens to be a deficiency of should now be increased by leaf-cuttings. These root much better now than early in the season, when they are soft, not

being so liable to damp off, the danger from which will be further reduced by keeping the pots containing them near the light, shading from the sun with thin, light-coloured paper laid upon them. The present is also a good time to look over the general stock of stove plants, both hard and soft-wooded, to see what kinds may require increasing. Many stove subjects are of comparatively quick growth, and in some cases it is better to propagate young plants, and discard such as have been used for a time. Cuttings of most hard-wooded things will now be in a half-ripened state, and will root freely; and where there is not a brisk heat kept up early in the season, so as to get cuttings betimes, it is well to strike all that may be required now, and keep them growing slowly through the winter. These will be so much in advance when spring comes. Amongst flowering plants all such things as *Gardenias*, *Medinillas*, *Tabernæmontanas*, *Ixoras*, *Dipladenias*, *Stephanotis*, *Clerodendrons* (both of the *Balfourianum* and *splendens* or climbing section), and the shrubby species, such as *fallax*, *Kæmpferi*, and *fragrans*, and the fine climber *Hexacentris Mysorensis*, *Thunbergia laurifolia* and *Harrisianum*, *Combretum purpureum*, *Rondeletia speciosa*, *Bougainvilleas*, *Æschynanthus*, &c. In striking such things as these, at this time of the year especially, it is best to put each cutting into a 60-sized pot; in the spring a number may, for convenience sake, be placed in a larger pot—the longer season then before them admits of their recovering any check they receive in potting off.

The second lot of *Poinsettia* and *Euphorbia* cuttings put in should by this time be rooted, and no time should be lost in moving them into larger pots. It is a bad practice to allow cuttings of any description to remain long in small pots after they are rooted, but with free rooting plants it is still worse, as from their nature they require more sustenance than is needed by such as are slower in growth, and if they do not get their requirements in time they become stunted. That plants, even of a comparatively soft-wooded nature, are anything but desirable to deal with when in this state, will be apparent to any one who has noticed the efforts Nature makes to right herself, by the disposition they have, after receiving better treatment, to throw up suckers from the base, and the way that these increase in a short time to double the strength the hide-bound shoot could be induced to attain; showing clearly that, when the tissues become prematurely hardened, whilst the stem has not attained any considerable strength, the channels through which the sap passes are insufficient to perform their wonted office.

The drier atmosphere inseparable from the diminished use of fire-heat and consequent less moisture by evaporation in plant stoves, is always conducive to the increase of insects, and unless these are steadily battled with they soon spread to an extent that permanently injures the plants, in addition to their present disfigurement. Advantage should be taken of wet days to put on extra hands at plant cleaning; this is not only the most economical as to labour, but in dull weather hothouses are in a much more comfortable condition to work in than when it is bright and sunny. It is downright cruelty, and an evidence of bad management, to keep men, as they are sometimes seen, at work the whole day over in hot stoves during sunny weather. The languor produced by this prevents any one doing even a reasonable amount of work, and if it is persisted in it will injure the strongest constitution.

Amongst the numerous insects that affect stove plants there are none that inflict more permanent injury than red spider, for on a very short acquaintance with the little pest the vitality of the leaves is so far injured that they soon afterwards fall off. A good look-out should be kept on *Dracænas*, and the more colour these have the sooner are they injured. With these plants the insect almost exclusively confines itself to the underside of the leaves, and generally near the base, where there is less vitality, and where, if the leaves are gone, the plants are spoilt, as there is no means of replacing them except heading down, and doing the work over again by bringing up a fresh shoot. A regular use of the syringe to the underside of the leaves will effectually keep them clean. The new and very beautiful varieties of these plants from their slow increase remain long comparatively scarce and dear, no one who possesses them liking to cut up one for stock whilst it is well furnished at the bottom; but in the course of each season a couple of good root-cuttings may be taken from any Dracæna that is moderately strong without checking its growth much. If turned out of the pot and the drainage carefully removed, there will be found, in addition to the smaller horizontal feeding roots, a strong central underground shoot as thick as the finger, with a bud-like point continuously extending downwards; if about 2 inches of this be cut clean off with the fibres proceeding from it, and at once potted in a 4 or 6-inch pot, according to the strength, reversing its position by turning the bud upwards, and so placing it in potting that the point may be covered with about half an inch of soil, and placed in a brisk heat, it will soon push a shoot and form a plant. If this is done at the present time, the plant returned carefully to its pot, or one a size larger if required, and grown on, it will receive little check, and another similar root cutting will be formed by the spring, which may then be treated in like manner. *T. Baines.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—This department will now require constant care and attention, as at this season the most perfect neatness should be aimed at, so as to render the general effect at once pleasing and satisfactory. Wage war with weeds by plying the hoe and rake frequently, and neatly trim the edges of walks and beds by using the edging-shears. Take advantage of rain to roll gravel walks so as to keep the surface perfectly smooth and firm. Beds that have been mulched over as advised will now require but little attention as regards weeding and watering, as much of this labour will be saved; others that are not so favoured should have the surface stirred occasionally, so as to keep down weeds and prevent evaporation. Continue to peg all kinds of trailing plants as they advance in growth, and encourage them and others in every way to fill the beds as quickly as possible, as the season for the summer display is only short at best. *Calceolarias*, on account of the form of their flowers, are often weighed down by heavy rains, and the appearance of the beds greatly damaged thereby; to obviate this, a few sprays of fine Birch twigs should be stuck thinly amongst the plants before they come into bloom. These will keep them erect, and maintain the beds in a uniform shape. The present season has been most favourable for such plants as are generally used for carpet-bedding, and *Alternantheras*, *Pyrethrums*, &c., are assuming those rich brilliant tints for which they are so highly prized. Should the weather set in dry, beds containing such plants as the above should have abundant supplies of water or they will soon curl and fade in colour, and any check is sure to drive the Pyrethrum into bloom and spoil its effect. Confine the plants to the lines or spaces allotted to them, so that the pattern may be perfect and traced at a glance. Sub-tropical plants can scarcely be over-watered, provided the weather is warm. Mulch heavily with well decomposed manure, and stake and tie as they advance in growth. *Hollyhocks*, *Dahlias*, and other gross-feeding plants should be treated in like manner. *Pinks* and *Carnations* should be neatly staked before they get too forward—pieces of small-sized galvanised wire wound round a smooth stick are perhaps the neatest and best supports for these, as they require no tying. Twist the wire round the stick so as to form a spiral coil, with the wire about an inch or so apart, and leave one end straight, about 6 inches or so long, to thrust into the ground. When wound as above, slip the wire off the stick, and use as required. Push on the propagation of these by layers and pipings; make choice of an old half-spent hotbed on which to place the handlights to contain the cuttings; insert the same in sharp sandy loam, keep well shaded from the sun, and give a gentle syringing occasionally so as to keep the atmosphere moist. Cuttings of *Roses* root freely at this season, and are much to be preferred to worked plants, either for pots or the Rose garden. The cuttings should be made from well-ripened wood, and the same kind of treatment advised for striking the Carnations will suit them; or if well attended to by way of syringing, &c., they may be struck between shrubs or in such-like places, where they can be afforded shade and shelter. *Briars* and other stocks will now be sufficiently forwarded for budding, and the heavy rains we have had will be much in favour of the operation by causing the bark to separate freely. Make choice of such as are on wood that has just borne flowers, as these are always more mature than such as are obtained from quick-growing barren shoots. Successful budding depends more on selecting sound mature buds, and in the manner in which the wood is extracted, than it does on inserting or tying. In extracting the wood from the bud care should be taken that the bark is not bent back too sharp, or bruised in any way, as when that is the case the bud is sure to turn black and fail. *Roses* of the perpetual kind going out of bloom should now be shortened back, and every means taken to insure free growth and a second flowering in the autumn. Such varieties as Maréchal Niel, Gloire de Dijon, &c., should have the old flowering wood cut out, and this young growth laid in to replace it for next year's bloom. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

CUCUMBERS.—Ants have been a serious trouble lately, and it is singular that for the most part they attack the female blossoms only, and do a great amount of mischief. I have tried various means to extirpate these pests, and all to little or no purpose, but have now hit upon a means which has quickly effected this desideratum. This is it. Get a small quantity of treacle, with which incorporate a modicum of arsenic, and place a little of it in the middle of a square of glass near their haunts. The treacle attracts whilst the arsenic poisons, and the glass does not absorb the poison: a little fresh should be added every day. I believe this remedy would also be effectual in the destruction of woodlice, cockroaches, &c., but great care should be exercised, and the boys should be warned of the poison. The present is a good time to sow a few seeds for early autumn fruiting; it will now take about a month to secure good plants. Bestow a very liberal attention upon plants in full bearing by way of thinning out the exhausted growths and foliage and laying in young bearing wood, and earth up the roots periodically. Give copious doses of weak liquid manure, and maintain plenty of atmospheric moisture all day long in hot weather. Expel worms by weak lime or soot water. Do not over-crop young plants, and do not allow the fruits to hang too long upon the vines. A good and continuous supply is now in demand, and should certainly be secured where proper appliances are at command. I have previously shown that the Cucumber is most impatient of neglect, and is either very stubborn or very obedient, according to the attention bestowed upon it. Carry out previous directions. *T. Simpson, Chelmsford, June 29.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JULY 7, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
July	In.	In.	°	°	°	°	°	°			In.
1	29.56	−0.26	64.6	57.5	7.1	60.3	− 0.9	58.8	95	S.S.E.: S.	0.70
2	29.59	−0.23	69.6	55.0	14.6	60.2	− 0.9	52.3	75	WSW: S.W.	0.00
3	29.73	−0.09	67.8	56.6	11.2	60.0	− 1.2	55.5	86	N.W.: WNW	0.19
4	30.08	+0.27	61.0	52.5	8.5	55.3	− 6.0	52.2	90	N.	0.11
5	30.12	+0.31	70.4	47.0	23.4	57.2	− 4.3	49.7	76	NNE: N.E.	0.00
6	30.12	+0.32	74.6	56.0	18.6	63.4	+ 1.8	55.3	76	N.	0.00
7	30.07	+0.26	68.4	55.4	13.0	60.1	− 1.7	54.3	81	E.N.E.: N.E.	0.00
Mean	29.89	+ 0.08	68.1	54.3	13.8	59.5	− 1.9	54.0	83	N.	sum 1.00

July 1.—Overcast, dull, and heavy rain fell till 4 P.M. Fine and bright afterwards.
— 2.—A fine day, though dull and very cloudy at times.
— 3.—Dull, nearly overcast and occasional rain throughout. Distant thunder heard in afternoon.
— 4.—Overcast, dull, and cold.
— 5.—A very fine day, though cold.
— 6.—A fine bright warm day.
— 7.—A fine dull day. Bright at times.

—— During the week ending Saturday, July 3, in the vicinity of London, the reading of the barometer at the level of the sea increased from 30.01 inches at the beginning of the week to 30.04 inches by the morning of June 27, decreased to 29.84 inches by about mid-day on the 28th; increased to 29.88 inches by the morning of the 30th, decreased rapidly to 29.71 inches by the evening of July 1, and increased to 30.07 inches by the end of the week. The mean reading for the week was 29.86 inches, being 0.19 inch less than that of the preceding week. The highest temperatures of the air at 4 feet above the ground ranged between 71½° on June 27, and 64½° on July 1, with mean weekly value of 68°. The lowest temperatures of the air varied from 49° on June 27 to 57½° on July 1, the mean for the week being 54¾°. The mean daily range of temperature in the week was 13¼°, varying from 22½° on June 27, to 7° on July 1. The mean daily temperatures of the air were as follows:—June 27, 58°.9; 28th, 58°.3; 29th, 61°.1; 30th, 58°.6; July 1, 60°.3; 2d, 60°.2; 3d, 60°; and the departures in defect of their respective averages were—2°.4, 3°, 0°.2, 2°.6, 0°.9, 0°.9, and 1°.2. The mean temperature for the week was 59°.6, being 1°.6 below the average, as deduced from sixty years' observations. The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 144¼° and 139° on June 27 and 29; on July 1 85¼° was the highest reading. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 38¼° and 48⅓° on June 27 and 28; on the 29th 56° was the lowest reading. The mean of all the low readings was 49½°. The direction of the wind was S.W., S.E., and S., and its strength gentle.

The weather during the week was dull, and very wet. Distant thunder was heard on the afternoon of July 3.

Rain fell on five days; the amount collected was 1.34 inch.

In England the extreme high day temperatures ranged between 78¾° at Leicester and 67° at Truro, the general average over the country being 72½°. The extreme low night temperatures varied from 49¾° at Liverpool to 43° at Leicester, Norwich, Nottingham, Sheffield, and Eccles, the general average being 44¾°. The mean of the extreme ranges of temperature in the week was 27¾°, the greatest range being 35¾° at Leicester, and the least, 21¼°, at Liverpool. The mean high day temperatures ranged from 71¾° at Norwich to 64° at Sheffield and Truro, with a general average of 67°. The mean low night temperatures varied between 54¾° at Blackheath and 50¾° at Sunderland, with an average value of 52½°. The mean daily range of temperature in the week was 14½°, varying from 20° at Norwich to 10° at Truro. The mean temperature for the week was 58°, being 2° lower than the value for the corresponding week in 1874. The highest happened at Norwich and Cambridge, both 60¼°, and the lowest at Sheffield, 56¼°. The fall of rain during the week was somewhat large everywhere. At Wolverhampton 3 inches were measured, it being the largest weekly fall there since the 35th week in the year 1866. At Leicester and Bradford 3 inches were also measured. At Bradford during a thunderstorm on July 1 0.98 inch of rain was measured in 37 minutes. The fall was as follows :—

Time, P.M.	Total Depth of Rain Recorded in Decimals of an Inch.	Time, P.M.	Total Depth of Rain Recorded in Decimals of an Inch.
H. M. S.	Inch.	H. M. S.	Inch.
5 8 0	0.02	5 23 0	0.56
5 9 40	0.06	5 25 0	0.61
5 11 30	0.14	5 26 0	0.69
5 13 0	0.18	5 27 30	0.75
5 15 0	0.23	5 30 0	0.91
5 16 0	0.26	5 31 0	0 94
5 17 15	0.28	5 34 0	0.96
5 19 15	0.42	5 37 0	0.98
5 21 0	0.51		

The rain commenced to fall at 5 o'clock P.M., and by 5.37, 0.98 inch was registered, being at the rate of about 1.6 inch per hour, the rates varying, as shown, between 0.15 inch and 4.80 inches per hour. The bulk of the rain fell between 5.8 and 5.31, when 0.92 inch was measured in twenty-three minutes, or at the rate of 2.4 inches per hour.

At Norwich six-tenths of an inch only was measured; the average fall over the country was 1¾ inch.

The weather during the week was dull and wet, and the sky generally cloudy. Temperature little below its average.

In Scotland the highest temperatures ranged from 71° at Dundee to 67° at Leith, the lowest temperatures varied between 50° at Paisley and 42° at Dundee, their respective averages being 68¾° and 45¼°. The mean range of temperature in the week was 23½°. The mean temperature for the week was 56¼°, being 2¾° lower than the value for the corresponding week in 1874. The highest occurred at Paisley, 57¼°, and the lowest at Leith, 55¼°. Rain fell at Aberdeen to the amount of 2¼° inches, at Glasgow and Dundee six-tenths of an inch only was measured, the average fall over the country was 1 inch.

At Dublin the highest temperature was 68°, the lowest 46¼°, the mean 57¾°, and the fall of rain only a quarter of an inch.

JAMES GLAISHER.

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

54. THE CHARLOTTE ROTHSCHILD PINE-APPLE.—Can any of your readers throw any light upon the origin of this variety? I am told that it is nothing more than a good strain of the Queen. Is this so? *Pengwern.*

55. GOOSEBERRIES.—The heaviest recorded weight we know of is the "London," which is stated to have attained the weight of 37 dwts. 20 grs. Can any correspondent inform us whether this weight has been exceeded in this or any other variety?

Answers to Correspondents.

SNAILS AND SLUGS (Qy. 53, p. 827, vol. iii.): *M. M.'s* best plan would be to get some ducklings and turn them into the garden. Let them have full liberty mornings and evenings, and in showery weather during the day, until they are about five or six weeks old, when they will be of no use, but an evil in the garden. *John Grummitt, The Gardens, Prior Bank House, Cherry Tree Hill, Sheffield*

BEURRÉ DE L'ASSOMPTION PEAR: *J. M.* Yes; the foliage and wood of this Pear very much resembles Williams' Bon Chrétien, but it is just a little more gross.

FAIRY RINGS: *J. B.* These usually occur in poor pastures. A dressing with ammonia salts has been found at Rothamsted to be the most efficacious of getting rid of them.

FUNGUS: *J. R.* The fungus is Roestelia lacerata. See the observations on the same fungus on Quince leaves in the *Gardeners' Chronicle* of June 26, p. 827, which exactly apply to your case. *M. J. B.—H. G. W.* The apparently fungoid growth on the roots of Peas is common on Leguminosæ, and is not the cause of disease. You will see a black fungoid growth at the base of the stems, which is possibly a young state of some Helminthosporium. We have had precisely the same affection in Peas some years since. The cause of the sudden reappearance of similar diseases is quite unknown. You will probably not have it next year; at all events, however, change the ground. *M. J. B.*

GRAPES: *E. H. B.* Yours is a bad case of "shanking," but without further information we cannot form an opinion as to the cause. An examination of the border will probably give you a clue to the source of the mischief, which, we believe, is generally the result of a cold, damp, rich soil.

NAMES OF PLANTS: *T. C. S.* Lilium croceum—the common Orange Lily of cottage gardens.—*W. D.* Spiræa aruncus.—*D. K.* 1, Pinus Strobus; 2, 3, not sure about, would require to see the cones; 4, Abies morinda; 5, Picea nobilis; 6, Pinus ponderosa, var. Benthamiana.—*G. F. F.* 1, Selaginella cuspidata; 2, Scolopendrium vulgare digitatum; 3, S. vulgare lobatum.—*B. K.* Agrostis alba.—*P. W. J.* Trisetum flavescens. — *W. S.* 1, Odontoglossum astranthum; 2, Oncidium hebraicum?—see *Gardeners' Chronicle*, vol. iii., p. 180. The other four are correctly named. Nos. 3 and 5 are very good varieties.—*A. D.* 1, Onoclea sensabilis; 2, Hibbertia; 3, indeterminable; 4, Tradescantia virginica. Please send better specimens next time.—*Madeira.* 1, is probably an Eupatorium, but the specimen is not good enough to determine the species; 2, Meyenia erecta; 3, Leptospermum flavescens; 4, Jasminum simplicifolium; 5, Johannesia princeps (Euphorbiaceæ, not Malvaceæ). Lonicera sempervirens, without number or signature, in a separate paper.

VINES: *An Old Subscriber, Chard.* Your Vines are attacked by the dreaded Phylloxera, and we would recommend you to destroy them at once. Meantime we should be glad if you would give us the history of the affected plants.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time.

CATALOGUES RECEIVED.—The Thames Bank Iron Company (Old Barge Wharf, Upper Ground Street, London), Trade Price List.—Alexis Dallière (Ghent, Belgium), Catalogue of Azaleas, Camellias, Rhododendrons, New and Ornamental Plants, &c.

COMMUNICATIONS RECEIVED.—Robert Fenn—J. M.—C. D.—Totteridge.—E. B.—W. E. B. (thanks).—A. H. B.—H. B.—W. D. F.—R. T.—R. D.

DIED.—On June 29, at Epping, H. DOUBLEDAY, aged 66 years.

Markets.

COVENT GARDEN, *July* 8.

A large bulk of goods, chiefly out of Kent, are in the market, and scarcely realise paying prices. Continental goods are also freely supplied, comprising Apricots, Melons, Green Gages, Plums, and Nectarines; as well as the usual varieties of salading, &c. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 0	Oranges, p. 100	8 0	12 0
Apricots, per box	1 0	3 0	Peaches, per doz.	6 0	24 0
Cherries, per lb.	0 6	1 6	Pine-apples, p. lb.	5 0	8 0
Figs, per doz.	6 0	12 0	Strawberries, per lb.	0 4	1 6
Grapes, English, lb.	3 0	8 0	Walnuts, p. bush.	16 0	..
Lemons, per 100	8 0	12 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Leeks, per bunch	0 2	0 4
Asparagus, p. bundle	5 0	6 0	Lettuces, per score	1 0	..
Beans, French, per ½-sieve	6 0	..	Mint, per bundle	0 4	..
— broad, per bushel	3 0	..	Mushrooms, per pott.	1 0	2 0
Beet, per doz.	1 0	2 0	Onions, young, bun.	0 4	0 6
Cabbages, per doz.	1 0	2 0	Parsley, per bunch	0 4	..
Carrots, do.	0 6	..	Parsnips, p. doz.	0 9	1 0
Cauliflowers, spring, per doz.	2 0	..	Peas, per quart	1 6	..
Celery, per bundle	1 6	2 0	Radishes, per bunch.	0 2	0 4
Cucumbers, each	1 0	2 6	Shallots, per lb.	0 3	..
Endive, per doz.	1 0	2 0	Salsify, per bundle	1 6	..
Herbs, per bunch	0 2	0 4	Sprue, French, bund.	1 6	..
Horse Radish, p. bun.	3 0	5 0	Tomatos, per doz.	4 0	..
			Turnips, per bundle.	0 8	..
			Veg. Marrows, doz.	2 6	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, 12 blooms	1 0	3 0	Pæonies, 12 bun.	4 0	12 0
— Clove, per doz	0 6	1 0	Pelargoniums, 12 spr.	0 6	1 6
Cornflower, p. doz. bun.	3 0	6 0	— Zonal, do.	0 3	1 0
Deutzia, per bunch	0 4	1 0	Primula, dbl., p. bun.	0 9	1 6
Eschscholtzia, 12 bun.	3 0	6 0	Roses, indoor, p. doz.	2 0	6 0
Eucharis, per doz.	6 0	12 0	— outdoor, 12 bun.	4 0	9 0
Gardenia, per doz.	2 0	6 0	— Moss, 12 bun.	6 0	12 0
Heliotropes, 12 spr.	0 6	1 0	Spiræa, 12 sprays	1 0	3 0
Lilies, white, p. bun.	0 6	1 6	Stephanotis, 12 sprays	2 0	6 0
Mignonette, 12 bun.	4 0	6 0	Stocks, 12 bun.	6 0	12 0
Myosotis, per bunch	0 4	0 9	Sweet Peas, 12 bunch.	4 0	9 0
Nemophila, 12 bun.	1 6	3 0			

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0	12 0	Lilium lancif., p. doz.	24 0	60 0
Bouvardias, do.	9 0	18 0	Lobelia, do.	4 0	9 0
Calceolarias, do.	6 0	18 0	Mignonette, do.	4 0	9 0
Crassula, do.	12 0	30 0	Myrtles .. do.	3 0	9 0
Cyperus, do.	6 0	12 0	Pelargoniums, dble., per doz.	6 0	12 0
Dracæna terminalis	30 0	60 0	— Scarlet, do.	3 0	9 0
— viridis, per doz.	12 0	24 0	Petunia, per doz.	6 0	9 0
Ficus elastica	1 6	7 6	Roses, do.	12 0	60 0
Fuchsia, per doz.	6 0	18 0	Solanums, do.	6 0	18 0
Gardenias, do.	12 0	60 0	Spiræa, do.	12 0	24 0
Heaths, in var., doz.	12 0	30 0	Stock, do.	3 0	6 0
Heliotrope, per doz.	6 0	12 0			
Hydrangeas, per doz.	9 0	24 0			

SEEDS.

LONDON: *July* 8.—Our seed trade, as might be expected, is now characterised by extreme inactivity. In Clover seeds of all kinds there is nothing whatever doing. A few speculative sales of new English Trifolium have been made, but until there is a fair show at market of actual and trustworthy samples this season's prices will not generally be settled. For sowing Mustard and Rape seed we have a somewhat improved demand at unaltered rates. As the new crop will shortly be to hand, Canary seed exhibits a further considerable fall in value. Hemp seed is firm. Other articles, at this dull season of the year, offer no subject for remark. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday trade was dull. English Wheat in a few instances was dearer than on Friday last, when an advance of 1*s.* per quarter was made from the preceding Monday. Foreign Wheat was also about the same as on last market day. Barley was almost unsaleable, and holders were not indisposed to accept lower terms. Malt was slow, and somewhat cheaper. Oats were fully 6*d.* per quarter lower, but Maize rose 1*s.* per quarter. Beans and Peas were rather irregular in value. The flour market was very quiet, and late rates were not exceeded.—The market on Wednesday was very quiet, and no advance was established in Wheat, either English or foreign. Barley was cheaper to sell, and other kinds of spring corn, more especially inferior Oats, of which there was a good supply, had a downward tendency. Flour was steady, but sales were effected in it with difficulty.—Average prices of corn for week ending July 3:—Wheat, 43*s.* 6*d.*; Barley, 35*s.* 5*d.*; Oats, 30*s.* 4*d.* For the corresponding week in last year:—Wheat, 60*s.* 8*d.*; Barley, 41*s.* 11*d.*; and Oats, 30*s.* 10*d.*

CATTLE.

At the Metropolitan Market on Monday, although the number of beasts was rather larger than on last Monday, the trade was more active, and choicest qualities were dearer. There was a very scanty supply of sheep and a good demand, consequently prices advanced on all kinds. Choice lambs were scarce and rather dearer, but the average quality was very middling, and it was difficult to sell inferior descriptions. Calves were also dearer. Quotations:—Beasts, 4*s.* 4*d.* to 5*s.* 6*d.*, and 6*s.* to 6*s.* 6*d.*: calves, 4*s.* 6*d.* to 6*s.*; sheep, 5*s.* 4*d.* to 6*s.*, and 6*s.* 6*d.* to 7*s.* 4*d.*; lambs, 6*s.* 4*d.* to 7*s.* 8*d.*; and pigs, 4*s.* 6*d.* to 5*s.* 6*d.*—On Thursday trade in beasts was slower, but choicest qualities were not much altered. Business in sheep was tolerably active, and prices continued high. Choice lambs were in demand, at fully late rates; calves were cheaper; and trade is reported very dull for milch cows.

HAY.

The supplies of fodder at Whitechapel have been reported as short, with an active trade and a slight advance in prices. Prime Clover, 100*s.* to 140*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 140*s.*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 38*s.* per load.—The Cumberland Market quotations are: Superior old meadow hay, 138*s.* to 150*s.*; inferior, 110*s.* to 118*s.*; new hay, 95*s.* to 116*s.*; superior old Clover, 135*s.* to 147*s.*; inferior, 105*s.* to 126*s.*; new Clover, 110*s.* to 126*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports are to the effect that there were large arrivals of Jersey, Guernsey, and French new Potatos on sale, the quotations ranging from 80*s.* to 120*s.*, for round, and from 120*s.* to 125*s.* for kidneys. Trade for old Potatos was flat, at the prices subjoined:—Regents, 40*s.* to 50*s.*; rocks, 30*s.* to 35*s.*; flukes, 60*s.* to 80*s.*; Victorias, 55*s.* to 75*s.* per ton. The imports into London during last week consisted of 222 bags, 2449 baskets, 100 cases, 60 tons Rouen; 20 tons Concale; 787 boxes, 400 cases Barfleur; 91 tons St. Malo, 91 Boulogne; 32 tons, 1340 packages Jersey; 436 packages Guernsey, and 619 sacks 150 barrels Dunkirk.

COALS.

At market on Monday there was a good supply of house coal, and the price fell 6*d.* per ton. "Steadiness" characterised transactions on Wednesday, and without change in prices.

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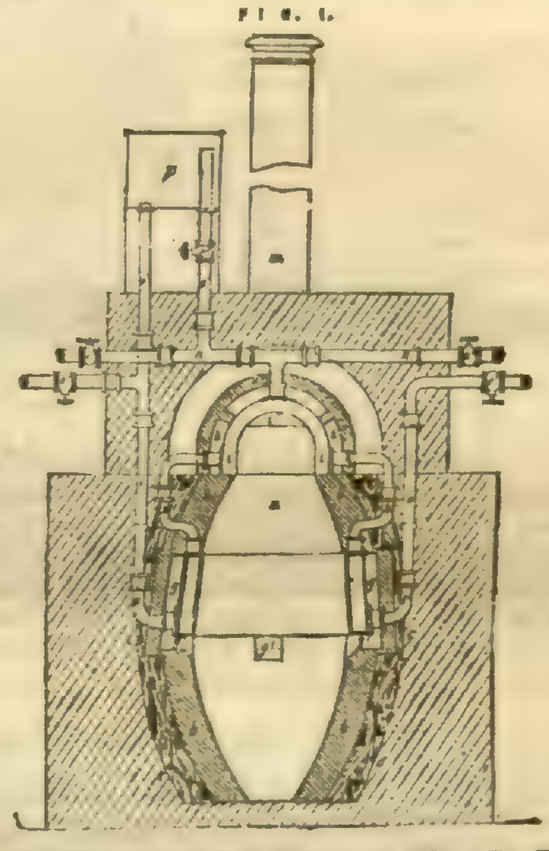

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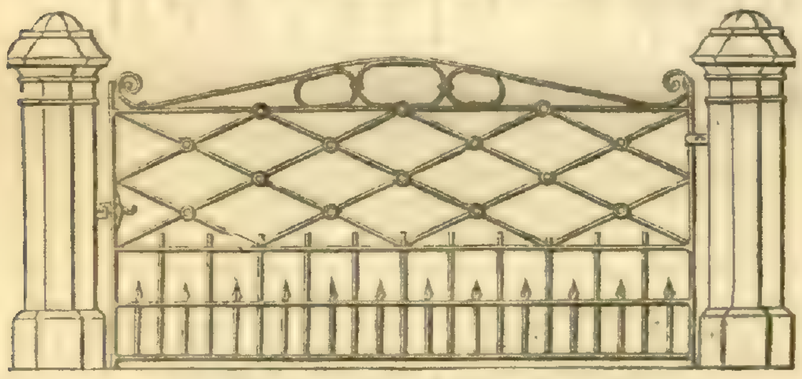

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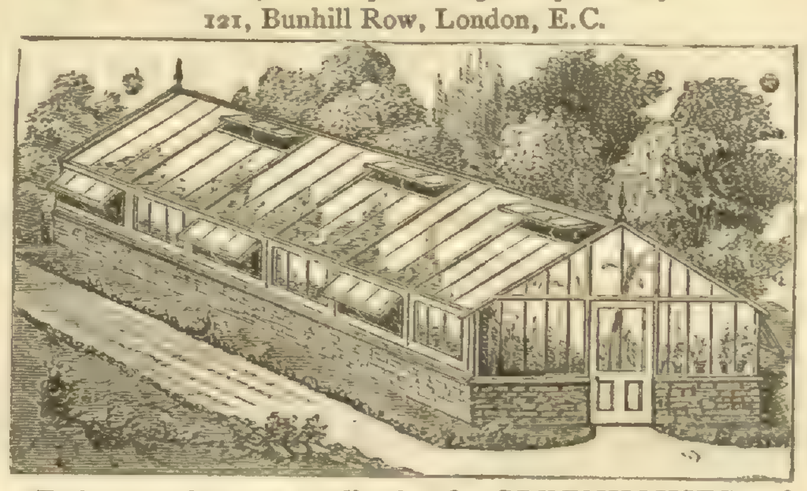

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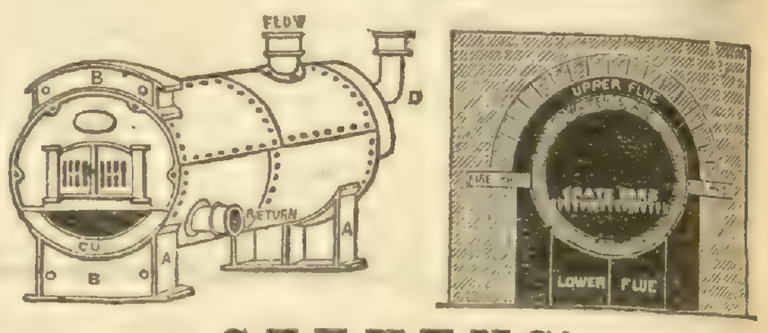

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WANTED, a practical GARDENER for a neat little Place, consisting of Conservatory, Greenhouse, and Stove (no Kitchen Garden), and to make himself useful about the House. Wages about 22s. per week.—D. ROBERTS, Horticultural Agent, Buersill Terrace, Rochdale.

WANTED, a GARDENER to take the entire Management of a small place. Must be thoroughly competent.—Apply, by letter only, to Mr. HULL, The Maples, Acton, W.

WANTED, as GARDENER, a married Man, without children. He will have to occupy a Lodge, and must be thoroughly acquainted with treatment of Vines, Melons, Wall Trees, Flower and Kitchen Garden, and Greenhouses. Two under gardeners kept.—Apply by letter only, stating age, qualifications, references, &c., to L. J., Hiscoke's Library, Richmond, S.W.

WANTED, in a Clergyman's family in Surrey, a single Man as GARDENER. He must be practically acquainted with the Management of Kitchen and Flower Gardening, Pruning, Budding, &c., and the care of Greenhouse and Pits. He would also have the charge of two Cows and two or three Pigs. A Boy regularly helps in the Garden. Terms £1 per week with comfortable lodgings.—A. B., Post Office, Limpsfield, Surrey.

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WANTED, for Nursery Work, a married MAN, whose Wife could keep the House in which they and one or two others in the Nursery live. Wages 16s., rent free. Apply to TOM, *Gardeners' Chronicle* Office, Wellington Street, W.C.

WANTED, a young MAN to attend to a small Conservatory and assist in Stable Work.—Apply personally or by letter, stating wages required, to 19, The Boltons, West Brompton, London, S.W.

WANTED, a good working MARKET GARDEN LABOURER: he must thoroughly understand the Growing and Forcing of all kinds of Vegetables and Outdoor Fruits for a Town Shop. A permanent situation to a good Man.—ENOCH WHITE, The Bournemouth Nurseries, Bournemouth, Hants.

WANTED, a steady, respectable young MAN in a Fruiterer's and Greengrocer's Shop; one who can Dress Shop and Wait on Customers. Good character indispensable.—E. WHITE, The Nurseries, Bournemouth.

WANTED, a steady young MAN, to drive a Nursery Van. One used to Budding and General Nursery-work preferred.—State experience, where living, and wages required, to H. COPPIN, The Rose Nursery, Shirley, Croydon.

SEED TRADE.—An OPENING for an intelligent YOUTH, in London.—Apply by letter to TOM, *Gardeners' Chronicle* Office, W.C.

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WANTED, for CORRESPONDENCE, a young Man well up in names of Plants and Seeds, and who has been accustomed to Counting-house Work. Salary £100 per annum.—Apply by letter, stating experience, to B., Barr & Sugden, 12, King Street, Covent Garden, W.C.

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WANTED, YOUNG LADIES in above capacity; permanent employment guaranteed. Apply, stating terms and references, to T. FOX, No. 8, Victoria Buildings, Victoria Street, Pimlico, S.W.

WANTED, a LAUNDRESS for the Washing, &c., of a Gentleman's Family 20 miles from London. Cottage and garden found; work also, if required, for the Husband as Under Gardener or Farm Labourer. None without first-rate character need apply.—Apply by letter, with references, to X. Y. Z., Mr. Musgrave's, 70, Chancery Lane, W.C.

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B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

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JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

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GARDENER (HEAD).—Age 47, married; thoroughly understands the profession in all its branches. Good testimonials.—J. W., Grove Cottages, Mile Road, Carshalton.

GARDENER (HEAD), age 29.—F. MARTIN, for the last three and a half years Gardener to W. A. Smith, Esq., Colebrook Park, Tunbridge, is at liberty to treat with any Lady or Gentleman in want of a good Gardener.—Address as above.

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GARDENER (HEAD).—Thoroughly competent to take the Management of a large Garden, where general Forcing and Plant Growing is required, with the ordinary routine of Gardening. Eleven years' character from last place.—D. WICKS, 2, Ashburton Road, Fulham, London, S.W.

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GARDENER (HEAD).—THOS. PENDER, Head Gardener to R. Durant, Esq., Sharpham, Totnes, Devon, for the last ten and a-half years, is at liberty to engage with any Lady or Gentleman requiring the services of a practical and persevering Man. Reference permitted to Mr. Barnes, late of Bicton, also present employer and others.

GARDENER (HEAD).—Age 47, married; has a practical knowledge of Pines, Vines, Peaches, Melons, Stove and Greenhouse Plants, and Kitchen and Flower Gardening. Moderate wages. Unexceptional references.—J. MITCHINSON, Seed Stores, 9, Chapel Street, Penzance.

GARDENER (HEAD), age 28, married; two children.—Major FORSTER, of Southend, will be happy to recommend his late Gardener, Henry Bishop, to any Lady or Gentleman in want of a really efficient Man. He is fully qualified to undertake an establishment where skill and good management are required, being thoroughly proficient in the profession in all its departments. Energetic, industrious, steady, trustworthy.—Address, in first instance, H. B., The Gardens, The Hall, Southend, Catford, S.E.

GARDENER (HEAD, WORKING).—Age 36, married, no family; thoroughly understands Forcing Vines, Melons, Cucumbers, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Good character.—W. R., Hawkswick, St. Alban's.

GARDENER (HEAD, WORKING), where two or more are kept.—Married, one child; experienced in Fruit, Flower, and Kitchen Gardening. Five years' good character from last employer.—W. J. B., Post Office, Mill Hill, Hendon, N.W.

GARDENER (HEAD, WORKING), where three or more are kept. Thoroughly experienced in all branches of the profession. Good character and reference.—T., Northgate Nursery, Chichester, Sussex.

GARDENER (HEAD, WORKING), to any Lady or Gentleman requiring a good practical Gardener.—Age 27, married, no family; twelve years' experience in the Culture of Pines, Vines, Peaches, Cucumbers, Melons, Stove and Greenhouse Plants, and Flower and Kitchen Gardening, &c.—A. M., The Gardens, Gunnersbury Park, Acton, W.

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To Noblemen and Gentlemen.

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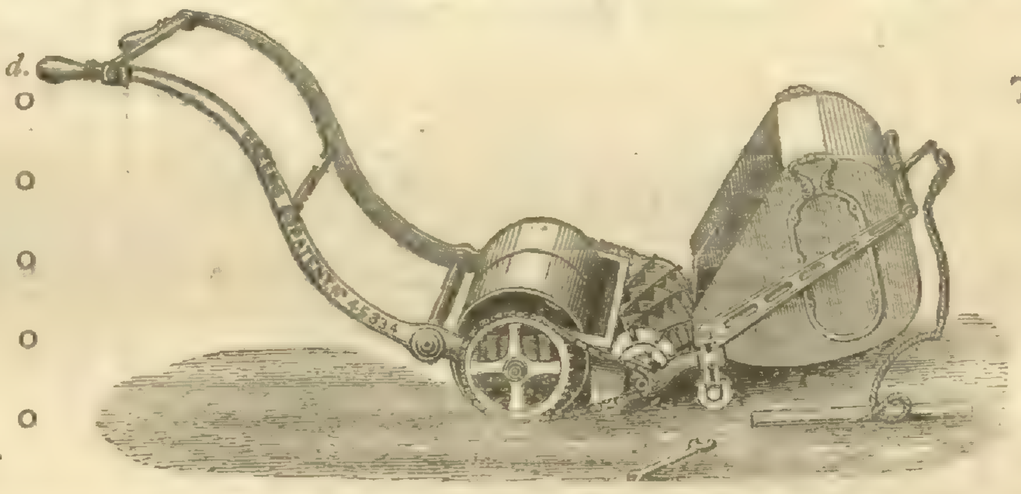
„ 12 „ ... ... Can be worked by one Person.	4	15	0
„ 14 „ ... ... Ditto.	5	16	0
„ 16 „ ... ... Can be worked by one Person on an even Lawn.	6	17	0



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„ 22 „ ... ... Ditto.	9	0	0
„ 24 „ ... ... Ditto.	9	10	0

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To cut 26 inches	£15 0 0
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„ 30 „	18 10 0
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„ „ Pony	1 4 0

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„ 36 „	26 0 0
„ 42 „	30 0 0
„ 48 „	34 0 0
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The 26 and 28 inches can easily be worked by a Donkey, the 30 inches by a Pony, and the larger sizes by a Horse; and as the Machines make little noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machines.

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The special features of this Machine, which recommend it for universal adoption, are its novel construction and its extreme simplicity. It is composed of the smallest number of parts of any Lawn Mower extant.

The Framework is cast all in one piece, and, therefore, is not liable to be twisted, or by any means get out of order.

The Cutters are fit in the cylinder without wedging or wiring, and yet they are so firmly fixed that they cannot be shaken, or in any way become loose.

The Fixings or Caps of the Cylinder are fitted together by two bolts and two screws only; and the cylinder itself can be *adjusted* or removed by the most inexperienced person in two or three minutes.

The Motive Power is given by the travelling wheels, into which a pinion fixed on the end of the cylinder shaft is geared, giving revolving motion to the cutters; and it will cut either short, long, wet, or dry grass, bents, &c.

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To Cut 6 inches ...	£1 5 0
„ 8 „ ...	1 15 0
„ 10 „ ...	2 10 0
„ 12 „ ...	3 5 0
„ 14 „ ...	4 0 0
„ 16 „ ...	5 0 0

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To Cut 18 inches ...	£6 10 0
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Delivered, Carriage Free, at all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

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Green's Lawn Mowers are the only Machines used by the Royal Horticultural Society, South Kensington, London.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as AN EFFICIENT STAFF OF WORKMEN IS KEPT AT BOTH PLACES.

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SPECIAL NOTICE.

GREEN'S PATENT LAWN MOWERS possess (over those of all other makers) the advantage of self-sharpening: the cutters, being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again; and by bringing the bottom edge of the cutters against the bottom blade, the Machines will cut equal to new ones. Arrangements have been made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

When Green's Lawn Mowers are used there is no ridgy or wave-like appearance left on the sward, but they leave the lawn with a smooth, even, and carpet-like surface, which is pleasing and delightful to the eye of the observer.

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THE

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Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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Important Notice to Foreign Subscribers.

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ROYAL HORTICULTURAL SOCIETY.
SHOW, JULY 7.

The VALUE of the CARTER CUP gained on the above occasion by Mr. R. Gilbert, of Burghley, was wrongly stated in the List of Awards: it should have been FIFTY GUINEAS, and not Ten.

ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.

NOTICE.—GREAT SHOW of PLANTS and FLOWERS, ZONAL PELARGONIUMS, and FRUIT.—FRUIT and FLORAL COMMITTEES' MEETING, on WEDNESDAY NEXT, July 21, at 11 o'Clock. GENERAL MEETING at 3 o'Clock. Admission 5s., or by Ticket bought before the day, by Fellows only, 3s. 6d.

N.B.—The Special Prizes offered by the Pelargonium Society, Messrs. Veitch & Sons, and Messrs. Daniels Bros., will be competed for on this occasion.

J. S. DAVENPORT, A.S.

NOTTINGHAM and MIDLAND COUNTIES GRAND ROSE SHOW and HORTICULTURAL EXHIBITION (open to all England) will be held at the ARBORETUM, NOTTINGHAM, on THURSDAY, FRIDAY, and SATURDAY, July 8, 9, and 10. The Mayor of Nottingham President; the Town Clerk Honorary Secretary. Prize List amounting to £750. Prizes for Roses upwards of £240. Space will be allotted for the exhibition of Horticultural Implements and Garden Furniture. Certificates of Merit awarded. Schedules are now ready, and may, with particulars, be obtained on application to

ALFRED KIRK, Municipal Offices, Nottingham.

HEREFORDSHIRE AGRICULTURAL SOCIETY.

HORTICULTURAL DEPARTMENT.—Days of Exhibition, TUESDAY, WEDNESDAY, and THURSDAY, July 20, 21, and 22. Schedules of Prizes may be obtained on application to Mr. H. EDMONDS, Secretary.
Seedsman, Broad Street, Hereford.

WESTON-SUPER-MARE and EAST SOMERSET HORTICULTURAL SOCIETY.—The THIRD ANNUAL FLOWER SHOW in connection with the above Society will be held on WEDNESDAY, August 4, 1875. TWO HUNDRED POUNDS in PRIZES. Schedules of Prizes can be obtained of

W. B. FRAMPTON, Secretary.

CLAY CROSS HORTICULTURAL SOCIETY, AUGUST 10.—Prizes open to all England for 20 Plants, £25, £20, £15, £10, £5. Other Prizes for Plants, Flowers, and Fruits in proportion. Total amount of Prizes, £363. Schedules and every information may be had on application to Clay Cross, near Chesterfield. J. STOLLARD, Sec.

ROYAL WESTERN HORTICULTURAL SOCIETY.

NOTICE to FLORAL EXHIBITORS.—At a Committee Meeting of the above Society, held at the Globe Hotel, Plymouth, on July 9, Mr. ALFRED JACKSON, of the firm of Messrs. May, Murch & Jackson, Auctioneers, Union Street, Plymouth, was unanimously ELECTED HONORARY SECRETARY, in the room of Mr. Bond, who had resigned. All communications are therefore requested to be made to Mr. Jackson, at the above address.

ISAAC WATTS, Chairman of Executive Committee.

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.

Carlton, Tasmania.

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WM. MAULE AND SONS, The Nurseries, Bristol.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, beg to call the attention of Florists and others to their splendid Collections of PANSIES and VIOLAS, which are now in full flower, and may be seen any day, Sunday excepted.

To the Trade, &c.

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Dutch Bulbs.

A. E. BARNAART AND CO., Vogelenzang, Haarlem, Holland. Wholesale Catalogue of DUTCH BULBS is now ready, and may be had free from

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

N.B.—A large number of the Botanical and Royal Horticultural Societies' Prizes for Hyacinths, &c., were awarded to Bulbs sent out by A. E. B. & Co. during the past four years.

Dutch Bulbs.

Before ordering HYACINTHS, TULIPS, &c., for the ensuing season, Nurserymen and the Trade generally should send for

P. VAN WAVEREN (JUN.) AND CO.'S (Hillegom, Haarlem, Holland) WHOLESALE CATALOGUE. It may be had free on application to

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

ARAUCARIA IMBRICATA SEED.—Fresh arrival, in fine condition. Price to the Trade upon application.

THE LAWSON SEED AND NURSERY COMPANY, LIMITED, Edinburgh.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.

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To the Trade.

LEUCOJUM VERNUM (Spring Snowflake).—100,000 extra fine flowering bulbs. Orders now booked and executed in rotation at 15s. per 1000.

SANDER AND CO., Seed Growers, St. Alban's.

CELERY PLANTS.—Excellent, fine strong stuff, 4s. to 7s. 6d. per 1000; DRUMHEAD and ENFIELD CABBAGE, do. SAVOYS and BRUSSELS SPROUTS, all at 3s. per 1000; BROCCOLI and CAULIFLOWERS, finest sorts, 1s. per 100, 7s. 6d. per 1000. Terms cash. F. GEE, Nurseryman, Biggleswade, Beds.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WANTED, CUTTINGS of GERANIUMS—Vesuvius, Madame Vaucher, Master Christine, and Mrs. Pollock, or any good Tricolor. Price to

W. F. AND F. C. BOFF, Northampton Park Nursery, Islington, N.

Primulas, Primulas, Primulas.

WILLIAMS' SUPERB STRAIN.—Strong seedling Plants fit for potting into 3-inch pots, 1s. 6d. per dozen; 10s. per 100, CINERARIAS of best quality same price, package and carriage free. The above are quite equal to those distributed by John Stevens in previous seasons, and for which he has numerous testimonials.

JOHN STEVENS, The Nurseries, Coventry.

COCOA-NUT FIBRE REFUSE (newly made), 20 bushels, 6s. 8d.; 20s. per 100 bushels, 45s. per 300 bushels. Larger quantities contracted for.

J. STEVENS, Fibre Works, High Street, Battersea, S.E.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.

BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck load. Sample sacks, 5s. 6d. each.

WALKER AND CO., Farnborough Station, Hants.

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1s. 6d. and 3s. per bottle—1s. 9d. and 3s. 4d. per bottle, if packed for travelling, of the Manufacturers,

EWING AND CO., Norwich.

SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6s. Supplied to Seedsmen and Chemists.

Prepared by JOHN KILNER, Wortley, near Sheffield.

Scott's Wasp Destroyer.

J. SCOTT offers his well-known preparation to Fruit Growers at 1s. 9d. and 2s. 9d. per bottle, post free, on receipt of stamps. No one who has fruit to grow should be without it. May be obtained through all Seedsmen, or direct from

JOHN SCOTT, The Seed Stores, Yeovil.

N.B. Beware of spurious imitations.

Large Arrival.

RAFFIA FIBRE, for Tying. Special quotations for quantities.

POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.

N.B.—Wholesale Priced List sent post free on receipt of Trade Card.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100s.; Petersburg, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; packing Mats, 20s., 30s., and 35s. per 100; and every other description of Mats at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of

CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens, sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.

87, Bishopsgate Street Without, E.C.

GARDEN SYRINGES, ENGINES, and all kinds of TOOLS, kept in stock and supplied at lowest prices. Sheets of Illustrations, with sizes and prices, sent on application.

POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.

GREENHOUSES ERECTED in any part of the country, including Brickwork and Carriage (no extras). Also several new LEAN-TO HOUSES for SALE. Plans and Estimates free on application to

R. STEVENS, Horticultural Builder and Hot-water Engineer, Bromley, Kent.

Metallic Hothouse Builder to Her Majesty.

HENRY HOPE
(late Clark & Hope, formerly Clark),
HOTHOUSE BUILDER and HOT-WATER APPARATUS ENGINEER,
55, Lionel Street, Birmingham. Established A.D. 1818.
BOOKS of DESIGNS, 5s. each.

☞ The Extensive Ranges of Metallic Hothouses in the Royal Gardens, Windsor and Osborne, were executed at this Establishment.

SALES BY AUCTION.

Hackney, E.—Clearance Sale.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Welsh, to SELL by AUCTION, on the Premises, Morning Lane, Hackney, E., on TUESDAY, July 27, at 11 for 12 o'Clock precisely, without reserve, the land being immediately required to be cleared for building purposes, the remaining GREENHOUSE PLANTS, also 10 GREENHOUSES, 5 ranges of PITS, SHED, Six 3-light BOXES, HOT-WATER PIPING, 2 capital BOILERS, quantity of BRICKS, 400 casts of GARDEN POTS, 2 Iron ROLLERS, BARROWS, Iron PUMP, and other effects.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Bloomfield, near Chelmsford.

MESSRS. PROTHEROE AND MORRIS will include in their SALE of PROPERTIES, on TUESDAY, August 31, at the Mart, Tokenhouse Yard, E.C., a compact FREEHOLD ESTATE, known as The Limes, Bloomfield, near Chelmsford, Essex, comprising an old-fashioned Family Residence, Cottage, &c., and about 9 acres of eligible Building Land.

Particulars and Conditions of Sale are being prepared.

MESSRS. PROTHEROE AND MORRIS beg to announce that they have SOLD BRUER'S FREEHOLD ESTATE, Kingston-on-Thames, by PRIVATE TREATY.

Offices, 98, Gracechurch Street, E.C., and Leytonstone, E.

Important Sale of Orchids, Palms, and Tree Ferns,
From MELCHET COURT, ROMSEY.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Right Hon. Louisa Lady Ashburton, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 28, at half-past 12 o'Clock precisely, the valuable COLLECTION of ORCHIDS, comprising a magnificent specimen of Cœlogne cristata, fine plant of Cypripedium caudatum, Phalænopsis amabilis, Lælia elegans, supposed to be Turneri, Lælia anceps, Cattleya Dowiana, and many other choice sorts; also a splendid plant of Anthurium Scherzerianum, fine Alocasias, Crotons, Tree Ferns, Palms, and other specimen Stove and Greenhouse Plants, removed from Melchet Court, Romsey, Hants.

On view the morning of Sale, and Catalogues had.

Important Sale of Specimen Plants.

MR. J. C. STEVENS has been favoured with instructions from Ambrose Bassett, Esq. (who in consequence of his intention to travel is parting with his plants), to SELL by AUCTION, on the Premises, Sister House, Clapham Common (unless previously disposed of by Private Contract), on THURSDAY and FRIDAY, August 5 and 6, at half-past 12 o'Clock precisely each day, his entire COLLECTION of PLANTS, consisting of upwards of 100 Azaleas, specimens of various sizes, all well trained plants, and in the best possible health—no expense has been spared to make this the best collection in the kingdom; a magnificent collection of Camellias, consisting of the best kinds in cultivation, all well set with bud, and varying in size from 2 to 10 feet high; a carefully selected collection of greenhouse Rhododendrons—these are admirably adapted for decoration or for use as cut blooms; valuable Stove and Greenhouse Plants, consisting of Allamandas, Dipladenias, Crotons, Dracænas, &c.; also Orchids, Palms, Ferns, Tree Ferns, Specimen pot Roses of the best kinds, &c.

May be viewed the day previous and mornings of Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C

Admission to the Sale by Catalogues only.

Worcestershire, in the far-famed Vale of Evesham.

MESSRS. CHESSHIRE AND GIBSON have received instructions to SELL by AUCTION, on THURSDAY, July 15 inst., at the "Hen and Chickens Hotel," in New Street, Birmingham, at 4 for 5 o'Clock in the afternoon, in one lot, a very excellent FREEHOLD ESTATE of 240 Acres, known as "Seaford Grange," situated at Peopleton, within 1½ mile of the Pershore Station on the Great Western Railway.

One Hundred and Fifty Acres of the above have been laid out as Fruit Gardens, the Trees being of the choicest kinds, now in their prime, the produce finding a ready sale at Liverpool, Manchester and Birmingham.

In addition to a complete set of FARM BUILDINGS, with COTTAGES, there is a very comfortable RESIDENCE, of a highly ornamental character; and comprising on the ground floor an Entrance Hall, with panelled ceiling, lighted by a window of stained glass; a well-arranged Dining Room, with panelled ceiling; Drawing Room, of good proportions and cheerful aspect, and overlooking the Pleasure Grounds; also, useful Pantries, Kitchens, and other Domestic Offices. In the basement is a Library, and adjoining are commodious Rooms and Cellaring. On the first floor, approached by stone Staircase are six Bed Rooms; and by a separate Staircase, Servant's Rooms, Store Closets, and other conveniences.

A short distance from the House are Stables, Coach-house, and other useful Out-buildings.

The portions of the Estate not devoted to Fruit culture comprise excellent ARABLE and PASTURE LANDS, containing in the whole about 90 acres: and at the extreme corner of the Property is a Mine of capital BRICK CLAY, with the necessary KILNS and other Buildings.

A Balance-Sheet, shewing the profits for five years, may be obtained of the undermentioned Referees.

Full particulars and Plans may be obtained of H. G. GOLDINGHAM, Solicitor, or A. BUCK, Estate Agent, both of Worcester; Messrs. CAPRON AND CO., Solicitors, Guildford; or to the Auctioneers, Messrs. CHESSHIRE AND GIBSON, 93, New Street, Birmingham.

Magnificent Collection of Plants, Ferns, &c.

MESSRS. LYTHALL AND CLARKE have received instructions from Messrs. Felton & Sons to SELL by AUCTION, at the Midland Counties Repository, Moseley Street, Birmingham, on TUESDAY, July 27, at 12 o'Clock, a splendid Collection of 250 lots of STOVE and GREENHOUSE PLANTS, PALMS, FERNS, &c., including noble specimens of Pandanus Veitchii, Areca lutescens; the fine and very rare Tree Fern, Alsophila guineënsis, Dracænas Baptistii, Chelsoni, Reginæ; Ferrea variegata, very fine Curculigo recurvata variegata, many plants of the exquisite new Abutilon Sellowianum variegatum, Marantas, Crotons, new Caladiums, Camellias, fine collection of Ferns, Phormium tenax variegata, a noble plant of the finest of all Vriesias, Glaziouiana, beautiful Gardenias, &c., all in very fine health and perfectly clean.

To Gentlemen, Gardeners, Florists, and Others.

MR. WALTER MITCHELL, having sold the Premises, will SELL by AUCTION, without reserve, at The Shrubbery, Stamford Hill, N., on TUESDAY, July 27, at 12 for 1 o'Clock precisely, the whole of the Collection of STOVE and GREENHOUSE PLANTS, including fifty-two specimen Camellias, from 6 to 8 feet high, of the choicest varieties; Ferns, Succulents, Orchids, &c.; Vases, Garden Seats, Rollers, Garden Engine, Tools, and numerous Outdoor Effects.

On view Saturday and Monday previous. Catalogues on the Premises, and of the Auctioneer, 12, City Road, Finsbury Square, E.C.

Aldenham Abbey, near Watford, Herts.

Valuable GREENHOUSE and STOVE PLANTS, FURNITURE, &c.

MR. JOHN D. WOOD (for Mr. Leonard W. Collmann), having let the Mansion, has to announce for SALE by PUBLIC AUCTION, on the Premises, on WEDNESDAY and THURSDAY, July 28 and 29, at 1 o'Clock punctually, the choice Collection of PLANTS, including some thirty Tree Azaleas, forty-eight smaller do., twenty-five Camellias, seven Rhododendron arboreum, Araucaria, Eriobotrya japonica, Dracæna, Spiræa, Ferns, Agapanthus, Pelargoniums, Begonias, Fuchsias, Bedding Plants, &c.; also the useful FURNITURE.

May be viewed two days prior to Sale. Catalogues may be had at the neighbouring Hotels, and at the Offices of the Auctioneer, 19, Mount Street, Grosvenor Square, London, W.

TO BE SOLD, by PRIVATE TREATY, the old-established BUSINESS of a FLORIST and NURSERY GARDENER, for many years successfully carried on by Mr. George Davies, at the Birkdale Nursery Gardens, near Southport, in the county of Lancaster. The premises comprise Dwelling-house and Out-buildings, five Span-roofed Houses, four Lean-to Houses, two Ferneries, and 300 lineal feet of Cold Frames, and a Building heated with Hot-water Pipes, adapted for carrying on the business of a Seedsman. All the stock of Plants and Implements, together with Cart, Pony, and Phaeton, will be Sold with the above. The property is offered in consequence of the Proprietor desiring to retire from business.

For further particulars, and to view, apply to Messrs. SCOTT AND ELLIS, Solicitors, The Arcade, Wigan.

TO BE SOLD by PRIVATE CONTRACT, in one or more lots, a MESSUAGE, with TWO WELL-PLANTED ORCHARDS (containing about 5½ Acres of Land) and 20 ACRES of ARABLE LAND, suitable for Gardening or Seed Growing; also a SEED BUSINESS, with or without 25 acres of the best English and American varieties of Potatos. Apply, by letter only, to

CHRISTMAS QUINCEY, Peterborough.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12*s.* to 50*s.* per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

Carter's

PRIZE SEEDS OF FLORISTS' FLOWERS.

CALCEOLARIA, "the best," per pkt., 2*s.* 6*d.*

CINERARIA, "the best," per packet, 2*s.* 6*d.*

PRIMULA, "the best," per packet, 2*s.* 6*d.*

Post Free.

THE QUEEN'S SEEDSMEN,

237 and 238, HIGH HOLBORN, LONDON, W.C.

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s.*

For passages by the ship "Samuel Plimsoll" (her third voyage), to embark Passengers at Plymouth on August 2, and further information, apply to the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

ROYAL BOTANIC SOCIETY OF LONDON.

EVENING FETE, JULY 14.

Award of Prizes.

LARGE SILVER-GILT MEDAL.

Mrs. W. Seale, London Road, Sevenoaks, for a Floral Decoration for a Dinner-table.
Mrs. Hudson, Champion Hill, for Decoration for a Dinner-table.

SILVER-GILT MEDAL.

Miss Edith Blair, 50, Upper Bedford Place, Russell Square, for Floral Decorations for a Buffet.
Mr. James Hudson, Champion Hill, for Floral Decorations for a Dinner-table.
Mr. James Hudson, for Floral Decorations for a Dinner-table.
Mr. James Hudson, for Floral Decorations for a Supper-table.
Mr. Charles Burley, Brentwood, for Floral Decorations for a Supper-table.

SMALL SILVER-GILT MEDAL.

Miss E. Blair, for Floral Decorations for a Dinner-table.

LARGE SILVER MEDAL.

Mrs. W. Soder, South Weald, near Brentwood, for Floral Decorations for a Dinner-table.
Mrs. E. Burley, Brentwood, for Floral Decorations for a Dinner-table.
Mrs. Cicely Gardner, for Floral Decorations for a Buffet.
Miss E. Blair, for Arch of Cut Foliage and Flowers.
Miss E. Blair, for Epergne or Centre Table Decoration Furnished.
Mrs. W. Seale, for Floral Decorations for a Dinner-table.
Mrs. W. Soder, for Floral Decorations for a Supper-table.
Mr. Charles Burley, for Floral Decorations for a Supper-table.
Messrs. Radclyffe & Co., 129, High Holborn, for Arch of Cut Foliage and Flowers.
Mr. James Hudson, for Epergne or Centre Table Decoration.
Mr. Wenzl Langbein, 49, Southville, Wandsworth Road, for Rustic Standing Basket.
Mr. George Wheeler, Gr. to Sir F. H. Goldsmid, Bart., St. John's Lodge, Regent's Park, for Group of Plants for a Recess.

SILVER MEDAL.

Mrs E. Burley, for Floral Decorations for a Buffet.
Mrs. E. Burley, for Arch of Cut Foliage and Flowers.
Mrs. Boulton, Sunbridge, near Sevenoaks, for Epergne or Centre Table Decoration.
Mr. W. Soder, Gr. to O. Hanbury, Esq., Weald Hill, near Brentwood, for Floral Decorations for a Dinner-table.
Mr. W. L. Buster, St. Mary Cray, for Floral Decoration for a Buffet.
Miss E. Blair, for Floral Decorations for a Supper-table.
Mrs. W. Seale, for Floral Decorations for a Supper-table.
Mr. Charles Burley, for Arch of Cut Foliage and Flowers.
Mr. James Boulton, Gr. to J. Spottiswood, Esq., Coombe Park, Sevenoaks, for Epergne Centre Table Decoration.
Mr. Gardner, St. John's Wood Park, for Group of Plants for a Recess.
Mr. John Henner, Gr. to C. O. Ledward, Esq., The Elms, Acton, for Rustic Standing Basket.
Miss Harris, for Floral Decorations for a Dinner-table.

SMALL SILVER MEDAL.

Mr. W. Langbein, for Hanging Basket with Growing Plants.

LARGE BRONZE MEDAL.

Mrs. Hudson, for Epergne or Centre Table Decoration.
Miss E. Harris, Clarendon Park, Salisbury, for Table Bouquet.
Mr. W. L. Buster, for Arch of Cut Foliage and Flowers.
Mr. James Bromwich, 25, Buckingham Palace Road, for Brida Bouquet.
Mr. James Bromwich, for Ball-room Bouquet.
Messrs. Radclyffe & Co., for Hanging Basket with Growing Plants.
Miss Harris, for Floral Decorations for Buffet.
Mr. W. Chard, for Floral Table Decoration.

BRONZE MEDAL.

Miss Florence Gardner, for Table Bouquet.
Mrs. Crump, Springfield, Dulwich, for Hand Bouquet.
Mr. F. Perkins, Regent Street, Leamington, for Bridal Bouquet.
Messrs. Charles Wood & Sons, 21, High Street, Marylebone, for Ball-room Bouquet.

CERTIFICATE.

Mrs. E. Burley, for Hand Bouquet.
Mr. James Hudson, for Bridal Bouquet.
Mr. Charles Burley, for Ball-room Bouquet.
Miss Harris, for Epergne.

RICHARD DEAN'S

PRIMROSES, POLYANTHUSES, CANTERBURY BELLS, &c.

Seeds of the following can now be supplied:—

PRIMROSE, extra fine high-coloured hybrids, per packet, 2*s.* 6*d.*

POLYANTHUS, Fancy or Mottled, extra fine, per packet, 1*s.* 6*d.*
,, Giant Crimson, per packet, 1*s.* 6*d.*
,, Giant White, per packet, 1*s.* 6*d.*
,, Giant Yellow, per packet, 1*s.* 6*d.*
,, Gold Laced, per packet, 1*s.* 6*d.*

CANTERBURY BELLS, New Strain (see p. 824, *Gardeners' Chronicle*), per packet, 1*s.* 6*d.*

MYOSOTIS DISSITIFLORA, true, per packet, 1*s.* 6*d.*

STOCKS, Giant White Brompton, extra fine, per packet, 1*s.* 6*d.*
,, Intermediate, Mauve Beauty, per packet, 1*s.* 6*d.*

PRICES TO THE TRADE ON APPLICATION.

RICHARD DEAN,

SEED GROWER, EALING, LONDON, W.

SEED GROUNDS, BEDFONT, HOUNSLOW, W.

Bedding Roses.

CRANSTON'S CRIMSON BEDDER: strong plants, in 5-inch pots, 30*s.* per dozen.

TEA-SCENTED, CHINA, NOISETTE, and HYBRID-PERPETUAL ROSES, in 4 and 5-inch pots, 9*s.* to 15*s.* per doz.

Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.

Address, CRANSTON AND MAYOS, King's Acre Nurseries, Hereford.

NEW CLEMATIS, now being sent out by JOHN STANDISH AND CO. :—

ASCOTIENSIS.—The flowers are considerably larger than Jackmanni, and are well shaped, containing six petals each; colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit. 10*s.* 6*d.* each.

MRS. QUILTER.—A magnificent white flower, containing eight petals; it is the largest, smoothest, and purest of all the whites, and a very free bloomer, with strong habit. 10*s.* 6*d.* each.

The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.

Royal Nurseries, Ascot, Berks.

CALCEOLARIA, CINERARIA, PRIMULA and CYCLAMEN.

The best strains in the kingdom, including James', Waters', and other well-known growers,

Price, per packet, 2*s.* 6*d.*; or one each of the 4 varieties for 7*s.* 6*d.*

CYCLAMEN BULBS for Christmas blooming, James' Prize, 2*s.* 6*d.* and 3*s.* 6*d.* each.

HARDY PERENNIALS, 12 choice varieties, 3*s.* post free.

THE HEATHERSIDE NURSERIES CO. (Limited), 59, Queen Victoria Street, London. Nurseries—Bagshot, Surrey.

Fuchsias, 1874.

WM. EVANS can still supply strong, healthy little plants of the above, twelve best, post free, 3*s.*; also the two splendid novelties of the year—Mrs. H. Cannell Fuchsia, 1*s.* each, and Duchess of Edinburgh Coleus, 1*s.* 6*d.* each.

W. E. having purchased the splendid Collection of MESEMBRYANTHEMUMS from Mr. J. W. Thompson, will send twelve beautiful varieties in cuttings, post free, 2*s.* 6*d.*, eighteen, 3*s.*; also fine stock plants lifted from the ground, 4*s.* to 6*s.* per dozen.

Royal Nursery, Penge, S.E., late of Walworth.

TREE FERNS.

THE LARGEST AND BEST STOCK IN EUROPE.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above; also of his

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

PRELIMINARY NOTICE.

NEW DOUBLE POINSETTIA.

JAMES VEITCH & SONS

Beg to announce that they have purchased from ISAAC BUCHANAN, Esq., of New York, the entire Stock of this extremely beautiful Plant, and which they hope to offer for Sale during the ensuing autumn.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

JAMES VEITCH & SONS' FRUIT PRIZES FOR 1875.

EXHIBITORS ARE REMINDED that the COMPETITION for the above Prizes takes place at the Royal Horticultural Gardens, South Kensington, on WEDNESDAY NEXT, July 21.

All Entries to be sent to Mr. BARRON *at the Gardens.*

NEW PLANTS.

Amaryllis Hendersoni	Crowea angustifolia
,, ,, coccinea	Dracæna Duffii
,, Henry Little	Epigynium acuminatum
Asplenium nobile	Hæmanthus Rooperi
Armeria cephalotes alba	Ixora Fraserii
Blandfordia flammea elegans	Nerine rosea
Bouvardia bicolor (hybrid)	Plumeria bicolor
,, multiflora (species)	Sonerila Hendersoni
Cantua corymbiflora	,, ,, argentea
Cyclamen Peakeanum	,, ,, marmorata
Convolvulus mauritanicus atrocœruleus	Yucca stricta, &c.

MIMULUS, superb collection.
FUCHSIAS, Todman's new varieties.
TREE CARNATIONS, extra quality.
LOBELIAS, bedding, fine improvements, with other new Florist Flowers.

The above, first offered in Trade this season, are now ready for sending out. See full descriptions and prices in

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THE QUEEN'S SEEDSMEN, READING.

SATURDAY, JULY 17, 1875.

ENGLISH WOUND-HERBS.

IN the works of the old herbalists, besides the pseudo-scientific or systematic classification which was adopted by the writers, there was often a kind of rough-and-ready way of characterising plants by their properties, and such as were similar in their effects were usually associated in the popular mind. Shakespeare gives an example, which shows that this association was general in his time, when in *All's Well that Ends Well* Lafeu says "They are not salad-herbs, they are nose-herbs," *i.e.*, esteemed for their smell; and wound-herbs was a term applied in like manner to such plants as were deemed "soverain" for their healing properties.

A glance at the list of "vertues" assigned by the herbal writers to every plant, will show that among them the healing of wounds holds a very prominent place. It is not our intention at present to enter at length upon these wound-herbs in general, but to select from them three which are still in frequent use in rustic practice, and the properties of which are so far established as to demand more general recognition, or at any rate further investigation. These are the Comfrey (Symphytum officinale), the Clown's Woundwort (Stachys palustris), and the Valerian (Valeriana officinalis)—the last-named being the only one the merits of which are usually recognised in medical works, and that not as regarding any healing properties possessed by the plant.

Taking these plants in the order in which we have placed them above, we shall find several very well authenticated accounts of the beneficial employment of the Comfrey. Mr. Rootsey, in the *Transactions of the Medico-Botanical Society of London* for 1832 and 1833, speaks of a workman of his acquaintance who, having broken his leg, was confined to his room for four years, and his case was at length despaired of. He was at last recommended to apply Comfrey externally as a poultice; splinters of bone were brought away, and in a few weeks he was able to walk. He subsequently employed the plant in four other serious cases, and with marked success in each. The old names of the plant—such as Consolida, Consound, Knitback, Backwort, and Bruisewort—sufficiently indicate the esteem in which it was held. Gerarde speaks of its "clammie and gluing moisture," which chiefly resides in the roots; these, he says, "bruised and laid to in the manner of a plaister, heale all fresh and greene woundes, and are so glutenative that [they] will sodder or glew together meate that is chopt in peeces seething in a pot, and make it in one lunge." Mr. Cockayne, in the interesting preface to his *Saxon Leechdoms* gives another instance of the beneficial employment of Comfrey. He says:—"Perhaps herbs are more really effectual than we shall easily believe. The locksman at Teddington told me that he had broken the bone of his little finger, and for two months it was grinding and grunching, so that he felt sometimes quite wrong in himself. One day he saw Dr. —— go by, and told him; he said, 'You see there that Comfrey—take a piece of the root of it, and cham it, and put it to your finger, and wrap it up.' The man did so, and in four days his finger was well. This story struck me the more since the Comfrey is the *confirma* of the middle ages and the *σύμφυτον* of the Greeks, both which names seem to attribute to the plant the same consolidating virtue." The root abounds with a pure tasteless mucilage, which is very tenacious; the best way of employing it is to scrape it finely, and spread upon calico to about the thickness of a crown piece, when it forms an excellent bandage for fractures of all kinds.

Our second wound-herb, Stachys sylvatica, is largely employed in rustic practice in some parts of South Buckinghamshire, where it is known by the singular and inexplicable name of Cow's Weather-wind, the "i" being long, as in wine. An old woman was in the habit of making an ointment in which this plant was the principal ingredient, which had the reputation of healing wounds and cuts, whether slight or serious, and this reputation was certainly not undeserved. Gerarde gives us a quaint account of the employment of our other common British species, S. palustris, in similar cases, from which we extract the following:—"Being in Kent about a pacient," he says, "it chanced that a very poor man, in mowing of Peason, did cut his leg with the sieth, wherin he made a wound to the bones, and withal very large and wide, and also with great effusion of blood. The poor man crept unto this herbe, which he bruised in his hands, and tied a great quantitie of it unto the wound with a peece of his shirt, which presently stanched the bleeding and ceased the pain, insomuch that the poore man presently went to his daies' worke again, and so did from daie to daie, without resting one day untill he was perfectly hole, which was accomplished in a fewe daies by this herbe stamped with a little hog's greace, and so laid upon in maner of a pultis, which did, as it were, glewe or soder the lips of the wounde togither, and heale it according to the first intention (as we tearme it), that is, without drawing or bringing the wounde to suppuration or matter, which was fully performed in seaven daies, that would have required fortie daies with balsam it self. I sawe the wounde, and offered to heale the same for charitie, which he refused, saying, that I coulde not heale it so well as himselfe; a clownish answer, I confesse, without thanks for my goode will, whereupon I have named it Clowne's Woundwort." Gerarde goes on to narrate various cures which he himself afterwards worked with this species; and even if we deduct a certain percentage for imagination and possible exaggeration, there yet remains a considerable amount of testimony to the usefulness of the plant in such cases as cannot be set aside, and should induce a fair trial of its merits.

The "vertues" of the Valerian are well-known and thoroughly recognised in our Pharmacopœias; but its healing properties, with which only we are now concerned, are not so generally understood. And yet they were fully appreciated by our ancestors. Gerarde says that in his time the poor people in the North of England thought it almost a necessary accompaniment to "broths, pottage, or physicall meats;" and Parkinson tells us that "it is generally called in the countries of this land the Poore Man's Remedy, to take the decoction of this root and drinke it, when by taking cold after sweating, or overheating their bodies, they be troubled with the cholicke or winde, or are otherwise distempered; or to use the greene hearbe bruised and laid to any cut or wound, or to draw out any thorne or splinter and heale it after." Gerarde, indeed, gives us a rhyme made by "some woman poet or other"—

"They that would have their heale
Must put Setewall in their keale"—

Setwall being an old name for the Valerian. Coles' *Adam in Eden* gives similar testimony to its use. In country districts it is a favourite popular remedy for cuts, and is called All-heal or Heal-all, or, as in South Buckinghamshire,

Cut-leaf. We lately heard of its employment in a serious case of cancer, in which its healing properties were productive of good results, and seemed likely to prove of permanent benefit: but unfortunately the smell of the plant was so offensive to the patient that the treatment could not be persevered with.

The merits of Self-heal (Prunella vulgaris), Plantain, Bugle, and a host of other plants might fitly find mention here; but the above instances will suffice to show that even rustic practice is not altogether to be despised as unworthy of notice, and that the properties of some of our commonest plants deserve rather more attention than is generally bestowed upon them. If not the specific which their admirers proclaim them to be, they have at least as much claim to notice as the many foreign plants with high-sounding names which from time to time figure in medical advertisements. *B. M.*

New Garden Plants.

Epidendrum Wallisii, *n. sp.**

During the Orchidophilic period some views have acquired the value of axioms, nay, rather of superstitions. Such axioms are, "an Odontoglossum is valuable, an Oncidium has no value;" "a Cattleya is desirable, an Epidendrum is a weed;" "no Pleurothallis can be nice, but each Restrepia is a beauty." The last superstition was carried so far that each ugly Restrepia was degraded to the genus Pleurothallis. Some exceptions have now and then been acknowledged. The celebrated English nurseryman who had ordered twelve Odontoglossum auropurpureum was much puzzled when they flowered as hideous miserable O. ramulosum. He began to feel that not all Odontoglossa are desirable, and that good Oncidia-like sarcodes and Rogersii are far better; even that old Oncidium Lanceanum, though an Oncidium, is a very good thing, provided one is so lucky as to understand how to grow it. Some Epidendra also came in favour, as E. Friderici Gulielmi, verrucosum, fine varieties of atropurpureum (macrochilum), prismatocarpum, sceptrum, &c. I feel very lucky to recommend to-day one that must be regarded a nice thing, as soon as it becomes fully established, equal to the specimens its discoverer has dried. Let us begin with the remark that it forms a new section of the Epidendra, with a leafy stem (not pseudobulbous). When I proposed the section Pleuranthium I included the Epidendra, which have a lateral inflorescence like that of so many Dendrobia, and opposed to the general rule, all others having terminal ones. Now there are a few species which have both terminal and lateral inflorescences. I believe the difficulty can only be solved by proposing a new section, which I call Acropleuranthium. The oldest species is E. exasperatum, discovered by Wendland fils, and then collected by Messrs. Carmiol and Endres. Now comes our neophyte. I do not know how tall the plant may become. My dry specimen is but a span high, and a copy of a very good sketch made by Mr. Wallis, in the hands of Messrs. Veitch, shows just the same height. The stem is as thick as a raven's quill. The sheaths are very rugose, blotched with brown. The leaves as those of Epidendrum nutans, only 1 inch broad in my dry specimen, broader in Mr. Wallis' sketch. The flowers are real beauties, equalling those of a good Epidendrum vitellinum majus, but with a very broad flabellate lip; they stand (as I stated before) as well in a terminal as in lateral inflorescences. The sepals and petals are ligulate acute, yellow, often with few, sometimes with many, dark purplish spots. The lip is cuneate flabellate, and appears to be submitted to variations, being now white, now yellow, with orange keels and dark purplish veins. Three varieties in this shape have been represented by Mr. Wallis, and my dry specimen offers a fourth variety. The flowers have a pleasant smell of honey combined with musk. Mr. Wallis told me the smell was the most powerful in the blotched varieties, which is a very interesting observation. I can state that the single fresh flower I have just at hand has a very strong smell. I should, however, without Mr. Wallis' statement, have been in great embarrassment, Messrs. Veitch having enclosed in the same box a wonderful spike of Vanda Parishii, proving that plant to be much better than was believed, and to have a most powerful odour.

It is highly gratifying to state that Mr. Wallis sent full materials. Thinking the plant one of the most interesting discoveries of Mr. Wallis (who, it is to be hoped, will very soon go out to make new discoveries), I have had great pleasure in giving it Mr. Wallis' name, to the satisfaction of Messrs. Veitch, who have since grown the plant under this name. It would not be candid not to state that the fresh flower proved much inferior to the flowers of Mr. Wallis' sketch. Now those are inferior to the flowers of the dried specimens. Hence I have not the least doubt that the plant, when established, will prove good. *H. G. Rchb. f.*

* *Epidendrum*, Sw., sect. nov. *Acropleuranthium*.—Distiche foliatum; columna adnata; inflorescentiæ laterales cum inflorescentiæ terminali in eadem caule.

E. Wallisii, Rchb. f., n. sp.—Caule calamum corvinum crasso, vaginis valde rugosis asperis; foliis oblongo lanceolatis acutis; racemis basi vaginatis, plurifloris; bracteis triangulo-ovatis, ovaria lpedicellata longe non æquantibus; sepalis tepalisque oblongo-ligulatis acutis; labello adnato cuneato flabellato quadrifido cum sinu antico lato; sinubus lateralibus subnullis, cruribus nunc latioribus, nunc angustioribus, fissis, seu lobulatis; carinis in basi labelli ternis seu quinis brevibus; venis radiantibus, minutissime tuberculatis; androclinii limbo quadrifido.—New Granada, Wallis.

MAX LEICHTLIN'S GARDEN.

The name of Max Leichtlin has for some years past been well known to all lovers of hardy plants, and of Lilies in particular. I had long wished to see the far-famed garden belonging to this gentleman, but though I had often good cause to know how rich it was in rare and beautiful plants, I never had the opportunity of doing so. This year, however, I found that it would be necessary to discuss with M. Leichtlin many knotty points in connection with the nomenclature and variation of Lilies, and having received the most cordial invitation from him, I started for Baden on June 23, spending a couple of days *en route* in the examination of the gardens of Paris. These have been often so well described that I need not say much about them, except that I was surprised to find Nelumbium speciosum growing luxuriantly in an unheated tank in the open air at the Jardin des Plantes. Professor Decaisne informed me that the water is frozen every winter, but is heated in spring by putting a glass frame over the tank for two or three months, and that the plant has grown and flowered freely in this situation for years.

On arriving at Baden, where M. Leichtlin now resides, having moved from Carlsruhe a year or two since, I found that the unusual and severe heat and drought, which had prevailed during April and May, had seriously injured a great many of his Lilies. The garden, however, though quite newly laid out, is so richly stocked with novelties and curiosities of all kinds that in two days I had by no means exhausted its interest, and the admirable neatness and high culture which is kept up was an agreeable contrast to the wilderness of weeds which is seen in some Continental gardens.

A glance at the catalogue which has been printed by M. Leichtlin will show at once that his collection of bulbs and herbaceous plants is unapproached by any other in certain groups and families. There is hardly a plant in it that is not either extremely beautiful, extremely rare, or quite new. At least half of them would be names unknown to the best plantsmen in England, and though many of these gentlemen affect to look down on hardy plants, I am quite sure that some of M. Leichtlin's Irises, Lilies, and other things would make them at least acknowledge their superiority to many of our new stove plants.

The climate of Baden is well suited to such a garden, being hot in summer, cold in winter, and rarely subject to severe droughts. The nights also are much cooler than in the plains of Germany, and though alpine and American plants do not succeed so well as in England, yet most bulbs do better, as they get thoroughly ripened in autumn. The soil is rich and light, apparently composed of decomposed granite, and though lying at a rather steep inclination it has been laid out in terraces, the stone faces of which will soon be covered with a fine selection of the best English and foreign varieties of Vines. The upper terrace is laid out in small beds and rows of frames, all well filled with plants, which make one's mouth water to think of.

M. Leichtlin, having heard of a good plant, spares neither trouble nor expense to get it. The prices he sometimes gives are almost fabulous, but, having got a new or good thing, he does not rest until there is enough of it not only to supply his numerous friends, but sometimes to dispose of in quantity. His liberality is so well known that he is sure to be one of the first to get any new or fine plant that may be introduced by any amateur or nurseryman in Europe, and I can honestly say that no one has a better claim on the gardens of others than the gentleman of whom I speak.

But it will be better, perhaps, to mention more particularly some of the most striking plants in the garden, as they were noted by me. First and foremost come the Lilies, which have been a speciality with M. Leichtlin for eight or ten years. As I said before they had been much injured by the hot and dry spring, and many had been lost in moving from Carlsruhe, so that the show was not so great as usual. The American Lilies had suffered most, for as no rain had fallen for two months, and as in M. Leichtlin's opinion watering the beds is more than useless, it may well be supposed that the flowers could not be produced with any profusion or vigour. The stems had in fact being living on the bulbs, the ground had not sufficient moisture to allow the formation of those surface roots which are so necessary to the well doing of the plants. Notwithstanding this, however, I saw here for the first time several species which hardly exist in any other garden—L. Hansoni, the fine Japanese species, which has been twice exhibited by Mr. Wilson in England, and figured in the *Gardeners' Chronicle* [p. 231, vol. ii., 1874] and *Botanical Magazine* as L. avenaceum. I may here mention that the plant is easily distinguished from L. avenaceum by the bulb, which is large and solid, like that of a Tiger Lily, while the bulb of avenaceum is composed of small loose and Oat-like scales. The origin of this Lily was unknown till I had recently the opportunity of showing living specimens to Professor Maximowicz, the distinguished Russian botanist and traveller. He recognised at once a plant which he had found at Victoria Gulf, and and had supposed to be a yellow variety of L. avenaceum: *vide Gartenflora*, 1868. L. Maximowiczi was another of M. Leichtlin's plants which has not yet found its way to England. It seems to be very nearly allied to, if really distinct from, L. Leichtlini, having the same stoloniferous habit, and differing principally in the colour of the flowers, which are red rather than yellow.

The rare Lilium cordifolium, which I believe does not now exist elsewhere in Europe, was flourishing in quantity at Baden, M. Leichtlin having been fortunate enough to raise a lot from seed four years ago. It may be remarked that the bulb of this plant does not grow on the surface like that of L. giganteum, but should be deeply planted in a light vegetable mould, and protected from the direct rays of the sun. Professor Maximowicz assured me that he had found these bulbs as much as 18 inches deep in the shady forests of North Japan. I also noticed L. pseudo-tigrinum, a species lately introduced from China, but which is at present very rare; L. neilgherrense; L. polyphyllum, a Himalayan species but little known in this country. There are many other new and improved species or varieties which will soon be more generally cultivated, but it is impossible to mention all of them here.

I should like, however, to call the attention of travellers in Japan to the extraordinary varieties which exist in the gardens of that country, apparently hybrids between longiflorum, auratum, and speciosum. Their beauty is astonishing, and their variety endless; but whether on account of their rarity, or from the delicacy of their bulbs, they are still quite unknown in England. A number of these plants were exhibited at the Vienna Exhibition, some of which are still alive in Europe, among them being a plant named L. Elizabethii, which resembles speciosum rubrum in colours, and auratum in form and size.

The Irises are also great favourites at Baden, especially the varieties of I. Kæmpferi. One or two which were in flower far surpassed in size, form, and colouring anything I have seen in this country; and as they ripen seed freely, and are being judiciously hybridised by M. Leichtlin, it is probable that he will produce some astonishing flowers in a few years. They all seem perfectly hardy, but like a warm sun and a good deep moist soil. Iris Susiana, iberica and some of its varieties also do well here planted out in frames, on which the lights are put as soon as the flowers are over. This dry heat is just what they want, and causes them to ripen their seed and to flower with vigour rarely if ever seen in England. Among herbaceous plants perhaps the most startling novelties at present to be found in this collection are the Eremuri, a genus of Asphodel-like plants found in Turkestan and the East, several of which have been introduced by Colonel Korolkow. They all seem to be extremely hardy, and form a clump of large finger-like tubers from the centre of which springs a strong tall flower stem reaching, in the case of Eremurus robustus, a height of 7—10 feet, and covered for a good part of that distance with showy star-shaped flowers. The leaves, which resemble those of a Tritoma, are radical, and die down early in the season, but the tall strong stem remains covered with large round capsules. M. Leichtlin considers Eremurus robustus to be the finest of the genus; but the one he most prizes is Eremurus Korolkowi, of which only a single plant is in Europe.

Another genus which is very well represented here is Agapanthus. A charming little species, called Mooreanus, which I believe is quite new and distinct, was throwing up numerous flower stems, though the plants were only a few inches in height, and the leaves utterly out of proportion to the size of the flowers. In habit and colour it resembles the others, and it seems to have an equally robust constitution.

Most of the new Yuccas, Aloes, and other succulent plants may be found here planted out for the summer on rockwork, where they seem to grow fast and enjoy the open air. The greenhouses, in fact, are almost empty at this season, for M. Leichtlin wisely follows the plan of growing nothing in pots that can be planted

out; and though the frames are well stocked at all seasons, shading had, in most cases, taken the place of the lights.

The difference between the growth of most things when planted out and the same kept in pots, unless they have the most regular and careful attention, is very great, and the saving of time and trouble is even greater. A fine lot of Tritomas, or Kniphofias, as it seems they should be called, are included in this collection, among them a new one from Abyssinia, which bids fair to rival K. caulescens in size and beauty.

Another most remarkable plant I saw in flower was Arnebia echiodes, from Armenia, figured in the *Botanical Magazine*, pl. 4409. This belongs to the family of Boragineæ, and is a dwarf yellow-flowered plant, having five black spots on each flower. Its peculiarity is that though in the morning the spots are very conspicuous they gradually fade away, till in the evening they are no longer visible. Disa grandiflora is very well grown by M. Leitchlin, who keeps it closely shaded in the greenhouse. Isias triloba, a curious natural hybrid between Serapias and Orchis longicorne, which has been very rarely found along the Riviera, was also here, though past flowering.

Many choice kinds of Colchicum, Fritillaria, Xiphion, and Tulip were now being lifted, for though M. Leichtlin does not hold it in all cases necessary to take the bulbs up every year, yet in some cases it is a great advantage to do so, and if they are kept in pots of sand and planted early they are never injured by it. With the bulbs of most Amaryllidaceous plants it is, however, very different; their roots are thick, fleshy, and do not perish, so that, though it is necessary in most cases to give them a season of rest and drought, it is better to disturb the roots as little as possible. The culture of bulbs, though very much gone out of fashion in England, is one extremely well adapted to all amateurs whose aspirations rise beyond the common "bedding decorative stuff." They require none of the training, pruning, syringing, and constant trouble which many greenhouse plants give. They take up very little space, and though their flowers are not as a rule very lasting, yet there is a constant succession at all seasons. If one can only learn when and how to water them, the secret of their culture is in most cases attained, but watering too much at one season and too little at another is, I believe, the cause of death in nine cases out of ten.

I must not omit to mention two species of Tulip which have been introduced by M. Leichtlin through the agency of his Russian friends. Tulipa Greigi, which, from what I have seen of it, I should say is the finest Tulip in cultivation, surpassing in its wild and uncultivated state many of the most splendid Dutch varieties. It was shown at one of the early meetings of the Horticultural Society this year, though not in a condition to give a right idea of its beauty. The other Tulip, named Eichleri, is also a fine species, allied to Oculis solis, which I was lucky enough to flower for the first time in England this spring. It will, however, be impossible for me to enumerate a tithe of the remarkable plants I saw in and out of flower. Those which admit of cultivation will be grown and increased by M. Leichtlin's skilful care, if it is possible for any one to do so, for propagation is his strong point, and, like most things that one can do well, he is fond of it.

I would only say that, after going carefully through the list of known Lilies, we came to the conclusion that only three or four species, which are all accessible, remain to be introduced, though of varieties, no doubt, there are many. Hoping that in the interest of horticulture and science, every reader of the *Gardeners' Chronicle* who may by any means have the opportunity of getting them will not lose the chance, I will mention them:—

Lilium nepalense.—Belonging to the longiflorum group, which is found in the Himalayas from Kumaon to Nepaul. This plant could be easily procured by many tea-planters or residents in Mussoorie or Almorah.

L. oxypetalum..—A small Fritillaria-like plant, figured in the *Bot. Mag.*, pl. 4731; also found in the Himalayas, but ranging more to the north-west, and at higher elevations.

L. medeoloides.—A rather small-flowered and not very showy plant, having the habit of the Martagons, and an erect flower, found in damp woods of North Japan near Hakodadi, and in the Corean Archipelago.

L. avenaceum, which has also the leaves and habit of a Martagon, with small spotted and pendulous flowers, and a very loose tender bulb, composed of scales which resemble grains of Oats. This is found in North-West Siberia, Kamschatka, and the Kurile Islands, possibly also in Japan, though of this I am not sure. Owing to the delicacy of its bulbs, seed would be the most likely means of introducing it.

L. callosum of Sieb. and Zucc., not the L. callosum of gardens, which is a distinct plant. The real one may be known by its curious double stipular or bracteal appendages, shown in Siebold's plate, and also in the one copied from it in the *Flore des Serres*. It is found abundantly in the high mountains of Japan, and may possibly be in cultivation already; if so, I should be glad to hear of it; but all that I have seen are wrongly named.

In conclusion, I will thank M. Leichtlin in the name of all plant lovers for the many beautiful additions to our gardens which he has introduced, and hope that he may long be able to continue his labour of love. *H. J. Elwes.*

VENUS' FLY-TRAP.

By Thos. A. G. Balfour, M.D., F.R.S.E., F.R.C.P.E.

(*Continued from* p. 8.)

2. *Contraction*, or closure of the leaf and of its marginal spines or cilia.

This property of contractibility, like that of irritability, has a distinct relation to the wants of the plant. No doubt almost any substance, whether suited for food or not, will, if placed on one of the sensitive hairs, be followed by contraction; but it is only when the material so introduced is capable of giving nutriment to the plant that the contraction continues. This peculiarity of the contraction is exhibited in the following instances:—

On July 4, at 3 P.M., a piece of wood was placed on a large leaf of a Dionæa, which instantly grasped it. It was, however, too large to be concealed, so that the wood was seen with the marginal spines embracing it.

July 6.—At 11 A.M. the leaf is quite open. At 3 P.M., however, it was found closed, which was apparently owing to the wood being so light as to be easily knocked against the hairs by the draughts in the greenhouse. This to a certain extent vitiated the experiment.

On the same day (July 4), at 3 P.M., a piece of dry plaster which had fallen from the wall, was put on another leaf of the same plant, and it was at once caught and concealed.

July 6.—At 3 P.M. the leaf was quite open, but was closed by irritation.

July 7.—At 3.30 P.M. leaf again open.

On the same (July 4), but on the leaf of another active Dionæa, a piece of iron nail was placed, which was grasped instantly and vigorously.

July 6.—At 3 P.M. leaf quite open, but on pressing the iron against the sensitive hairs the leaf again closed.

July 7.—At 3.30 P.M. leaf quite open again.

On July 7 a piece of the leaf of a Fuchsia was placed on a Dionæa leaf, and caught by it.

July 8.—At 2 P.M. leaf quite open.

For the same reason we find that when insects have lost their nutritive power (either from having been too long kept or from having been previously digested) we have a similar action on the part of the leaf.

Thus in the case of the Fuchsia leaf just referred to, after the Dionæa leaf had opened a fly was placed beside the piece of Fuchsia, *i.e.*, on July 8, at 2 P.M.

July 10.—Leaf open; closed by irritation.

July 11.—Leaf quite open again.

July 13.—Fuchsia leaf taken away and fly alone left and leaf closed by irritation.

July 14.—Leaf again open.

July 15.—Fly looked a very shrivelled one, so I removed it and put on the leaf a bluebottle fly (which had been dead for fully a week). Leaf closed by irritation.

July 16.—Leaf quite open (probably from fly being a dried up one).

July 17.—Leaf again open. On examining bluebottle fly it was found to be quite dry and brittle, and nothing could be squeezed from it. It was removed and a living fly introduced; the leaf closed and remained so till the 28th, by which time the fly was quite exhausted of its substance. Linnæus believed that it was in consequence of the struggles of the living insect that the contraction continued, and that after its death the leaf opened, but this view is erroneous, for, even in this case, which at first sight might seem to favour it, the insect was dead very long before any opening of the blades occurred.

So in the case of a fly previously digested by a Dionæa.

On July 15 a fly of this description was placed on a very healthy leaf of a Dionæa, which instantly closed by irritation by knife; the lashes also were at right angles.

July 16.—The leaf was open so far that the lashes were not touching, and the previously digested fly was removed and a freshly caught fly was put alive into the trap.

The leaf now remained quite closed till the 24th, *i.e.*, for eight days, and was not entirely open till the 27th instant.

Again, we have similar instances where the leaves have contracted by the hairs being irritated without any foreign body being entraped; we have seen examples of this under irritability, so that it is needless to cite them again, for in these cases the leaves always opened till the irritability was exhausted.

I now tried if I could deceive my friends, and so make sure that they would keep what I had offered them, just as in the case of a little rebellious patient the fond mother often envelopes the pill with jam and hopes to attain her end. I therefore added a tempting fly to the leaf with the plaster, which I have already instanced as refusing to remain closed on it. On July 7 I added a dead fly to the leaf with the lime, and secured its closure; but, just as in the case of the pill, both it and the jam are likely to be forcibly ejected, amid rage and tears, to the no small mortification of the benevolent donor; so on July 8 I had the painful fact to record—"The marginal hairs look very red, the leaf was quite open at 6 A.M. The fly did not seem at all digested, but the small grains of lime which were near the sensitive hairs looked somewhat as if they had been wet, and had dried again;" and as the *denoûment*, in the case of the patient, is that the jam alone is given to be supped, and the pill is thrown into the fire, so in the end of my note I find "the lime was now taken out, and the leaf irritated and made to close on the fly, which it did with lashes at right angles."

I mentioned also the case with the iron nail; here I was more successful with my wiles. On July 7 a dead fly was added to the iron, and though on the 8th the leaf was again open, a little coaxing got it to close. It remained so till July 20, when from the blackness of the leaf I discovered that the dose had proved fatal, and that my success in this case had been more disastrous to me than my defeat in the last one.

In some cases, however, the leaf may close and continue so, as when a fatal shock has been given to the leaf by the administration of some poisons, or by cutting across the petiole; in this latter case the leaf generally closes very slowly.

Besides chloroform, some of the substances tried which proved poisonous, probably in some cases from the quantity used being too large, and were attended with closure of leaf, were chloride of ammonia, carbonate of soda, sulphite of soda, sulphate of soda, biborate of soda, sulphate of copper.

Where chloride of strontian was used, and also sulphate of iron, the leaves remained open though they died.

At this time I had unfortunately no posological table to guide me as to the amount to be given in a medicinal point of view, and hence the plants succumbed to the toxic effect of the amount administered.

As there was only one experiment with each substance named, no weight can be attached to the fact of closure or otherwise, but as they are facts I record them.

The full contraction is not completed at once, and hence Dr. Curtis informs us that he "has liberated flies and spiders, which have sped away as fast as fear or joy could hasten them." I have done so also; but his observation as to the rate of their speed being determined solely by joy or fear requires to be qualified by the expression "remaining ability," to be in accordance with what I have seen. On July 24, at 3.30 P.M., a large spider was enclosed in a fine large leaf of Dionæa; and on July 25, at 3 P.M., on opening the leaf the spider was found alive but languid, being wet with the acid fluid. So with a fly, alive after two days' confinement: it was enclosed in a Dionæa leaf on September 29, and on opening the leaf on October 1 the fly was alive and damp, but with no great amount of secretion around it; on being taken out it moved about wonderfully, and in the evening seemed well, but did not attempt to fly.

The process of contraction is this: At first the sides of the leaf approach at the upper edge, leaving a concavity inside, in which the enclosed insect is comparatively free from pressure; but some time afterwards a distinct compression of the two sides may be noticed at about an eighth of an inch below the upper edge, and ultimately one of the sides may become quite convex internally, fitting into the concavity of the opposite blade. Hence, ultimately, the creatures, if of a soft nature—such as caterpillars, centipedes, and spiders—are squeezed flat, but those with a hard external covering, *e.g.*, beetles, resist the pressure, so that the skeleton may be found retaining its natural form and size.

But the contraction of the leaf is not single but double; it is not limited to the movements of the blades of the leaf, but is also manifested by the ciliary or marginal spines, which, when complete contraction of the blades is effected, may be found interlocked and at right angles to the blades. After remaining thus for some time (occasionally not longer than half an hour) the marginal spines gradually rise so as to form an obtuse angle with the inner side of the blade. In some cases the hairs never reach the right angle but remain at the obtuse angle, more especially if the blades close languidly.

In some cases the insect would certainly escape if it were not for the bending of the ciliary spines, which stops its progress outwards. Sometimes, however, the whole process is so slow, both in the case of blades and spines, that these latter have not crossed before the insect reaches them, and it escapes in such cases.

(*To be continued.*)

THE RESTING SPORES OF THE POTATO FUNGUS.

Now that these drawings illustrative of the fungus which causes the Potato murrain are published in the *Gardeners' Chronicle*, it may be as well to explain at once some of the terms used and the nature and habit of the bodies hereafter referred to, for such readers as may not be thoroughly acquainted with the life history of the destructive parasitic moulds to which the Potato fungus belongs. For that purpose reference must be made to fig. 9, which shows (greatly enlarged) a transverse section through the leaf of a Potato plant; the two great bodies at A A represent two minute hairs on the leaf, and at B B are seen the individual cells of which the leaf is constructed. When these hairs and cells are compared with the fine thread at C, which represents a branch of the Potato fungus coming out of a breathing pore of the leaf, it will be seen how very minute the fungus is in comparison with the dimensions of the leaf. This fine thread is no other than a continuation of a thread of spawn or mycelium which lives inside and at the expense of the assimilated material of the leaf. When this thread emerges into the air, as here shown, it speedily ramifies in different directions, and bears fruit at the tips of the branches, as at D D; these fruits are termed simple-spores, or conidia, because from their smallness they are dust-like. These bodies are capable of germinating and reproducing the species just in the same way as any seed is capable of so doing. The Potato-fungus has another method of reproducing itself in the larger "swarm-spores" shown at E, F. These are so-called because, on the application of moisture (as supplied by dew or rain, or when applied artificially), they set free a swarm of from six to fifteen or sixteen other bodies known as "zoospores," so named because they are furnished with two lash-like tails, and are capable of moving rapidly about like animalcules. This rapid movement usually lasts for about half an hour, and (like the dust-like conidia or "simple-spores" before-mentioned) the swarm-spores generally enter the breathing pores of the leaf, and there germinate. So potent, however, is the contents of these bodies when set free, that it is capable of at once corroding, boring, and entering the epidermis of the leaf, or even the stem itself. These zoospores are best seen when within the swarm-spore F, where they arise from a differentiation of the contents, but when once set free (G) they are, from the extreme rapidity of their movements, very difficult to make out. In about half an hour they cease to move, their lash-like tails (cilia) disappear, and having burst at one end, a transparent tube is protruded, which is a similar mycelium in every respect with that produced by the simple-spore, and which grows, branches, and fruits in a precisely similar manner.

Now the great difficulty which has beset botanists for so many years has been to account for the winter life of this Potato fungus. Simple-spores and swarm-spores are lost in the production of the mycelium or spawn, and this latter fine thread-like material cannot of course survive the frosts and rains of winter, but must utterly perish with the perished leaves and haulm.

A study of other species of Peronospora allied to the one which produces the Potato disease, reveals the fact of a third mode of reproduction. Simple-spores and swarm-spores are termed asexual, because they are without sex, as distinguished from other bodies called oospores, which are produced by the contact of two sexual spore-like bodies, known as the antheridium, which is the male, and analogous with the anther, H, and the oogonium, the female, and analogous with the ovary of a flower, J. The oospores, not till now seen for certain in the Potato disease, are the true resting-spores. Instead of being transparent and unenduring, as are the simple and swarm spores, these bodies are dense in substance, black-brown in colour, and covered externally with reticulations or warts. They are produced from the mycelium, by the contact of the antheridium and oogonium, in the substance of the decaying plant, they are washed into the earth, and there they rest till a certain set of conditions makes them germinate in the year following their production, just as a seed falls and rests in the autumn and starts again into life during the following spring.

The terms here used will be better understood if the following note is borne in mind:—The oogonium is analogous with a pod, the oosphere within answers to the ovule, and the oospore (or resting-spore) is the matured seed. The antheridium with its contents is analogous with the anther and its pollen.

In various other fungi nearly allied to the Potato fungus these resting spores have been seen, measured and illustrated, but till now the resting-spore of the Potato fungus has eluded all search. The reason generally given and accepted for its absence is, that the Potato is not the plant on which the fungus luxuriates to the greatest extent, and that if we only knew the plant it most affects (probably some South American species of Solanum) we should then find plenty of resting-spores easily enough, for it must not be forgotten that the Potato fungus is by no means confined to the Potato. It grows on various species of Solanum besides Solanum tuberosum; it is even not unfrequent on the woody Nightshade of our hedges, and it grows upon the Tomato and other Solanaceous plants. On these latter, however, it makes less headway than upon the Potato. As an instance in point the allied pest of the garden Lettuce may be mentioned—Peronospora gangliformis—first described by Mr. Berkeley. Here, if the resting-spores of the parasite are wanted, they must not be sought for in the Lettuce itself, where they are only sparingly produced, but in a plant belonging to the same natural order also commonly afflicted with the same parasite, viz., the common Groundsel; the resting-spores are said to be even more common in Sow Thistles than Lettuces.

Therefore, although it is probable we shall have yet to look to some other member of the natural order Solanaceæ to find the resting-spores in any abundance, yet, as the resting-spores of the Lettuce mould can by searching be found in the Lettuce itself, so the resting-spores of the Potato fungus have without doubt been found this year in the Potato plant.

How this came about is now pretty generally known. Mr. Murray exhibited some specimens of Potato leaves badly diseased before the Scientific Committee of the Royal Horticultural Society. In the corroded spots of these leaves Mr. Berkeley's sharp eye detected dark brown warted bodies (but no mycelium), which he referred to the genus Protomyces. Assuming these bodies to be the true resting-spores, which they doubtlessly are, they were necessarily free, as the coat of cellulose disengages them from the mycelial threads. But some similarly spotted leaves had been previously sent on to me, from the *Journal of Horticulture*, upon which I detected the old Potato fungus, mycelial threads within the leaves, and some circular transparent bodies of two sizes, new to me.

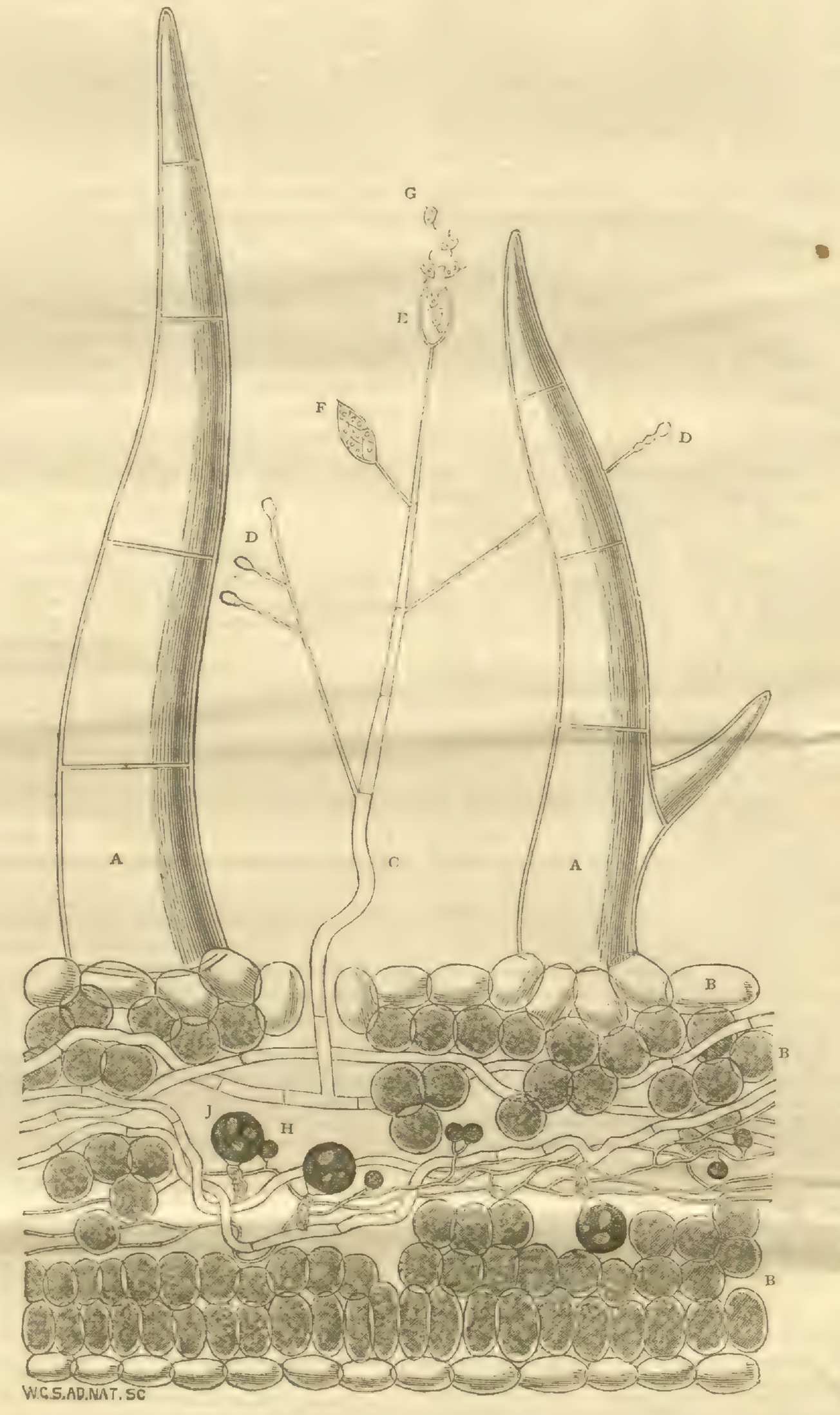

FIG. 9.—TRANSVERSE SECTION OF A FRAGMENT OF POTATO LEAF WITH PERONOSPORA INFESTANS.
Enlarged 250 diameters.

In attempting to wash the circular bodies out of the leaves and stems, by maceration in water, I found the moisture greatly accelerated the growth of the mycelium, and that the long-sought-for oogonium and antheridium was at length the result. These bodies were at first most sparingly produced, so that for many days, and after most careful searching, I could only find one or two. Afterwards I found them more abundantly in different stages of maturity, especially in the very putrid stems and in the tubers when in the last stage of decomposition. Mr. Berkeley afterwards found them with abundant mycelium, *i.e.*, after last week's meeting of the Royal Horticultural Society, where he exhibited a drawing of one resting-spore still attached to its thread. Mr. Broome (from material sent by me) has also detected and sketched, together with the immature sphærical bodies, one of these brown, coarsely marked resting-spores, but it was so involved in the mycelial threads (so he writes me) that he could not set it free. It is quite possible that the condition of the Potato, as seen during the present season, is quite exceptional, and that it may not occur again for a long series of years. Mr. Broome has written me to say he has never seen anything similar in diseased Potatos.

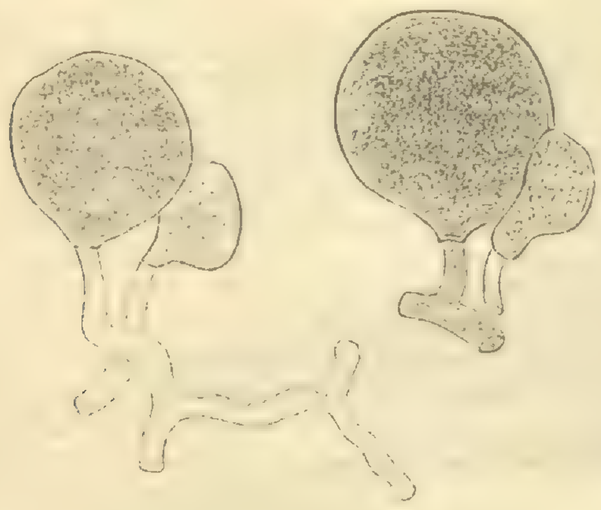

FIG. 10.—PERONOSPORA ALSINEARUM.
Oogonia and Antheridia enlarged 400 diameters.

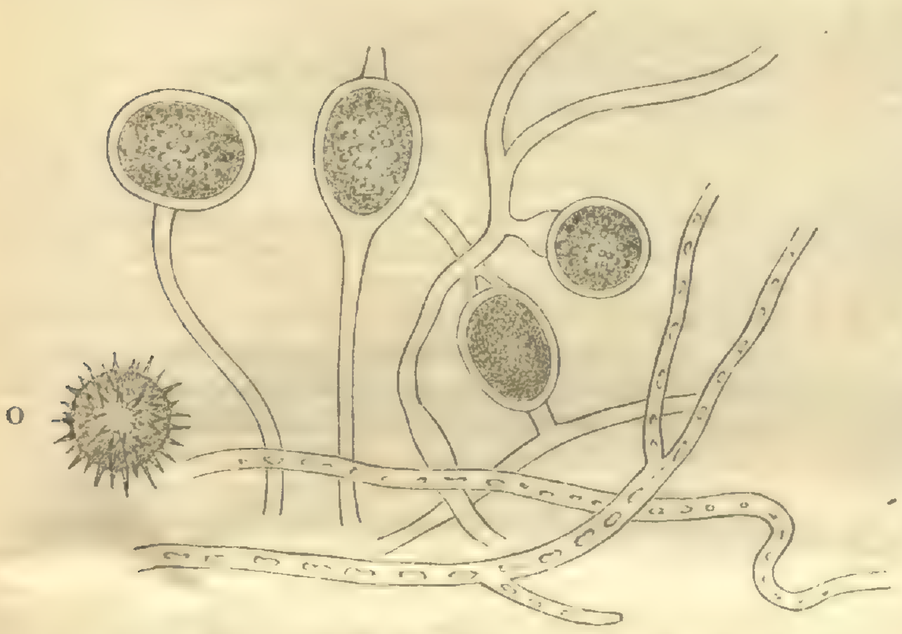

FIG. 11.—THE ARTOTROGUS OF MONTAGNE AND BERKELEY; enlarged 400 diameters.

In the accompanying illustration, which is an exact copy of the first sketch taken, the oogonia and antheridia are seen in the substance of the lamina of the leaf, the two bodies being in contact at H, J. In fig. 13 many more of the same bodies are shown; some in actual contact; the two upper figures, K and L, show the resting-spores some time after fertilisation, when a coat of cellulose is the result. In K the spore is surrounded by this coat, whilst at L the spore is accidentally washed out by maceration in water. The semi-mature resting-spores, as shown in these figures at M M, are furnished with a dark coat or skin; this coat, when further maturity is reached, clearly resolves itself into two layers, the inner one being termed the endospore, and the outer, which in Peronospora infestans is almost black in colour and strongly warted, the exospore. The latter resembles in outward aspect, instead of one spore, a dense concreted mass of minute brown-black bodies. The antheridia are shown at N N. The perfected resting-spores are slightly egg-shaped, and on an average are one-thousandth of an inch in diameter. They are not here engraved, as, from their rare occurrence, it is only during the last few days I have been able to get satisfactory material for accurately drawing

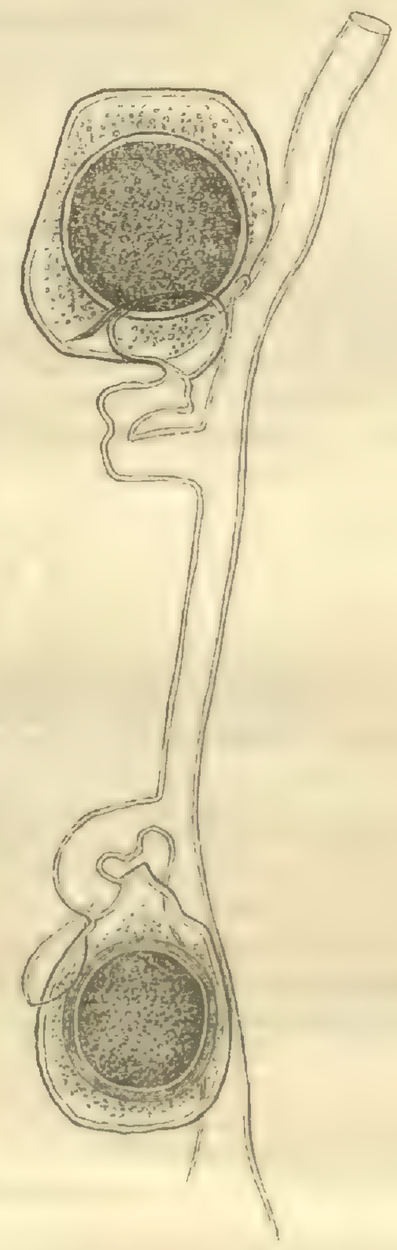

FIG. 12.—PERONOSPORA UMBELLIFERARUM.
Oogonia and Antherida, enlarged 400 diam.

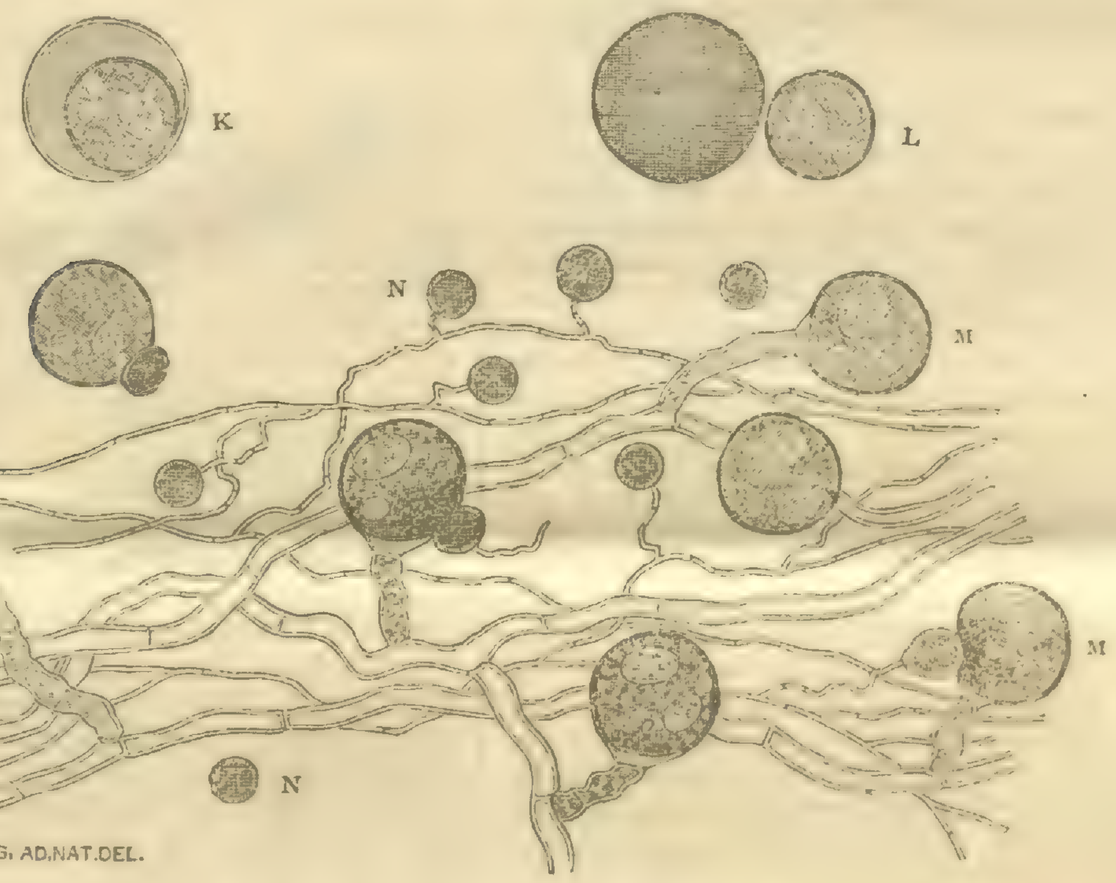

FIG. 13.—PERONOSPORA INFESTANS.
Oogonia and Antheridia from badly diseased leaves of Potato, after a week's maceration in water; enlarged 400 diameters. Antheridium $\frac{1}{2500}$ = .0004 inch. Oogonium $\frac{1}{1000}$ = .001 inch. Coat of Cellulose $\frac{1}{700}$ = .00142 inch.

them, and the time has been insufficient for engraving The oosphere is fertilised by the contact of the antheridium; when the two bodies accidentally touch the latter fixes a small branch or tube, called a pollinodium or fecundating tube, into the wall of the oogonium, and discharges part of its contents into the protoplasm of the infant resting-spore; when these resting-spores are mature the mycelial threads soon vanish, and the spores are free.

When I read my notes last week before the Royal Horticultural Society I had not been able, as I then said, to detect this fecundating tube, but since then I have seen and drawn it, but too late for engraving. After the Potato plant has been badly attacked and destroyed by the fungus, every part of the plant and its parasite perishes, except the dark brown warted resting spores just described, and these find their way into the earth and hibernate. When they awake to renewed life in the summer they must germinate in the damp earth, and if no Potato plants are near they perish, as the earth cannot support them; in this they are not unlike the seeds of germinating Dodder, for if they cannot find a proper host they die. But if Potato plants happen to be near the corrosive mycelium, it at once penetrates and enters the tuber or haulm. The tuber cannot produce simple or swarm spores if buried, but in the haulms the mycelium doubtless soon grows and produces both these forms of fruit. These are at once carried by the air into the breathing pores, and the whole history of the fungus here described is re-enacted.

Since my observations on these bodies were published in the last number of the *Gardeners' Chronicle*, I have (by the courtesy of the Rev. M. J. Berkeley) had an opportunity of carefully examining and measuring the original specimens of Dr. Montagne's Artotrogus, found long ago in the intercellular passages of spent Potatos, and from the first considered to be the secondary form of fruit of the Peronospora by Mr. Berkeley. I have no hesitation whatever in saying that the bodies lately seen and now figured by me are positively the same with Dr. Montagne's in every respect, and when reflected and traced with the aid of a camera-lucida no difference whatever can be detected. The bodies seen in Dr. Montagne's specimens are, without doubt, the fertilised and half-mature resting-spores, and therefore dense, uncollapsed, and exactly the same in size, habit, and colour with mine when in the same stage of growth. After the lapse of so many years the threads, as might be expected, have more or less perished, but it is not difficult to find traces of antheridia in the specimens.

For comparison, the original figure of Artotrogus (fig. 11) is here exactly reproduced to the same scale as my drawings, from vol. i. of the *Journal of the Royal Horticultural Society*, to show the similar nature of the bodies illustrated. Since this was engraved Mr. Berkeley has kindly forwarded Dr. Montagne's original drawings to me for examination, and I may as well say they contain many more threads and oogonia than are shown in this cut, and they are also more like the organisms now brought forward. As for some of the bodies being shown as if within the threads by Dr. Montagne, I consider this of little moment, as the oogonia are at times almost or quite sessile, and consequently, when seen in some positions, they put on an appearance of being within the mycelium, whilst in reality they are upon or under it. As for the echinulate body at O, described as a "mature spore," it is not exactly like Dr. Montagne's original drawing, which is shown as furnished with a thick wall, and there are no "mature" spores in his specimens. After a most careful and searching examination of the latter I can find no such bodies, but there are several spores on the two mica slides which put on a *spuriously* echinulate appearance, which is owing to the collapse of the coat of cellulose, as suggested by me as a possibility last week.

It will be observed there is a little difference in size between my oogonia (fig. 13) and those copied from the *Journal of the Royal Horticultural Society*; this is because the figures in the latter are somewhat incorrect. When the actual specimens are examined and measured side by side they are in every way identical.

Mr. Berkeley has also most obligingly sent me a specimen of another (new species?) of Artotrogus, found in decayed Turnip by Mr. Broome in 1849. Here the threads and semi-mature bodies are in the same style as the oogonia and threads from the Potato, and the mature spore is not truly echinulate; it is

globular, with a slight tendency to an oval shape, and is covered with warts. It is probably the resting-spore of Peronospora parasitica, the pest of the Cabbage.

In figs. 12 and 10 are given copies of the oogonium and antheridium of Peronospora umbelliferarum and P. alsinearum, enlarged from De Bary to the same scale as the other figures, to show the close similarity in size and habit.

Since this subject has been made public Mr. Carruthers has kindly furnished me with a copy of Dr. Farlow's paper on the Potato Rot, extracted from the *Bulletin of the Bussy Institution*, part iv.—a paper I had not previously seen. As some of Dr. Farlow's practical observations seem to have a direct bearing on some of the points raised by me, I will conclude by extracting one or two sentences:—"The disease is first recognised by brown spots on the leaves" (p. 320). "If we examine any Potato plant affected by the rot, even before any spots have appeared on the leaves, we shall always find these threads in the leaves, stem, and, in fact, nearly the whole plant" (p. 322). "The Peronospora is much more easily affected by moisture than the Potato plant itself." "Suppose the temperature to keep equally warm, and the atmosphere to become very damp, then the absorbing power of the mycelium is very much increased, while the assimilating power of the leaf-cells is little altered. Thus it happens that a sudden change from dry weather to moist, will cause the mycelium to increase so very much beyond the power of the Potato plant to support it, that in the struggle for existence the latter blackens and dies." "When the disease has arrived at a certain point, viz., just about the time of the appearance of the spots on the leaves, these mycelial threads make their way into the air" (p. 323). I wish here to return my best thanks to Mr. A. F. Barron, of Chiswick, who from the first has immediately and most courteously replied to my questions, and three times selected leaves, decomposed haulm and tubers for the experiments. From these experiments I have other results in view, and I have preserved ample material for the verification of all the facts enumerated. *Worthington G. Smith.*

WORSLEY HALL,

THE SEAT OF THE EARL OF ELLESMERE.

(See p. 77.)

THIS place lies about 6 miles in a westerly direction from Manchester, from which it is reached by rail to Worsley station, the road thence winding its way through the old-fashioned village of Worsley, in passing through which we suddenly come upon a lasting memorial of one whose name will not only ever be associated with Worsley, but will also be gratefully remembered as that of an individual who in his time did more that has largely contributed to the general prosperity of the surrounding district than falls to the lot of most men to accomplish. I allude to the subterranean canal made by the great Duke of Bridgewater, and which from the village of Worsley pierces the hills, under which lie the rich coalfields that have played such a conspicuous part in not only making the northern metropolis what it is to-day, but in laying the groundwork of prosperity in which the country in general participates. It is here that this great engineering work has its commencement, and hence, with its ramifications, it extends near upon 40 miles, in some places at a depth of over 550 feet. We in our day have lived to see the highest mountain range in Europe tunnelled for a railroad, and the completion of another gigantic work—the Suez Canal; but when we take into account the small amount of engineering knowledge that then existed, we must not speak lightly of the indomitable perseverance of the Duke, or the abilities of Brindley, his engineer. Illustrative of the unyielding perseverance of the Duke to accomplish the work he had set about, it is related that in some places the rock was so hard that the men lost heart, and wished to give it up. He put the question to them, "Can you make a smoke?" being answered in the affirmative, he replied, "Then it must waste; go on." It may give some idea of the effect this work when completed must have exerted upon manufacturing in the district, to state that it was said to be the means of reducing the price of coal in Manchester from 7*d.* per cwt. to 3½*d.*, at which price the Duke sold it; while before he opened the canal through from Manchester to Liverpool the carriage cost 40*s.* per ton, for which he afterwards charged 6*s.* Although this underground canal has a somewhat dismal appearance, yet its waters have borne many illustrious personages, including, during his father's lifetime, the present Emperor of Russia.

Leaving the village with its quaint old-fashioned gabled houses, we proceed about a mile westerly to the Hall. To the right on the higher ground is seen the stately monument, erected by subscription, to the first Earl of Ellesmere; it is an octagonal shaft 135 feet in height, with an internal spiral stair. It cost £5000, which was subscribed by the tenants, servants, and others connected with the estates. In the rear of the present building, at some 300 yards distance, stands a Cherry tree which marks the place where once stood the old hall occupied by the great Duke, during the time his different works were being carried out; it was a brick building, and was pulled down nearly forty years ago. The present mansion, which is a magnificent stone building in the Elizabethan style, erected some thirty years ago, stands on a considerable elevation above the land that lies to the south and west, and which forms the southern point of the Lancashire hills, that run from this in a northerly direction. The view here extends over a great expanse of country, including portions of seven counties, and the immense tract of Chat Moss, which lies westwards, and stretches out as far as the eye can reach in an unbroken line to the south. Westward is the higher ground of North Cheshire.

At some distance southward the canal traverses the grounds, on the banks of which stands the landing-stage erected on the occasion of Her Majesty's first visit to Worsley in 1851, when the Royal party and suite were conveyed in the Earl's splendidly fitted up barges from the Patricroft station to the Hall. The ground slopes quickly from the front of the mansion, and is laid out in a series of terraces, the uppermost on a level with and running the length of the central block of the building. The next is also fronting the mansion, and, extending right and left to a considerable distance, is bounded by a perforated stone balustrade, the length of the building. The remaining portion, right and left, has a wall some 3 feet in height, the earth sloping up on the inside almost to its top. This slope is filled with bedding plants. In the centre of this terrace stands the magnificent fountain in bronze, by Valdosine, that was in the Exhibition of 1851. It is, as will be remembered by those who saw that Exhibition, a fine work of art. On each side of this fountain runs a narrow bed parallel with the mansion, some 20 yards in length, filled with choice summer bedders. This terrace is relieved by vases, filled in summer with flowering plants, and in winter with evergreen shrubs. At the eastern end of the terrace is a newly-made croquet lawn margined with beds planted chain fashion. In this direction, at a short distance, are numerous large irregular beds filled with evergreen shrubs, of which Rhododendrons form a considerable part, growing most luxuriantly, as they are proverbial for doing in this neighbourhood, the humid atmosphere and damp soil so well suiting their nature. These plants have a fine effect, their luxuriant dark green leaves contrasting well with the bronzy tints which the Oaks and Elms in the background were in September beginning to put on. The largest plants in these beds were as much as 10 feet in height, and were in some cases relieved by the introduction of single Deodars or Araucarias, which, standing high above the Rhododendrons and kindred plants, were very effective, preventing the somewhat even formality of surface which these useful decorative shrubs have when planted alone.

From the west end of this terrace the view is very striking; the whole of the dressed grounds (about 60 acres) is seen, with the lower receding terrace and fine piece of ornamental water at the bottom. In this direction, at this end of the mansion, is a most noticeable bed of mixed Ghent and American Azaleas, the latter succeeding the best. There is also here a small enclosed Rose garden; the plants are mostly on their own roots or grafted low, and the strongest and best growers are selected—Mr. Upjohn, the very successful gardener now at Worsley, finding it much better to confine himself to varieties of known excellence than to go in for doubtful new kinds, a line of procedure which, if more frequently followed, would end in fewer disappointments. The south side of the wall, which fronts this and forms the back of the next terrace, is covered with Roses, Wistarias, and similar climbing plants in good condition. At the foot of this wall is a border filled with a mixed assortment of herbaceous and other flowering plants. A walk 9 feet wide and 250 yards in length separates this mixed border from the central portion of the terrace, which is in grass, with a 10 feet wide ribbon border round it: on its lower, or furthest side from the mansion there is a noble walk, 12 feet wide, running the entire length, on the side of which at intervals are planted Irish Yews, some 8 feet in height; these have a good effect in relieving the otherwise too even surface. Leading from this is the intervening space betwixt it and the lake, surrounded with a 12 feet walk, and divided into two equal parts by a broad central walk; in the middle of each space is a fountain, in the centre of a large stone basin, the supply of water being sufficient to keep them continuously in play. The grounds on both sides of this central walk are laid out alike, therefore a description of one will convey an idea of both. In each of the four corners is a large triangular Ivy-margined bed filled with the usual summer decorative plants. On the inner angle of each are six smaller beds, in which are plants of subdued colours. In each of the eight corners is a balloon trellis covered with Roses, and at intervals on the margin of the surrounding walk are planted Portugal Laurels, Irish Yew, and Tree Box. All the rest of the surface, some three-fourths of the whole, is rich green turf. Although on these terraces an immense number of bedding plants are used, yet the far greater breadth of the surface being grass, there is not the slightest objectionable glare of colour too often met with where bedding plants are so largely employed, although for my own part I should consider that this fine garden would be improved by to some extent further substituting grass for summer bedders. This brings us to the large ornamental piece of water, lately increased in size. Adjoining the walks which bound the water on the side next the mansion, is a 6-foot Rose border filled with dwarf Roses, which are gradually being got on their own roots. In the middle of the lake is an island about a quarter of an acre in extent, reached by a light bridge. In the centre of this is a grotto and hardy fernery; the rest is grass, kept regularly cut, and a few single shrubs dotted about to relieve the surface. The mansion from this point has a most commanding appearance. Following the woodland walk from this we again ascend to the upper terrace, from which a walk some third of a mile long leads in a south-westerly direction. Near the head of this walk is the memorial tree planted by Her Majesty at the time of her first visit to Worsley, in 1851; it is a Wellingtonia gigantea, but which, as might have been foreseen at the time, was a very unsuitable subject for the locality: it is not in a flourishing condition. It is a pity that in the selection of trees for such purposes, which at some future time may be looked upon as possessing historical interest, such kinds are not chosen as have fully shown their ability to succeed well in the place. Near it is an Oak planted at the same time by the Princess Royal (Crown Princess of Prussia), that is doing well; in this part of the grounds are several examples of Araucaria imbricata, showing that they are capable of succeeding much better than the majority of comparatively recently introduced coniferous trees.

Following the walk already alluded to, which has a magnificent bank of Rhododendrons on each side some 10 feet in height, we come to the kitchen garden, vineries, and forcing-houses. All this part is agreeably shut out from the pleasure grounds by a wood of thriving timber and shrubs, and lies much lower than the ground on which the mansion is built.

Entering the principal range we first come to a Peach-house, 40 feet by 15 feet, planted back and front, principally with old-established varieties, except one tree of Rivers' Victoria Nectarine, which is much liked here, being good in flavour, and bearing freely, though deficient in colour.

Adjoining is a mixed vinery, consisting of Muscat of Alexandria, Canon Hall Muscat, and Duchess of Buccleuch, the latter well known for its fine flavour. Mr. Upjohn took 1st prize for flavour at the last autumn Belfast show with this variety. The portions of the crop remaining in this house were very good, fair in size of bunch, large and even in berry, and finely coloured. Half the Vines in the house have been here for a number of years; the remainder were planted by Mr. Upjohn four years ago; they are in good strong condition with the wood as hard and ripe as possible, the foliage green and healthy, giving good promise for the coming season's crop. The border occupies the greater part of the inside space and a considerable extent outside.

The next house is the same in size as the rest in this range—40 feet by 18 feet, and is filled with White Lady Downe's, Black Hamburgh, Mrs. Pince, and Gros Colman. This Grape is here well liked when allowed to hang till quite ripe.

The adjoining house is similar to the last, three years planted from the same season's eyes. The sorts are Gros Colman, Alicante, and Lady Downe's. The Vines in both these houses were in a strong, vigorous condition, bearing a good crop of well-finished Grapes, which late in the season enabled Mr. Upjohn to take 1st honours for ten bunches of Grapes, and 1st for six dishes of fruit, at the Pomona Palace, Manchester, when many of the most successful growers in the kingdom were competing.

The next is a house two years planted with Black Hamburghs, Muscats, and White Frontignans; they were allowed to carry a few bunches last season, but not so many as to injure them for the future; they are strong and very promising.

We now come to the earliest house, which at the time of my visit, early in September, had just been pruned. They are principally Hamburghs, and some Black Prince; they are old Vines planted some thirty years ago, with several rods to each Vine: they will be taken out and replaced as soon as those in the preceding house are old enough to force early.

Next to this is the early Peach-house, with two grand old trees in front—Red Magdalen and Bellegarde, the Royal George and Barrington Peaches, and Elruge Nectarine, being on the back wall. The house is started in December; the crop ripe about the middle of May.

Behind this range are the Pine-pits, and a number of small houses devoted to different purposes; the first is a succession Pine pit, the plants in good stout

condition. The sorts here grown are Montserrat, Queen, Smooth Cayenne, and Charlotte Rothschild.

Here are also the Cucumber and Melon pits, in three divisions. The Cucumber plants for winter supply are put out early, so as to get strong before they are allowed to carry any fruit. This is one of the essential conditions for securing a good supply during the short days of winter—for if the plants are not strong at this season, before they bear, they are not likety to acquire strength afterwards.

Near these is another range of houses, the first of which is a late vinery, principally Hamburghs, bearing a nice crop of moderate-sized bunches. Adjoining this is a Fig-house, the back wall planted with Brown Ischia, and on the front trellis the same sort and White Ischia.

Next are the fruiting Pine-stoves, in three divisions. The plants were originally planted out, but in all but one division they are now in pots, and all will ultimately be grown under this system. The greater portion were sending up a nice lot of fruit that would come in for the autumn and winter, during which time they are here most in demand. These houses and pits were originally heated on the Polmaise principle, one of the greatest impositions that ever was thrust upon the gardening world, although at the time it was advocated every man that could not succeed with it was tabooed as an incapable by those who bolstered up the system. It was never of any use for horticultural purposes where a considerable temperature had to be kept up, except in the smallest of structures.

Near these is another lot of narrow, span-roofed houses, each 50 feet in length, which are devoted to the propagation and wintering of the large quantities of summer bedding plants. About 60,000 of Pelargoniums alone are used; 20,000 are wintered.

A divisional wall runs east and west across the inner enclosed portion of the kitchen garden: a portion of this is covered with a high narrow house, 75 feet in length, in three divisions. The back wall of the first is covered with Peaches, along the front in pots are plunged a number of Pears, Plums, and Figs. The central division of this range is filled with Vines (Lady Downe's), carrying a nice crop. In the next division the back wall is covered with Nectarines and Peaches, the latter of late sorts, such as Late Admirable and Salway; with more pot Pears and Plums, the whole of which are to be done away with, and all the space devoted to the Peaches and Nectarines.

The greatest portion of the fruit and vegetables produced in this garden are required during the autumn and winter, when the family are at Worsley, consequently the principal endeavour is to provide them at that season. Strawberries and French Beans are largely grown on shelves at the back of the different houses, and in every place where room can be found. There are no houses especially devoted to the cultivation of flowering plants, but large quantities are grown, principally of such things as are most in request for room and table decoration, and furnishing cut flowers.

The kitchen-garden is some 10 acres in extent, surrounded with a low fence wall, outside which all round are several rows of orchard trees. The vegetable ground inside is divided into spaces of about 20 yards in width by rows of fruit bushes. Near the centre of this garden is a space of 4 acres, enclosed by 12-foot brick walls on three sides—east, north, and west, that on the south being lower, and surmounted by an ornamental iron palisading. This 4 acres enclosed space is divided by another 12-foot wall running east and west, on which the last described range of houses are built. At the northern end of this enclosed part of the garden stand the principal houses already described.

The walks are all something like 12 feet wide, admitting of manure and soil being carted on. This is indispensable in a large garden, on account of the saving in the labour of wheeling. The vegetable quarters are bounded by espalier-trained trees, mostly Apples and Pears. Amongst the latter, Hacon's Incomparable, Jean de Witte, Beurré de Capiaumont, Beurré Diel, Easter Beurré, Beurré Rance, Napoléon, and the not yet surpassed Marie Louise, were bearing good crops of fine-sized fruit. Of Apples so trained, those that seemed to do best were Court of Wick, King of the Pippins, Nonsuch Golden Pippin, and Harvey's Nonpareil. Pears of the sorts already named covered a portion of the walls, the rest being occupied by stone fruits, which, as is easily accounted for by the peaty nature of a good deal of this garden, do not succeed well here. Plums do indifferently, as also Apricots. Morello Cherries do fairly. Young Peaches on a heated south wall seemed promising, but there are two difficulties attending stone-fruit culture here—to get the wood ripened in the autumn, and the prevalence of frost in the spring, aggravated by the peaty nature of the soil and the low situation. Amongst standard Apples, free-bearing sorts, such as Lord Suffield and New Hawthornden, do the best; Marie Louise, and Hacon's Incomparable Pears bearing well as standards. A dry season evidently suits this garden the best. As may be supposed, very large quantities of culinary vegetables are grown, especially for winter use, but such things as Broccoli are an uncertain crop, a severe winter often cutting them all off. I noticed outside the walls a space of about a quarter of an acre used for hardening bedding plants in the spring. Here were the Strawberries for forcing. They consisted principally of Vicomtesse Héricart de Thury, President, with a few Queens, and Dr. Hogg. The first named is here much liked, both for forcing and general culture.

Each department in this extensive place bears evidence of attentive and skilful management, and does very great credit to Mr. Upjohn, who, by the way, is fortunate in one thing that many gardeners cannot boast of, that is, the house he lives in—it stands on the west side of the garden, and is a very handsome, large, ornamental, stone building, such as is not very often met with for a gardener's residence. *T. Baines.*

GINSENG:

PANAX SCHINSENG OF NEES.

THE extraordinary properties reputed to belong to Ginseng by the Chinese is sufficient to cause a considerable amount of interest in the root, though we know British pharmacists look upon it as a delusion, and consider it to have no real effect. Notwithstanding this a great deal has been written on the subject in many different languages, and though the Chinese article, which is the root of Panax Schinseng, Nees, has, we believe, never been used in European pharmacy, an allied species, P. quinquefolium, has been used in America, and appears in Wood and Baches' *United States Dispensatory*. It is, however, there considered to be little more than a demulcent, and though kept in the shops it is chiefly to supply the wants of those who have acquired a taste for it, for it is not really employed as a medicine. The root has a sweetish-bitter taste, and is somewhat mucilaginous. It occurs in pieces usually about 3 or 4 inches long, often partially divided but joined together at the base; when clean it has a semi-transparent appearance. It is esteemed by the Chinese as a most valuable medicine, being given as a tonic in cases of debility, and, in fact, applied in almost all diseases, provided the patient is sufficiently wealthy to pay for such an expensive medicine.

By far the most detailed description of the characters and nature of Ginseng is to be found in the great Chinese botanical work or herbal, known as *Pun tsáo*, or "Plants of the Chinese Empire." This extraordinary work, we are told by the late Mr. D. Hanbury in his *Notes on Chinese Materia Medica*, was written in the middle of the sixteenth century, the design being to obviate the confusion often arising from the necessity of referring to several works for the same subject by bringing all such matters together. The complete work forms forty thin octavo volumes, and contains 1100 woodcuts. In a work of this kind, compiled by Chinese, we should expect to find a great deal that is fabulous; at the same time much of it is interesting.

A translation of the article Ginseng, from the *Pun tsáo*, lies before us, and as the Chinese is a language not often translated into English, we propose to give some extracts. From a note at the commencement of the article it appears that the word "shên" often occurs in the names of plants, and apparently corresponds to our word wort at the termination of plant names, such as Milkwort, Motherwort, &c. Ginseng should thus properly be *jên-shên*. It is stated to exist as a root underground many years before it rises gradually above it as a plant. The shape or form of the root, upon which so much has been said, is described as being that of a man, from which it is supposed to have a living principle, and from whence the name of Ginseng, which is literally Manwort, is obtained. The Chinese say there are five elements—wood, earth, water, fire and metal, and they say there are five species of Ginseng—one, the yellow kind, corresponds to the element earth. It is useful as a stomachic or emmenagogue, wherefore it is called Yellowwort (shên) or Bloodwort, and is said to absorb the subtle influences of the earth.

The comprehensive *Book of the Five Elements* relates as follows:—In the reign of Wên Ti, Emperor of the Sui dynasty, a man living at Shang-tang used every night to hear a human voice calling to him from behind his house, but could never find out who it was. One day, at a distance of some 600 yards from his house, he found a Ginseng plant with an extraordinary thick stem. He dug up the root; it penetrated to a depth of 5 feet, and resembled the body of a man, with the head and limbs complete; after this the nightly voice ceased. One of the names by which it is known to the Chinese, that of T'u-ching (literally essential spirit of the earth), is derived from this story. In the astronomical book called *Li tou wei yi*, it is said where Ginseng grows below the ground a purple vapour will be seen to rise. In a work entitled *The Revolution of Spring and Autumn Round the Pole Star*, it is said when the flickering stars fade away in the morning light they are changed into Ginseng. If the Emperor slights the precious products of the hills and streams the stars will shine no more, and Ginseng will cease to grow. On this account the plant is called Shêu-ts'ao, the spirit plant. Another Chinese author says Ginseng grows in the valleys of Shang-tang, that is now known as Lias-tang (part of Corea); in the first ten days of the second, fourth, and eighth months it appears above ground. Then the Ginseng gatherers take a knife made of Bamboo and scrape the root dry; it must be protected from the wind. Those plants which have a root in the shape of a man are the best. According to another Chinese writer the Ginseng produced at Lias-tang (Corea) is large but weak, and is far inferior in quality to that of Shang-tang. The stem is upright and straight, and the plants grow in groups of four or five, and bear a crimson flower. A superior and special kind of Ginseng is described as growing a foot or more in length; it resembles a man in shape, and has legs and arms. It is packed for preservation or transit between deal boards, said to be the wood of Pinus lanceolata, and wrapped round with red silk. The roots of the best Ginseng are yellow and glossy in colour; it is described as resembling that of Libanotis while the skin is still on, when peeled it is strong and white, like flour. The roots of many totally distinct plants have been proposed and used as substitutes or for adulterating Ginseng; thus, for instance, are enumerated Adenophora, which, however, is said to be easily distinguishable from Ginseng; also the root of a species of Capsella, which is hollow at the core and insipid to the taste, and that of Platycodon grandiflorum, which has a core somewhat like Ginseng, and has a bitter taste; nevertheless true Ginseng has a characteristic look of its own, and its taste is sweet with a slight bitterness which lingers in the mouth.

The following is recommended as being the best method of distinguishing Shang-tang Ginseng from fraudulent substitutes:—Let two men set out walking, one chewing a piece of Ginseng, the other with his mouth open; after going, say, a mile or a mile and a-half, he whose mouth was empty will be panting, whereas the chewer, if the drug be genuine, will be breathing regularly.

A work in two volumes by an officer of the Peking Medical Board treats of the whole subject of Ginseng with great precision. In another treatise much consideration is paid to the preparation and preservation of Ginseng and to its properties and effects. With regard to the former we are told that it is very liable to be attacked by insects, that the best way of keeping it is to hermetically seal it in new earthenware vessels, in which may also be placed a certain quantity of Heterotropa asaroides. As a preservative stored in this way it can be kept for a year. One author says:—"Growing Ginseng turns from the sun because it dislikes air and light. To prepare raw Ginseng for use, a piece should be bitten off and masticated. Prepared Ginseng should be put on a piece of paper and toasted from below. Ginseng which has been soaked in wine should be masticated and then dried by heat for use. On no account must it be touched with anything made of iron." With regard to its properties and effects, so much has been said by different Chinese writers that the shortest summary will be to say that it has been recommended for nearly every known disease.

It is said in an article on Ginseng in a Chinese botanical work, entitled *A Treatise on Plants, with their Names and Faithful Representation in Plates*, that by the laws of the present dynasty all Ginseng dug up surreptitiously is confiscated, and, moreover, a fine is imposed on the culprit. Those wishing to seek for the root must be provided by the official in charge of the locality* with a permit authorising them to pass the barrier. On returning the Ginseng collected must be produced before the official, that he may determine by inspection the amount, and state the percentage which is the Emperor's due. The imperial share is sent to the Home Office at Peking, and is there separated according to its different qualities. The best is prepared for imperial use; the inferior kinds are given as presents to the Court officials—namely, the highest military and civil officers of the second grade, and those mandarins who are the personal attendants of the Emperor.

A very interesting account, showing the value set upon this root by the Chinese, as well as the great care paid by them to its selection, appeared some time since in Lockhart's *Medical Missionary in China*, from which we quote the following. He says:—"Presents of this root are frequently made, and accompanying this medicine is usually sent a small beautiful double kettle in which the Ginseng is prepared as follows:—The inner kettle is made of silver, and between this and the outer vessel, which is a copper jacket, is a small space for holding water. The silver kettle, which fits on a ring near the top of the

* The imperial Ginseng enclosure in Manchuria is said to contain some hundreds of square miles.

outer covering, has a cup-like cover in which Rice is placed, with a little water; the Ginseng with water in the inner vessel, a cover placed over all and the apparatus put on the fire. When the Rice in the cover is sufficiently cooked, the medicine is ready, and is then eaten by the patient, who drinks the Ginseng tea at the same time." A Shanghai Ginseng merchant who, it is said, gave his whole attention to the sale of this article, is described as having kept his stock in strongly bound boxes. When any one wished to see his stock "he deliberately fetched his keys and calling an attendant to shut the door, so that neither strangers from the outer shop nor damp air might enter his clean and beautifully furnished sanctum, which was also thoroughly dry, proceeded slowly to unlock the boxes. Opening the outer box, he removed several paper parcels, which appeared to fill the box, but under them was a second box (or perhaps two small boxes), which when taken out showed the bottom of the large box, and all the intervening space occupied with more parcels. 'These parcels,' he said, 'contain quick-lime for the purpose of absorbing any moisture, and keeping the boxes quite dry;' the lime being packed in paper for the sake of cleanliness. The smaller box, which held the Ginseng, was lined with thin sheet-lead; the Ginseng, further enclosed in silk wrappers, was kept in little silken covered boxes. At last after opening many receptacles, the actual medicine was displayed. each root sewn with silk to its silken wrapper. Taking up a piece, and requesting his visitor not to breathe upon it, nor handle it, he would dilate upon the many merits of the drug, and the numerous cures it had effected. The cover of the root, according to its value, was silk, either embroidered or plain, cotton cloth or paper. Some of the root was worth not more than 6 to 12 dollars an ounce; other portions rose in the price to the most expensive, which was of the enormous value of 300, and even 400 dollars an ounce. This latter the merchant prizes of course very highly, and allowed only a glance at it, as he said 'it might be injured by exposure to the air.' The inspection finished, each root was carefully returned to its place in the box, and this to its position on the lime; the parcels of the latter were readjusted, and the outer box locked."

So great was the demand for Ginseng at one time amongst the Chinese for their home consumption, that the Americans endeavoured to establish a trade with China in the root of the North American plant—Panax quinquefolium. The Chinese, however, did not value it as their own product, and it was consequently abandoned. At the present time the true Ginseng is not thought so highly of as formerly; but so late as 1859 a scientific expedition was organised in St. Petersburg to explore and report on the Mantchou territory and the frontiers of Corea, and to examine specially the Ginseng and the Chinese plantations, with a view of establishing plantations in Russia for the purpose of trading with China. *John R. Jackson, Museum, Kew.*

BRITISH GARDENERS.—XXI.

GEORGE THOMAS MILES.

WE have to thank Mr. Miles, whose portrait is subjoined, for the accompanying interesting sketch of his career as a gardener:—

"At an early period in life, even in my school days, I had a strong propensity for gardening, which was made manifest by my seeking to be indulged with a small plot of ground in which to form a garden for myself: this in conjunction with a fine old Sweetwater Vine, which rambled over the exterior of my home, on a part of which I was allowed to operate, and where I first ventured at thinning out bunches of Grapes. Under these circumstances, unaided by professional advice or assistance, I commenced my horticultural career, being stimulated in it by an innate passion for flowers, which latter I frequently purchased out of small means, and the love of which continues with force unabated.

"On leaving school my ambition remained fixed on gardening as an occupation; and shortly afterwards I entered the gardens of the late Honourable Henry Ashley, at Clewer, Berkshire, in which parish I was born on January 10, 1831. I remained in this situation nearly four years, under Mr. Thomas Roake as head gardener; he was somewhat celebrated among florists, and at the time in question was specially noted for Hollyhocks, hundreds of seedlings of which were raised there annually, and from among these his named varieties were selected.

"I left Clewer to go as an apprentice for two years to Mr. Thomas Perkins, who was then head gardener to the late Viscount Combermere, Combermere Abbey, Cheshire. Shortly after the expiration of my term I was promoted to the position of foreman, which I held while I stayed there—another eighteen months, when I became desirous of increasing my knowledge and experience elsewhere, in which matter I was much assisted by Mr. Perkins. The gardens of Ralph Sneyd, Esq., at Keele Hall, Staffordshire, which at that time were rapidly rising into importance under the able management of their present superintendent, Mr. William Hill, was fixed upon as a suitable remove; and through Mr. Perkins' kind intervention I was admitted there at once, and was placed in the outdoor department—a position which every young gardener should occupy for a season at least. I had certainly made a pecuniary sacrifice by my move, but this I never regretted. The loss of a few shillings per week at such a period is worth hazarding for the sake of gaining practical lessons, and I refer to it here by way of encouragement to those whose aspirations are such as mine were at the time referred to. At Keele Hall I acquired considerable practical experience in planting and pruning hardy trees and shrubs, and transplanting large ones. Amongst the latter, Hollies form an important feature. Formerly a portion of these were subjected to knife pruning annually, and its beneficial effects are now unmistakably indicated by the magnificent pyramidal specimens which abound in the pleasure grounds, such as I may venture to affirm will vie with any others in the kingdom. After two seasons' experience in this way I became foreman, and took charge of the plant department, which was extensive, both as regards plants and bedding subjects, many thousands of the latter being required annually. At this time Keele Hall gardens were justly celebrated for the remarkable examples of fine Grapes which Mr. Hill was in the habit of exhibiting, and which deservedly

established his reputation as a Grape grower of the first order.

"After staying more than three years at Keele I was sent by Mr. Hill, on Mr. Sneyd's recommendation, in February, 1858, to take the management of Wycombe Abbey Gardens. The late Lord Carington, whose kindness I shall remember while memory lasts, required me to devote my chief attention to the production of the best kinds of fruits and vegetables, in quantity at all seasons. The condition of the gardens, and the structures and appliances at that time, were quite inadequate to meet such requirements; this was duly represented, and thereupon alterations, improvements, and additions were made by degrees, and without seriously affecting a good ordinary supply of both. Until seven years had expired I did not exhibit, but since that time I have usually contributed either fruit or vegetables, or both, to most of the leading exhibitions.

"I always had an inclination to be able to cultivate Pine-apples successfully. Here I have had an opportunity, which I have greatly enjoyed, of putting that liking into practice; and although time and means have been freely accorded to this purpose, it has not been carried out to the detriment of other subjects. In regard to fruiting the plants speedily, I have bestowed much attention and care on the subject, and in that respect have been eminently successful, as the following weights will show, these being the heaviest fruits which have been cut here from plants in pots, the age of the plants varying from ten to eighteen months from the time of starting the suckers:—Smooth Cayenne, 9½ lb.; Prickly Cayenne, 8½ lb.; Enville, 11¼ lb.; Black Prince, 10 lb.; Queen, 6¼ lb.; Providence, 10½ lb. In recording these weights, I crave the indulgence of my readers for so fully alluding to this favourite topic, which is not done boastfully, but in order to bear witness to the fact that to cultivate these choice fruits successfully, it should be done expeditiously. I owe much to my noble employer, the present Lord Carington, and his family for the encouragement I have always experienced, and for the kind consideration which they have shown to me during a period of seventeen years."

Mr. Miles' views on the culture of the Pine-apple, and on vegetable growing, will be found embodied in our Calendarial department of the last year or two; and his productions on the exhibition table have abundantly shown that he can successfully carry out what he teaches.

A TERRACED GARDEN.

FROM time to time you give in your paper ground plans and descriptions of some one or other of the many splendid public and private gardens which are amongst the attractions for which our island is celebrated, but of all your numerous readers there are but few who can do more than picture to themselves the aspect they must present when in their beauty; to copy them is far beyond their resources, and thinking that an example on a smaller scale and within reach of the means of a larger number might be of interest, I venture to send you a ground plan of my own (fig. 15). It has some features not quite in the usual way, and has received the approval of many friends. It is a terraced garden, immediately in front of the residence, and only divided from it by a carriage road 10 feet wide. A few steps lead to a level space, in which the flower-beds are cut; the centre panel is divided by Box edgings and surrounded by a gravel path, and the twelve divisions are planted in alternate colours—in spring with yellow and blue Pansies, and in summer with white-leaved Pelargoniums (usually Queen of Queen) and Iresine Lindeni—the centre of the panel being occupied in summer by a variegated Yucca, replaced in autumn by a Yucca gloriosa. The borders, Nos. 2, 3, 4, 5, are in autumn planted with centre of blue Pansies, and then in lines following the contour of the beds with white Daisies, yellow Feverfew, white Daisies, purple Aubrietia grandiflora, and red Daisies, dotted with a few Hyacinths and Tulips: these have for six weeks presented a soft rich effect; the white Daisies make the surface sparkle, and the edging of red Daisies adds richness to the pale purple of the Aubrietia. Beds Nos. 6 and 7 have a wire basket, a variegated Honeysuckle being trained on the handle. It has for spring filling a centre of Silene ruberrima, a circle of Myosotis dissitiflora, and an edging of white Daisies: the effect is very satisfactory.

The long border, No. 8, has an archway in the centre, with trained Roses and Negundo variegata, and a path under it leads to a croquet lawn. The border is planted with Roses filled up in spring with doubleyellow Wallflowers and Blue Perfection Pansies, in summer with Ten-week Stocks and Gladioli. The garden is on a western slope of the Cotswolds (consequently on the oolite), and commands a pleasant view of wooded vales and hill-sides, with many cottages scattered over them. One drawback to these charming spring gardens is that they have to be exterminated to make room for summer planting before their beauty has passed, but they are far less expensive than filling the beds with bulbs, which, whilst they give a very bright show for a time, prove so evanescent. The cost of mine for seed does not exceed a shilling, but involves some labour in planting and transplanting and enriching the beds to enable them to carry two crops of blossoms each year.

I can strongly recommend them to such of my fellow gardeners as are favoured with a sheltered garden with dry subsoil. *C. P.*

PLANT GOSSIP.

THE fine old African Lily, AGAPANTHUS UMBELLATUS, is one of those plants whose cultivation appears to be in danger of falling into neglect. It seems almost incredible that such a fine decorative agent should suffer eclipse, but the changing fashions in the aspects of gardening are producing this result to some extent. It is equally valuable for conservatory or outdoor decoration during the summer, and as its bright blue flowers can be had in profusion from July till quite late in the summer, it is enabled to discharge a prolonged floral service. It is a plant that may be said to revel in an abundance of light and air, hence its adaptability for occupying pedestals and similar positions. We have seen large examples in pots used for standing on the balustrades of stone steps, and on the side piers on either side of the bottom step. Two examples, in particular, are remarkable for their great size and prolificacy of bloom. They are repotted once in every three years, and

when it is done a great deal of the old soil is shaken out and replaced with new, which is rammed firmly about the roots. They are plentifully watered during the summer, and are, in fact, treated as sub-aquatics, and the pots stood in large saucers filled with water; in winter they are housed in a cool conservatory, and water is very sparingly given. During winter it simply needs protection from frost, not heat, and the plants should not be stowed away in a shaded crowded spot, but suffered to have as much light as possible. Some years ago the Agapanthus used to be planted out during the summer, and succeeded well in the dry limestone soil, flowering freely for successive years, and forming a kind of connecting link between the white Lily and the gorgeous Tritoma Uvaria. What a grand trio of showy ornamental plants!

—— We have received from Mr. Laing, of Forest Hill, Surrey, a remarkably handsome HYBRID FUCHSIA, bred between Fuchsia fulgens, which was the female plant, and one of the large flowered varieties with a dark corolla. The stems are stoutish and red; the leaves ovate with red petioles, rather large, but not so large as those of fulgens; and the flowers, which come in clusters at the ends of the shoots and branches, have a rich orange-red tube 1¼ inch long; pointed sepals of the same colour, and a bright crimson-scarlet corolla. It is quite novel in character, and one of the most showy and attractive flowering plants we have lately seen.

—— Among new Continental selections in annuals a foremost place must be given to PHLOX DRUMMONDI SPLENDENS GRANDIFLORA. It is appropriately designated, for the flowers are large, handsomely rounded, and of great substance; the colour vivid crimson, with a pure white disc; the habit of growth free and robust. As the colour stands well in the open ground, it will be a valuable bedding plant; but in order to preserve its rich beauty it should be cultivated in pots, and have an abundance of light and air.

—— The charming little FUCHSIA PUMILA deserves mention as a pot plant. Small plants bloom freely and continuously. At an exhibition of plants, fruits, and vegetables, among the cottagers of a large country village, we recently saw a plant of Fuchsia microphylla laden with its minute rosy crimson flowers. It is a desirable species to cultivate.

—— Mr. William Willison, of the Rose and Plant Nursery, Whitby, Yorkshire, sends us a series of cut flowers of seedling DOUBLE DEUTZIAS. Being all white, or slightly dashed with pink, there was a considerable sameness in the flowers, but Mr. Willison states that the habits differ considerably—some of the plants, not more than a foot or so in height, having upon them from twenty to thirty spikes of flowers. Some of these dwarf free-blooming forms he thinks will be found extremely useful for forcing purposes.

Forestry.

WHEN TO CUT TIMBER TREES.—*Oak* is extensively used for ship and boat building purposes, furniture, agricultural implements, &c., and is longer than any of our forest trees in arriving at maturity. It can never be cut down so profitably when small as when well matured and having plenty of heart-wood. When young and with little heart-wood, and a large proportion of sapwood, the timber is of comparatively little value, so that it can seldom be cut down profitably, especially if thriving on soil suitable to its growth, until it reaches one hundred years old. Of course, when grown as copse-wood, it ought to be cut young; but, even under the most favourable circumstances in Scotland, copse-wood is less profitable to the proprietors than a crop of timber, and Larch can be grown more profitably in most situations. The Oak is of slow growth when young, but on suitable ground it increases rapidly after about thirty years. It sometimes happens that Oak, planted in good soil and in a sheltered position, attains a large size, but has little matured heart-wood at sixty or seventy years old, and in such a case it would be better to allow it to remain till fully matured, when the value of the timber per cubic foot would be materially enhanced.—*Ash*, although capable of growing to large dimensions, can be cut down more profitably in its young state than other hard-wood trees. When clean grown, and from thirty to forty years of age, it is in great demand for handle-wood and for agricultural implements; but, in a rich loam with dry subsoil, it would be more profitable to allow it to grow to double that age.—*Alder* is generally in good demand at all stages of its growth, after arriving at sizes suitable for the clogger, and for turnery, or charcoal, and is seldom grown to very large dimensions. Thriving best in damp soil, it can be profitably cut down at forty years' growth, making way for a second crop, which springs up rapidly from the stools.—*Beech* is of very little value in its young state, and is seldom cut till well grown.—*Birch*, like the Alder, can be cut down profitably at about forty years old, being then in good demand for cloggers, charring, and turnery purposes; and, when of large size and good quality, it is extensively used for furniture.—*Horse Chestnut* is seldom planted for profit, but is valuable as an ornamental park tree. When grown on good soil and in a sheltered situation, however, it can be profitably cut down when it attains large dimensions.—*Spanish Chestnut* is of most value when of large size, and is in many cases used for the same purposes as Oak. It is most profitably cut down when about one hundred years old.—*Elms* (Scotch and English) are of little value until they have arrived at timber size, and should, therefore, never be cut as a crop until they are from eighty to one hundred years old. When on good soil the English Elms will, when matured, be of large dimensions. The Scotch Elm seldom attains so large a size as the English Elm, but its timber is of more value when matured, and it forms heart-wood sooner.—*Lime*, like the Horse Chestnut, is seldom planted for profit; but when of large size is in great demand for brake-blocks for railway purposes, &c. It is, however, of little value before it is sixty years old.—*Poplars* can generally be most profitably sold when about fifty years old. Being very fast growers they arrive at timber size sooner than most of our timber trees, and the wood is then much used for brake-blocks, boarding, &c. When of small dimensions the wood of this tree is of little value.—*Sycamore* and *Norway Maple*, although in demand for turnery purposes when of small size, can seldom be cut down to full profit until they have arrived at maturity and attained large dimensions, when high prices are obtained for them for printing blocks, &c., and larger timber becomes proportionally more valuable. When the Sycamore is planted in a good soil, well drained and sheltered, it may be profitably cut down at about a hundred years old.—*Willow*, like the Poplar, is a fast grower on suitable soil, and can be cut down profitably about sixty years old, and for its timber there is a good demand.—*Gean*, or *Wild Cherry*, *Holly*, and *Laburnum* are more grown for ornament than for profit, though, in some instances, good prices can be obtained for their timber. The two latter seldom attain a large size, and may be felled any time when in demand, after attaining a size suitable for turnery. In consequence of its hardness and susceptibility to receive a fine polish, the wood of these trees is much sought after.—*Walnut*, when matured, is much esteemed for furniture, &c., but is of little value in its young state, and is generally planted for its fruit or as an ornamental tree. *Mr. Bayne, in "Transactions of Scottish Arboricultural Society."*

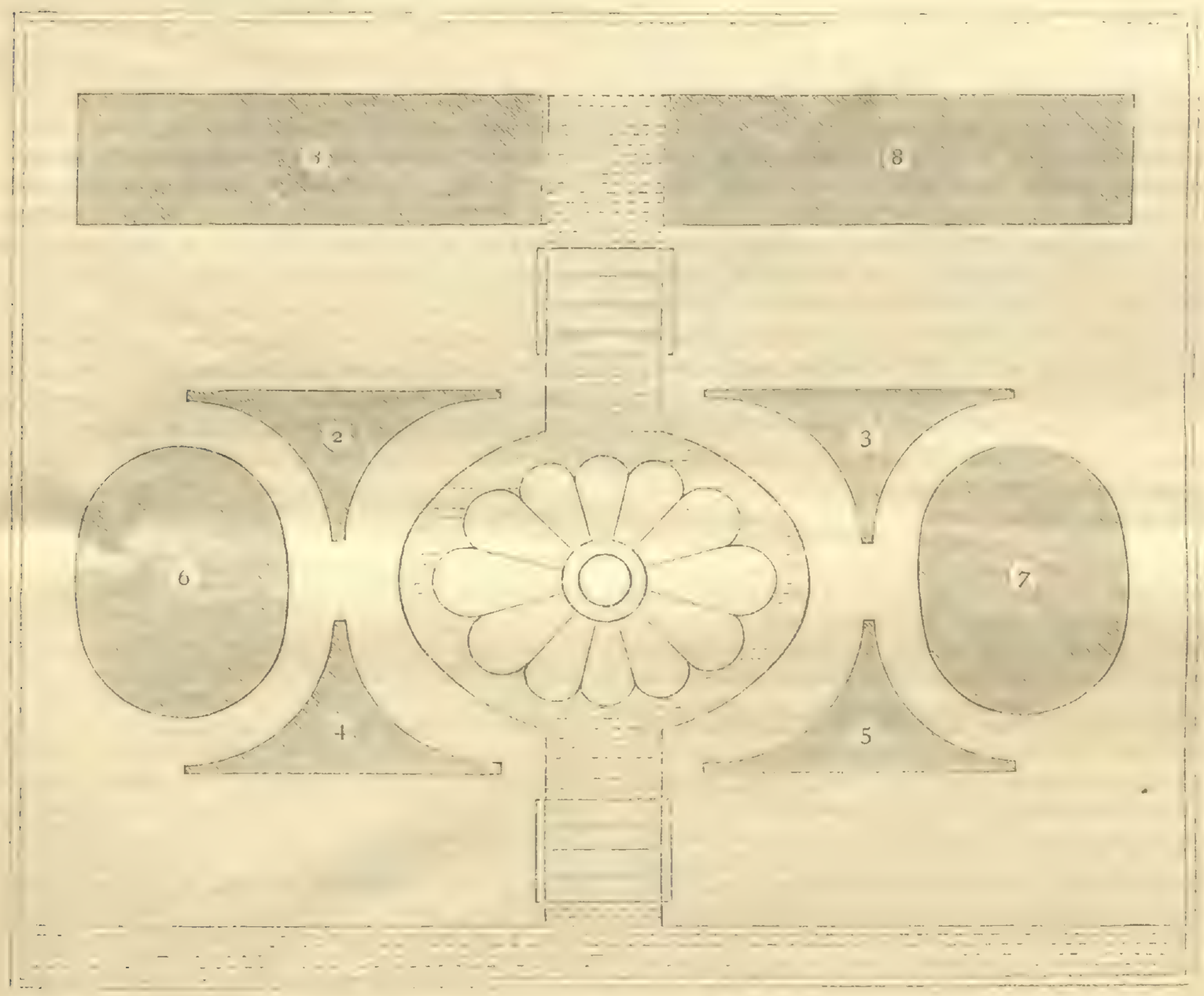

FIG. 15.—PLAN OF TERRACED GARDEN.

—— As our Northern friends stand high as foresters, the article in your number of May 8 on forestry was read with some interest. I am, however, afraid it is calculated most seriously to mislead; at least our experience in the South (Scotland) shows different results. Having cut Larch of about forty years' growth (thinning and blown down trees) we find that 300 feet produce a ton of dry bark, or thereabouts. In the North it would seem to require above 800 feet to produce a ton. Our cost, exclusive of chipping and delivering, is about 30*s.* per ton. Oak, again, stands as under. Thinning a wood of above seventy years old the result was 1 ton to 128 feet. Your Northern friend requires 180 feet to produce a ton. Our cost is about 45*s.* per ton. The experience of other practical men through the country would be of service; could you try and obtain it? *W. H. M.*

The Villa Garden.

DAHLIAS.—If the Villa gardener be a cultivator of these fine late summer and autumn flowering plants, it is well to advise him that they will require watering during dry weather. The Dahlia is a strong succulent grower, requiring ample moisture if it would do well, and it must be kept constantly growing; a check from drought would half ruin the prospect of flowers. A good strong stake needs to be placed against the main stem of each plant, to keep it in an upright position and from swaying to and fro in the wind. If a spell of dry, hot weather appears likely to occur, loosen the soil slightly about the plants and mulch the surface with a little manure. During such weather an occasional syringing of the branches in the cool of the evening does the plants much good, and serves to keep in check aphides and all insects that affect the plants. Dahlias are fine, bold, showy flowers in a garden, and if the autumn be mild and free from frost they bloom on to the end of October.

HOLLYHOCKS.—This fine flower requires some such treatment as that recommended for the Dahlia. The shoots are growing rapidly after the late invigorating rains, and unless they are secured to some substantial support, the wind is apt to snap the stalks asunder near the ground. It is best to put a good strong stake some 4 or 5 feet in height against each plant, tying the flowering stems securely but a little loosely to it. Happily, the disease which wrought such havoc with the leaves last year has not as yet developed itself, and the stronger the growth of the plants the greater will be its resisting power. It comes in the form of slight brown spots, that speedily spread themselves over the leaves. Should it put in an appearance cut away those affected and burn them; a little attention of this character may arrest the progress of the fungus, if it does not get rid of it altogether.

THE MIXED BORDER.—Delphiniums, Chrysanthemums, Phloxes, and other tall-growing perennials—Carnations and Picotees, Lilies, and such-like—all require tying up to stakes, and so keeping neat and tidy. The mixed border loses half its attractiveness when the larger plants in it are permitted to grow wildly, and they do not display their floral attractions half

so well. Carnations, Picotees, Cloves, and Pinks in particular are practically useless unless tied up neatly, in order to display their richly fragrant flowers. Of several things now in bloom in our own border, and which are by no means common, may be mentioned the purple Rocket, flowering freely from side shoots thrown up after cutting away the faded main flower stem, and very effective indeed; Campanula turbinata, very dwarf, but with large purplish-violet, basin-like flowers, and very free; Pink Lord Lyons, a very fine rosy purple variety, with large and highly fragrant flowers; Armeria alpina grandiflora, with large, pale, rose-coloured flowers, the finest of all the Thrifts, and most useful to cut from; various Aquilegias, or Columbines, among them the fine yellow A. chrysantha, a perfect gem among hardy flowers; a fine double crimson Sweet William; and others, of which the foregoing may be taken as fair representatives. These form a kind of foreground to some good Delphiniums, both double and single. Double Pyrethrums, patches of mixed Sweet Peas, the pretty blue Lathyrus sativus, &c. There is nothing like a few good things; and a few good things can be so selected as that they give a succession of hues of the most pleasing character.

The mixed border must be kept quite free from weeds so as to give it an orderly appearance, and the edging, whether of grass or Box, should be kept neatly clipped. There are certain things that we are desirous should be encouraged to make a free growth of side shoots, such, for instance, as the double purple Rocket and Lord Lyons Pink. The latter needs all the encouragement to do this which it can have, for nearly all its shoots make flowering wood, as the florists term it. We incite them to make growth by placing some good soil about the roots in the form of a little mound, and this exercises a beneficial influence on the productive powers of the plants, while the side growths root into it, and when the roots are lifted and divided by-and-by, a number of young plants can be obtained. We are encouraging our choice double and single Primroses, Polyanthuses, Hepaticas, &c., to make side growths in the same way, and they are greatly assisted by this simple plan.

CHRYSANTHEMUMS.—These fine autumn-flowering plants are so invaluable for flowering in pots in a greenhouse during the autumn, that they are indispensable to every garden having glass accommodation. They are additionally valuable from the fact that they will do well in a cold house, destitute of any heating apparatus. We might go a step farther, and say that this is the proper mode of cultivating the Chrysanthemum, inasmuch as it is frequently cut down by frost before it has had opportunity to develope its flowers.

Our Chrysanthemums, intended for indoor decoration in the autumn, are now in 32-sized pots, and are strong, sturdy plants, with vigorous main stems. Being mainly of the large flowering section, they will be allowed to grow away as strongly as possible, and not be stopped. They are now standing by the side of a gravelled walk, where they get the morning sun, but are in the shade during the remainder of the day; and they are kept freely watered at least twice a day, when the weather is dry and sunny. Now is a somewhat critical time, because if the plants, being well established in the pots which are full of roots, were to become dry at the roots, the leaves would turn yellow and drop off. Therefore, it is of the utmost importance that the plants be kept well watered.

All plants of large-flowering Chrysanthemums intended for specimens should be shifted at once into their blooming pots; the proper size is about 10 inches in diameter. The soil for these should be rich, but thoroughly drained; for the plants are quite as liable to suffer from insufficient drainage as they do from excessive drought. A good layer of crocks (*i.e.*, pieces of broken pots) or oyster shells should be placed at the bottom, then a layer of good dung (some of the old growers used to employ and strongly recommend green horse-droppings), and over this some soil, and then repot with a compost made up of loam, dung, and a little peat well mixed together. Some growers mix charcoal with the soil, and they say the plants are much improved thereby. The soil should be pressed pretty firmly about the roots, and when potted a neat stick should be placed to each, and the plants placed out-of-doors on a layer of ashes to complete their growth. On no account must the shoots of the large-flowering Chrysanthemum be pinched back when they have reached this stage. On the other hand, plants intended for specimen blooms do not require so much richness in the soil as the plants intended for heads of flower, as in the case of specimen blooms feeding does so much when administered at the proper time.

CLEMATISES ON POLES.—We have so frequently urged this mode of culture of some of the beautiful summer blooming Clematises, because so effective, that a reference to them may prove a note in season. Our plants, about sixteen or so in number, are now rapidly coming into flower. The strong shoots are tied to the poles till they reach the top. They are then securely fastened to a nail driven into the top of the pole, and then brought downwards if they continue to make growth. Pillars of this kind have a charming appearance, and, by mulching the plants with dung, and keeping them well watered in dry weather, we get numbers of very fine blossoms. Jackmanni, rubella, magnifica, Star of India, Prince of Wales, Lady Bovill, Thomas Moore, Mrs. James Bateman, velutina purpurea, Alexandra, lanuginosa nivea, and a few others form our collection, and, grown to these upright poles, do not interfere with anything else grown in a mixed border. But little labour is required to keep the leading shoots securely tied in, and by regularly distributing them over the surface of the plants flowers are had almost from the base to the top. This mode of culture is very suitable to small gardens, and it is in the highest degree satisfactory from the decorative point of view.

Natural History.

CRIOCERIS ASPARAGI.—The Asparagus beetle (Crioceris Asparagi, or Cross-bearer, to borrow the fanciful but descriptive name given by our French neighbours) is now appearing, and, if injurious to any important degree, should now be attended to. The perfect beetle is about half an inch in length, oblong in shape, to general observation of a dark blue-green ground colour, with red body and wing-cases marked with a dark longitudinal cross, with two cross bars on an ochreous ground, the edges of the elytra of a bright testaceous red, and later in the year it may possibly gain some protection from attack by the resemblance of its tints (just at a glance) to the injured berries of the Asparagus. It is an uncertain visitor, sometimes being missing from its most favourite localities, and again appearing in great quantities. About the third week in June I noticed it in some numbers on the Asparagus in my garden near Isleworth, moving slowly about the plants or stationary with the antennæ placed parallel and advanced horizontally before the head, as if feeling along the stem for some desired spot. In its perfect state the beetle seems harmless, but its appearance is very soon followed by that of its progeny, and the plants are now sprinkled with the eggs and larvæ of various ages.

The eggs are somewhat under the sixteenth of an inch in length, cylindrical, and narrow, bluntly pointed at one end, and fixed by a kind of foot-like enlargement to the Asparagus at the other, and altogether of a kind of dark brown horn-like colour and appearance. They are for the most part fixed on the under side of the stems of the blossom buds or the firmer leaves, sometimes in little rows of about four, but frequently only two, but, as far as I have seen, the row is always solitary, and even if there are only two eggs they are placed along the stem, never, or with very rare exceptions, side by side across it.

The larvæ are of various shades of olive or blackish grey, with black heads, six black feet, and a pale fleshy caudal foot, of which they make great use when disturbed, holding fast by it to the stem, and turning their bodies round by the help of the fixed point with great dexterity, so as to be able to move at once in the contrary direction to the supposed obstacle. The front segments of the larva are somewhat smaller than those immediately behind the pectoral legs, so that the grub has a kind of hump-backed appearance, especially whilst in motion, when the use of the caudal foot in walking gives an incurved form to the posterior extremity. When disturbed the larvæ eject a considerable quantity of brownish fluid from the mouth, but swallow it again with apparent eagerness and rapid movements of the jaws. After the completion of their growth they "spin a case or cocoon, which is tough and parchment-like, and within this they change to a white pupa, which lies in a curved position." This stage I have not had opportunity of noticing myself, but it is given by Curtis as lasting two or three weeks, when the perfect Crioceris emerges from the pupa, and plays its part in the succession of generations, continuing possibly till October.

The amount of real injury caused by the larvæ is doubtful; it has been stated in some cases to be considerable, and the quantity of sap abstracted, considered in reference to the size of the depredator, is large; but, excepting where the larvæ strip the bark from the shoot, so as to destroy all the part above, the damage, where I have seen it, is not serious, as far as the general health of the plant is concerned. Where the larvæ are very numerous, or Asparagus is grown for seed, the special attacks on the flowering stems or blossom buds are a more important matter, and some method of destruction is desirable.

How this is to be managed practically on any large scale is a difficulty. The beetles may be shaken from the plants as recommended, but it would be almost impossible to spread anything to catch them between the Asparagus stems, and if left on the ground, the rapid powers of motion they possess, when disposed to make use of them, would restore them in a few minutes to their former position. The larvæ, on the contrary, are exceedingly tenacious, but once off the stems, and on a level surface, appear almost unable to move without the help of some object round which they may clasp their legs. With simple hand-picking the damage to the plants, from bruising the shoots, would probably be greater than that caused by the larvæ, but anything that would make the grub in some degree loosen its hold would facilitate the operation. Salt answers excellently at once in this way, as the habit of the grub of exuding moisture when meddled with liquifies the salt, and applies it in the most effective manner, and (as far as I have tried it) the larva under its influence is unable to hold firmly against a slight pull, and if a large dose is applied is killed.

With a little salt on the fingers, instead of simply applying them bare to the grubs, it appears as if the shoots might be effectively cleared, and if the salt should be injurious to the foliage, soot similarly used appears almost as serviceable; but, excepting where the grub appears in great quantities, its presence is less injurious than any common remedy involving handling the tender shoots. *O.*

Apiary.

FLY-AWAY SWARMS.—It will have been observed by most bee-masters of long experience, that there are certain years more favourable than others for these insects searching out hollow parts of decaying trees, or small openings of an entrance under a lead or slate covered roof, such places being more their natural habitation than the artificially made hive. Whether the incentive mood for migration to a distance may be owing to any peculiarities in the state of the weather about the time of swarming is not easily ascertained; certain it is, however, that it is not always the warmest seasons that they select for a long flight; and occasionally a lapse of several years will intervene without any attempt being made. Last month two swarms started out of the gardens here, to reach their searched out homes, but were quickly followed and arrested by getting fairly in front of the swarms and firing off a few charges of powder, which foiled them in their onward course, and they soon settled on branches of the nearest trees, were hived, and brought back.

Although it is asserted by some bee authors that swarms when once started on their flight cannot be checked or arrested, I am fully convinced that but for the means I used these swarms would have proceeded further in the direction they were bent upon. During my long experience as an apiarian—nearly fifty years—I have had numerous opportunities of proving the complete efficiency of the means which I employ. Indeed the origin of my stock here, twenty-four years ago, was a swarm captured by me through the use of the gun in heading it. It is well-known that before fly-away swarms come off the stock hive, their place of new settlement is looked out and decided upon by a small searching party. And it is these same bees which lead and conduct the swarms to their distant home. I believe that it was owing to a knowledge of this fact that the practice of tinkling with old pans, &c., while the swarm is coming off, so commonly made use of by our forefathers, and still adopted in Sussex and different parts of the kingdom, was to prevent the fugitive party being heard, and thereby causing them to settle near home.

The direction that a fly-away swarm takes is invariably straight, their flight being over walls, houses, trees, or anything that may be in the way. My practice whenever a swarm is reported to be coming off, is to provide myself with a gun, powder, and caps, so as to be prepared for the chase should it he necessary. As soon as it is seen they intend to be off I run forward, and, before firing, I get fairly ahead of the leading bees. It may not stop them at once, especially if there are not trees or bushes at hand; but if once baffled in the direction they were flying, they will either settle soon or go back. Shooting in the midst of a swarm is of no use whatever, and I imagine that it is from a want of a knowledge of this particular point—viz., the heading or getting well in front of the leading bees before firing—that failures with others have taken place.

Having been appointed to notice bees swarming, and to give information of the same at a very early age by my father, who was an extensive bee-master, I have ever since taken a lively interest in them, especially at swarming time; and although I prefer natural swarms, I take off artificial ones occasionally. As my method is a simple one, differing from the general practice adopted by others, I will here explain it. The time I prefer for performing this operation in taking off artificial swarms or driving is the middle of the day, when a large portion of the workers are out. Having provided myself with two empty hives and a bee-board, two forked sticks about 20 inches

long, and two short pieces for rapping the hive with, I take one of these hives and sticks, which are placed at a short distance from the apiary where they are to be used. The other is put on the board and taken to the front of the hive that is to be operated upon. The full one—board as well—is removed and placed on the ground, while the empty one is moved into its place, so that the bees coming in from the fields may have a home to enter until the full one, minus the bees, is again reinstated. I now take the full one off the board, turn it upside down, and carry it in this position to where the empty hive and sticks were left, where it is set with its crown on the ground; a few sharp strokes on the sides with the hands send down all the bees to fill themselves with honey before the exodus takes place. Any few of the stragglers that rise will, after making a dart or two of defiance, retire to the hive. During the few seconds they are feeding the empty hive is adjusted on the two forked sticks at a sharp angle, the lower edge resting on the side of the full one so as to admit of the bees running easily up. I then use the two drum-sticks, beating gently round the lower part of the hive. The rush upward as soon as they have satisfied themselves with honey is remarkable, and apparently with the same happy feeling as one sees when putting a natural swarm into a new hive. At this stage of the work I commonly take the guard off my face and look out for the queen, for in the case of an artificial swarm it is important to know that she is in the right place amongst the divided company. The advantages of open driving are that you see what you are about, and the state of the bees in the lower hive; while the covered system is all guesswork. When it is seen that sufficient bees have been taken off, the hive is carried back to its place, and the bees which have taken possession of the empty one are shaken out, and they quickly rise and enter the old hive. In following up this open driving, I may also state that I have never used any stupefying smoke or other substance, excepting in putting the driven-out bees into an established stock to prevent fighting. The process is a quick and easy one, and simply requires a little confidence to begin it. *J. Webster, Gordon Castle, July* 10.

Bee-swarming Extraordinary.—In the afternoon of the 7th inst., the day being very hot and sunny, while I was occupied with the summer pruning of the standard Rose trees in my garden, a large swarm of bees came over a high hedge and alighted on a full blown Rose tree close beside me, almost in contact with my hand. Instantly the flower as well as the stem were literally crowded with them, and a dense mass kept flying and buzzing around my head, as if they intended to form a settlement on my person, could they have found a suitable resting place there. Fortunately I had the presence of mind not to disturb them in any way, but quietly retreated backwards until I got clear, and thus escaped wholly unharmed. Had I irritated them in the slightest degree they would, in all probability, have stung me to death. On communicating the event to the persons in the house assistance was obtained, and the entire swarm safely transferred into a hive, where they now appear to be quite comfortable and happy. *Subscriber, South Wales.*

Honey Extractors.—In your review of *A Book for Bee-keepers* (by A. Rusbridge) you say, "this is the first book published in this country in which we are advised to use the honey extractor;" this is an error, the use of that implement having been warmly advocated and fully described and illustrated by Mr. John Hunter, in his *Manual of Bee-keeping* (a whole chaper being devoted to it); also by *The Country* and *Bee Journal* [These are not books. Eds.]—all of whom have the priority of Mr. Rusbridge. *Veritas.*

Notices of Books.

Among the publications lately received we may mention—*Proceedings of the Liverpool Naturalists' Field Club*, the members of which boast that they have traversed more than half a million of miles in their pleasurable rambles, in the course of which they have botanised to such purpose that a second appendix to the *Flora of Liverpool* has become necessary.—The *Advocate*, a new monthly journal, devoted to the interests of Members of Parliament, magistrates, barristers, and solicitors.—*Report on the Acclimatisation Society of Queensland*, a society evidently doing good work. It is curious to observe how cultivated plants become prone to disease. Mention is made in these pages of a disease severe enough to affect seriously the trade in Bananas.—The *Sanitary Review*, a publication specially devoted to sanitary science.—The *Journal of Applied Science*, edited by Mr. P. L. Simmonds.—A brief essay on *Meteorological Phenomena, &c.*, by G. F. Rowell.—*Agriculture in South Australia*, a reprint from the *Melbourne Leader*. The Botanic Garden at Adelaide is described as a "gem of a garden," where the scientific and the useful are thoroughly attended to. The garden establishment of the Hon. T. Elder, near Adelaide, is described. The whole pamphlet is well worth reading, as it contains much useful information on the agricultural prospects of the colony.

—— Mr. Eccles Haigh has issued in pamphlet form (Philip, Fleet Street) his notions on the *Potato Disease, with Strictures on the Potato Fungus* [*sic*]. He considers that the disease is to be avoided by abstention from the use of nitrogenous manures, while the "curl" is to be avoided by an occasional resort to the seed for producing young and vigorous varieties. Recent events have shown the futility of theorising and arguing till the facts of the case are well ascertained and established beyond dispute. It is necessary now to be certain that the so-called "new Potato disease" is identical with the "curl." If that be so, and the probabilities point in that direction, it is a great point gained. But if so, where was the Potato mould all the time, and where the peculiar gangrene we now associate with the Potato disease? It is possible the two forms do not or cannot co-exist, as a rule, and that the conditions which favour the one are not such as are propitious to the other. We say "as a rule" because one of the most important points in Mr. W. G. Smith's researches was the discovery in the same plant of the two forms of the fungus, viz., its ordinary aërial form as a mould, and its condition in the tuber or in the leaf as the long-sought "resting spore."

—— The July number of the *Popular Science Review*, always a valuable periodical, contains several particularly interesting articles, among which we may cite those on unbreakable glass, on the ice age, and a smartly written article on the tendencies of systematic botany, by Dr. M. C. Cooke, in which he deprecates the tendency observable in many quarters to break down old landmarks, and unduly multiply genera. A readjustment must be made, but it is certainly premature to attempt it in many cases, and therefore, till the host of new facts in minute anatomy, development, and physiology can be co-related one with another and with the facts of morphology, it is better to keep to the old lines of classification for purposes of convenience. Nevertheless, as Dr. Cooke well puts it, convenience is not science.

—— The July number of the *Revue de l'Horticulture Belge* contains a coloured figure of Azalea Comte de Gomer, an orange-salmon coloured flower of the mollis type. A. mollis, we are reminded by M. Oswald de Kerchove, was introduced by Von Siebold, but lost. Maximowicz re-introduced it from Japan, in 1857, but it was not for ten years that it became popular with cultivators.

—— A sixth edition of the *Official Guide to the Kew Museums* has been published by Mr. Jackson, Museum, Kew, and may be mentioned as an excellent popular guide to these magnificent collections. No part of the vast establishment at Kew is more important than are these museums, while the system of labelling is so complete and so perfect that we regret that it is not possible to carry out a similar system in the case of the living plants. It is a great misfortune that the three museums are not consolidated under one roof together with the herbarium and library. An index to the present publication renders this little book a veritable introduction to economic botany. Its value would be still further enhanced by the addition of a few illustrative woodcuts.

—— Under the direction of M. P. Dehérain, the first number of the *Annales Agronomiques* has been issued by M. G. Masson (Williams & Norgate). The object of the publication is to collect together the memoirs and observations published at Agricultural Institutes, whether French or belonging to some other nation. The utility of such a publication is so incontestable, that we trust the present venture may achieve success. Among the papers in the part before us, we notice one from M. Corenwinder on artificial manure and Beetroot; a translation of Messrs. Lawes' and Gilbert's paper on the culture of Barley on the same soil for twenty years; experiments on the Vine disease (Phylloxera), by M. Audoynaud, the gist of which is, that if an affected Vine be liberally manured with nitrogenous manures, containing also potash and phosphoric acid, it will recover its vigour. M. Planchon has a paper on the same subject, in which he concludes that the Phylloxera is of American extraction, which is likely enough, though we demur to the probability of its having been imported with American Vines, of which few or none are grown in this country. M. Dubost in the same periodical treats of the vineyards of Argenteuil. This is an interesting paper, to which we shall, if space allow, advert at greater length on another occasion.

—— M. Decaisne has lately published a *Memoire sur la Famille des Pomacées*, in which he objects to the aggregation in one genus, Pyrus, of Apples, Quinces, Sorbs, and Pears. He gives at some length the characters upon which he relies to distinguish the several genera which he adopts. If we may be permitted to give an opinion on a question of which we have only a general acquaintance, we should be disposed to think that in endeavouring to avoid one extreme M. Decaisne has fallen into the other, and separated genera upon characters of insufficient importance. No doubt for horticultural purposes it is much better to adopt such genera as Apple, Pear, Quince, and the like, which are recognised by even an untrained observer, than to lump them all under one generic head of Pyrus; but, on the other hand, to make some twenty-five genera out of the group Pomaceæ seems to be going to the opposite extreme. M. Decaisne has added some excellent illustrations, and his great knowledge and experience will give a special value to his communication.

—— The May number of the *Gartenflora*, which has lately reached us, contains coloured plates of Portea kermesina, a handsome pink-bracted Bromeliad no longer new in gardens. The same may be said of Strelitzia reginæ.

—— The reissue of Sowerby's *British Wild Flowers* (Van Voorst) brings the work down to the Poplars.

—— The current number of the *Botanical Magazine* contains plates of Vanda limbata; Dietes Huttoni, which is so like an Iris that it seems a pity to keep the plant separate from that genus; Cypripedium Argus, which may be characterised as a fine variety of C. barbatum, with a more pointed upper sepal; Crocus minimus and C. Fleischeri, two small spring-flowering Crocuses; and Tulipa Greigi, a handsome scarlet-flowered kind with a dark centre, and with spotted leaves.

—— The July number of the *Florist* contains a coloured illustration of the Sultan Plum, one of Messrs. Rivers' seedlings, allied to the Orleans Plum, but a better bearer, and much earlier. Another coloured plate is devoted to two varieties of Lilium canadense. We are glad to see Mr. Cramb, Mr. Clark, and other authors, taking up the question of Pears, as affected by the soil in which they are grown. This is a matter to which far too little attention has been paid.

—— A fourfold part of the *Belgique Horticole* has lately reached us. The plates comprise representations of Calathea crocata, Maranta leuconeura, M. Massangeana, a variety of Anemia Phyllitidis, and Bilbergia decora.

Law Notes.

A Gardener's Wages Disputed: the Law of the Case.—*Ryan* v. *Dunbar*.—This was an action brought in the Bloomsbury County Court on the 12th inst., in which the plaintiff, a gardener, sued the defendant, his employer, residing at Haverstock Hill, to recover the sum of £2 15*s.* 6*d.* under the following circumstances. The plaintiff stated he was engaged by the defendant as his gardener at a yearly salary of £50, paid weekly, with the use of a cottage, and 1*s.* 6*d.* a week for beer money, and that in May last he was summarily dismissed by the defendant, who at the time of leaving owed him one week's wages which he had worked for, which sum, together with one week's wages in lieu of notice, 14*s.* for board wages, and 1*s.* 6*d.* for beer money, constituted the particulars of the present claim. The plaintiff said, in answer to the Judge, that he had made repeated applications to the defendant for payment, who told him to seek his remedy in the County Court. Hence the present action. The defendant, being called, stated that when the plaintiff first entered his service he gave him every satisfaction, but that subsequently he had neglected his duties through drink, his garden was much neglected, and his kitchen-garden and greenhouses very unproductive in consequence of the plaintiff's negligence, and that the plaintiff had frequently neglected to carry out the instructions given to him. The defendant said he had witnesses to call in support of his case, when the learned Judge asked the plaintiff if he had any witnesses to call, to which he replied in the negative; upon which, in giving judgment, the learned Judge remarked that these cases between master and servant were continually before him. He wished it to be understood that when a servant disobeyed any reasonable demand of his master, he was liable to be discharged without notice, and would forfeit any wages due in lieu of notice, while the wages accruing due must be paid to him; and again, as no servant can recover under any circumstances for board wages or beer money, that portion of the plaintiff's claim must be disallowed. Judgment would therefore be in favour of the plaintiff for one week's wages (£1), due at the time of leaving. The Judge then said it was a pity servants were so ill-advised as to bring these actions.

HORTICULTURAL EXHIBITIONS, 1875.

JULY.

28 and 29.—Preston Floral and Horticultural Society's Exhibition. Hon. Sec., W. Troughton, 4, Church St., Preston.

AUGUST.

2.—Peterborough Flower Show. Sec., F. G. Buckle.
4.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
6 and 7.—Manchester Botanical and Horticultural Society. Exhibition of Carnations, Picotees, New Plants, &c. Manager, Bruce Findlay.
6 and 7.—Cheadle Floral and Horticultural Society's Eighth Annual Show.
7.—Rossendale Floral and Horticultural Society's Exhibition. Sec., M. J. Lonsdale, Newchurch.
10.—Clay Cross Horticultural Society's Eighteenth Annual Exhibition.
12.—Canterbury Horticultural Society's Exhibition. Sec., Charles Sendell.
17.—Coventry and Warwickshire Horticultural Society's Show at Combe Abbey. Sec., Thomas Wigston, 3, Portland Terrace, Coventry.
18.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
24 and 25.—Metropolitan Floral Society's Exhibition at the Alexandra Palace.
25.—Isle of Thanet Floral and Horticultural Association's Annual Exhibition. Hon. Sec., C. D. Smith, Esq., 8, Marine Terrace, Margate.
26.—Royal Horticultural Society of Ireland. Autumn Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

THE
Gardeners' Chronicle.

SATURDAY, JULY 17, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, July 21 { Royal Horticultural Society: Meeting of the Fruit, Floral, and Scientific Committees; Great Summer Show; Pelargonium Society's Exhibition, and Competition for Messrs. Veitchs' Prizes.

FRIDAY, July 23 { Helensburgh and West of Scotland Rosarians' Society's Exhibition (two days).

THE result of the special meeting of the ROYAL HORTICULTURAL SOCIETY on Thursday last will be accepted with much satisfaction by a large majority of the Fellows of the Society. It was so obvious to most people that things were getting from bad to worse, and that the policy of the four gentlemen who have at length completed their resignation was so antagonistic to that of the other members of the Council, and of the body of the Fellows generally, that the only wonder is that these gentlemen did not appreciate the position of affairs, and even to the last did not see that by their persistence in office they were acting the part of obstructives. We are quite willing to credit them with good intentions, and we should be among the first to regret any harshness of expression, even within the liberty accorded by the customs of debate. At the same time we can but point out that the necessity for the requisition which led to the fulfilment of the resignation of the four gentlemen alluded to, was amply demonstrated by their own utterances, and by the denials and recriminations that took place publicly in the sight of the Fellows between the four members and their associates on the Council. Differences of opinion in a Council there must always be, but the usual rule is that the minority bow to the decision of the majority rather than obstruct the business, or if the difference be important on questions of policy, then, of course, the honourable course is to retire. If any further reason for adopting the unusual course of publicly arraigning certain members of the Council of the Society were required, it might be found in the speech of Mr. HARRY VEITCH, who in good taste and excellent temper set forth the complaints of the horticulturists in such a way as to command, first the entire attention, and next the all but unanimous assent of an unusually turbulent meeting.

Practical union among the members of the Council having now, it is to be hoped, been secured, we may look forward hopefully to brighter times. The Council, before all things, ought to be horticultural; but local interests need not on that account be ignored. Still less likely is it that a horticultural Council would endeavour to stamp out and over-ride South Kensington interests, as horticulture was lately over-ridden by those who had no sympathy with or appreciation of the especial objects for which the Society was founded. We quite agree that, all the time there is community of interest in any point, the wisest course is to soften down the points of difference as much as possible, and work together for the common good. We should prefer that the old Society were independent alike of South Kensington and of the Commissioners, but that is not practicable. The next best thing is to make the best of existing circumstances. This we believe the present Council is anxious to do. Their first step will be to approach the Commissioners with a view to some arrangement. We must not expect, we have no right to expect, any consideration that involves sacrifice on their parts—still we have their pledge, in general terms, that they are willing to treat on a friendly basis. It is easy to see why the negotiations lately entered into failed. The Commissioners were too wise to treat with an obviously divided Council, but we trust that they will have no such excuse now.

Some means will have to be taken, by subscriptions or otherwise, to release the Society from its more immediate and pressing embarassments, and then the Council must proceed vigorously with some scheme of reorganisation on the basis of public utility and the welfare of horticulture. One thing is certain, that the existing Council, particularly those who have borne the brunt of the adverse fates of the last two or three years, deserve the most cordial thanks of all horticulturists. They came into office to oblige the horticultural party at a time of great confusion, when it was extremely difficult to find any one willing to serve; they have stuck to their posts, and though often over-powered and over-matched, they have exerted themselves most manfully for horticulture. We trust they will now find their reward in the mending fortunes of the Society. It is only right, as a matter of gratitude, that those gentlemen should have the support of the horticulturists, and we believe this feeling will find expression on the 21st, the usual exhibitors at the Society's shows having combined to gratuitously make such an exhibition on that date as shall be a credit to the Society.

That the display on this occasion will be one of the finest the Society has ever had, we have good reason to believe, from the numbers of nurserymen and amateurs who have already signified their intention of co-operating on the occasion, amongst whom we may name Messrs. Veitch & Sons, Mr. Bull, Mr. B. S. Williams, Mr. Turner, Messrs. J. & C. Lee, Messrs. Standish & Co., Mr. Wills, Messrs. Osborn & Son, Mr. Laing, Mr. Cutbush, Messrs. Paul & Son, Mr. Parker, Mr. Peacock, Mr. William Paul, Mr. Ley, Mr. Hudson, Mr. Morse, Mr. Wimsett, and Mr. Harrow. The show is to be held under the great tent, and the display of fruit in competition for Messrs. Veitch & Sons' prizes will be made in a smaller one. All that at present seems wanting to ensure financial success is fine weather and a good attendance.

Thanks are also due to those country Fellows who, at great inconvenience to themselves, have lent their aid to right the ship. One of the very first things to do is to conciliate and bring back the long-estranged country Fellows, and enlarge their numbers, and make the Society truly national.

Lastly, we may take it as a good omen that while all this disturbance, now happily ended, was going on, a member of the Scientific Committee—a body happily unmoved by party politics—quietly brought forward a discovery of such importance that not only will his own reputation be enhanced, but the *prestige* of the old Society will be materially restored. This incident, to which we have already alluded, will, we trust, suffice to impress on the Council the necessity of fostering and encouraging not only the practical side of horticulture but the scientific element also. There is the more need for this, for while practical horticulture can very well take care of itself, scientific and experimental horticulture require the support of a learned society. Individuals and commercial men can only occasionally expend their substance in pursuits that are not directly remunerative, but it is one of the special functions of a society like the Royal Horticultural Society to promote and encourage experiments and observations which are likely to be to the advantage of scientific and, ultimately, of practical horticulture.

—— WE have great pleasure in publishing the following letter from the Secretary of the Royal Horticultural Society to Mr. WORTHINGTON SMITH:—

"Royal Horticultural Society,
South Kensington, S.W., July 12.

"Dear Sir,—I have the pleasure to inform you that the Council of the Royal Horticultural Society have this day unanimously conferred upon you the Gold Banksian Medal, as a reward of merit for the skill and diligence you have displayed in the discovery of the resting-spore of Peronospora infestans in the tuber of the Potato.—I have the honour to be, dear Sir, yours faithfully,

"ROBERT HOGG, Secretary.

"WORTHINGTON G. SMITH, Esq."

—— We are requested to invite the attention of those who are interested in Pelargoniums to the fact that the EXHIBITION OF THE PELARGONIUM SOCIETY will take place at the gardens of the Royal Horticultural Society, South Kensington, on Wednesday next, July 21. It may, perhaps, prevent some misunderstanding as to the entries if we point out that the show, being held subject to the regulations of the Royal Horticultural Society, notice of entries should be sent in to Mr. BARRON, at South Kensington, in the usual way. The annual meeting of the Pelargonium Society will take place at Chiswick, by permission of the Council, on the afternoon of the 22d inst., the day following the show; and, as it has been suggested that the members should dine together after the meeting, it would be well that those who may be able or desirous to do so, should notify this to the hon. secretary not later than Tuesday, in order that arrangements may be made for their comfort and convenience.

—— Great preparations are in progress for the INTERNATIONAL FRUIT EXHIBITION which is to be opened AT GHENT on September 19 next, and which is to continue till the 24th, in connection with the annual meeting of the Pomological Society of France. The *Bulletin d'Arboriculture* contains the full programme and regulations, from which we learn that there are three committees, one for the exhibition, with M. AMBROSE VERSCHAFFELT as chairman, and M. BURVENICH secretary; one for the Congress, with Prof. KICKX as chairman, and M. PYNAERT as secretary; and one Reception Committee, to arrange for banquets, excursions, &c., of which M. PICKAERT ECHEVIN, of Ghent, is chairman, and M. VAN HULLE secretary. The President is M. le Comte DE KERCHOVE DE DENTERGHEM, Burgomaster of Ghent, and the general secretary is M. RODIGAS. All communications should be addressed to M. BURVENICH. Seventy-one classes are mentioned in the schedule for various fruits, open to all comers, and medals of gold, silver, and bronze, will be awarded according to merit. The Congress, which will be specially under the direction of the Pomological Society of France, will devote its attention specially to fruits sent for study and comparison, to the best modes of training, and to various other matters. We would suggest to some of our leading exhibitors at Edinburgh that they transfer from that city to Ghent such of their exhibits as circumstances will permit. Belgian hospitality is so notorious that no fear need be entertained of any but the warmest welcome.

—— With reference to the forthcoming INTERNATIONAL HORTICULTURAL EXHIBITION AT COLOGNE we learn from the executive committee that the number of home and foreign applicants for space has greatly surpassed the most sanguine expectations, and the endeavours of the Committee-General to give the exhibition a truly international character have been most successful. A special committee formed in Paris will exert itself in behalf of the exhibition. The French nurserymen and manufacturers of artificial flowers will make a splendid display. The wines, &c., of the Champagne and Burgundy, of Bordeaux, Cette, and Cognac, will also be represented; and there is no doubt but that France will be most worthily

represented in all branches relating to horticulture. The French Government also is supporting the undertaking, and has commissioned M. EUGÈNE FESTON, Sous-chef au Ministère de la Guèrre, to make a complete collection of the products growing in Algeria; and M. HÉDIARD is to do the same for all other French colonies. These last collections, together with a similar one from Egypt, sent by the Viceroy, will be one of the chief centres of attraction at the forthcoming show. The Belgian Minister for Foreign Affairs, M. D'ASPREMONT-LYNDEN, has appointed the Baron DE STEIN D'ALTENSTEIN Special Commissioner, and news has been received from the sub-committee at Brussels, of which Senator CANNART D'HAMALE is President, that the participation of Belgium on a large scale is already secured. Among the many exhibitors are the most noted horticulturists of the Continent, such as LINDEN, VAN GEERT, VERSCHAFFELT, MACKOY, POWELS, and others. Holland will be officially represented by Messrs. F. M. WILLINCK VOSZU, F. H. KRELAGE, and F. B. GROENEWEGEN. On the 22d ult. a largely attended meeting of the Netherlands Horticultural Society was held at Amsterdam, and a very good Dutch show is confidently expected: thanks to the endeavours of M. DUDOK DE WIT and the co-operation of the Maatschappij a rich and interesting collection of home and colonial produce will be sent to the exhibition. The Horticultural Society Linnæus announces that a large number of applications from exhibitors have already been received, and that the Netherlands Steam Navigation Company of Amsterdam have courteously offered to convey freight-free to Cologne and back all articles intended for exhibition. England's co-operation towards the success of this enterprise has been made the subject of a former report; meanwhile several first-rate houses have sent in their applications for space.

—— We learn from the *Belgique Horticole* that M. DUPONT has been appointed Director of the Botanic Garden, Brussels, to which also MM. CRÉPIN and DUMORTIER are attached.

—— It is a universally recognised fact in Nature that each succeeding discovery—and they are neither few nor unimportant now-a-days—does but increase our consciousness of the profundity of our ignorance. Some beautiful experiments made by Mr. CROOKES at one of the Royal Society's *soirées* have demonstrated that LIGHT alone, apart from heat, can generate MECHANICAL FORCE, as we know already it can initiate chemical action. In all probability this discovery will in due time be found important in explaining various phenomena in the life of plants and animals.

—— The FRENCH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE will meet at Nantes on August 19; the corresponding Italian Society at Palermo on the 29th of the same month.

—— At the Entomological Society recently, as we learn from the *Popular Science Review*, the Rev. A. EATON read a paper on the INSECTS OF KERGUELEN'S LAND, from which it appeared that nearly all the insects there found were remarkable for having either no wings, or only rudimentary ones. It is supposed that the high winds that prevail in these regions render the wings useless, while the plants under the circumstances have very small unattractive petals, and are self, or wind fertilised, and do not need the intervention of insects. These are extremely curious phenomena, but we suspect they must not be taken too absolutely.

—— At the horticultural exhibition at Blois in May last, as we learn from the *Journal* of the Central Horticultural Society of France, a gold medal was awarded to M. DE LA BASTIE for his invention of TOUGHENED GLASS, already alluded to by us.

—— The composition of Dr. JEANNEL'S artificial MANURE for pot plants, as detailed to the Central Horticultural Society of France, is as follows:—Nitrate of ammonia, 400 grammes (a gramme = 15 grains); phosphate of ammonia, 200 grammes; nitrate of potash, 250 grammes; hydrochlorate of ammonia, 50 grammes; sulphate of lime, 60 grammes; and sulphate of iron, 40 grammes. One gramme or 15 grains of this mixture is dissolved in a litre of water, and used once or twice a week. We have not the slightest doubt as to the value of this manure for all plants to which ammoniacal manures are beneficial, but there are some, such as the Leguminosæ, to which they are of no particular benefit. Moreover, we suspect the ammonia would favour the leaf growth at the expense of the flower, which would not always be desirable. The manure, then, must be used with discretion and tentatively.

—— A great improvement has recently been carried out at the LINNEAN SOCIETY, one of the rooms of which has been specially devoted to a reading-room, apart from the library proper. In this room are placed the several natural history periodicals, British and foreign, and the famous herbaria of WALLICH and Sir JAMES SMITH. No pains should be spared to render this important Society the central place of meeting for naturalists in London. The Society is eminently worthy of the support of all who are interested in natural history.

—— We learn that the ROSE SHOW which was announced to be held at LYONS on June 11—13 did not take place. The Préfet, it appears, from some motive not apparent, declined his sanction, and permission to exhibit Roses publicly was refused at the last moment. How odd we should think it if the permission of the Lord Mayor or Deputy-Lieutenant of the county had to be asked before we could hold a Rose show. Lyons Roses must have an undue proportion of thorns surely.

—— At CALAMATA, in the Morea, large quantities of FIGS are grown, about 8000 tons being the produce of last year. They realise about £15 per ton. The demand in England for these Figs is very small, owing to their very tough skin. The bulk finds its way to Russia by the Black Sea, or to Trieste for consumption in Germany.

—— A very interesting series of HYBRID SPIRÆAS has been forwarded by Mr. WILLISON, Whitby. Though S. palmata was the female plant, all, or nearly all of them have pinnate leaves, though they differ much among themselves both in size and form. Out of some thousand plants, about a hundred are flowering this season, and Mr. WILLISON notes that with him they are much earlier than the parent, S. palmata. In those that have come before us, the flowers are either white or pinkish. One of the white-flowered forms has the pips so much larger than usual that Mr. WILLISON suggests it might be called grandiflora. The value of these seedlings as garden plants cannot yet be truly estimated, since their permanent character

FIG. 16.—WORSLEY HALL, THE SEAT OF THE EARL OF ELLESMERE.

will scarcely be manifest, but the large-flowered one alluded to, and some of those with the flowers much suffused with pink, may be expected to prove pretty ornaments of our flower borders. All of them, Mr. WILLISON remarks, are very light, pleasing, and gay.

—— From Patras, the head-quarters of the CURRANT produce, we learn that the CROPS during the past year have been highly satisfactory—the yield was 61,992 tons against 57,541 tons in 1873. The price for common quality averages £16 per ton free on board, and £25 for choicest descriptions, which averaged about 10 per cent. less than was paid for the crop of 1873. Of the above total yield the United Kingdom took no less than 44,327 tons. It is said that the increase in the Currant crop is due to the very large extent to which waste land has been cultivated in the Morea during the past ten years. The Currant plant requires seven or eight years to come to its full bearing, and it is reckoned that with favourable weather the crop of the Morea will soon reach 80,000 tons. It is satisfactory to learn that no signs of the Phylloxera have yet been observed on the Currant vines, but it is nevertheless considered advisable not to import cuttings of Grape Vines from France, for fear of introducing the scourge.

—— Of a set of FERNS, not usually considered hardy, planted out for trial in the hardy Fern collection at Kew, the following have survived the past winter :—Adiantum hispidulum, Cyrtomium falcatum var. caryotideum, Asplenium obtusatum, A. umbrosum, Doodia aspera, D. caudata, D. media, Lomaria procera, Lastrea decomposita, Onychium japonicum, Polypodium Billardieri, P. plebeium, Pteris cretica, Woodwardia orientalis, and W. radicans. All of these, with one or two exceptions, are now in healthy growth. The new Gymnogramma triangularis, reputed to be hardy, has unfortunately perished. We may incidentally mention, as it is not generally known, that Pteris scaberula has been found hardy, and that Polypodium (Niphobolus) Lingua survived in a house in Paris partially destoyed by the bombardment during the siege.

—— A well-known correspondent, writing to us with reference to the POTATO DISEASE, thus expresses himself with reference to the American varieties, with which his experience is something considerable :—

"I have frequently been informed on good authority that these American Potatos could only be grown for a year or two in the Eastern States; that they dwindled away, produced no crop, and became of so bad a quality that even the pigs would not eat them. They are obliged to receive new seed every year from the Western States. This was notably the case with Early Goodrich, and it is now so with Vermont Beauty in America; and my experience of Vermont Beauty, &c., exactly coincides. Fresh imported seed produces an abundant and good crop; the second year not so good; third year positively worthless. We know all Potatos are greatly influenced by change of soil, but none become such utter rubbish in so short a time as the Americans; and now we find them the most subject to disease."

—— POLYSTICHUM MUNITUM, a noble species, is in great beauty among the hardy Ferns at Kew. If to be found elsewhere, it is at least extremely rare. In general appearance it much resembles an extra vigorous form of Polystichum Lonchitis, the fronds, however, are broader, less spreading, and ascend in a variety of positions. The fronds are coriaceous, very dark green, about 14 inches long and 4 broad; densely set with pinnæ, auricled on the upper side, with a spinulose serrated margin. It is highly recommendable for choice selections. A native of western North America, from Nootka to California. We also observe several other North American rarities. Dicksonia punctilobula, long extremely rare, is here represented by a good specimen.

—— At p. 534 of the last volume of the *Gardeners' Chronicle*, for April 24, we drew attention to an American invention for covering the walls of rooms with thin shavings of real wood instead of paper, which are known in the trade as PATENT PAPERED WOOD HANGINGS. We have since read a very interesting and detailed account in an American periodical of the manner in which these gigantic shavings are produced, and from this we gather the following facts: —The logs, as furnished to the saw mill, are of different lengths and sizes, the average length being about 10 feet 6 inches. They are first placed in a tank of water 40 feet long and 7 feet deep, for the purpose of soaking and softening. After being taken out they are steamed, and are then passed to the machine for the purpose of being cut into the thin veneers referred to above, which vary in thickness from the one-hundred-and-fiftieth to the two-hundred-and-fiftieth part of an inch. Formerly it was the practice, after cutting and dressing the veneer sheets, to apply them directly to plaster walls and other surfaces by means of a strong paste, without any backing, but now the great improvement of covering the backs of the sheets with cloth or Manilla paper has been found to be a most important one. To perform this operation perfect machinery has been constructed that draws off the paper from the roll, damps it, and pastes it and then unites it to the veneer sheets, both being made to adhere to each other by heavy pressure from revolving rollers. The operation is similar to that used in putting canvas or duck on indiarubber sheeting. Without the backing of cloth or paper it is almost impossible to handle the sheets without breaking them, so that they become worthless. The paper gives a surface to which the wood firmly adheres, and also forms a cushion. In applying the sheets to plastered walls and other surfaces by paste, the operation is performed with as much ease and celerity as if they were simply paper-hangings. Again, the plastered wall, liable to have loose particles detached, is not suitable to hold the grain of the wood firmly, while the paper backing does this effectually, and at the same time is so elastic as to conform to all the minute irregularities of the wall. The colour of the paper forms a uniform background for light-coloured woods, preventing stains and dark walls from showing through. This process of papering, by the saving in waste which it has effected, has reduced the price to about 1 dollar per roll of 36 square feet for the common woods and for fancy woods according to quality. The advantages of these papered wood hangings over those of wood alone are these—they will not shrink or swell with change of temperature; they can be washed; their rich colours improve perceptibly with age, steam or furnace-heat, dampness or frost, having no effect upon them. The protection and strength they give to the plastered walls favourably impresses every one with the economy and desirability of this mode of wall decoration.

—— Mr. DARWIN has kindly forwarded to us the following note, received by him from a lady, with reference to the EXTINCTION OF THE MACARTNEY ROSE: —"I think it possible that the extinction of a species may interest you. The Macartney Rose, of which I have a tree, has all over England simultaneously ceased to produce any fructifying buds for grafting or seed-vessels after the Rose. Finding my own dying out, I tried in various places, with the same result." Can any correspondent throw further light on this subject?

—— CHLOROCODON WHITEI the "Mundi-root" of Natal, is profusely in flower in the Palm-house at Kew. It is a bold-looking climber with large leaves, but not recommended for the beauty of its flowers, which are of a dull purplish colour. They are, however, interesting on account of their peculiar structure, and as representing the only species of a new and very distinct genus of Asclepiadeæ. It was figured and described in the *Botanical Magazine* of 1871, whence we learn that the aromatic roots are extensively collected and sold by the natives as Mundi or Mindi, and used as a stomachic. So largely has it been collected that roots were with difficulty procured for transmission to Kew. "Mr. WHITE further described the Mundi as climbing to the tops of the loftiest trees, with roots spreading amongst rocks and stones to a distance of 15 to 20 feet from the stem; adding that it was never found more than a few miles from the sea, and that the nearer the sea it grew the sweeter and better was the flavour of the root." Dr. HOOKER remarks that "it is to be hoped that experiments on the properties of the root will be instituted in Natal, and the results made known." In this country, in a stove or warm greenhouse, it grows rapidly, but seems to flower best with the warmer treatment. It may easily be propagated by cutting the roots into pieces about 3 inches long—a method that would perhaps be the best if its cultivation proves desirable.

—— Among the rarer and choicer plants in the herbaceous ground at Kew there is nothing more worthy of notice than LYSIMACHIA CLETHROIDES, a plant altogether unlike its congeners in cultivation, and, in addition, decidedly ornamental. It grows about 3 feet high, the stems erect, and without branches, each surmounted by a large dense raceme of pure white flowers. The racemes are peculiar in being at first horizontal, rising erect as the flowers open from below upwards, so that the portion in bud always bends at an angle. The leaves are alternate, broadly lanceolate, about 5 inches long, and of a pleasing green. Herbarium specimens show the species to be variable as regards foliage, many having leaves that are very narrow. This seems to be one of the broader-leaved forms. It is a native of Japan, and quite hardy.

—— The wretched weather on Wednesday night had a very depressing effect on the ROYAL BOTANIC SOCIETY'S FÊTE, though we understand some 3000 person visited the gardens between 9 P.M. and midnight. Our notice of the table decorations and other features of the display is unavoidably deferred until next week.

Home Correspondence.

Royal Horticultural Society.—Acting on your suggestion of last week, I shall be happy to assist the Royal Horticultural Society's show on the 21st inst., by sending one of the best groups of new and rare plants that has ever been exhibited in this or any other country. *William Bull.*

The Potato Disease and Insects.—As insect agency has once more been brought before the public as the cause of the Potato disease, I quote the following lines from Dr. Farlow's recent memoir on the subject :—"No season during which the rot has prevailed to any extent ever passes that some cultivator of Potatos does not proclaim to the world that he has discovered the disease is caused by insects, and offers, as proof, the fact that he has found insects on rotten Potatos. The mere fact that insects are found on rotten Potatos does not prove anything whatever as to the cause of the rot. It is quite as logical to infer that the rotten Potatos produce the insects, as that the insects produce the rot." Mr. Berkeley also, in his excellent memoir, published in vol. i. of the *Journal of the Royal Horticultural Society*, p. 17, refers to the presence of insects in the tubers which have perished from the effects of the fungus. When a Potato falls a prey to the fungus which causes the murrain, it dies of blood poisoning, and is afterwards preyed upon by wireworms and other allied creatures; and it is quite as illogical to attribute the death of the Potato to wireworms, as it would be for a quack doctor to disinter the corpse of a man who had died from small-pox, and, finding worms, say—"Ah! poor fellow, he did not die of small-pox as the physicians said, but from a bad attack of worms; see, here they are." *W. G. S.*

—— It seems to have been generally accepted that the premature appearance of the disease visible in the American Potatos has been confined exclusively to home-saved seed, and that newly imported seed has escaped. I am sorry, however, to find that this notion is incorrect, as I have the disease developed in a most distinctive form in Thorburn's Paragon, imported last spring. This form, however, differs materially from any I have hitherto seen, as the haulm generally was at first robust and healthy, but within the last ten days I have observed that the axils of the leaf-stalks blackened, then gave way, and eventually the whole of the foliage on a stalk fell off, leaving only a bare diseased stem. This appearance is confined to this variety only; but if the present fearfully stormy, cold, and wet weather continues, I fear that we shall soon see the disease manifested everywhere in its worst aspect. As Mr. Smith so admirably puts it, there is no doubt the Peronospora is, in a certain stage of its existence, aquatic, and thus it is that wet seasons so largely favour its development. Why the American kinds should be the first to suffer, is still a problem; but no doubt, constitutionally, they are more exotic, have more succulent growth, and altogether lack that hardiness derived from long acclimatisation which our own kinds possess. I should like to add, that although with Mr. Hibberd I saw the effects of the wireworm on Mr. McKinlay's Potatos, I by no means assumed that wireworm caused the diseased haulm in all cases. I neither went to scoff nor remained to pray. *A. Dean.*

—— I find the Potato disease, so well-known for the last thirty years, has now made its appearance sufficiently prominent for me to recognise it in all its usual virulence. Those who have read my essay sent in to compete for the Earl Cathcart's prize —motto, "Vox Naturæ vox Deo"—will harvest their crops safe if they do so at once; there must be no delay. The temperature of the soil is now barely 62° of Fahrenheit. Should we get another fall of rain, the wind being due North, the disease will assuredly spread rapidly. I enclose you a specimen leaf. If nothing unforeseen prevents me I will harvest six varieties to-morrow. I repeat: those who will hearken to my motto and instructions will be safe; those who will not must abide the consequences. *W. Prestoe.*

Potato Sets from One Pound of Tubers.—I can best assert the accuracy of my statement as to the number of eyes obtained from the pound each of Snowflake and Eureka Potatos planted by Mr. McKinlay by quoting a remark of that cultivator to the effect that when he purchased the pound of Eureka over the counter at Messrs. Hooper & Co.'s, Centre Row, Covent Garden, he counted sixty-eight eyes in the tubers forming the pound, and he further stated that he had about the same number from the pound of Snowflake. To the best of my recollection I counted sixty-five plants of the latter, and in making a hasty computation might have overlooked five or six plants. How it came about that "J. C." got such a much smaller number of sets for his pound of each variety, I am unable to say. Mr. McKinlay planted his sets in the presence of Mr. Hooper, sen., and I presume that Mr. McKinlay's course of treatment did "comply with the conditions by which the produce is to be judged." *R. D.*

—— I beg to inform "J. C." (*Gardeners' Chronicle*, p. 43) that he has no reason to doubt the probability of cutting 1 lb. of Potatos into 70 sets. I have cut 1 lb. of Eureka into 109 sets, and every one grew. There are four competitors in this neighbourhood for Messrs. Hooper's prizes, and the average number of sets cut from the 8 lb. was 70⅝, but this number falls far short of what some of our American cousins cut 1 lb. into last year in competition for Messrs. Bliss & Sons' prizes, one gentlemen cutting 1 lb. into 167 sets, some of the eyes being divided into eight sets. Competitors are placed under no restrictions as to their mode of culture, excepting that they must not be grown from slips, or forced by artificial heat. *C. R.*

—— "J. C." thinks it is improbable that Mr. McKinlay got seventy eyes from 1 lb. of Snowflake Potato sets; why I beat Mr. McKinlay by getting ninety-one sets, all good and sound, with each eye distinct and started before planting. I had thought of entering for the Hooper prizes, but gave up for want of time. Now I know it is extremely difficult to get seventy sets from 1 lb. of ordinary seed, that is about four average sized tubers; but each eye is usually proliferous, and may with care be cut into five or six distinct sets. My plan was to select all the smallest tubers I had all covered with eyes, and as it took twenty-five to the pound, I had no difficulty in cutting up into ninety-one good sound sets. *A. D.*

Culture of the Strawberry.—I thank you for giving us Strawberry claimants space in the *Gardeners' Chronicle*, and beg of you not to close the correspondence because Mr. Ward has made the subject "too dry of late." If too much has been written, leave out "Turnips and Cabbage," and let us confine ourselves to Strawberries. Sufficient for me, on passing through the houses at midnight, to just tap the pots of Strawberries. If the sound answers to "la" (tenor clef!) "A good draught of clear rain-water," is the response from within; but if, on the contrary, a dead sound, something like tapping a brick wall, the answer will be, "Too much water already. Please put a little chip of wood or a small stone under my pot, or vegetable pathology will convince you I am dying by inches." All these "old-fashioned plans are practised still." I have also to thank Mr. Ward for bringing my trough shelves so prominently before the public. Depend on it amateurs will adopt the plan, not only for Strawberries and French Beans, but for every plant they grow in pots, whether on the greenhouse stage or on the window-sill. Plenty of time to prove this even now out-of-doors. Set Balsams in one of my simple trough shelves placed on a couple of bricks; water as usual with clean rain-water only, occasionally drawing the water off before becoming stagnant, and report progress in the *Gardeners' Chronicle*. In rainy weather the plugs may be left out. The day is not far distant when we shall not only see flowers in the artisans' windows, but Strawberries, Grape Vines—ay, and Figs too. Mr. Ward is quite right when he says "this correspondent (alluding to "W. P.") has strayed from the forcing to the outdoor culture of the Strawberry." Yes; I have very little desire to continue forcing any longer—fifty years for one man is quite long enough. The object I have in view is very different; I wish to aid the amateur and artisan; the craft needs none of mine. I also wish to give my young friends a good start in the right direction. I do wish to see Strawberries grown more naturally, at least nine months out of twelve; it has been done and will be again. I do also, as a first start, wish to impress on the minds of my young friends the necessity of registering the temperature of their soil in open air gardens; by this I opine we shall prevent many failures, and I am confident we shall be able to calculate results. Last year one part of my garden gave me ripe Strawberries on May 20; in the same garden the same variety did not ripen till June 20—all in open air. Of course the earliest needed a little protection during frosty nights: this protection was old newspapers. The Strawberry is as hardy as an indigenous plant, and consequently the temperature of the soil is in reality of more importance than the atmosphere; a very little protection will secure the plant from frost if the soil and root-action is kept all right. The next thing to be considered is select varieties. Many of our varieties are bordering on, or approaching near to, perpetuals, or, in other words, double-bearing varieties; plenty of time to prove me in this before we enter on another year. Third and last, permanent trenches will do the work better than frames or large pits; no trough shelves will be required, all are planted out at given seasons, slightly protected, and grown in natural order. *W. P.*

Raspberry: Northumberland Fillbasket.—I have just seen growing in a market garden here a magnificent crop of this fine Raspberry, producing literally the finest average sample of fruit I have ever seen. The soil in which the plants are grown is but moderately good, and the canes are of the usual size, about five being allowed to each stool, these being shortened back to an equal height of 3 feet 6 inches. The crop was so abundant, and the berries so large, that it was anticipated each of the women then gathering would earn 6*s.* 6*d.* per day at the rate of 6*d.* per 12 lb. weight, or 156 lb. to each picker. The fruit are not only very large, but rounded, of a deep red colour, and richly flavoured. I wonder that this variety is not universally grown. *A. D., Bedfont.*

A Home-made Chair.—The publication of several articles of home-made furniture, such as tables from boxes, and other easily made conveniences, has induced our friends to wish for more, and we have several letters asking us if we will not give others. The letter of F. W. Winship, Minn., giving an easily made chair, comes very opportunely. The chair is shown in fig. 17. A board 40 inches long, and 12 or 15 inches wide, as may be preferred, answers for the back and a part of the legs; the seat is made of another piece of board 12 or 15 inches long, and of a width to correspond to the back; the edge of the seat

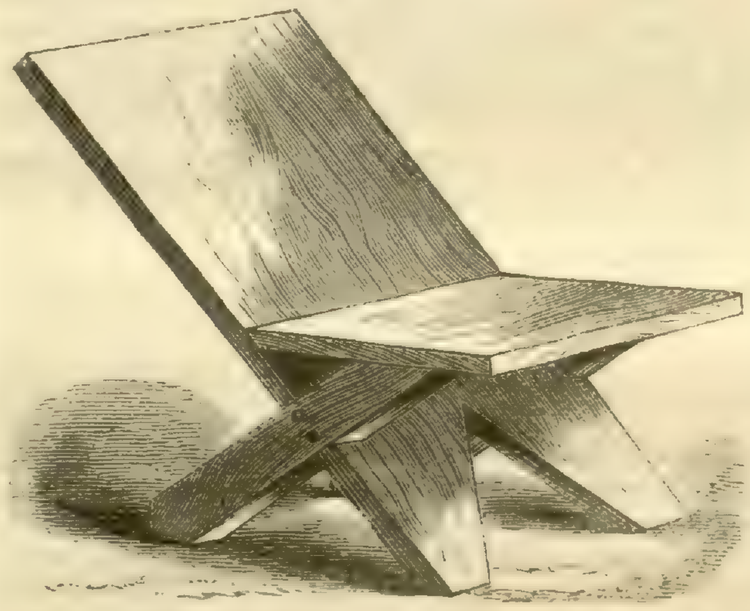

FIG. 17.—PLAIN HOME-MADE CHAIR.

which comes next to the back must be beveled to give the back the proper pitch; it is then nailed to the back, and further strengthened by nailing a cleat to the back directly under the seat; strips at each side, nailed on as shown in the engraving, strengthen the seat, and serve as the rear legs. This chair may have both seat and back upholstered, or with only a cushion for the seat it will be found very comfortable. We have no doubt that the idea is original with "F. W. W.," but a number of years ago we made a

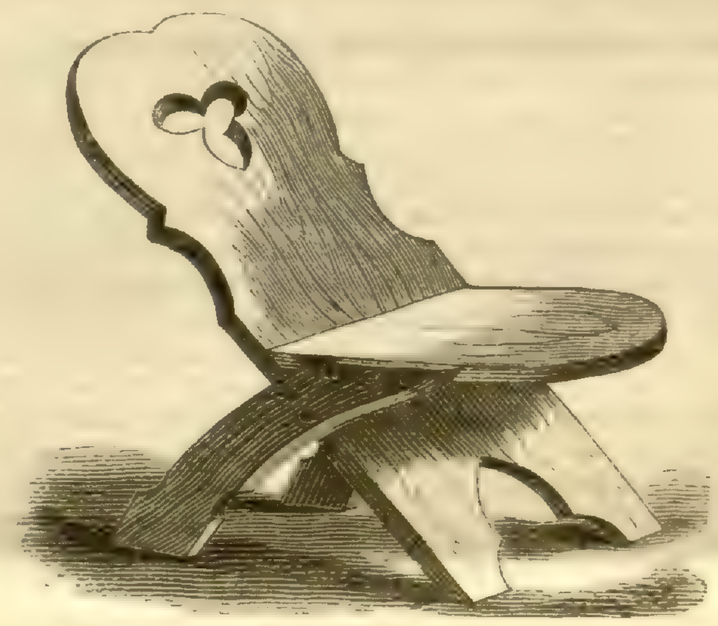

FIG. 18.—ORNAMENTED HOME-MADE CHAIR.

similar chair for a particular purpose; a young surgical friend needed a chair with a peculiar tilt, in which to perform an operation, and not being able to purchase a regular operating chair, applied to us to suggest a substitute; finding what was wanted, a chair on just this plan was made and covered in an hour or two, which answered every purpose. In fig. 18 is shown how the outlines of the parts may be varied, and produce a really handsome piece of furniture; the pattern can be made more elaborate if one wishes, but there is nothing suggested in this which may not be cut out with a narrow saw. A chair of this style made in hard wood and oiled, would not be out of place in an expensively furnished house. Very comfortable piazza-chairs may be made after these patterns. *American Agriculturist.*

Strawberry Forcing.—Your correspondents, who argue that saucers, turf, trays, &c., are useless in Strawberry forcing, when the plants are flowering and swelling their fruit, commit themselves to an argument which, if turned against them, would place them in an inextricable position. If a pot-bound fruiting plant like a Strawberry is not benefited by rooting through the bottom of the pot into fresh, rich soil, not a few of us will cease to believe the evidence of our senses, including "common sense." The enthusiastic and lamented McEwen, who, I believe, has not been surpassed as a Strawberry grower, if he has been equalled, did not object to saucers for holding water when required, and had an "old-fashioned" partiality for turf, trays, &c., and he swept the decks at the shows in his day—twenty years ago—the Royal Botanic Society doubling the amount of the 1st prize on one occasion for the extraordinary excellence of his fruit. These, and the following particulars are taken from his thoroughly practical little work on Strawberry culture published in May, 1856, but many of your readers will remember his success well enough. His average number of berries to a plant were, for Keens' Seedling, thirty; Victoria, twenty; and British Queen, thirteen. He produced fruit of the latter 4 ounces in weight, and considered 1½ ounce per fruit a fair average only. Keens' Seedling he reckoned nothing unusual at 1 ounce, and other kinds at the same rate. Have your correspondents, who are anxious to exhibit the results of their system at South Kensington, ever accomplished anything like this? If not, I think they might wait a bit. Showing fifty Strawberries at a show is not a very satisfactory way of exhibiting the mode of culture. I do not care for saucers for holding water myself, unless they can be attended to, to prevent the water standing about the roots. For years I have used saucers of the same diameter as the pots, 5 inches and 1½ inch deep, with a hole in the bottom. These are filled with rich light soil, containing a good sprinkling of Standen's bone-dust; and after seeing that the drainage is clear, the Strawberry pots are set on them when first put into heat, and the saucers are always moved with the pots when the plants are removed to cool houses to flavour or elsewhere. The roots lay hold of the fresh soil in the saucers at once, and the effect is magical on both the health of the plants and the crop of fruit, compared to those plants which are grown without saucers sometimes when we run short of them. Mr. Standen's manure makes up for the liquid manure, which I do not now use, not believing in spilling dirty water of any kind over fruit that has to be eaten if it can be helped. I shall not say much about the quality and abundance of our crops; they can always be seen in spring by anybody who chooses to call, but I may state that some surplus fruit which we had at the end of March and beginning of April last fetched 15*s.*, 20*s.*, and 25*s.* per lb., wholesale prices, in Manchester and other provincial markets, and those were not by any means our best fruit. *J. Simpson, Wortley.*

A New Heating Apparatus.—Mr. Joseph Gadsby, of Metheringham, has brought out a new invention for heating greenhouses, rooms, shops, &c. The apparatus consists of a very ingenious boiler heated with one burner of a petroleum lamp; to this boiler is attached 18 feet of metallic piping, which becomes so hot through the whole length that you cannot bear the slightest pressure of the hand upon it. The heat is spent in its operation on the boiler, so that there is neither smell nor smoke, and so very little heat escapes that you may bear the naked hand on the escape pipe. Mr. Gadsby has one in working order on his own premises, which may be seen at any time, Sundays excepted. He has not yet ascertained the length of piping it will heat, or the quantity of oil it will burn in twenty-four hours, but the heat is sufficient to keep out frost in winter or ripen a late crop of Grapes. Mr. Gadsby lights the lamp at 8 P.M., and the water is raised to near boiling point within half an hour, after which the flame is reduced to a given point, at which it is kept until 7 o'clock in the morning. There is no diminution of heat, nor any further trouble. *R. Baker, Gr., Metheringham, July.*

Primroses.—I have not as yet acknowledged the exceedingly kind offer of Major Trevor Clarke as to assistance regarding hybrid and other Primroses; I have nothing at this moment much worth his attention, nor indeed is it possible for every one to give the constant care which must be necessary for deliberately raising new varieties, though there are many occasions on which one would be extremely grateful for the light that can be given by superior experience. I did not at all mean to accuse him of such a very unscientific use of a scientific word, which was perhaps the less excusable, that as far as I had any reason for using it, I believe it was rather the difference than the resemblance I was thinking of; I mean, how very little light these frequent and great variations throw on the subject of change. The Primrose is the pigeon of the vegetable world, and both are true to their kind in varying constantly under the care of man, and very little without it. I perfectly understand now about the blue Primrose; I had imagined the colour appeared without any blue parent at all. I was told lately of that rather ornamental variety called Jack-in-the-Green, or some similar name, in the meritorious short paper on the Primrose in the *Gardeners' Chronicle* for May 29, appearing as a seedling. Like the second flower in the Hose-in-hose, the leaves are a development of the calyx. I saw two different stalked yellow

Primroses this spring, but both were quite unlike your engraving of the Oxlip, though one must have been a seedling from a Cowslip. *J. M., July 6.*

New Lilies.—Having received a case of the new Lilies in November last, "overland," I selected all the weakest bulbs and planted outdoors in a well-made bed of peat, loam, road-grit, and leaf-mould well incorporated and mixed together to about 2 feet in depth. They all appeared above the surface without a single loss about the second week in March, when they were thickly mulched with leaf-mould. At the present time I have carniolicum, pardalinum, Humboldtii, Washingtonianum, and umbellatum maculatum in full vigorous flower, with several other species showing their buds, and testaceum and tigrinum flore-pleno just about to expand. From its appearance the latter will make a fine addition to our gardens; its growth is vigorous and with leaves thickly seated upon downy stems, thus rendering it highly ornamental among other plants even when not in bloom. The larger and better looking bulbs were all potted and plunged in a cold pit, but are less vigorous than those planted in the open air. None are yet in bloom indoors, with the exception of Humboldtii; this fact serves to prove that our imported Lilies must not be coddled, but should have a free and open-air system of culture. *Ransley Tanton, Old Nurseries, Epsom.*

St. John's Wort.—In your issue of the 26th ult. there is a long article on midsummer flowers, among which stands pre-eminent St. John's Wort, the Hypericum of botanists. Some thirty years ago I pointed out to the Rev. Daniel Rock, D.D., that in Loudon's *Arb. Brit.* the generic name Hypericum was set down as "origin unknown." Now this reverend gentleman was of the "Dryasdust" type, and was deeply read in plant lore, and after I had told him of the name of some new plant, instead of thanking me he repaid any obligation by instructing me; so that after a time, using him as a book, I asked questions, and generally got some good from his replies, for although he carped at my Latin (the best Aberdeen) he was always worthy of respect. Dr. Rock said that Hypericum was a compound of two Greek words, *uper* and *icon;* and he further stated that the rays of glory always seen in good pictures of the Holy Family exactly resemble the crowd of golden stamens in the centre of the flower of all the Hypericums—hence an elegant translation of the word would be "The Glory on the Figure." *Alex. Forsyth.*

The New Bertolonias.—The great beauty of the foliage in these new hybrids, Bertolonia guttata vars. Van Houttei, Mirandæi, and Marchandi, makes one curious to ascertain what they are capable of, to what degree they are robust and resistant, and what horticultural purposes they are likely to serve. Their flowers, if known, are probably not remarkable, but their leaves are so curiously handsome, that, were a lady to wear them, fresh gathered from the plant, as trimmings to her hat or her ball dress, the majority of beholders would take them to be, not natural productions, but the work of some skilful and original artificial flower maker. Of the three, B. Van Houttei is the most superb. The ground of the leaves is a rich dark brown, reflecting the light at certain angles, the veins being traced by broken-edged stripes of crimson satin. The brown surface is also dotted with crimson spots (to be referred to again), doubtless inherited from its parent B. guttata (pink spotted), or from B. margaritacea (white spotted), if the latter had anything to do with its origin. B. Mirandæi also sparkles with pink dots on a ground of soft olive-green plush, which sends off the light falling on it at a tangent. B. Marchandi displays unspotted leaves of crimped olive-green velvet, with an irregular or zig-zag stripe of very light green, almost white, marking the middle vein. At first sight one immediately asks, "Will they ever do for us what the Coleuses do—make magnificent patches of colour and contrast during the hottest part of the bedding-out season?" They cannot give more trouble to keep through the winter than the Coleuses do; only we cannot guess from the one what will be the other's behaviour, because those come from Java, while the Bertolonias are natives of Brazil. Perhaps next summer, when they have become a little less costly, some wealthy philanthropist will be amiable enough to try a bed of them for the benefit of humbler members of the horticultural world. The *Bon Jardinier* says of B. guttata and margaritacea, "hothouse or temperate house." Van Houtte says of B. Marchandi that, although the least showy of the three, it will still be one of those privileged plants which are sure of a place on the front shelves of a hothouse. And yet, neither this nor the other two would seem to be particularly tender; for, with his usual enthusiasm, he relates:—"We have sent these three gems to all our exhibitions, and gold medals have everywhere greeted them. At Lille, under a simple wooden shed, scarcely preserved from the 2°—3° Cent. of cold which proved so injurious to the vineyards of France, the Bertolonia Van Houttei, bright as a diamond, displayed its red ribbons glancing over a black ground, itself besprinkled with equally brilliant points. This horticultural conquest remained at Lille, according to the regulations, twelve whole days, which makes an absence of twenty days, including the journey. Thence, the same plant went and gained the Gold Medal at the Royal Society of Tournay's exhibition; and then the Royal Society of Ghent crowned it in return, amidst the acclamations of our Belgian and foreign colleagues, who qualified it as the marvel of marvels." The coloured spots scattered over the leaves of B. Van Houttei and Mirandæi are raised glands, from each of which springs a bristle, the whole resembling a Nettle sting seen under a low magnifier. B. Marchandi has neither spots nor obvious glands, although the leaves are covered with a coarse down of plush-like bristles. What may be their function is still open to discovery by those who are skilful enough to make experiments upon their action—which would be the more easily effected, as Van Houtte recommends the Bertolonias to be grown in rooms under bell-glasses. Perhaps, as suggested in this journal, these glandular hairs, which have hitherto been thought to be secreting organs only, may confirm Mr. Darwin's experiments that they have in some cases the power of absorbing ammonia, both in solution and in vapour. *E. S. D.*

Sweet Briar Hedge.—Three years ago I planted a Sweet Briar hedge but until now I have not succeeded in making it grow well—it dies down in places whilst the adjoining plants are in perfect health. The soil is good, having been a field before, and in some few places, being apparently not in a better situation, the hedge is beautiful. Can any of your readers tell me why this is? *H. B.*

Failure in Melon Culture.—I am desired by my employer to ask if you will kindly afford us information as to what is the probable cause of our Melons failing, partially or wholly, year after year. I will in as brief a manner as possible describe the structure in which they are grown, and our mode of growing them. First as to structure: It is a pit about 8½ feet wide, and about 22 inches higher at back than front, with a 3½ inch pipe (hot-water) going right round the pit, and a flow and return at bottom, the pit itself being filled with fermenting material. Now for our mode of culture: After the hot dung has pretty well subsubsided, we level it all properly, and lay a good large sod grass downwards in the centre of each light; on that we place a mound of soil and thereon plant the Melons, two plants to a light, and train one to the front and the other to the back. Having previously pinched the point out of them we do nothing more to them as far as pinching goes until they reach the sides of the pit, when we nip the points out of them again; in a short time thereafter they are ready for setting, which we do. By that time they are growing very freely, which necessitates a course of thinning and stopping of the vines, which we do gradually. Up to this time they look as well as could be desired, but when the fruit is the size of one's fist, or perhaps as large again, the shoots begin to damp off about the joints, the damp spreading along the shoots, although we never syringe overhead at this stage and keep a circulation of fresh air on night and day. Such is the case year after year—either worse or not so bad according to the dulness or brightness of the season. There is one pest we are very much annoyed with in the pits, and that is woodlice; we have them by the thousand, and we have tried trapping them and scalding with hot water, but it seems to make no visible diminution in their numbers. They seem to lodge in winter about the hot-water pipes, which are at the bottom of the pit. I find they gnaw the bark off the shoots, and also destroy the foliage, besides disfiguring the fruit. We tried the sprinkling of gas-lime on the surface of the soil, but they seemed not to mind it in the least. I may just add that, having been foreman at Tyninghame under Mr. Lees for a number of years, I never once saw a single plant affected in that way there, and, as far as I recollect, they received the same treatment as we give ours, and they were grown in the same sort of structure, with this difference—the roof of his pit had a much greater pitch than ours has, and he had a greater command of fire-heat. *The Gardener.* [The structure has nothing to do with the matter; and, as the treatment seems fair, it is hard to say what is the cause of the failure. It occurs to us that possibly the soil is too rich, or of too loose a nature, so that when the strain comes upon the plants from the fruits, they give way. Can any of our Melon growing readers assign a reason? EDS.]

Pinguiculas.—It has been stated that when morsels of flesh have been laid upon the leaves of these plants they took to them kindly, and curled up the edges of their leaves, taking them into their bosoms, as it were, affectionately; but when the experiment was changed, and instead of giving them flesh to eat, you put a pebble or a piece of glass—in short, "when for bread you gave it a stone"—the plant had no affection. This was the doctrine I cavilled at. "A. D.'s" aphis would be small game for Pinguiculas, for I understood that the piece of flesh used would be of the size of a sparrow's egg. As regards the plants at Todmorden, I could only state the facts: the aphis and the Pinguicula were struggling for the bare life, and beyond that my business was not to criticise, for surely no man knew better than the owner that his plants in hot weather wanted water. *Alex. Forsyth.*

Campanulas.—If "A. D." wishes a pure white Campanula turbinata, he ought to procure the variety named Dicksoni, which is very pure in colour. These hybrid (?) forms of C. turbinata seem to approach nearer to C. carpatica than to the species under whose wings they appear. *R. P. Brotherston, Tyninghame.*

Reports of Societies.

Nottingham and Midland Counties Exhibition: *July 8 to 10.*—This fine exhibition, which was under the general management of the municipal staff, W. Lambert, Esq., Mayor of Nottingham, being President, was held in the Arboretum grounds, which, occupying as they do a considerable extent of rising ground facing the town, and with the tents and flags on gala days visible from some of the principal thoroughfares, are especially adapted for such a gathering. The show was held under canvas, the plants and cut flowers being staged in one of Edgington's mammoth marquees, which covered an area of about 30,000 square feet, while two other good-sized tents were devoted, one to fruits and vegetables, and the other to table decorations, bouquets, and such-like elegancies, the adjudication of the prizes amongst which latter class of exhibits was entrusted to a committee of ladies.

In the centre of the large tent, of which the entire circumference was occupied by cut Roses, were five circular groups of choice plants surrounding the five principal supports of the canvas roof. One of these groups was furnished by Mr. B. S. Williams, and contained a selection of the choicest novelties of the last few seasons, amongst which we particularly noted as conspicuous by their merit Croton Weismanni, Adiantum gracillimum, Dracæna amabilis, Anthurium Scherzerianum, Encephalartos Ghellinckii, and Anthericum variegatum. Another group was furnished by Mr. W. E. Dixon, Beverley, who had some finely grown specimens; while Messrs. Cole & Sons filled another with some of their choice examples of high cultivation. All these circular groups were made up of large plants, but the size of the tent was overpowering, and consequently the effect realised was less grand than the character of the plants would have warranted one to expect. Either some ready means of elevating the plants (such as tripod stands, which are unobtrusive), or the introduction of taller subjects, would have been necessary to show the fine tent to advantage. Messrs. Barron & Sons, Elvaston, had a large group of Conifers, which showed to much advantage; and a group of large evergreens of various character came from Messrs. Frettingham, Nottingham. The remaining portion of this tent was occupied by irregular beds, marked out by curves facing the circles already mentioned, the outer side following the line of the Rose stages.

ROSES.—The large tent was, as we have said, entirely surrounded by benches filled to overflowing with the cut Roses, which were exceedingly well shown, the recent showery weather having been conducive to the vigorous development of the blossoms. In the nurserymen's classes the chief honours fell to Messrs. Cranston & Mayos, Hereford, who were placed 1st both in the seventy-two singles and the forty-eight trebles, Mr. Cant being 2d, Messrs. Paul & Son 3d, and Mr. Keynes 4th, in both classes. Some of the blooms were exceedingly beautiful, especially Sir R. Wallace, Duke of Edinburgh, Princess Beatrice, an exceedingly charming colour; Charles Lefebvre, noticeable for its brilliancy; Etienne Levet, Horace Vernet, Duke of Wellington, Madame Lacharme, and Lord Clyde. In the class of thirty-six Mr. Merryweather, Southwell, showed a beautiful stand, containing good blooms of Madame Lacharme. Tea Roses were generally good. In the amateurs' class the Rev. Mr. Pochin was extremely successful, his collection being remarkable for beautiful colour and tasteful arrangement. E. J. Lowe, Esq., exhibited a good plant of his variegated-leaved Rose, an accidental sport from La Brillante, which was remarkable for the golden variegation of its foliage, and was one of the curiosities of the show. This form Mr. Lowe states he could scarcely keep alive by the ordinary process of budding, but by striking a cutting, and thus getting it on its own roots, he induced it to grow freely.

STOVE AND GREENHOUSE PLANTS.—Messrs. Cole & Sons, Withington, were placed 1st in the class for ten plants. In their group was a particularly well-coloured Croton angustifolium, and another of Croton variegatum, a densely-leaved Yucca aloifolia variegata, Clerodendron Balfourianum smothered with

its white calyces, but with few of its crimson corollas remaining; Erica Vernoniana, freely flowered, and a very beautiful Erica Massoni, large and profusely bloomed, but getting a little stale. Mr. Cypher, Cheltenham (2d), had as his most attractive plants Allamanda nobilis and A. grandiflora, Dipladenia amabalis, Ixora amabilis, and Phœnocoma prolifera Barnesii. Mr. House, Peterborough (3d), had a good Seaforthia elegans, Stephanotis floribunda; Allamanda nobilis, one of the best of the genus; Agave filifera, and Clerodendron Balfourianum. These competing collections all consisted of finely grown plants. In one of the smaller groups of three, Mr. Thornton, gr. to J. P. Cox, Esq., had an unusually good plant of Dichorisandra, well flowered. In the class for eight foliage plants the prizes went to Messrs. Cole & Sons (1st), Mr. Wild (2d), and Mr. W. E. Dixon (3d), the former of whom had their well-known Cocos Weddelliana, and the latter a large Dracæna Shepherdii, and a well-coloured Pandanus Veitchii. In the class for five foliage plants, Mr. Thornton (1st) had a grand Alocasia purpurea, 6 to 8 feet high, with noble spreading leaves, and some fine Marantas; Mr. J. Meadows, Old Basford, was 2d; and E. J. Lowe, Esq., Beeston, 3d, the latter showing a good Phormium tenax and Chamærops humilis. The 1st prize for a group of six Palms, Dracænas, and Crotons, limited to 10-inch pots, was taken by Mr. W. E. Dixon, whose lot contained a nice young Cocos Weddelliana, a neat Encephalartos, and two Dracænas. In the group for six dinner-table plants, in or out of bloom, Mr. Dixon also came in 1st, Mr. Cypher being 2d—in his group was the curious Reidia glaucescens; and Mr. G. Lamb, Nottingham, 3d. Among the nurserymen's specimen plants Mr. W. E. Dixon was 1st, with a well-flowered Allamanda grandiflora; while in the corresponding amateurs' class, Mr. Thornton, gr. to J. P. Cox, Esq., The Park, Nottingham, had a grand purple-stemmed Alocasia. The prize for four Alocasias was awarded to Mr. Lowe, who had a very good A. metallica and a small A. macrorhiza variegata; four Marantas, amongst which was a fine mass of M. roseo-picta, and a Sarracenia flava with thirty-two pitchers, from the same exhibitor, gained a similar award.

EXOTIC FERNS.—The best group of twelve was contributed by Mr. W. E. Dixon, whose most effective plants were Dicksonia antarctica, Platycerium Stemmaria and P. grande, Goniophlebium subauriculatum, Davallia Mooreana, and Woodwardia radicans. Messrs. R. Edwards & Son, Nuttall, were 2d; and Mr. J. Wilson, 3d. For a pair of Tree Ferns, Mr. Williams (1st) showed two good examples of Dicksonia antarctica, with stems about 8 feet high; Mr. House (2d) had two younger but well-furnished plants of the same species; and Mr. W. E. Dixon (3d) had Cyathea dealbata and Alsophila australis with nicely-formed stems, but the heads damaged in travelling. A class for six Adiantums brought together a nice lot of plants. Mr. Cypher (1st) had A. trapeziforme, A. farleyense, A. cardiochlæna, A. tenerum, A. Ghiesbreghtii (scutum), and A. cuneatum. Mr. E. J. Lowe (2d) had a small form of A. pulverulentum, or some allied kind under the name of cristatum, with some other very neatly-grown plants. Mr. Lowe also had the best specimen Todea superba, a large well-furnished plant. The chief prizes for single specimen exotic Fern went to Mr. Lowe (1st), who had a tall Dicksonia with a large spreading head of vigorous fronds; Mr. Williams (2d), who had his weeping habited Alsophila australis Williamsii, now somewhat showing the effects of travelling and repeated exhibition; and Mr. Cypher (3d), who had a good Gleichenia; while a very pretty plant of Pteris scaberula from Mr. Farrand was Highly Commended. The amateurs' group of twelve exotic Ferns was represented by Mr. Lowe (1st), who had Todea pellucida, Pteris scaberula, P. Kingiana, and Phlebodium sporadocarpum amongst his best plants; and by Mr. Wild, gr. to Mrs. Jacobs (2d). Of special prizes for three Adiantums Mr. S. Thacker, Nottingham, took the 1st with A. tenerum, A. farleyense, and A. cuneatum—three really useful decorative sorts; and Mr. Lowe the 2d with plants of the same species. Altogether exotic Ferns were very well represented.

HARDY AND BRITISH FERNS.—This was one of the strong features of the show, Mr. Lowe's almost unlimited collection contributing to all the groups. In the class for twenty varieties, Mr. Lowe was 1st with finely-grown plants, in which we noted as specially conspicuous Athyrium Filix-fœmina Victoriæ, A. F.-f. Frizelliæ magnificum, and Lastrea lepidota. Mr. Pigott, gr. to T. Charlesworth, Esq., Leicester, was 2d with a nicely-grown collection. In the group of six, Mr. Lowe was again 1st, his collection containing a grand Struthiopteris germanica, Osmunda interrupta, Osmunda gracilis, very rarely seen; and a panful of Lomaria alpina. Mr. M. Farrand was 2d with a neatly grown group, in which was a fine specimen of Polypodium vulgare cambricum. A silver cup, given by Lieut.-Colonel Seely of the Robin Hood Rifles, was taken by Mr. Lowe; as also were the 1st prizes for twenty new varieties of British Ferns; for six dwarf varieties of British Ferns, amongst which Lastrea Filix-mas ramosissima, L. F.-m. crispa, and its crested form, were conspicuous; and for four new varieties of any one species of British Ferns, the prize being won for varieties of Lastrea Filix-mas. In this latter class Mr. Lowe took the 2d prize (four new Polystichums), and also the 3d (four new Athyriums). For four miscellaneous Ferns, a new class offered for competition on the 9th, Mr. Thacker (1st) showed a good Gymnogramma Laucheana, Asplenium Fabianum, and Lomaria gibba crispa. Mr. Farrand (2d) had exceptionally fine pans of Platyloma rotundifolium and falcatum; and Mr. Wright (3d) had a remarkably good Adiantum cuneatum.

ORCHIDS were very weakly represented. In the class for six, Mr. Williams (1st) showed Cypripedium barbatum superbum with thirty-one flowers; Vanda Batemanni, Dendrobium Pierardi latifolium, well-flowered; Dendrochilum glumaceum, and a nice Masdevallia Harryana. The Mayor's special prize for four Orchids was won by Mr. Lowe.

HEATHS.—Prizes were offered for collections of four Cape Heaths. Messrs. Cole & Sons were placed 1st: they had a fine plant of E. obbata, rather past its best, and a good E. Parmentieriana rosea, 3 feet across. Mr. Cypher (2d) showed a very neat well-bloomed smaller plant of E. obbata. Cape Heaths are not, however, now shown as they once were, although few evergreen greenhouse shrubs are more varied or more beautiful.

PELARGONIUMS in their various classes were not produced in good condition. The best, a group of twelve, came from Mr. House of Peterborough. Nor were FUCHSIAS so good as we frequently find them at country shows. Those exhibited were tall thin old plants, and fairly bloomed, Mr. Beard, Nottingham, taking 1st place, and Mr. Cox, New Radford, 2d.

AMARYLLIS.—Mr Williams contributed a group of these in bloom, consisting of his new white-flowered A. virginalis, A. coccinea, and A. Excellent. They were awarded a 1st prize.

NEW PLANTS.—Prizes were offered for six new and rare plants of any description, in or out of bloom. Mr. Williams, who was placed 1st, had Dipladenia Brearleyana, Adiantum gracillimum, Dracæna Fraseri and Baptistii, and Bertolonia Houtteana, a beautiful set, but all many times described in our columns, on their appearance at the London shows. Mr. Dixon was 2d in this class, and Mr. Cypher 3d.

The following new British Ferns, from Mr. Lowe, who had a large number scattered throughout the show, were awarded First-class Certificates:—Of Athyrium Filix-fœmina: lineare reflexum, a strong growing red-stemmed form of the Pritchardi type; Kingscotei, a tall form with tasselled fronds and pinnæ, and having very long narrow pinnules; eukudes, a stiff erect tall form, with narrow pyramidal toothed pinnules; proteoides, tall and somewhat cruciate, the acute bipinnate pinnæ being biparted at the base; Du Boulayæ, a form in the way of tortile, with irregular refracted pinnules. Of Polystichum angulare: plumosissimum, a form very near Pateyi, with stiff erect fronds, having a broad base, and very plumy pinnules, set on in a twisted overlapping manner, and the apex slightly multifid; Cliftoniæ, with a narrow cruciate frond, multifid, deflexed at the tip. Of Lastrea Filix-mas: Leckenbyi, a loose form, with broad unequal pinnules, and the pinnæ often furcate. Of Scolopendrium vulgare: plicate with stiff, short, erect fronds, much undulated and crested; eulophon, another stiff, erect, undulated form, spirally crested, and somewhat deflexed at top; mirandum, a narrow bimarginate form, crested at top, the lobes deflexed, flattened, and scimetar-shaped. Of Adiantum Capillus-Veneris: Cliftoniæ, a smaller elegant form, resembling the garden glaucophyllum; polyhymnia, a stout, erect frond, with largish angulate pinnules. Adiantum concinnum pendens, a Fern of elegant drooping habit, from Mr. Lowe; and Pteris serrulata major cristata, a tall form not much distributed, with drooping crested segments, from Messrs. R. Edwards & Son, Nuttall, also received First-class Certificates; as did the variegated Rose from Mr. Lowe, already alluded to.

BOUQUETS AND TABLE DECORATIONS.—The prizes offered for two bridal bouquets were awarded by the lady jurors to Messrs. Barron & Sons, Elvaston (1st), Mr. Cypher (2d), Mr. W. Pegg, Derby (3d), and Mr. Baker, Old Basford (4th). It is perhaps ungallant to record that in our opinion this order, in the case of the 1st and 2d prizes, should have been reversed, but as faithful chroniclers we must do so. The 1st prize lot was exceedingly flat, with overmuch green, the centre or apex being formed by a single blossom of Eucharis set low, as if it had been crushed down amongst the other flowers; those placed second were less squat in outline, having much the same component parts, but with a little Spiræa (Astilbe) feathering out from the surface. In the class for two ball bouquets, Mr. Cypher (1st), Mr. F. Perkins (2d), and Mr. Pegg (3d), were the prize winners. Here Mr. Cypher again had some very elegant specimens of the art, the prominent flowers being the blush Erica ventricosa, the orange-red Ixora, some slightly-coloured Picotees, the sweet-scented Stephanotis, and the feathery Astilbe japonica. Mr. Cypher took 1st prize in a class for a group of natural flowers in vase or ornamental stand for the decoration of a dinner-table. The best three buttonhole bouquets were shown by Miss E. Blair. Five prizes were offered by the merchants and tradesmen of Nottingham for dinner-table decorations, "the table to be 10 feet by 4 feet 6 inches, laid out completely for twelve persons, and arranged so as to show the best means of utilising fruits and flowers in its adornment." There were five competitors. The 1st prize went to Mrs. Blair, 50, Upper Bedford Place, Russell Square. The main features of this table were a glass centrepiece with two tiers of flowers and a trumpet-shaped top; the flowers used along with grasses being Eucharis, white Lily, white Rhodanthe and Kalosanthes; and two side-pieces, consisting of a matched pair of young plants of Grevillea robusta, each about 1½ foot high, and about two-thirds the height of the centrepiece. The 2d prize was awarded to Miss E. Blair for a prettily-arranged table, the centrepiece of which was a small Areca Palm, and the side-pieces a pair of small plants of Acacia lophantha, a few—very few—red and white flowers being intermixed, and half a dozen small glasses with grasses and blue Larkspur being set about the table; these small glasses were well adapted for the purpose, the base being composed of three glass globes, with another on the top supporting the tube, the base without being cumbrous was thus sufficiently heavy to stand firm. The other prizes were awarded to Mr. Frettingham (3d), Miss Mary M. Lamb (4th), and Mr. J. Walker (5th). A prize consisting of a silver-mounted flower-vase, for the best arranged vase of cut flowers suitable for table decoration, was taken by Miss E. Blair; this stand was made up of white Lilies, white Water Lilies, Scarlet Anthuriums, and scarlet Kalosanthes, sparingly used, with much taste, and dressed off with grasses in flower—a material with which Miss Blair, no less than other exhibitors, is apt to be too heavy handed. For a centrepiece of Roses and Ferns for the dinner-table Mr. F. Perkins, Leamington, was put 1st, his exhibit being a March stand most tastefully filled, Roses in the bud state predominating. The other prizes went to Miss E. Blair (2d), and Mrs. S. R. Hole (3d).

FRUITS.—The display was not large, nor very remarkable as to quality, though there were some good examples staged. The principal prizes were in the classes for collections of six and collections of eight kinds, in both of which Mr. Bannerman, gr. to Lord Bagot, Blythfield, was 1st. In the collection of six he showed a Queen Pine-apple, compact clusters of Black Hamburgh and Muscat of Alexandria Grapes, Noblesse Peaches, Elruge Nectarines, and Premier Strawberries. In the other class he showed good Muscat Grapes, Black Hamburghs—very close, well filled bunches, Figs, Peaches, Nectarines, Pine-apples, Strawberries, and Melons. The 2d prize in both the above classes was won by Mr. Brown, gr. to Earl Howe, Gopsall Hall, and both 3d prizes by Mr. Goodacre, gr. to the Earl of Harrington, Elvaston Castle. Mr. Brown's six dishes comprized a Queen Pine-apple, Trebbiano and Black Hamburgh Grapes, the latter not well coloured, Colston Basset Melon, Peaches and Nectarines. In the competition for collections of four kinds, Mr. Wallis, gr. to H. S. Thomson, Esq., Kirby Hall, Yorkshire (1st), exhibited some excellent Grosse Mignonne Peaches, Violet Hâtive Nectarines, and good bunches, well coloured, of Black Hamburgh and Buckland Sweetwater Grapes; Mr. J. Wallis, gr. to A. M. Mundy, Esq., Shipley Hall, Derby (2d), had very good Hamburghs and Muscats. For single dish of black Grapes the 1st prize was won by Mr. J. Edmunds, gr. to the Duke of St. Albans, Bestwood Lodge, who had large well-shouldered Hamburghs; the 2d by Mr. W. Wallis, Kirby Hall, for small clusters with large berries; and the 3d to Mr. J. Wallis, Shipley Hall, for larger bunches not quite so well coloured. Mr. Kirkby, gr. to C. J. Burrows, Esq., Nottingham, took 1st prize for white Grapes, with Buckland Sweetwater, irregularly swelled. In the class for new Grapes, Mr. W. Wallis was placed 1st, with small but well-finished bunches of Royal Ascot; and Mr. Brown, Gopsall, for Golden Champion, not fully ripened. For three bunches of Grapes, distinct, Mr. Bannerman took the lead, with neat even bunches of Alicante, Black Hamburgh, and Muscat; Mr. Wallace, Shipley Hall, being 2d, with Black Hamburgh, and small-berried Black Frontignans. A very fine and highly-coloured dish of Royal George Peaches secured the 1st place in that class, for Mr. Edmonds, Bestwood Lodge. Mr. Henderson, of Cole Orton Hall, showed a fairly swelled Blood Pine-apple.

VEGETABLES.—The show of vegetables was extensive. The Potatos were excellent; Cucumbers good; Turnips and Carrots plentiful and of much excellence; while green Peas were abundant, there was a very fair display of Beans, and a large number of Onions, the White Tripoli coming in for the largest share of attention. The Cauliflowers were first-class, and some good Tomatos were shown.

One of the attractions in the vegetable tent was the competition in baskets of salading. There were three entries, the baskets, which were very large, containing a variety of Lettuces, Celery, Egyptian Sorrel, Radishes, Water Cresses, Borage, Beetroot, and almost every conceivable thing in the way of salad. The 1st prize collection belonged to Mr. E. Smith, Alston, Cheltenham; and Mr. James Holder, Prestbury, near Cheltenham, took the 2d with a not much inferior basket. The 1st prize for a collection of ten kinds of vegetables went to Mr. Arkell, gr. to A. J. Skinner, Esq., Cheltenham, who showed Cauliflowers, Carter's Early Marrow, Giant Asparagus, large red Tomato, White Stone Turnip, Carter's Commander-in-Chief Pea, White Tripoli Onion, Myatt's Prolific Potato, Early Horn Carrot, and Artichoke. Mr. Smith, Alston, was 2d; and Mr. Holden, Prestbury, 3d. Altogether the show in vegetables was good.

Brighton and Sussex Horticultural: *July 7 and 8.*—After a long period of prosperity this Society languished, and, a few years ago, its extinction seemed imminent; but, thanks to the energy of a few warm supporters, it has again revived. Various expedients were tried to resuscitate it, among others that of a single day's Rose show in June, instead of the general summer exhibition of two days' duration; but that failed to effect the object in view, and a return to the old arrangements has been fully justified by the results of the present show. Unfortunately, however, the weather has not been propitious, and a successful autumn show must be depended upon to restore the Society to its former position. Considering the small amount—£150—offered in prizes, the show was remarkably good, and the competitors numerous in many classes. The London and Brighton Railway Company, as usual, gave a cup, value £10, and this year it was offered for the best collection of ten variegated and fine-foliaged plants, open to all England. There were four or five competitors, most of whom staged some good plants. The best were shown by Mr. Harrow, gr. to H. Bessemer, Esq., of Denmark Hill. His collection included a magnificent Croton Veitchianum, a beautiful Cocos Weddelliana, and good examples of Croton angustifolium, Cycas revoluta, Livistona altissima, Cyathea medullaris, Dasylirion gracile, &c., forming altogether a wide range of variety. Mr. T. Gilbert, nurseryman, Hastings, was a good 2d, but, as his collection mainly consisted of Palms, it was not so effective, and failed to attract the attention a little more diversity would have secured. Mr. Young, of the Milford Nurseries, Godalming, exhibited an interesting lot of hardy shrubs in this class. By hardy, we should mention that we mean in the more favoured parts of the kingdom, especially on the coast. It included Eurya latifolia variegata, Elæagnus japonica variegata, Osmanthus Aquifolius variegatus, one or two Aucubas, Retinospora plumosa, &c. Stove and greenhouse plants were scarcely so good as we usually see them at Brighton, Mr. T. Gilbert taking 1st prize in the eights with a rather uneven lot, a gigantic specimen of Kalosanthes coccinea superba having, it would appear, turned the scale in his favour, for Messrs. Balchin & Nell, of Brighton, exhibited a very even collection of moderate-sized, well-grown plants, including a good Stephanotis, Bougainvillea, Statice, two Allamandas, and a middling Dipladenia, &c. The smaller collections in the open division contained nothing worthy of special notice. Mr. Knight, gr. to Mrs. Shadwell, Fairlight, took 1st, and Mr. Rutland, gr. to the Duke of Richmond, 2d. Orchids we do not expect in force at Brighton, as the prizes are not high enough to induce large growers to bring their plants; but Mr. Morse of Epsom, and Mr. Rutland, exhibited very good collections of eight varieties. Fancy Pelargoniums were shown pretty good by Mr. W. Miles, West Brighton Estate Nursery, and Messrs. Balchin & Nell. The 1st prize was awarded to Mr. Miles, whose plants, though smaller, were of a more pleasing and natural form, in strong contrast to the [illegible] by Balchin & Nell, which were [illegible] those staged possible, presenting [illegible] an almost flat surface. Zonal Pelargoniums [illegible] were only moderately good, and they soon lost their beauty in the close atmosphere of the Pavilion saloons. The space given to cut flowers in the marquee should have been retained for the Pelargoniums and Fuchsias, and the cut flowers relegated to their usual place indoors. Messrs. Balchin & Nell beat Mr. Miles, who was the only other exhibitor in the Zonal class. Fuchsias were represented by one exhibit!—a great falling off. Few gardeners seem to be aware that good plants may be grown under Vines.

In cut flowers there were classes for collections, Roses, wild flowers, and table decorations. The collections from Mr. Gilbert and Messrs. Balchin & Nell were very good. In the various classes for Roses the competition was pretty strong, but the quality of the flowers was, on the whole, mediocre. The best blooms were shown by amateurs, notably Captain Christie, Westerham, and the Rev. R. C. Hales, and Mr. Martin of Woodmancote. Messrs. Mitchell of Piltdown, Virgo of Guildford, and Mrs. Woollard of Cooksbridge, took the prizes in the class for forty-eight varieties, three trusses of each. In twenty-fours, Mr. Choppin of Croydon was 1st; Mr. Piper, Tunbridge Wells, 2d; and Mr. W. Knight, Hailsham, 3d. The same exhibitors changed positions in the classes for Teas, Noisettes, &c.

One of the features was the table decorations, which, though less numerous than at the last autumn show, were equal, if not superior, in tasteful arrangement. In the open division Mr. Downing, gr. to Mr. A. Allison, Crawley, was awarded the 1st prize. In the place of three stands he had three small Palms, with flowers neatly arranged around their bases. It seems to us that table decorations with plants, and stands with cut flowers only, should form separate classes, as the competitors do not otherwise meet on equal terms. Thus, in this instance, Mr. Hudson was placed 2d with an exceedingly effective set of three stands, representing double the labour of the 1st prize lot, and, in the opinion of some, superior to it in all respects. If anything, it was a little overdone. We have never yet seen anything of the kind in which too little material was used. The 3d prize stands, exhibited by Mr. Kenward of Lewes, were rather marred by the too free employment of the brown feathery inflorescence of Rhus cotinus. The stands exhibited in the class for amateurs were very pretty, and only open to the reproach of being a little too heavy and overfilled. Mr. Chilmaid, Keymer, Miss Kenwood, Lewes, and Mrs. Winn, of Brighton, took the prizes in the order they are named. There was yet another class of table decorations, namely, three stands filled with wild flowers only; but there were only two exhibitors, neither of whom succeeded in making a really effective display, scarlet Poppies being painfully prominent. At this season of the year it is already difficult to procure wild flowers of the principal colours in bright tints within an easy distance, and especially to those unacquainted with their native haunts; nevertheless it is a good test of taste, and we think the prize better worth repeating than that for a named collection of wild flowers. The collections exhibited at Brighton this year will bear out what we say. To know the technical names of our wild flowers is of far less importance than to possess a little skill and taste in arranging a bouquet or stand.

Fruit was not so abundant in some classes as might have been expected, though it was on the whole very good. Pines were only exhibited by Mr. Rutland and Mr. Vickering, gr. to General Sir H. P. de Bathe, Bart., who divided the honours between them; the prizes for Grapes, Peaches, Nectarines and Strawberries were better contested.

In the miscellaneous class Mr. Harrow, the winner of the Railway Cup, gained a prize for a collection of new and rare plants arranged for effect; and Mr. W. Miles received a well deserved extra prize for a group of new and rare plants of a size suitable for table decoration. The show houses of the Brighton florists are singularly poor in novelties of this description, and we do not doubt that Mr. Miles' example will soon be followed. Mr. Voice obtained a First-class Certificate for his patent garden frames, which gained him a gold medal at Birmingham the other day. The manufacture of artificial flowers from wax and paper is quite a local industry, which has attained great perfection in Brighton, and Mrs. Snelling, Miss Gurr, and Miss Weekes received certificates for some admirable specimens of this art.

West Kent Horticultural: *July 3.*—The annual exhibition of this spirited Society was held in Camden Park, Chiselhurst, and was one of the most interesting of ordinary country shows which we have fallen in with; for, while the classes were not extravagantly numerous, the prizes were well contested, and the exhibits generally of excellent quality. The attendance, moreover, being large and fashionable, the whole was a decided success, thanks to the excellent arrangements of H. Neville, Esq., the honorary secretary, and Mr. Eyles, the superintendent of the show. We have not space for a full report, but we may specially mention as good the exhibits of cut Roses, both the exotic and the hardy Ferns, and the grand specimen plants of Davallia Mooreana and Adiantum farleyense. The interest of the show was materially increased by excellent groups of new and rare plants, contributed by Messrs. Veitch & Sons, Mr. Wills, and Messrs. Carter & Co. The vegetables exhibited by the cottagers—here defined as "any persons (not gardeners) living in houses rated at or under £12 per annum"—were remarkably good. The various exhibits occupied four large and well-filled marquees.

It has seldom fallen to our lot to see a prettier collection of dinner-table decorations than were exhibited on this occasion. There were seven shown by subscribers, and five in the class open to all. In the latter class the 1st prize was awarded to Mr. James Hudson, whose table was to our taste by far the best arranged; it was light and elegant, with a few bright-coloured flowers of graceful habit, and a proper proportion of delicate foliage of a cheerful green. Its only drawback was that the two end vases were a little too tall. Mr. T. J. Crane was 2d with a very pretty table, which did him much credit. In this class there were two other tables which we preferred to his for lightness and general appearance; but there were good reasons evidently why they did not obtain prizes, inasmuch as few persons could have sat long without feeling unwell at tables where Lilium auratum and L. candidum played such a prominent part in the decorations. In the class for lady subscribers, Mrs. Blair was 1st with a very light table, of which the centre was an Areca Palm on a glass plateau, which was encircled with a border of Fern fronds, relieved by a few blooms of Lilium candidum and purple Iris; at each end was a plant of Acacia lophantha, amongst the little branches of which some sprays of climbing Fern looked as if growing. Miss Lovibond was 2d, with a carefully-arranged service of white china, in which Water Lilies and Scarlet Pelargoniums were the principal flowers used, the centre-piece being topped with three or four leaves of Panicum sulcatum. The judgment shown in the arrangement of this centre-piece evidenced good taste of no ordinary character; it was a vase which most people would have found difficult to fill without making it look heavy; yet by a judicious selection of proper flowers, few in variety and well balanced by appropriate foliage, a very pleasing effect was obtained. The fruit, too, was well chosen, being of colours and in quantities such that when removed the general appearance of the table suffered no loss; it was also simply placed upon dishes covered with green leaves, so that the whole or any portion of the fruit might be removed without leaving the dish in an untidy condition. The 3d prize was taken by Mrs. Goldingham, whose principal flowers were the same as those used by Miss Lovibond, but placed in a service of glass. In the centre was an oval plateau with a bold arch of twisted glass over it; this arch was tastefully covered with fronds of Maidenhair Fern, and the whole arrangements evinced much taste. Many who saw it early in the day would doubtless have preferred it to the 2d prize table; but the reason for its not taking higher honours must have been apparent to any practised decorator. The arch was covered with Fern, which would look faded before a dinner had reached its second course, and drooping fronds upon the most attractive part of the decorations would cast a gloom over all the table. Had this arch been covered with two pieces of climbing Fern with their stalks in water, it would have been difficult to have found much fault with Mrs. Goldingham's arrangements. Ten competitors entered for a single decoration for the dinner-table, Miss Lovibond taking 1st prize, and Mrs. Goldingham 2d. The former used Bougainvillea and Maidenhair with white Campanula at the top; the latter used a variety of foliage, with three little pieces of scarlet Pelargonium peeping out, half hidden. There was not a prettier arrangement of leaves to be found in the tent than this of Mrs. Goldingham. We must not omit to mention one vase, which, though quite unfitted for a dinner-table, deservedly received an extra prize for its novelty: it was an arrangement of scarlet Poppies, Oak leaves, and Bramble leaves, which reflected great credit on Miss Brimble, of Bromley, by whom it was exhibited. There was considerable competition for the three best arranged "buttonholes" in specimen glasses, but nothing worthy of notice was shown. One person had evidently purchased his of a London *bouquetière* a day or two before, and had not kept them fresh. Miss A. M. Waring, who took 1st prize, cleverly interposed between her buttonholes and their specimen glasses a shield-shaped piece of card covered with black velvet—a capital idea.

Grantham and South Lincolnshire Horticultural: *July 6 and 7.*—The fourth summer exhibition of this Society was held on the above dates, and for character and extent was quite equal to, if not better than the displays of former years, and financially was a success. The productions displayed by market gardeners and amateurs not employing a regular gardener were throughout very good, much better indeed than has been seen in former years. For the best and most effective collection of plants, Mr. Samuel Cross, of Spittlegate, took the 1st prize with a very tastefully arranged group. Mr. F. M. White received 2d honours, and Mr. Fletcher the 3d. For greenhouse plants in bloom, Mr. Cross again took the 1st prize, and showed six good specimens; he was also successful with ornamental foliage or variegated plants, and had some fine Caladiums, &c., Mr. Fletcher was as usual successful with his Lycopods, which were in fine condition. The hanging baskets were a new feature, and gave a very pretty appearance to the tent in which they were placed. The window boxes were also very attractive, and here Mr. Arthur Chambers came in 1st with a most tasteful arrangement of plants, the colours being very nicely assorted. Mr. Johnston's collection of hardy Ferns, which received the 1st prize, comprised well-grown specimens of the Oak Fern, Prickly Shield, and English Maidenhair. Mr. White was 2d with a good plant

of Asplenium lanceolatum and A. marinum. Three was some nice fruit staged in this class, but the Grapes were unripe. The Strawberries were good. Mr. Cross was 1st for a collection of vegetables which was noticeable for the particularly good arrangement as well as for the excellence of the vegetables.

Mr. House, of Peterborough, staged a fine lot of Palms and other plants in an open class, and Mr. Dixon, of Beverly, came 2d, also with an effective display. The best arranged miscellaneous collection of plants, of not less than twenty or more than thirty in number (the effective setting up to be the chief point of excellence) came from Mr. Ingram, Mr. Hornsby being a very close 2d, and Sir John Thorold 3d. In the class for one specimen ornamental fine-foliage or variegated plant, the competition was very good. Mr. Wm. Hornsby showed a remarkably well coloured Croton, and Mr. House a finely grown Dasylirion acrotrichum, and were bracketed equal 1st. In the class for a specimen greenhouse plant in bloom the 1st prize was taken by Mr. House with a fine specimen of Erica ventricosa; Mr. Dolby, of Boston, 2d. For a specimen stove plant in bloom, Mr. Hornsby took the lead, with a fine flowered Clerodendron splendens. This specimen was beautifully coloured. For twelve ornamental foliage or variegated plants Mr. House was 1st, with a good collection, including Crotons and other fine-foliage plants; Mr. Dixon, of Beverley, 2d. Mr. W. Hornsby was once more successful in stove or greenhouse plants, his display including a very fine plant of Phœnocoma prolifera and a well-coloured Bougainvillea glabra. Mr. James Hornsby also showed a lot of good plants, and was awarded the 2d prize; and in Adiantums, or dwarf growing Ferns, he took the lead with an excellent display, including fine specimens of Adiantum tenerum, Davallia Mooreana, and A. farleyense. Mr. Dolby took the 1st prize for Gloxinias, with some well-coloured specimens. There were two admirable illustrations of the ribbon border, the beauty and elegance of which could not fail to strike the eye. The 1st prize was given to Mr. W. Hornsby, whose design was principally composed of Alternanthera and dwarf Lobelia. The class for groups or stands of mixed plants suitable for the drawing-room, the stand to be restricted to a diameter of 3 feet, was a new feature. Mr. Richard Hornsby was the first, with a stand arranged in a remarkably elegant manner, the colours being beautifully blended. Sir John Thorold and Mr. James Hornsby were bracketed 2d, and in each case the group formed a picture of beauty. Although the season is full late for Pelargoniums there was a very creditable display, and Mr. House took the 1st prize with a nice showy lot. In the class for bedding Pelargoniums, Mr. Dolby, of Boston, was 1st, with a capital lot of plants, some of the trusses being really wonderful. Mr. Pym, of Spittlegate, also made a very good show, and got the 2d prize. Mr. House's collection of ornamental foliage bedding plants in boxes was placed 1st.

There was a fair competition in the classes for dinner-table decorations, and Miss F. Hemsley, who has been a capital supporter of the show, was bracketed equal 1st with Mrs. H. H. Johnston. Miss Woolward showed a remarkably pretty stand, which was highly commended by the judges; it was composed entirely of wild flowers. With vases of fruit and flowers the competition was very meagre. The hand bridal bouquets were pretty, and Mr. Pym took the 1st prize, Mr. House being 2d. The entries of button-hole bouquets were very large, and in many cases very pretty. Miss Todd came 1st with three lovely little bouquets, Spiræa forming the chief feature, Mr. House again coming in 2d. Of wild flowers there was a very fair display. Miss K. Downing showed a pretty collection, which must have taken considerable pains and trouble in its formation. Mr. Ingram exhibited a varied and interesting collection of cut flowers, including several pretty alpine plants, Linaria alpina, Achillea rosea, &c.

There was a great improvement noticeable this year in the fruit, the quality being excellent. The Peaches shown by Mr. Vinden were particularly fine. Mr. Dell took the 1st prize for nine dishes of fruit, with a first-class display; and Mr. Vinden was 1st for six dishes. Mr. William Hornsby and Mr. C. Yeatman, of Boston, staged fine bunches of Grapes, excellent both in size and quality, the uniform size of the berries shown by Mr. Yeatman being especially noticeable. In white Grapes, Mr. Dell showed some splendid Muscats, and Mr. Garfit, of Boston, was 2d with some large bunches of Sweetwater.

Of Roses a splendid show was anticipated, but the unfavourable weather of the previous week materially damaged this part of the exhibition, so much so that not half of the Roses entered were shown. There were, however, many splendid varieties to be seen, and several noted Rose growers competed. In the nurserymen's class, Mr. H. Merryweather, of Southwell, sustained his reputation by taking the 1st prize in one class, Mr. House, of Peterborough, being 2d. Mr. Merryweather was also 1st in the forty-eight varieties, and was bracketed equal 1st with Mr. House for twenty-four varieties, the competition being somewhat severe. In the class for forty-eight varieties, for gentlemen or gentlemen's gardeners, the Rev. S. Reynolds Hole and the Rev. C. C. Ellison both exhibited beautiful blooms, and the 1st prize was awarded to Mr. Ellison.

We may here mention that Messrs. W. & J. Brown, nurserymen, of Stamford, exhibited a very fine collection of shrubs, &c., for which a special prize was awarded.

Mr. B. S. Williams, of the Victoria Nurseries, Holloway, showed as usual a magnificent collection of rare and beautiful plants, among which were nice specimens of the new Maidenhair, Adiantum gracillimum, the delicate fronds of which make a splendid contrast with those of the large Adiantum farleyense; also of the new Palm, Cocos Weddelliana, an admirable plant for dinner-table decoration; and also some beautiful Orchids. (*From a Correspondent.*)

Richmond Horticultural: *July* 8.—This, the first show of the newly formed Society, proved to be a complete success, and the committee are to be greatly congratulated on the result. With a large subscription list, beautiful weather, a charming spot, and a very large company, success was certain. Still the question as to the nature of the exhibits involved some anxiety, but this was set at rest on the show day, when really fine collections in many cases were staged. The exhibition was held in the Old Deer Park, close to the town. The chief plant exhibits were staged in a splendid marquee, some 180 feet in length by 80 feet in width, being one of the finest flower-show tents we have ever seen. A wide stage ran through the centre, on which were placed the best collections of flowering and ornamental plants and Ferns; and around the sides were placed on the turf semi-circular groups of plants arranged for effect, so that the entire arrangement was most creditable to Mr. Kinghorn, who here superintended, Mr. Peel taking charge of the other tents. Messrs. Veitch & Sons, of Chelsea, had on one end of the centre stage a fine and varied group of plants, that attracted much attention. In the group were richly coloured Crotons and Dracænas, and many new Palms; also some fine pans of the rare Adiantums macrophyllum glaucum, Seemanni, and speciosum, Cypripedium barbatum, the curious Darlingtonia californica, and Sarracenias Stevensii and variolaris. At the opposite end of the stage the Messrs. Jackson, of Kingston, had arranged a capital group, including Calanthes, Cypripediums, Anthuriums, and Ericas. In another part of the tent was a very well grown and coloured collection of Tricolor and Bronze Pelargoniums, from Mr. Pestridge, of Brentford; also a capital group of Caladiums from Mr. Appleby, of Dorking. Elsewhere the trade was represented by a large and varied collection of bedding succulents in pans, Tropæolums, Campanulas, Petunias, and a fine mass of the beautiful pyramidal Stock Mauve Beauty, staged by Mr. Dean, of Bedfont; a group of the richly marked Coleus Duchess of Edinburgh, from Messrs. Carter & Co.; and very interesting and varied groups of plants from Mr. Chambers, of the Westlake Nursery, Isleworth, and Messrs. Dobson & Sons, of Springe Grove. The premier classes of plants in the large tent were those in competition for prizes open to all the kingdom, and some very fine subjects were staged. In the class for nine stove and greenhouse plants in flower, Messrs. Jackson & Sons were 1st, with a group that would have been welcomed in any exhibition in the kingdom; there were finely flowered plants of Allamandas Hendersoni and grandiflora, Dipladenia amabilis, Kalosanthes Phœnix (superbly flowered), Phœnocoma prolifera Barnesii, Statice imbricata, Ixora Colei, and Ericas Irbyana and Parmentieriana rosea, the latter a perfect mass of rich-coloured flowers. Mr. J. Child, gr. to Mrs. Torr, of Ewell, was 2d, with neat, fairly flowered plants, chief amongst which was a fine Anthurium Scherzerianum, with twenty-one good spathes. Mr. Ellis, gr. to Mr. Galsworthy, of Kingston Hill, was placed 3d; his group was uneven, but included fine plants of Clerodendron Balfourianum and Bougainvillea glabra. The open class for nine fine-foliage plants brought a superb group from Mr. G. Legg, gr. to S. Ralli, Esq., of Clapham Park, and included fine pyramidal plants of Crotons Weismanni, variegatum, and interruptum; a large specimen of Geonoma pumila, Alocasias macrorhiza variegata and Lowii, Diffenbachias nobilis and Bausei, and Dracæna Baptistii. All these were fine specimens and displayed superior cultivation. Messrs. Jackson & Sons were placed 2d with a fine group, in which Tree Ferns, Palms, and Dracænas predominated; Mr. Child taking 3d place.

The next important open class was for eight exotic Ferns, and here Mr. Child took 1st place, with a very fine lot of plants. He had amongst them grand specimens of Gleichenias dicarpa and Speluncæ, Adiantum farleyense, and Davallia bullata. Messrs. Jackson took 2d place, and Mr. Ellis 3d—this latter collection consisting of medium-sized handsome plants that will make their mark in a short time. The plant classes, open only to residents in the district, were all well filled, but the exhibits, although admirably grown, were comparatively small. Of course, in the classes for Show and Fancy Pelargoniums, Mr. James, gr. to W. F. Watson, Esq., Isleworth, took 1st prizes, his examples being, as usual, well grown and flowered. The large-flowered varieties, Victory, Sultan, and Prince Leopold, were really superb.

Great interest was excited by the open competition for groups of plants arranged for effect in a space not exceeding 100 square feet. These were all arranged in semicircular groups, and constituted a most valuable feature in the show. The judges in their awards, however, seemed to overlook the condition "arranged for effect" to some extent, as groups having the best specimen plants received the prizes, although not dense in foliage, whilst the very effective and abundantly flowered group staged by Mr. James was passed over. As a rule, where effect is desired flowers are usually preferred to foliage, a preference that most of our plant decorators will endorse. The 1st prize was awarded to Messrs Jackson & Sons, Mr. Kinghorn being placed 2d, Mr. Attrel, gr. to C. J. Freake, Esq., Bank Grove, Ham, 3d; and an extra prize was given to Mr. Bowles, gr. to Sir H. Watson Parker, Bart., of Richmond.

In the flower tent there was a grand display of cut Roses, including large collections of about one hundred kinds each from Messrs. Turner, of Slough, Messrs. Veitch & Sons, Chelsea, and Mr. Lang, nurseryman, Twickenham. Mr. Turner took the 1st prize in the open class for thirty-six kinds, three trusses each, Messrs. Dobson being placed 2d; and Mr. James carried off the 1st prizes in the classes for twenty-four and twelve blooms. Mr. Turner also had boxes of cut Pelargoniums, and Carnations and Pansies; Messrs. Veitch a box of the beautiful Spiræa palmata; Mr. Dean had Pansies and striped Petunias, and these evoked from the visitors an immense amount of enthusiasm. Table decorations, bouquets, and button-hole flowers, as usual, formed a nice feature, Miss Kinghorn being the favoured heroine in all these classes.

Fruit was well represented, Mr. Peel, gr. to Lord John Chichester, of Cambridge Park, Twickenham, being the chief prize-taker. A fine feature was a large tray of Underhill's Sir Harry Strawberry, shown by Messrs. Steel, of Richmond—about 200 fruit, extremely large and superbly coloured.

Vegetables were also well shown, but somewhat crowded in the staging. The chief prize, a cup given by Messrs. James Carter & Co., fell to Mr. James, who had a capital collection. We cannot conclude without noticing the extremely quiet and smoothly working arrangements made for staging, the expedition with which, for a first show, all was got ready for the judges; and not least is a tribute of praise due to Mr. A. Chancellor, the secretary, who has proved to be so admirably the right man in the right place. (*From a Correspondent.*)

Ealing, Acton, and Hanwell Horticultural: *July* 8.—There could seem to be no more fitting place in which to hold the eleventh annual exhibition of this Society than in the grounds of Ealing Park, once the residence of Mrs. Lawrence, and now that of J. S. Budgett, Esq., who permitted the visitors to range at will about the well-kept grounds, the condition of which reflected the highest credit on Mr. W. Cole, Mr. Budgett's late gardener, who retired from his service on the 9th inst., carrying with him the high respect and good wishes of the gardening profession at Ealing. The whole of the exhibits were arranged in one spacious tent, the plants along the centre stage, the fruit, vegetables, cut flowers, &c., on tables along the sides, and at each end of the centre stage were fine groups of miscellaneous plants, contributed by Messrs. J. & C. Lee, Hammersmith, and Mr. H. B. Smith, of the Ealing Dean Nursery, and to each of which special prizes were awarded.

For a few years past it has been the custom at Ealing to offer special prizes for cut Roses, among them a 1st prize of £7 for forty-eight varieties, three trusses of each. This year, owing to the number of Rose exhibitions taking place just at that time, only Mr. Charles Turner, of Slough, competed, staging some good flowers, among which were Dean of Windsor, clear brilliant red in colour; John Stuart Mill, pale bright rosy red; and the Rev. J. B. Camm, bright fleshy rose, very fine—three new varieties raised at Slough, and recently distributed. Of others La France, Alfred Colomb, Charles Lefebvre, François Michelon, Marie Rady, Emile Hausberg, Sénateur Vaisse, Maréchal Niel, Duke of Edinburgh, Sir Richard Wallace, Belle Lyonnais, Beauty of Waltham, Mdlle. Eugenie Verdier, Madame C. Crapelet, Lælia, Gloire de Dijon, Madame Victor Verdier, Charles Lee (very bright), Madame C. Joigneaux, Paul Neron, Baroness Rothschild, Marie Baumann, Etienne Levet, Camille Bernardin, Horace Vernet, Mrs. Veitch (very fine in colour), Duchesse de Caylus, Princess Beatrice, and Exposition de Brie were fine. In the amateurs' class (this definition including only those who manage their own gardens, but have occasional assistance), considerable interest centred round the competition for twelve cut Roses,

some of the members of the Society having subscribed a special prize, consisting of a handsome liqueur cabinet, value five guineas. This was well contested, and fell to the lot of Mr. James Lang. Some capital Roses were also shown by Mr. William Cole in the open class.

The leading plants were staged by Mr. W. Cole, from Ealing Park, an excellent cultivator, though with restricted accommodation for the purpose. He had the best six foliaged plants in Pandanus javanicus variegatus, Areca sapida, Euterpe edulis, Cycas revoluta, Dracæna arborea, and Croton variegatum—a very good group indeed. Mr. J. Hepper, gr. to C. O. Ledward, Esq., Acton, was 2d with good specimens of Croton variegatum, finely coloured; Dieffenbachia maculata, Maranta zebrina, and others. Mr. Cole also staged a fine group of six greenhouse Ferns, which consisted of a remarkably fine example of Todea superba, Adiantum farleyense, Lomaria gibba, Cyathea princeps, Adiantum cuneatum, and Thamnopteris Nidus; Mr. Stone, gr. to G. Walker, Esq., was 2d, having a very good example of Davallia bullata. Groups of four Ferns were nicely shown also; and the six Club-mosses staged by Mr. J. Hepper were fine examples of high-class cultivation. Mr. Cole also had the best six plants in flower—a very nice lot indeed, including Erica tricolor Wilsoni, Kalosanthes coccinea, Tremandra verticillata, Dracophyllum gracile, Begonia weltoniensis, and Erica Bothwelliana; Mr. E. Fountain, gr. to Miss Wood, Hanger Hill, was 2d.

Mr. T. Parsons, gr. to R. Attenborough, Esq., Acton, had a group of six excellent Fuchsias, and as these fine decorative plants were numerously shown in other classes, they greatly assisted the effect. Some capital examples of Lilium auratum were shown by Mr. W. Cole, and his group of Caladiums evidenced high cultivation. Other plants, such as Pelargoniums, Balsams, &c., were numerously shown.

Cut flowers were well done on the whole, and collections of cut Antirrhinums and Phlox Drummondii were an unusual feature. Fruit also was nicely shown, mainly by Messrs. Cole, Hepper, and Parsons, who took the 1st prizes in the leading classes.

The cottagers' produce was most extensively shown and of fine quality. There are a great many allotment gardens at Ealing, and through the liberality of the Baroness de Rothschild and Mr. Walpole, a number of prizes are offered for the best kept allotment gardens, and prizes are also offered for the best kept flower gardens. The cottagers' produce is mainly drawn from the allotment gardens, and the entries in some of the classes are so heavy, often over thirty, that eight prizes, besides extras, are awarded. The productions would do credit to many first-class kitchen gardeners, who have abundant resources at their command. A very large number of prizes are offered, and they are generally distributed over a wide area. The Society was originally established to encourage cottage gardening, and it is satisfactory to know such cheering results have flowed from the attempts. (*From a Correspondent.*)

Maidstone Horticultural: *June* 30.—The annual exhibition of this Society was held in the grounds of Vinters Park, the residence of James Whatman, Esq., and a more fitting place could scarcely be selected for a horticultural show. The tents, of which there were several, were arranged in a kind of crescent just behind the mansion; and all round were noble trees of luxuriant growth. The weather was most unfavourable, for it rained heavily for two or three hours at mid-day, and the attendance was of a limited character in consequence.

Large plants were somewhat sparingly represented at Maidstone, and that notwithstanding good prizes are offered in the open class. There were some good foliaged and flowering plants, such as Ferns, Crotons, Marantas, Palms, Clerodendrons, Bougainvilleas, Allamandas, &c., the best coming from the gardens of Sir H. Tufton, Bart., R. Leigh, Esq., and other exhibitors. Prizes were offered for collections of plants, flowers (cut or otherwise), fruits and vegetables shown together, and this class appeared to possess a special interest for gardeners. The leading group was strong in plants, such as Palms, Ferns, Coleus, Fuchsias, Caladiums, &c., intermingled with Pelargoniums and other flowering plants—the fruit and vegetables forming panels towards the front of the group, the cut flowers being used as an edging. This might have been much more effectively arranged, for it was hurriedly, and therefore imperfectly, set up. It was shown by Roger Leigh, Esq., and as it appears to be the custom at Maidstone carefully to exclude the name of the gardener from the prize card, we are unable to give it. Sir Henry Tufton's gardener took 2d honours, with a very effective group, which included some capital fruit; Mr. John Robson, Linton Park, being 3d. There were also prizes for groups of plants and flowers, arranged on a platform for effect, which brought together a good deal of small but nicely grown foliaged and flowering plants. The other classes for plants contained nothing calling for special remark.

The show was particularly strong in cut flowers, and especially in Roses, for the Maidstone Rose Club had its exhibition in connection with the Society's show. The flowers staged by amateurs were particularly fine. The leading class was for thirty-six Roses, single flowers, open to all England, and the best stand came from Mr. J. C. Quennell, who defeated such powerful foes as Messrs. Mitchell & Sons. Messrs. T. Bunyard & Son, Maidstone, received a 1st prize in a similar class; 2d, Mr. J. Hollingworth; 3d, Mr. Geo. Longley. The best twenty-four Roses were staged by Captain Hollingworth. In the class for eighteen flowers the 1st prize was awarded to a splendid stand of blooms staged by T. F. B. Atkins, Esq., of large size, full, and finely coloured; Mr. H. Benstead was a good 2d; Mr. H. White and Mr. R. J. Ralston were equal 3d.

Vegetables and fruit were well and numerously shown, and in judging Potatos the judges sliced some of the tubers in halves to see if they were sound. Space forbids any lengthened criticism on these interesting exhibits. It is a great pity a better system of arrangement of the different classes cannot be attempted. The judges had to find them out as best they could, and a frequent search through the tents was necessary, entailing on them much extra labour which could easily be avoided by the appointment of a competent superintendent. (*From a Correspondent.*)

Southgate Horticultural: *July* 3.—This is one of the best exhibitions held in the neighbourhood of London, the exhibits being numerous and remarkably good. It took place in the grounds of Southgate House, the residence of W. J. Armytage, Esq., and recently inhabited by H. Micholls, Esq., formerly of Manchester.

One of the most interesting features in connection with the Southgate show is the fine display made in the cottagers' classes. There are a number of allotment gardens in the neighbourhood, and it is said they are well done, as they must be, when such excellent garden produce is staged by their owners. The examples of creepers, represented by Canary Bird plants and Clematis, and the fine pots of Musk, were unusually good—the latter worthy any exhibition. Window plants, fruit, vegetables, and the various examples of cut flowers, were equally satisfactory in character. The cottagers' tent of itself makes a very pleasant exhibition.

One prime feature among the plants seen at Southgate is the Cockscombs. There is a kind of fierce rivalry among three or four growers, and each one tries his best to distance his rival. The plants average in height from 6 to 12 inches, the foliage clean and luxuriant, the stalks surmounted with immense brilliant-hued combs. The champion grower is Mr. Graves, gr. to J. Walker, Esq., Southgate, who has an exceedingly fine purple-crimson strain, but on this occasion he was defeated by Mr. J. Cowell, gr. to E. Homan, Esq., who had plants dwarf in growth, and the combs of a bright crimson colour, perfect as examples of successful cultivation. Mr. Gardener, gr. to Lady Ann Garnier, had some very fine examples also. Gloxinias, Petunias, Balsams, and Fuchsias were nicely done; the best six of the latter came from Mr. Geo. Read, gr. to Mr. Alderman Sydney, who had capitally grown and flowered plants of Reine Blanche, Wiltshire Lass, Universal, albo-coccinea (a very distinct and effective variety), Rose of Castile, and Souvenir de Chiswick. The other plants were smaller, but nicely grown.

Good groups of fine-foliaged and other plants were staged by several exhibitors. The best six of the former came from Mr. Prentice, gr. to H. Wigan, Esq., who had Pandanus utilis, Latania borbonica, Cissus discolor, Croton variegatum, Alocasia Jenningsii, and Caladium Wightii; Mr. Hutchinson, gr. to W. J. Armytage, Esq., was 2d, with Alocasia metallica, a finely coloured variegated Pine-apple, Alocasia macrorhiza variegata, Pandanus elegantissimus, and Croton variegatum. The leading class was for eight foliaged and flowering plants, arranged for effect, the best group being set up by Mr. Wilson, gr. to Mrs. Adams, Chase Park, Enfield, who had of the former Platycerium grande (very fine), Pandanus utilis, Croton interruptum, Yucca aloifolia variegata, and Cyathea excelsa; and of the latter Stephanotis floribunda, Vinca rosea, and Rhynchospermum jasminoides. Mr. Hutchinson was 2d, his best plants being Ixora javanica, Dipladenia amabilis, Croton angustifolium, and Bougainvillea glabra. The best six stove and greenhouse plants consisted of Dipladenia amabilis, Allamanda cathartica, Sobralia macrantha, Bougainvillea glabra, Ixora javanica, and Cypripedium barbatum superbum. Some good groups of stove and greenhouse Ferns were staged. Mr. Waller, gr. to F. T. Hall, Esq., was 1st, with Adiantum concinum latum, A. Cunninghami, A. cuneatum, Blechnum brasiliense, Dicksonia antarctica, and Balantium Culcita. Mr. F. Farrow, gr. to G. Batters, Esq., was 2d, with Lomaria gibba, Dicksonia antarctica, Adiantum formosum, A. cuneatum, Gymnogramma sulphurea, and Pteris cretica albo-lineata. Mr. Wilson had the best specimen plant in a finely-grown Stephanotis floribunda; Mr. Terry, gr. to J. S. Daws, Esq., coming 2d, with a good Pleroma elegans.

Cut flowers are always a good feature at Southgate, especially in the classes for forty and twenty distinct species, and also in that for for twenty species of hardy border flowers. Well arranged boxes of good things make an effective display, and it is a feature of our horticultural exhibitions well worthy liberal encouragement. Roses grown by amateurs are well shown, and there is always a spirited competition. One pretty feature consisted of boxes of Rose-buds, dressed like button-holes, and some of the Tea-scented varieties were very charming. There was a class for a drooping creeper, or creepers, to be shown in a hanging basket; the ten best were examples of Lycopodium lævigatum, which does remarkably well, and it is said to be an excellent plant for growing in this way in a sitting-room. Fruit was small in quantity, but select and good. Strawberries were particularly fine, as they always are at Southgate. Baskets of vegetables are a remarkable feature, and everything of excellent quality. The neighbouring nurserymen greatly assist the exhibition. Messrs. W. Cutbush & Son sent miscellaneous plants and Roses in pots; Mr. B. S. Williams, Palms, Dracænas, Orchids, Ferns, &c.; Mr. W. Paul, cut Roses, Pelargoniums of various types, &c.; and Messrs. Paul & Son a collection of plants. (*From a Correspondent.*)

Wanstead and Leytonstone Horticultural: *July* 1.—The ninth annual exhibition of this Society was held in the grounds of Little Blake Hall, Wanstead, the residence of H. D. Davies, Esq., a small but charming place, with pleasant gardens, and certain arboreal features of more than ordinary interest. The whole of the exhibits were grouped in one large tent, well-grown plants of small size being the invariable rule. Unfortunately the weather was thoroughly wet, which altogether marred the enjoyment of the inhabitants, who take a great interest in their annual exhibition.

In the way of flowering stove and greenhouse plants could be seen small but nicely-grown and flowered examples of Dracophyllum gracile, Clerodendron Balfourianum, Kalosanthes coccinea, Eucharis amazonica, Aphelexis macrantha rosea, Rhynchospermum jasminoides, a fine scarlet Cactus, Stephanotis floribunda, &c. Hydrangeas were very good, especially some plants shown by Mr. Monk, which were 2½ feet across, vigorous in growth, and bearing noble trusses of flower. The Hydrangea, when well grown, makes a most effective exhibition plant. The best group of foliaged plants came from Mr. G. Hay, and consisted of Pandanus javanicus variegatus, Cissus discolor, Dieffenbachia maculata, Sphærogyne latifolia, Croton variegatum, and Maranta zebrina. Mr. Simmons also staged some nice plants. Ferns, in small but well-grown plants, were well represented, and consisted of Adiantum formosum, Lomaria gibba, Adiantum cuneatum, A. macrophyllum (finely grown), Gymnogramma Mertensii (very fine), G. peruviana, Dicksonia antarctica, &c. Lycopodiums also were shown in better condition than one is in the habit of seeing them in exhibitions of this character.

Special prizes were offered for groups of fifteen flowering and foliaged plants, the best being staged by Mr. Monk, gr. to W. Fowler, Esq., Leytonstone. The leading plants were Adiantum pedatum, A. cuneatum, Caladium Chantinii, a variegated Pine-apple, Alsophila australis, Kalosanthes coccinea, Maranta zebrina, Eucharis amazonica, with Fuchsias, Pelargoniums, &c., in flower. Mr. Simmons, gr. to Alderman Finnis, Wanstead, was 2d, with Caladium Houlletii, C. Chantinii, Croton undulatum, Oncidium divaricatum, &c. Two or three other groups competed, and they made an effective display set down in the turf at one end of the tent. A group of six Caladiums, shown by Mr. Simmons, well deserved notice.

The foregoing represent the leading features of the show. In addition there were cut flowers, fruit, and vegetables shown in different divisions, and all of general good quality, though comprising nothing calling for special remark. A fine collection of cut Roses was sent by Mr. John Fraser, Lea Bridge Road Nurseries, and greatly assisted the floral display. The cottagers' productions were, on the whole, of a very satisfactory character. (*From a Correspondent.*)

Brentwood Horticultural: *July 6 and 7.*—This Society held its annual exhibition at the same time as the Essex Agricultural Society, and in the adjoining grounds of Hampton House, Brentwood. The show was in every way a decided success, there being a good display in the numerous classes of plants, both flowering, fine-foliage, and Ferns, as also cut flowers, fruit, and vegetables. Roses were numerously shown, and in good condition. In many classes the competition was very close, especially for the President's silver cup, offered for twenty-four distinct varieties (amateurs). Here Mr. H. Atkinson bore the palm, closely run by Mr. J. C. Quennel. In the open class of forty-eight Mr. Cant, St. John's Nursery, Col-

chester, was 1st, with a very fine lot. Messrs. Saltmarsh & Sons, Chelmsford, also showed well. In flowering plants Mr. Walker, gr. to Mrs. Honeywood, Mark's Hall, Essex, had a decided lead of the other competitors. His plants were remarkably well bloomed and fresh. Most noticeable amongst them was one of the finest examples of the white Erica obbata we have ever seen. The plant was some 4 feet through, vigorous and profusely flowered, many of the shoots carrying unusually large bunches of its waxy flowers. The general appearance of the exhibition was somewhat impaired, through being too much broken up; some seven or eight comparatively small tents were used, dispersed about the grounds. This, no doubt, went far to relieve the pressure in any particular place from the crowd of visitors who thronged the show, but for effect an arrangement of this description is not so good as if tents of larger size and half the number had been used. The weather, that this season has been so disastrous in its effects upon many societies, was here all that could be desired, bringing out a large concourse of visitors, the presence of whom is indispensable to make these exhibitions successful.

In the class for nine stove and greenhouse flowering plants Mr. Walker was 1st, with a very meritorious lot; Mr. Lane, gr. to General Fytche, Pyrgo Park, 2d, with smaller plants.

For six Heaths Mr. Walker was 1st, with beautiful examples of Erica obbata and E. ventricosa Bothwelliana, &c.

For six foliage plants Mr. Walker also took the lead with a large and well matched collection; and Mr. Lane was 2d, showing amongst others two remarkably fine plants of the Fern-like leaved Lomatias, L. heterophylla and L. silaifolia, some 4 feet through by 5 feet in height, dense masses of healthy foliage.

Zonal Pelargoniums were well grown and finely bloomed. Despite all that may be said of the sameness in general appearance of these plants, at this season, when flowering subjects are not so plentiful, they are indispensable to liven up the otherwise sombre effect produced by large masses of Ferns and other green-leaved plants. For six, Mr. Burly, Brentwood, was 1st, and Mr. Meadmore, Romford, 2d. Six show Pelargoniums: 1st, Mr. Woodhams, gr. to C. P. Matthews, Esq., Bower House, Havering; as also for six Fancies. Six Tricolor and Bronze Pelargoniums: Mr. North, gr. to T. Hill, Esq., Brentwood, and Mr. Meadmore were equal 1st. Six Fuchsias: Mr. Mann, Brentwood, took 1st honours; Mr. Foster, gr. to E. Ind, Esq., Combe Lodge, 2d.

Exotic Ferns were well and numerously shown. Mr. Walker was 1st with large and finely-grown examples, and Mr. Foster 2d. For six British Ferns, Messrs. Saltmarsh & Sons were 1st with a nice exhibit of moderate-sized plants, Mr. Constable, gr. to Sir A. Neave, Dagenham Park, being 2d. In the class for sixteen miscellaneous plants, Mr. Walker, Mr. T. Miller, gr. to J. Canning, Esq., and Mr. Lane, took the prizes in the order named. Mr. Walker's plants were most of them large and effective; his best in flower were Ixora amboinensis and Erica Fairrieana. Conspicuous in the foliage was the fine Palm Verschaffeltia melanochætes and Theophrasta imperialis. Mr. Miller's best were a fine specimen of Dracæna regina and Areca rubra. Mr. Lane's group consisted of smaller plants, with more flowering subjects.

FRUIT.—For four dishes Mr. Lane was 1st, with moderate-sized bunches of Hamburgh Grapes, Queen Pine, Grosse Mignonne Peaches, and Elruge Nectarines; 2d, Mr. Foster, who had Hamburgh and Muscat Grapes, Royal George Peaches, and a Melon; 3d, Mr. Bones. For a Pine Mr. Smith, gr. to O. E. Coope, Esq., M.P., South Weald, and Mr. Ingle, gr. to Mrs. Round, Colchester, were 1st and 2d. Three bunches black Grapes: Mr. Woodhams was 1st, with small bunches, well coloured and fine in berry. Mr. Bones showed magnificent bunches, large and even in berry, but unripe; Mr. Lane 3d. Three bunches white Grapes: 1st, Mr. Foster, with Buckland Sweetwater in good condition; 2d, Mr. Stephenson, gr. to J. Barker, Esq., Leigh Hall; 3d, Mr. Lane. Mr. Murrell was 1st for a Melon, Mr. Foster for a dish of Peaches, and Mr. Broomfield, gr. to G. F. Leitch, Esq., for Nectarines.

ROSES.—Forty-eight: 1st, Mr. Cant; 2d, Messrs. Saltmarsh & Sons. Twenty-four: 1st (President's cup), Mr. Atkinson; 2d, Mr. Quennell. Twelve: 1st, Mr. Loder, gr. to R. Hanbury, Esq., Weald Hall. Six: 1st, Mr. Witham, South Weald; 2d, Mr. Miller.

There was a close competition in the open class for dinner-table decorations: Mrs. Burley, 1st; Mr. Soder, 2d. Single vase: 1st, Mr. North; 2d, Mrs. Burley. A very interesting and attractive feature in the show was the dinner-table decorations, vases, hand and button-hole bouquets, contributed by *bonâ fide* lady amateurs only, for which suitable prizes in the shape of works of art were offered. They occupied a tent by themselves. For the best table decorations of a general character Miss A. H. Hanbury, Weald Hall, was 1st, with a very tasteful arrangement, neither overdone nor the wretched poverty-stricken affairs that are sometimes placed to the fore; 2d, Miss Florence Pemberton, Round House, Havering. Hand bouquet: 1st, Miss Haws, Bellhouse, Romford; 2d, Miss Foster, Shenfield. Best arranged vase of flowers: 1st, Mrs. J. Bailey, Brentwood; 2d, Miss Haws. For three button-hole bouquets: 1st, Miss Atkinson, Brentwood. (*From a Correspondent.*)

Highgate: *July* 7.—This Society's shows are held each year in the grounds attached to the residences of the principal gentlemen in the neighbourhood: this season it took place at Sir S. H. Waterlow's, Fairseat House, which is in every way adapted for the purpose. Any one possessing no further knowledge of the place than such as conveyed by passing it up the steep Highgate Hill, can form no idea of its extent and undulating character. It is well laid out and nicely kept. In addition to the prizes offered by the Society in the numerous classes for plants, cut flowers, fruits and vegetables, there are a large number of special prizes given by ladies and gentlemen, who take an interest in horticulture, and who thus liberally supplement the Society's prizes. Much has been done here, especially by the patroness, the Baroness Burdett-Coutts, to encourage and excite a spirit of emulation amongst cottage gardeners and holders of allotments, the inspectors of which bear ample testimony of the great improvement that has taken place in these throughout the district brought under the influence of this encouragement. In fact, an inspection to the large tent devoted to cottagers' productions, excellent in their respective kinds, furnished abundant evidence of the successful exertions of those who thus spend their leisure hours in substantially benefiting themselves by the quantity of excellent hardy fruits and vegetables they grow, in addition to the plants and flowers which adorn their cottage homes, by which they are made so much more enjoyable to themselves as well as giving pleasure to all who see them. The show, taken as a whole, was the best the Society has held, and no doubt must have been a success financially, as it was calculated that 10,000 persons passed through the gates during the day.

The President's prize (a silver cup) given by Sir S. H. Waterlow, for the best twenty-four plants, twelve flowering and twelve foliage, was won by Mr. Milborne, gr. to G. Heriot, Esq., Cholmeley Park, Highgate.

For the prizes offered by S. Cuming, Esq., for the best twenty plants, arranged for effect in a space not exceeding 15 feet by 5, Mr. Fuller, gr. to E. J. Nettleford, Esq., The Grove, Highgate, was a good 1st, showing a very effective group; Mr. T. Sheen, gr. to E. Brooke, Esq., Caen Wood Towers, Highgate, was 2d.

A prize for a miscellaneous collection of twenty-four foliage plants, offered by E. Brooke, Esq., was taken by Mr. Sheen, who also took Mr. Brooke's prize for twelve specimen Ferns.

Mrs. Wilkinson's prizes for twelve distinct British Ferns were taken by Mr. Hunt, gr. to E. Fry, Esq., Highgate; Mr. Stokes, gr. to C. Evans, Esq.; and Mr. Turner, gr. to A. C. Scott, Esq.

G. Heriot, Esq., offered prizes for cottagers—for the best collections of hardy fruit, vegetables, and flowering plants, and the competition brought out an excellent display. First, Mr. R. Edwards; 2d, Mr. J. Martin; 3d, Mr. C. Crane, whose productions were all highly creditable.

Mrs. Barclay gave prizes for cottagers' window boxes; for these Mr. Martin was 1st, Mr. W. Peat, 2d, and Mr. C. Crane 3d. The prizes by the same donor for six hardy plants in flower were awarded—1st, to Mr. Martin, and 2d, to Mr. Smith.

The Society's 1st prize for six Orchids was taken by Mr. Newman, gr. to H. N. Michael, Esq., Cholmeley Park, Highgate.

For six foliage plants Mr. Colins, gr. to S. Cuming, Esq., was 1st; and Mr. Ritchie, gr. to R. H. Prance, Esq., Hampstead, 2d.

In the class for six exotic Ferns Mr. Ritchie was 1st, with a beautifully grown lot; Mr. Sheen was 2d, with a good six.

A moderate quantity of fruit was shown, generally good in quality. Mr. Grant, gr. to J. Plucknett, Esq., Finchley, was 1st for a Pine. Three bunches of Black Grapes: Mr. Birse, gr. to J. H. Lermitte, Esq., Finchley, 1st, with good bunches, finely coloured. In the similar class for White Grapes Mr. Ritchie was 1st, with Muscats. Six dishes of fruit: Mr. Birse took the lead with good Hamburgh Grapes, a nice Queen Pine, Peaches, Nectarines, a Melon, and Strawberries; Mr. Grant, 2d. One dish of Peaches: Mr. Grant, 1st, with good Grosse Mignonne. One dish of Nectarines: Mr. Osman, gr. to R. Holland, Esq., 1st, with Hunt's Tawny. Mr. B. S. Williams and Messrs. Cutbush & Son each staged a group of miscellaneous plants, that much enhanced the effect of the show. (*From a Correspondent.*)

Sittingbourne Gardeners' and Market Gardeners' Mutual Improvement Society: *July* 8.—An exhibition of fruit, flowers, and vegetables was held on the evening of the 8th inst., under the auspices of this Society. The exhibits were tastefully arranged on tables, the centre stand being devoted to flowers and plants, of which there was a choice assortment, including many in bloom. Two splendid pyramid Fuchsias attracted much notice. Some handsome nosegays, some good varieties of Roses, were also shown. The vegetables were very fine, likewise the fruit. Mr. Hare, of Lynsted, showed a capital sample of the Superlative (Laxton's) Pea. There were some good samples of the Giant King, Myatt's Improved Ashleaf, American Rose, and other sorts of Potatos. Some Scarlet Runner Beans, exhibited by Mr. Ellingham, were regarded as very good. The market gardeners and amateurs showed excellent specimens. Prizes were awarded to members who showed the best collections. The *East Kent Gazette* says:—"The show was, on the whole, a great success, and was well patronised." (*From a Correspondent.*)

Wimbledon and District Horticultural and Cottage Garden Society: *July* 14 *and* 15.—This Society held its third exhibition on the 14th and 15th inst., in the grounds of Belvedere House, and the usual garden productions at this season of the year were fairly represented. In the class for six plants fine-foliaged or flowering, Mr. W. Jordan, gr. to J. Boustead, Esq., was 1st; S. Chapman, gr. to R. Maccabe, Esq., 2d; E. Smith, gr. to T. D. Gilpin, Esq., 3d. In the class for six exotic Ferns E. Smith was 1st, with even fresh-looking plants; W. Jordan, 2d. The latter was 1st with six fine-foliaged Begonias. For six Zonal Pelargoniums, flowering, 1st, Mr. R. Rose, gr. to J. Shaw, Esq.; 2d, W. Jordan; 3d, J. Norman, gr. to E. Holroyd, Esq. In the class for double flowering varieties, J. Law, gr. to T. Short, Esq., was 1st; 2d, J. Lyne; 3d, W. Stratton. For a collection of twelve vegetables, Mr. Farming, the Convent, Roehampton, was 1st. The best three bunches of Grapes, small but well finished samples, came from W. Tidy, gr. to J. Brunlees, Esq. For three white varieties, Mr. W. Jarning, Roehampton, came in 1st. New and rare plants were contributed by Messrs. Veitch, Chelsea; Thomson, Wimbledon; and Rollisson, Tooting. The former had also an interesting collection of Acers and several boxes of cut Roses. (*From a Correspondent.*)

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JULY 14, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
	In.	In.	°	°	°	°	°	°			In.
July 8	29.79	−0.02	62.6	56.0	6.6	57.6	− 4.4	53.0	85	N.E.: E.N.E.	0.00
9	29.46	−0.35	61.2	53.0	8.2	56.0	− 6.1	52.1	87	W.: S.W.	0.41
10	29.49	−0.33	68.4	51.2	17.2	58.0	− 4.2	48.5	71	WSW: WNW	0.01
11	29.37	−0.45	62.3	48.0	14.3	54.3	− 8.0	45.8	72	W.: W.S.W.	0.22
12	29.83	+0.03	66.0	49.6	16.4	56.6	− 5.8	43.9	63	WNW	0.00
13	30.02	+0.20	65.8	46.0	19.8	54.7	− 7.8	45.1	70	WNW: W.	0.00
14	29.78	−0.04	62.8	49.8	13.0	54.8	− 7.8	50.3	85	S.: S.S.E.	0.49
Mean	29.68	−0.14	64.2	50.5	13.7	56.0	− 6.3	48.4	76	variable	sum 1.13

July 8.—Overcast, dull throughout. Occasional thin rain in morning.
— 9.—Overcast, dull, cold, and heavy showers of rain throughout.
— 10.—Fine, bright, and cloudy. Rain in early morning. Overcast, and dull at night.
— 11.—A dull day: fine occasionally. Frequent showers till 6 P.M.
— 12.—A fine, bright, partially cloudy day.
— 13.—A fine day, though dull and very cloudy at times.
— 14.—Fine till 11 A.M. Overcast, dull, and rain fell afterwards throughout.

—— During the week ending Saturday, July 10, in the neighbourhood of London the reading of the barometer at the level of the sea increased from 30.07 inches at the beginning of the week to 30.35 inches by the evening of the 4th, decreased to 29.37 inches by the evening of the 9th, increased to 29.73 inches by the afternoon of the 10th, and decreased to 29.63 inches by the end of the week. The mean reading for the week was 30.05 inches, being 0.19 inch above that of the preceding week. The highest temperatures of the air at 4 feet above the ground varied between 61½° on the 4th and 74½° on the 6th, the mean value for the week was 66¾°. The lowest temperatures of the air ranged from 47° on the 5th to 56° on the 6th and 8th, with a mean weekly value of 53°. The mean daily range of temperature in the week was

13¾°, varying from 23½° on the 5th to 6½° on the 8th. The mean daily temperatures of the air and the departures from their respective averages were as follows: — 4th, 55°.3, — 6°.; 5th, 57°.2, — 4°.3; 6th, 63°.4, + 1°.8; 7th, 60°, — 1°.7; 8th, 57°.6, — 4°.4; 9th, 56°, — 6°.1; 10th, 58°, — 4°.2. The mean temperature for the week was 58°.2, being 3°.6 below the averages as deduced from observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 142½° and 143° on the 5th and 6th; on the 8th 79¼° was the highest reading. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 49° and 44° on the 4th and 5th; on the 6th 55° was the lowest reading. The mean for the several low readings was 50½°.

The direction of the wind was mostly N.E., but S.W. at times.

The weather during the week was dull, cold, and showery, and the sky generally cloudy.

Rain fell on four days; the amount collected was 0.53 inch.

In England, the extreme high day temperatures ranged from 78° at Sunderland to 69° at Norwich; the general average all over the country was 74½°. The extreme low night temperatures varied between 52° at Truro and 42° at Hull, with an average value of 46¼°. The mean of the extreme ranges of temperature in the week was 28¼°, the greatest range being at Cambridge, 33°, and the least at Norwich, 22°. The mean high day temperatures ranged between 71¾° at Manchester and 64¼° at Liverpool, the general average being 69°. The mean low night temperatures varied from 56° at Truro to 48½° at Hull, with a general average of 51¼. The mean daily range of temperature in the week was 17¾°, varying from 21° at Cambridge to 11¼° at Liverpool. The mean temperature for the week was 58¼°, being 3¾° lower than the value for the corresponding week in 1874. The highest occurred at Truro, 60½°, and the lowest at Newcastle-on-Tyne, 55½°.

Rain fell on three days in the week at most stations. The amounts collected varied from an inch and six-tenths at Manchester to two-tenths of an inch only at Newcastle-on-Tyne. The general average all over the country was seven-tenths of an inch.

The weather during the week was generally fine, though somewhat cold, cloudy, and showery.

The direction of the wind was mostly from the N.E.

In Scotland the highest temperatures ranged from 79° at Dundee to 71½° at Aberdeen; the lowest temperatures varied between 47½° at Greenock and 42¾° at Aberdeen; their respective averages being 74¾° and 45¼°. The mean range of temperature in the week was 29½°. The mean temperature for the week was 59¼°, being half a degree higher than the value for the corresponding week in 1874. The highest was at Dundee, 61¼°, and the lowest at Paisley, 58°. The amounts of rain measured at the different stations varied from three-quarters of an inch at Dundee to one-tenth of an inch at Greenock; at Paisley no rain fell; the average fall over the country was four-tenths of an inch.

At Dublin the highest temperature was 74½°, the lowest 43¼°, the mean 59¾°, and the fall of rain six-tenths of an inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

ORCHIDS.—As many of the early-growing plants will have completed their growth for this season, they may be removed to a cooler house, where an average temperature of 60° is kept without sun-heat. Dendrobium Cambridgeanum, D. nobile, and many others of the genus, will frequently make a second growth when kept in their growing quarters. When such is the case, the new growths very seldom become properly matured. The plants must be placed in a house less charged with heat and moisture; at the same time a greater supply of air should be afforded them. They must be gradually inured to the change at the end of summer, and should be taken back to their former quarters. *Cattleyas* that are growing require plenty of moisture, which will enable them to make good plump pseudobulbs. Many of the *Odontoglossums* and *Masdevallias* will now require a shift, especially those which are growing strong, and have filled their pots with roots. Keep the temperature in the Odontoglossum-house cool, and use the syringe freely. Give plenty of water to the roots of those growing freely. Give weak manure-water to *Calanthes* and sponge the leaves frequently; these plants are very liable to become infested with red-spider, thrips, and scale, but a sponging with soft soap and afterwards with clean rain-water will keep them clean. *Sobralias* are subject to red-spider at this season; sponging and a free use of the syringe will keep it down. What a glorious plant is *Thunia Bensoniæ* and *Thunia albus*—the former now in flower; no collection of Orchids (however small) should be without it, for, coming into flower at a time when the number of flowering plants is on the wane it becomes doubly valuable: it is a plant of easy culture, requiring much the same treatment during its season of growth as *Calanthe vestita*. Let all the Orchid-houses be frequently smoked, for the aphis and thrips seriously damage the young growth if permitted to get a hold on the plants. Give plenty of air to all pseudobulbous plants, to enable the growths to become ripe and solid. *George Baker, Coombe.*

GREENHOUSE HARD-WOODED PLANTS.—*Heaths*, especially the earlier-flowering section, that have since blooming made considerable growth, should now be exposed to the open air, to thoroughly ripen the wood, so as to insure free flowering. Many varieties of these plants require to be longer under the influence of full air and light, such as cannot be given them even in the best constructed houses, and it should be observed that where they are by necessity grown in indifferent houses where a maximum of light cannot be given them, the longer time will it be necessary to have them out-of-doors, to make up for the consequent softer condition of their growth. There are some kinds, such as *E. depressa* and *Cavendishiana*, that retain their flowers fresh for a lengthened period, so far into the season that there is not enough time afterwards for them to make growth in sufficient quantity and get it ripened up for the ensuing season's blooming. Such plants as these do not often flower well two years together, and it is better not to attempt to induce them to bloom oftener than each alternate season. Plants of *E. Cavendishiana* that have done flowering should at once have their blooms picked off, and will be all the better for keeping indoors in a light house for a month yet until they have made some growth, after which they should be turned out for some weeks to ripen and solidify it. *E. depressa*, on the other hand, should, as soon as blooming is over, be at once placed in the sunniest situation than can be selected. Plants of this variety that have not flowered this season will have made considerable growth, and should be got out where they will get as much sun and air as possible. This is a hardy constitutioned Heath, a slow grower, but not liable to die off unless very badly treated. Its remarkable drooping habit, fine deep green foliage, and the length of time it will last in flower—eight or ten weeks—make it a most desirable plant to grow for decorative purposes, even for those who do not use it for exhibition, and as such it seems strange that it is not much more generally used. In removing the general collection of Heaths out-of-doors, it is well to place them for a few days at the north side of a wall, where they will not at first be fully exposed to the sun, as if very powerful it sometimes has the effect of turning the leaves brown. Put round each pot at the sunny side a piece of canvas or mat to prevent the sun acting directly on them, or the roots, which in healthy plants lie thickly against the inner surface, and would be injured. This is much better than placing the plants, as sometimes done, closely together, so that the heads of one row shade the pots of those standing immediately to the north of them. When the plants are thus fully exposed they require more water than when under glass, and care must be taken that they do not suffer for want of it. Young *Heaths* that were potted earlier in the season will now be making free growth, and must receive attention in stopping and training, keeping the strongest shoots tied out in a horizontal position down close to the rim of the pot, leaving the weaker ones upright, whereby they will get stronger. There is no system of training these plants that is effectual in balancing the strong with the weaker branches except this, as even if the strong branches are repeatadly stopped, if they are allowed to retain their upright position, they will still keep the lead of the weaker ones; and where they are allowed to grow thus resort must be frequently had to cutting back, which is simply a waste of strength and time, and quite unnecessary where a little forethought is brought to bear in the early stages of the plant's existence. The general stock of young hard-wooded plants will want attention in this matter before the branches get too strong to bend without injury. The treatment they receive whilst young should be such as not to require anything stronger being removed than can be pinched out with the thumb and finger. Look well at this season to young *Leschenaultias* of different kinds, and *Aphelexis*, that they do not get affected with aphides; these insects on the above plants are so small and so nearly the colour of the leaves that they are scarcely recognisable, yet if allowed to remain unmolested they do serious injury. Although these plants would appear to be so far unsuited to the full development of aphides from the stunted condition the insects are in when existing upon them, yet in this state they are almost proof against tobacco smoke; no ordinary fumigation will kill them, dipping or washing with tobacco-water is the most effectual and the safest.

Azaleas.—The plants that have flowered latest should now be encouraged to make growth by keeping the house close and moist, with very slight shade in bright weather. Keep them near the glass, as the more light the leaves are exposed to during their formation the stronger their texture, and consequently the longer they will remain healthy on the plants, providing they are kept clear from thrips and red-spider, which, as soon as discovered, means should be taken to destroy. It cannot be too often urged that it is impossible to grow *Azaleas* well without the two essentials—plenty of light during their season of growth, and perfect freedom from insects. Either of these conditions being wanting, the plants cannot retain enough leaves through the winter, hence the weakly condition and miserably small, deficiently coloured flowers so often met with on these easily grown subjects.

CONSERVATORY.—Flowering stove plants, such as *Ixora coccinea*, *Bougainvilleas*, *Clerodendrons*, *Allamandas*, *Hoyas*, *Rondeletias*, &c., may now be removed to the conservatory, where they will be very effective. Place them at the end that can be kept the closest, and admit no air directly upon them. Whilst here do not give more water than will just keep them from flagging. *T. Baines.*

FRUIT HOUSES.

VINES.—Hitherto the season has been anything but a favourable one for Grape growers, and really it seems as if there were no likelihood of a change, for this morning (July 13) the thermometer registered 41°. Abundance of fire-heat must be given to late *Grapes*, and also to intermediate crops, now about colouring; a minimum temperature of 70° should be maintained night and day, and air given freely whenever the state of the weather permits. Red-spider ought not to be very troublesome this season, but if it should make its appearance the surest remedy is to sponge the leaves with clear water; failing the time to do this, paint the pipes thickly with guano, and occasionally syringe over it. The ammonia given off by this is inimical to insect life and beneficial to the foliage. I have lost all faith in sulphur as a cure for spider, but for mildew it is invaluable, to destroy which it should be mixed to the consistency of paint, and applied with a soft brush to all the affected parts. When the fruit has been cut it may be mixed thinner, and syringed over the Vines. The "scalding" period is at hand, I would therefore repeat my advice to guard against it, by increased night temperature and abundant air-giving in the day-time. With such treatment "scalding" with me is all but unknown, even with the kind (Lady Downe's) most liable to its attack. Young Vines of this season's planting—provided the light is not too much obstructed—should be allowed to ramble at will; of course it is presumed that these will be cut back to three or four eyes at the winter pruning, but any supernumeraries intended for fruiting next year should be regularly pinched or stopped back to a length of 7 or 8 feet. Above this length the laterals may be allowed to remain, and will aid in the production of roots. Pot Vines intended for fruiting next season ought now to have completed their growth, and should be exposed to all the light and sun we get to thoroughly plump up their buds. They must not suffer for want of water, and an over-dose now would be equally injurious; the happy medium, neither wet nor dry, should be aimed at. Look over ripe Grapes frequently, and remove all mouldy, shanked, or decayed berries. If dead-ripe, shade during excessive sunshine, to preserve the colour and bloom. *W. Wildsmith, Heckfield.*

FIGS.—The second crop will now be advancing in size, and where too thickly set on the trees the fruit must be thinned out, if not already done. Attend to tying-in and stopping the shoots, and watering the borders copiously if of limited extent, and the syringe must be used twice a-day on the foliage to keep the red-spider down. To have Figs ripened off in the highest degree of perfection, the house in which they grow must have a constant circulation of dry, warm air; and at this period of the year this can be maintained by a little artificial heat in dull, cold weather. The trees in pots intended for early forcing next must be regularly attended to by syringing them overhead every day, and by giving some manure-water frequently at the roots. Some varieties, such as the Brown Turkey and Angelique, grow very vigorously, and require a deal of pinching in the shoots to induce fruitfulness. It is better perhaps to prune them well in the first and second years of their growth; for, though the first crop of fruit may be lost, there will be a second crop on the young shoots if they are well pinched in. Lee's Perpetual, White Marseilles, Œil de Perdrix, Early Violette, and Grosse Violette de Bordeaux, are only of medium growth, and are therefore not so much in want of close pinching in as are the more vigorous growers. *William Tillery.*

HARDY FRUIT GARDEN.

Strawberry runners which have been laid early should now be well rooted and fit for potting into the fruiting pots; these should be either 6 or 7 inches in

diameter, using the smaller size for those intended to be forced first, such as *Black Prince*, *Keens' Seedling*, &c.; but for the larger growing kinds, and those required for use in May and June, the larger sized pots are requisite to produce a crop of good size and quality. The soil best adapted for Strawberries in pots is a rather strong but friable loam, cut a few months previously in sods of 3 to 4 inches thick, and stacked together. To every six barrow-loads of this, when chopped up, add one barrow-load of well decomposed stable manure; and should the soil be at all adhesive in texture, add half a barrow of clean river or drift sand, mixing the whole well together previous to use. In potting keep the plants rather high, press the soil firmly in the pots, and afterwards place in a cool and airy situation for a few days, until the plants have taken fresh hold of the soil, when they should be removed to an open situation under a south wall or hedge, where they will have every advantage of light and air; here, with due attention to watering, and the removal of runners as they appear, the plants will grow vigorously, and duly mature the crowns in good time, so as to get a proper period of rest before being placed in heat. This also is the season at which new plantations of Strawberries should be made, providing the planting can be done during the present month, and for this purpose it is a gain of time to layer the runners in small pots as for forcing, having the ground intended for planting well trenched and manured in readiness. The more free-growing kinds should not be planted less than 2 feet apart each way, as they are intended to produce three or four annual crops. It is, therefore, well to plant a third portion of the quantity grown each season, those to be removed being cut away as soon as the fruit has been gathered. The more forward kinds of *Apricots* and *Peaches* will now require attention to turning the leaves aside so as to give the fruit the utmost benefit of sun and air, which is more particularly requisite this season, in which so far, we have had little bright weather. Avoid a too common practice of pinching off leaves, but if necessary occasionally to remove one from the fruit, leave the footstalk and a third portion of the leaf: this will generally be sufficient to perfect the bud at the base of it. Fruit trees generally are, consequent upon the continuous wet weather, making an unusual amount of growth this season, and where pruned in, early laterals are growing freely. These should be stopped in good time, so as not to unduly exhaust the energies of the tree, and so prevent the formation of flower buds for next season. Budding may now be followed up with fruit trees generally. When it is requisite to fill up vacancies in established trees or to change the variety, buds may be inserted with success in wood of one or of several years of age, provided the bark is not too rough and hard from age or bad health; in this case it is better to head-down early in spring and work upon the young wood when sufficiently matured in summer. *W. Cox.*

KITCHEN GARDEN.

There are certain subjects which are cultivated in this department, the seeds of which, by reason of their close affinity with others, are most susceptible of being mixed with spurious varieties, and thereby entail the utmost care in their production, as, unless the flowers are properly protected from the operation of bees during that process, the variety will almost be sure to become contaminated, and the purity of the seed rendered excessively doubtful. This fact, combined with the desirability of having in possession seed which for a certainty has been gathered from specially selected subjects, which comprise the best and most perfect forms of development, is of itself sufficient to justify a recommendation to those who aim at the attainment of perfection in such subjects to endeavour to save a pinch of seed for themselves. The value of seed which is obtained from the finest specimens can scarcely be over-estimated in a cultural point of view, apart from its possessing such properties as dispel all doubts as to its genuineness, and at the same time prevents the annoyance and disappointment which, under other circumstances, is sometimes experienced. A subject which should be seen to at this period is the *Cauliflower*—often very difficult to get really true. If two or three of the best can be left in a good position, it should be done. Thin out the growths, leaving only the most advanced to give seed. A few of the best *Cabbages* should also be marked, so that they can be withdrawn from the stumps and transferred elsewhere to give a small supply of seed next year. The same remark is applicable to that old sterling variety of winter *Lettuce*, the black-seeded Brown Cos, and in the case of any other subject the seed of which is at all doubtful. The rain, which has so frequently fallen lately, is producing a marvellously exuberant growth in *Potatos* and early planted winter stuff. A prolonged continuance of it will doubtless be a fruitful source of mischief to the crop of the former. No diseased ones have been found amongst those we have lifted, but indications of its presence on the haulm in places is already plainly visible. As the crops of these and other summer things are removed the ground should be reoccupied with *Broccoli* (the Brassica tribe) or *Celery*, and with *Cauliflowers* for autumn use and for lifting, under some protection. Reserve and prepare the space set apart for *Winter Spinach*, *Rosette Coleworts*, and *Tripoli Onions*. Where kitchen gardens have been long-established, and under high-class cultivaivon, the soil becomes very rich in such places. The present time is most suitable for planting out the main crops of *Broccoli*, and, under these conditions, plant them without digging the ground; by so doing robust growth is somewhat arrested, and the constitution of the plants rendered more suited to withstand severe weather. This will also in some degree mitigate the evil resulting from the operation of those insidious enemies, where they abound, that produce clubbing at the roots of such plants, which annihilates them, and destroys that order which is desirable in the appearance of such crops generally. By this time *Rossette Coleworts* will be fit for pricking out from the seed-beds preparatory to being transferred to the quarters or elsewhere. When the requisite number of plants are withdrawn thin out the rest to about 2 or 3 inches apart; these will then speedily be fit for planting-out at distances about 12 inches apart every way. About the 24th of the month make a sowing of *Cabbage* for an early supply; *Bailey's Superb* is a selected variety, which is hardy and comes in early, and therefore is to be recommended for this purpose. At the same time make a good sowing of the black-seeded *Brown Cos* and *Stanstead Winter Cabbage Lettuce*. *Parsley* which has been transplanted invariably withstands the winter weather better than if allowed to remain in the drills where it is sown, therefore it should be transplanted as before advised. Make a sowing of *Chervil* in a sheltered corner now; this will give a supply for salads for the best part of the winter. Where *Tarragon* is required for making vinegar it should be cut at about 6 or 8 inches above the surface of the ground. When fit, take up and bunch *Garlic*, and *Shallots* also, if not already done. Give every attention to training and thinning out the leaves of *Tomatos* on outside walls, and stop them at the desired height. Look over *Gherkin Cucumber* plants; keep them moderately thin of leaves and stopped as required. *G. T. Miles, Wycombe Abbey.*

Enquiries.

56. WHITE LILY.—Can any of your numerous correspondents enlighten me as to the cause of the sudden drooping of the White Lilies? I have here, in a very old garden, many hundreds of them, which were just expanding their blossoms when, within three days, the foliage has all turned yellow and fallen off, and their great heads are all drooping. *M. L.*

Answers to Correspondents.

BEGONIAS: *T. C. & Son.* The varieties sent, though producing large flowers, are too dull in colour. No. 1 is apparently the best. It seems a very free bloomer; but you want to get more colour into them. The others too closely resemble it to be worth growing. Thanks for the Elæagnus.

CANTERBURY BELLS: *S. & M.* The specimens sent had unfortunately all faded so much in colour that we can do nothing with them. Judging from their size, we should imagine them very effective.

CAULIFLOWERS FOR PICKLING: *R. A.* We are afraid you are not on such good terms with the cook as a gardener consulting his professional credit should endeavour to be, or that functionary would never have sent you the message reported. You are quite right in cutting for pickling such Cauliflowers as are "a little too open for table use;" though, of course, the closer they are the finer the sample.

COVENT GARDEN PRICES: *J. F. S.* Retail.

CUCUMBERS GUMMING: *Cucumber.* We know of no remedy better than an entire change of seed and soil, and even these are not infallible.

INSECTS: *E. J. P. P.* The insects sent are the Aphis Piceæ. They must be treated in the ordinary manner of attacking aphides. Unless removed, they will injure the plants. *I. O. W.*

NAMES OF PLANTS: *Totteridge.* Medicago maculata and Euphorbia Lathyrus.—*W. D. Fox.* Mentha Requieni and Pyrus fennica.—*R. Buc.* Polystichum capense.

PROLIFEROUS ROSE: *J. G., Derby.* Not by any means rare, still less new. It has been figured repeatedly. In our experience some Roses are much more subject to this over-growth than others. Boule de Neige, with us, is almost constantly thus affected.

RHODODENDRONS AT OLD TRAFFORD: *T. C.* Your communication was anticipated by a similar one from another correspondent.

SEEDLING STRAWBERRY: *G. C. S.* The Strawberries sent in the cardboard box were smashed so effectively that we cannot give any opinion on them.

SEEDS: *B. W.* You want such a book as has not yet been published,—a sort of ready reference concerning "the growth and general management of the different kinds of flower and vegetable seeds." Under the circumstances, you might find one of Messrs. Barr & Sugden's catalogues useful to begin with.

SOOLY QUA CUCUMBER: *R. A.* Our advice is to grow the fruit until it is ripe, and then skeletonise it for the museum. It is only *said* to be eaten by the Chinese, and we don't recommend you to try it.

STARTING VINES IN AUGUST: *J. L. S.* The reason why we do not recommend so early starting of Vines is, because it is too much out of season. The Vines break badly. You may secure a few very early Grapes, but not sufficient to pay for the cost, and your Vines are soon completely ruined. It is better to keep late Grapes than to force permanent Vines so hard.

SWEET WILLIAMS: *Stuart & Mein.* A very fine strain of light flowers.

VINE LEAVES: *W. D. F.* After a very careful search, we have found one or two cells which may possibly be the incipient cells of the Oidium. We also find within the tissue a minute mould with spores. We do not, however, think that the state of your Vines is attributable to either, but rather to sunburn, possibly the more active because many of the cells are without chlorophyll. Are the roots in good order? *M. J. B.*

VINES MILDEWED: *A. B.* The carcase of a cow being buried in the Vine border, although very absurd and even injurious, has nothing whatever to do with the production of the mildew; that can be kept under by thoroughly dusting the whole house, Vines, leaves, fruits and all, with the flowers of sulphur. This should be done on its first appearance, or even before. To prevent its appearance thoroughly smother the house with sulphur; it will do the Vines no injury, but we do not anticipate that the gardener will ever succeed with Vines planted in an old border in company with a dead cow. We would recommend you to clear it all away, and plant fresh Vines at once, thoroughly cleaning and fumigating the house first with sulphur.

VIOLA: *K. T.* The flowers appear likely to be effective, though not particularly novel in colour—one of the bluish-lilacs. The chief merit would, however, lie in the habit, which should be compact, and not only free, but continuous flowering. You should send it to Chiswick to be grown in company with other approved sorts, and if really good, its merits will thus be publicly demonstrated. Mr. Barron will be glad to give it the same facilities as are accorded to other varieties.

WORDING OF SCHEDULES: *Alpha.* By the terms used, "Six distinct varieties of fruit," you can not only claim to show a black and a white Grape, but six distinct varieties of either colour, if you have them. The donor of the cup has made it a condition that Pines are not to be shown, from which it would appear that she meant six distinct sorts or kinds, but not having said so, we do not see how that interpretation can now be upheld.

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time.

ERRATUM.—MIDLAND COUNTIES EXHIBITION AT BIRMINGHAM.—It is stated at p. 50 that ten dishes of Nectarines were shown, the 1st prize going to Mr. Parkes for Elruge, whereas the 1st prize for finely-coloured Elruge was awarded to me; and again on the fifth and last day, the 1st prize for finely-coloured Pitmaston Orange Nectarine was also awarded to me. *John Browne, Gr. to the Right Hon. Earl Howe, Gopsall Hall, Atherstone.*

COMMUNICATIONS RECEIVED.—Sutton & Sons.—Portlogan.—C.—Ebor.—E. B.—C. T. O.—O.—C. Y. M.—J. B.—J. White.—H. C.—H. A. B.—W. P.—J. Ewing.—W. C.—H. K.—R. P.—W. Bowman (many thanks).—T. P.—W. D.—J. E. B.

Markets.

COVENT GARDEN, July 15.

A large quantity of produce is now being put on the market, and for goods of a rough description very low prices have to be accepted, and the recent unfavourable weather has rendered so much of it quite unsaleable that it is with difficulty in some instances that any price at all is obtained, dealers generally being very cautious in making purchases beyond their immediate consumption. The last two cargos of West India Pines have been unusually good, selling at 1*s.* to 2*s.* 6*d.* each. Hothouse produce is considerably lower, and none but first-class goods find customers to any extent. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 0	Lemons, per 100	8 0	12 0
Apricots, per box	1 0	3 0	Oranges, p. 100	8 0	12 0
Cherries, per lb.	0 6	1 6	Peaches, per doz.	6 0	18 0
Currants, red, ½-sieve	2 6	4 0	Pine-apples, p. lb.	3 0	5 0
— black, p. ½-sieve	4 0	6 0	Strawberries, per lb	0 4	1 6
Figs, per doz.	4 0	8 0	Walnuts, p. bush.	16 0	..
Grapes, per lb.	3 0	6 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Leeks, per bunch	0 2	0 4
Asparagus, p. bundle	5 0	6 0	Lettuces, per score	1 0	..
Beans, French, per bushel	10 0	..	Mint, per bundle	0 4	..
— broad, per bushel	3 0	..	Mushrooms, per pott.	1 0	2 0
Beet, per doz.	1 0	2 0	Onions, young, bun.	0 4	0 6
Cabbages, per doz.	1 0	2 0	Parsley, per bunch	0 4	..
Carrots, do.	0 6	..	Parsnips, p. doz.	0 9	1 0
Cauliflowers, spring, per doz.	2 0	..	Peas, per quart	1 6	..
Celery, per bundle	1 6	2 0	Radishes, per bunch.	0 2	0 4
Cucumbers, each	1 0	2 6	Shallots, per lb.	0 3	..
Endive, per doz.	1 0	2 0	Salsify, per bundle	1 6	..
Herbs, per bunch	0 2	0 4	Sprue, French, bund.	1 6	..
Horse Radish, p. bun.	3 0	5 0	Tomatos, per doz.	4 0	..
			Turnips, per bundle.	0 8	..
			Veg. Marrows, doz.	2 6	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cw

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, 12 blooms	1 0	– 3 0	Nemophila, 12 bun. .	1 6	– 3 0
— Clove, per doz ..	0 3	– 0 9	Pelargoniums, 12 spr.	0 6	– 1 6
Cornflower, p. doz. bun.	3 0	– 6 0	— Zonal, do. ..	0 3	– 1 0
Deutzia, per bunch ..	0 4	– 1 0	Primula, dbl., p. bun.	0 9	– 1 6
Eschscholtzia, 12 bun.	3 0	– 6 0	Roses, indoor, p. doz.	2 0	– 6 0
Eucharis, per doz. ..	6 0	–12 0	— outdoor, 12 bun.	4 0	– 9 0
Gardenia, per doz. ..	2 0	– 6 0	— Moss, 12 bun. ..	6 0	–12 0
Heliotropes, 12 spr.	0 6	– 1 0	Spiræa, 12 sprays ..	1 0	– 3 0
Lilies, white, p. bun.	0 6	– 1 6	Stephanotis, 12 sprays	2 0	– 6 0
Mignonette, 12 bun.	4 0	– 6 0	Stocks, 12 bun. ..	6 0	–12 0
Myosotis, per bunch	0 4	– 0 9	Sweet Peas, 12 bunch.	4 0	– 9 0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s	d.
Begonias, per doz. ..	6	0	–12	0	Lilium lancif., p. doz.	24	0	–60	0
Bouvardias, do. ..	9	0	–18	0	Lobelia, do.	4	0	– 9	0
Calceolarias, do. ..	6	0	–18	0	Mignonette, do. ..	4	0	– 9	0
Crassula, do. ..	12	0	–30	0	Myrtles .. do.	3	0	– 9	0
Cyperus, do.	6	0	–12	0	Pelargoniums, dble., per doz. ..	6	0	–12	0
Dracæna terminalis	30	0	–60	0	— Scarlet, do. ..	3	0	– 9	0
— viridis, per doz.	12	0	–24	0	Petunia, per doz. ..	6	0	– 9	0
Ficus elastica ..	1	6	– 7	6	Roses, do.	12	0	–60	0
Fuchsia, per doz. ..	6	0	–18	0	Solanums, do. ..	6	0	–18	0
Gardenias, do. ..	12	0	–60	0	Spiræa, do.	12	0	–24	0
Heaths, in var., doz.	12	0	–30	0	Stock, do.	3	0	– 6	0
Heliotrope, per doz.	6	0	–12	0					
Hydrangeas, per doz.	9	0	–24	0					

SEEDS.

LONDON: *July* 15.—Our seed trade is still without any feature of interest. For both red and white Clover seed there is a complete absence of demand. More inquiry is shown for Trefoils; the reports to hand indicate that not much seed will be saved in this country. A few transactions are taking place in Trifolium incarnatum at irregular rates; but only one parcel of new home-grown seed has, as yet, been delivered to the London market. Although the Trifolium trade has not yet fairly opened for the season, the feeling on to-day's market (in consequence, no doubt, of the recent wet and ungenial weather) seemed to favour an early advance on the prices now asked. Some quantity of yearling seed has lately been shipped to France. Sowing Mustard and Rape seed are now in good request. In Canary seed quotations mark a further heavy fall. Blue boiling Peas are scarce and dearer. Other articles, for the lack of transactions, are unchanged in value. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday English Wheat was 1*s.* per quarter higher than on that day se'nnight, and foreign from 1*s.* to 2*s.*, but purchases were not extensive. Barley was without quotable alteration in price. Malt was disposed of at about late rates. Of Oats the better sorts improved fully 6*d.* per quarter. Maize was also firm, and in some cases dearer. In Beans and Peas prices were not appreciably altered. In flour a rise of from 6*d.* to 1*s.* per bushel was established in American, while the top price for town trade was raised 3*s.*, or to 43*s.* per sack. —On Wednesday business was rather dull, but owing to the unsettled weather a strong tone prevailed, and Wheat, the English supply of which was small, realised the extreme quotations of Monday. Barley was nominally unaltered in price, and Malt was rather weak. Oats were fairly plentiful, and except for sound descriptions there was not much inquiry. Maize was steady, and late rates were maintained for both Beans and Peas. Flour was firm at the late improvement.—Average prices of corn for week ending July 10:—Wheat, 44*s.* 4*d.*; Barley, 37*s.* 2*d.*; Oats, 30*s.* 6*d.* For the corresponding week last year:—Wheat, 60*s.* 9*d.*; Barley, 41*s.* 7*d.*; Oats, 29*s.* 11*d.*

CATTLE.

At the Metropolitan Market on Monday the average quality of beasts on offer was but middling, consequently choicest descriptions were scarcely any cheaper, but trade was dull for inferior. The number of sheep was by no means excessive for the time of year. Trade was active, at high prices. The demand for lambs was scarcely as good. The calf trade was dull, at lower prices. Quotations:—Beasts, 4*s.* to 5*s.* 2*d.*, and 5*s.* 8*d.* to 6*s.* 4*d.*; calves, 4*s.* 4*d.* to 5*s.* 8*d*; sheep, 5*s.* 2*d.* to 5*s.* 10*d.*, and 6*s.* 4*d.* to 7*s.*; lambs, 6*s.* 4*d.* to 7*s.* 8*d.*; pigs, 4*s.* 4*d.* to 5*s.* 4*d.*—On Thursday the short supply of beasts was sufficient, the weather operating against sales: choice qualities, however, remained steady. There was no alteration in the figures for sheep, but trade was dull. Choice lambs were in demand; calves were plentiful, and rather lower; and for milch cows trade was very bad.

HAY.

The Whitechapel report states that the short supply of fodder on offer cleared without difficulty at a further slight advance. Prime Clover made 100*s.* to 145*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 147*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 35*s.* to 38*s.* per load.—Cumberland Market quotations: Superior old hay, 138*s.* to 155*s.*; inferior, 105*s.* to 118*s.*; new hay, 100*s.* to 120*s.*; superior Clover, 140*s.* to 150*s.*; inferior, 100*s.* to 126*s.*; new Clover, 100*s.* to 120*s.*; and straw, 42*s.* to 48*s.* per load.

POTATOS.

The Borough and Spitalfields markets reports state that the fresh arrivals of Potatos on sale have been moderate. Trade was steady, and the rates subjoined were realised with little difficulty:—Jersey rounds, 90*s.* to 110*s.*; ditto kidneys, 140*s.* to 160*s.*; English kidneys, 100*s.* to 135*s.*; ditto rounds, 90*s.* to 110*s.* per ton. Last week's imports into London consisted of 103 tons, 393 casks, and 300 boxes Barfleur; 300 casks Cherbourg; 460 tons Jersey; 80 tons, 144 packages Guernsey; 53 tons St. Malo; and 64 bags and 16 baskets from Boulogne.

PURSUANT to a Decree of the High Court of Chancery, made in a cause MASTERS against JEAKINS (1875, M., No. 132), the Creditors of JAMES JEAKINS, late of Potton, in the County of Bedford, Market Gardener, deceased, who died in or about the month of April, 1875, are, on or before the 28th day of July, 1875, to send by post, prepaid, to Mr. ARTHUR CHARLES RHODES, of 63, Chancery Lane, in the County of Middlesex, a member of the firm of Rhodes & Son, of the same place, Solicitors of the Defendant, Charles Henry Croot Jeakins, the Executor of the deceased, their Christian and Surnames, Addresses and Descriptions, the full particulars of their Claims, a Statement of their Accounts, and the nature of the Securities (if any), held by them, or in default thereof they will be peremptorily excluded from the benefit of the said Decree. Every Creditor holding any Security is to produce the same before the Vice-Chancellor, Sir Richard Malins, at his Chambers, situated at No. 3, Stone Buildings, Lincoln's Inn, Middlesex, on MONDAY, the 2d day of August, 1875, at 12 of the Clock at Noon, being the time appointed for adjudicating on the Claims.

Dated this 5th day of July, 1875.

ALFRED RAWLINSON, Chief Clerk.
RHODES AND SON, 63, Chancery Lane, Middlesex, Plaintiff's Solicitors.

LOAN EXHIBITION of SCIENTIFIC APPARATUS, at the South Kensington Museum.

The EXHIBITION will OPEN on APRIL 1, 1876, and will remain open until the END of SEPTEMBER, after which time the objects will be returned to the owners.

It will consist of Instruments and Apparatus employed for research and other scientific purposes, and for teaching. It will also include Apparatus Illustrative of the Progress of Science, and its application to the Arts, as well as such as may possess special interest on account of the persons by whom, or the investigations in which, it had been employed. The precise limits will be found further detailed under the several sections in which the Syllabus has been arranged for convenience, and for the information of exhibitors, rather than as a matter of scientific classification. Models, Drawings, or Photographs will also be admissible where the originals cannot be sent; and the apparatus may, in certain cases, be arranged in train as used for typical investigations.

The Syllabus and the Forms on which to enter descriptions of objects offered for exhibition may be obtained on application to the Director of the South Kensington Museum, London, S.W. These Forms should be filled up and returned as soon as possible, so that exhibitors may receive early intimation as to the admissibility of the objects they propose to send.

Whilst every care is taken of objects lent for exhibition, the Science and Art Department cannot be responsible for loss or damage.

The committees will have the right of rejecting any object that it may be thought unadvisable to exhibit.

The cost of carriage of all objects selected for exhibition will be defrayed by the Science and Art Department.

It is hoped that institutions or individuals having instruments of historic interest will be good enough to lend them.

By order of the Lords of the Committee of Council on Education.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
CORN MANURE, for spring sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
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NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

TANNED GARDEN NETTING, 1½*d.* per Square Yard, for Protecting Seed-beds, Peas, Fruit, Strawberries, &c., from Birds, Frost, Blight, &c., and as a Fence for Fowls, in 1, 2, 3, and 4-yards widths. Hexagon, Tiffany, and other Netting, Galvanised Wire Netting, Pea Hurdles, and Seed Protectors, by
C. WRIGHT, 29, Lime Street, E.C., late 376, Strand, W.C.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable, at 1*d.* per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.
EDGINGTON'S CRICKET and GARDEN TENTS are the prettiest.
EDGINGTON'S MARQUEES for Hire are the most elegant and capacious.
EDGINGTON'S RICK CLOTHS for 69 years have maintained their celebrity as the best.
TIFFANY, SCRIM CANVAS, and every other kind of NETTING.
Be particular—FREDK. EDGINGTON AND CO., Rick Cloth, &c., Manufacturer to Her Majesty, 52, Old Kent Road, London, S.E.
A quantity of good Second-hand Government TENTS for Sale, Cheap.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.
TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3*d.* per yard, or 100 yards, 20*s.*, 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.*
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
TIFFANY, 6*s.* 6*d.* and 7*s.* 6*d.* per piece of 20 yards.
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THATCHING CORD.—COCOA or COIR YARN is the cheapest and most durable material. Price 28*s.* per cwt. nett cash on delivery in Liverpool. A bundle of about 160 yards will cost about 4½*d.*
TARRED CORD, 4½*d.* to 5½*d.* per lb.
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Post-office Orders payable to JAMES MORGAN.

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HILL AND SMITH'S BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon carraige paid to any Station in the Kingdom.

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"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.
"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers he Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierly Hill Ironworks, near Dudley; and 118, Queen Victoria Street, London, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

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For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.
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AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

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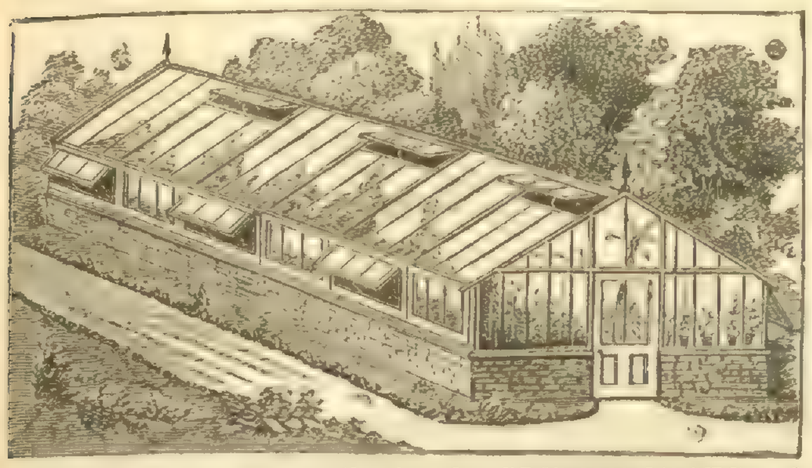

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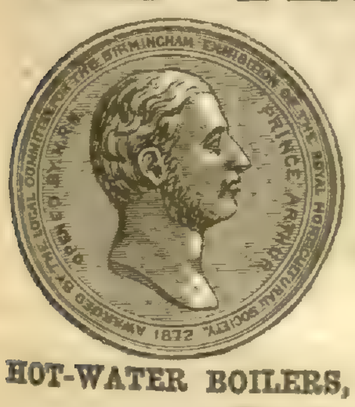

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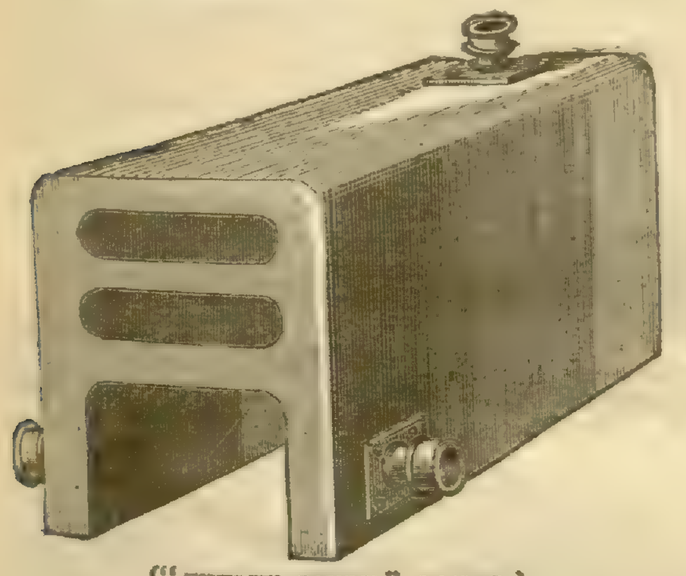
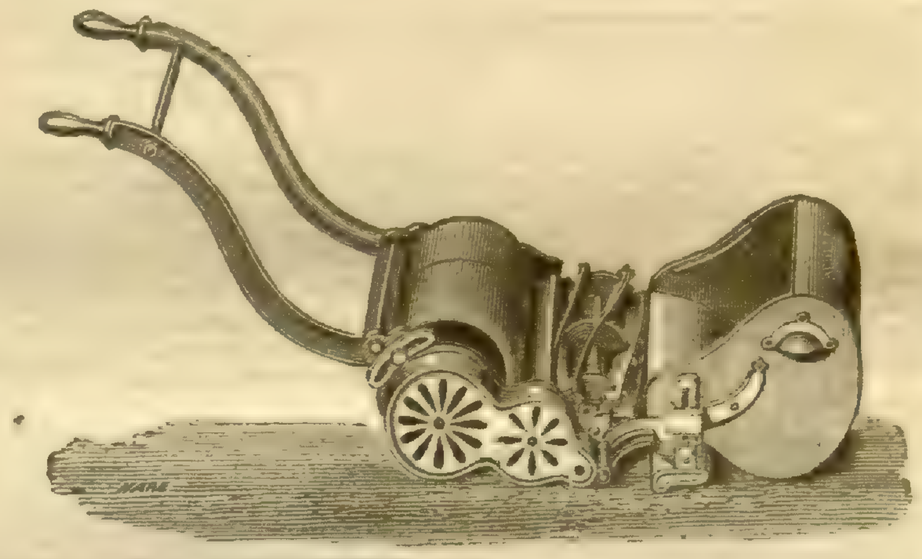


("WITLEY COURT" BOILER.)



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4-inch Pipe, per yard	..	..	3*s.* 4½*d.*
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Connections at proportionate prices.

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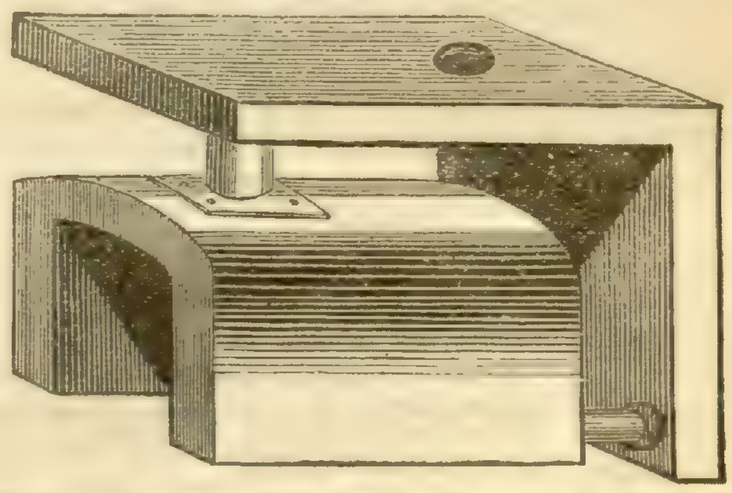

These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz.: the water space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	*s.*	*d.*
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0

Larger sizes if required.

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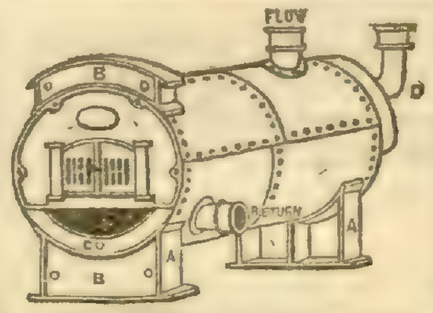

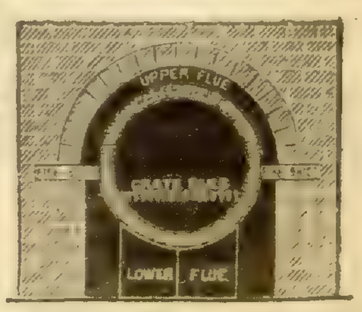

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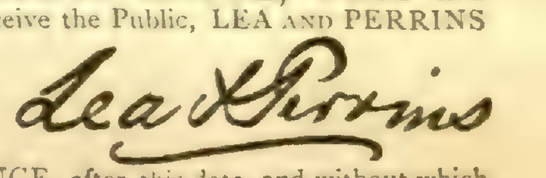

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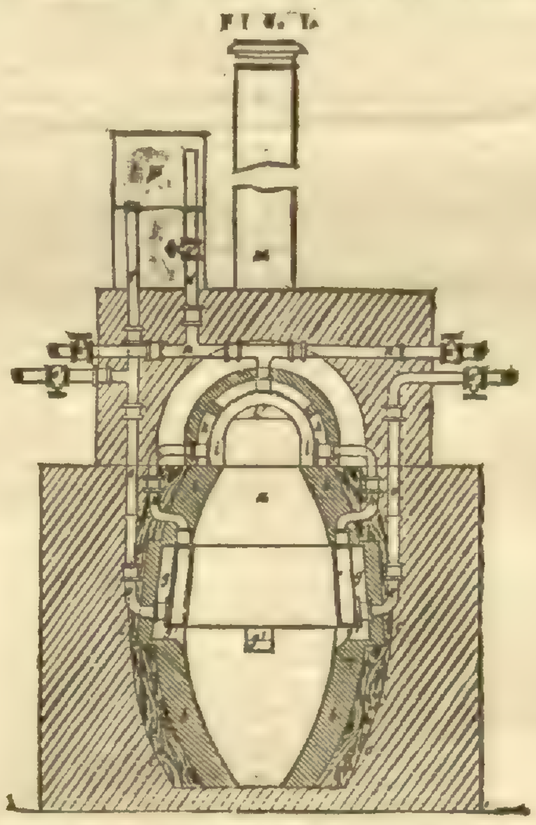

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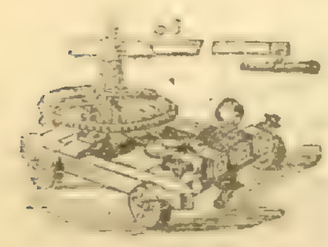

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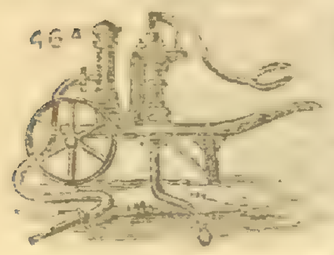

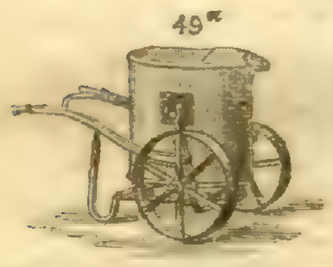

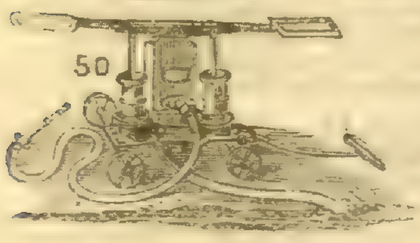

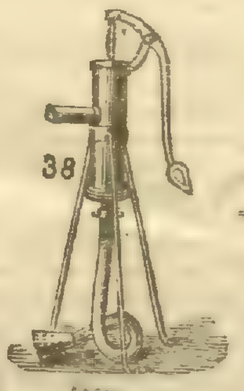

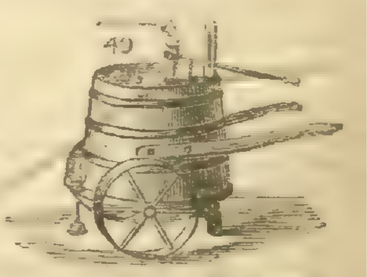

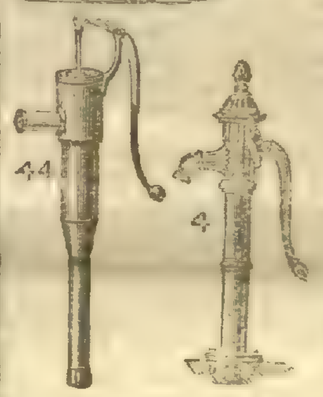

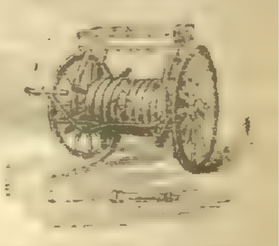

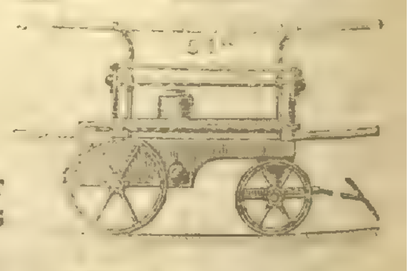

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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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CRYSTAL PALACE.—The FIRST GOAT SHOW will commence on SATURDAY, July 24, and be continued on MONDAY and TUESDAY, July 26 and 27.

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1876.

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MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Right Hon. Louisa Lady Ashburton, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 28, at half-past 12 o'Clock precisely, the valuable COLLECTION of ORCHIDS, comprising a magnificent specimen of Cœlogyne cristata, fine plant of Cypripedium caudatum, Phalænopsis amabilis, Lælia elegans, supposed to be Turneri, Lælia anceps, Cattleya Dowiana, and many other choice sorts; also a splendid plant of Anthurium Scherzerianum, fine Alocasias, Crotons, Tree Ferns, Palms, and other specimen Stove and Greenhouse Plants, removed from Melchet Court, Romsey, Hants.

On view the morning of Sale, and Catalogues had.

Imported and Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 29, at half-past 12 o'Clock precisely, the following new and rare ORCHIDS, many of them partially established, some growing most luxuriantly, so that their growth is certain. The following are included among the imported lots:—

Dendrobium devonianum,
,, chrysotis,
,, lituiflorum,
,, Wardianum,
,, Falconeri,
,, crassinode,
Cymbidium eburneum,
Cattleya Mendelii,
,, superba,
Aerides affine,
,, Fieldingii,
Saccolabium guttatum,
,, giganteum,
Phalænopsis Mannii.

Also a choice Collection of ESTABLISHED PLANTS, including Cattleya gigas, Lælia Jonghei, Dendrochilum filiforme, Cypripedium lævigatum, Saccolabium guttatum, &c., all in the finest condition.

On view the morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions from O. O. Wrigley, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, August 4, at Half-past 12 o'Clock precisely, a COLLECTION of fine ESTABLISHED PLANTS—of Pleiones, including maculata, lagenaria, humilis, and Wallichiana, with from 18 to 110 flowering bulbs in each pot; Calanthes Veitchii, nivalis, Turneri, vestita lutea and rubra, all strong and fine; several grand specimens of Cœlogyne cristata, 3 to 4 feet in diameter; also, Cattleyas, Lælias, Oncidiums, Odontoglossums, Chysis, Pescatoreas, Dendrobes, Cypripediums, Masdevallias, Ferns, &c., all well-grown healthy plants from the collection of O. O. Wrigley, Esq., of Bury, and sold for want of room.

On view the morning of Sale, and Catalogues had.

Important Sale of Specimen Plants.

MR. J. C. STEVENS has been favoured with instructions from Ambrose Basset, Esq. (who in consequence of his intention to travel is parting with his plants), to SELL by AUCTION, on the Premises, Sister House, Clapham Common, on THURSDAY and FRIDAY, August 5 and 6, at half-past 12 o'Clock precisely each day, his entire COLLECTION of PLANTS, consisting of upwards of 100 Azaleas, specimens of various sizes, all well trained plants, and in the best possible health—no expense has been spared to make this the best collection in the kingdom: a magnificent collection of Camellias, consisting of the best kinds in cultivation, all well set with bud, and varying in size from 2 to 10 feet high; a carefully selected collection of greenhouse Rhododendrons—these are admirably adapted for decoration or for use as cut blooms; valuable Stove and Greenhouse Plants, consisting of Allamandas, Dipladenias, Crotons, Dracænas, &c.; also Orchids, Palms, Ferns, Tree Ferns, Specimen pot Roses of the best kinds, &c.

May be viewed the day previous and mornings of Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C

Admission to the Sale by Catalogues only.

Alteration of Date.—Hackney, E.
CLEARANCE SALE.—To GENTLEMEN, FLORISTS, BUILDERS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Welsh, to SELL by AUCTION, on the Premises, Morning Lane, Hackney, E., on THURSDAY, August 5, at 11 for 12 o'Clock precisely, without reserve, the remaining choice STOVE and GREENHOUSE PLANTS, Hybrid Perpetual and other ROSES in pots; Variegated IVIES, CLEMATIS, and other Climbers; PICOTEES and CARNATIONS, and PHLOXES; also the erection of 10 GREENHOUSES, Ranges of PITS, SHED, 6 3-light BOXES, HOT-WATER PIPING, BOILERS, quantity of BRICKS, 400 casts of GARDEN POTS, 2 Iron ROLLERS, BARROWS, Iron PUMP, and other effects.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, Valuers, and Estate Agents, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

To Gentlemen, Gardeners, Florists, and Others.

MR. WALTER MITCHELL, having sold the Premises, will SELL by AUCTION, without reserve, at The Shrubbery, Stamford Hill, N., on TUESDAY, July 27, at 12 for 1 o'Clock precisely, the whole of the Collection of STOVE and GREENHOUSE PLANTS, including fifty-two specimen Camellias, from 6 to 8 feet high, of the choicest varieties; Ferns, Succulents, Orchids, &c.; Vases, Garden Seats, Rollers, Garden Engine, Tools, and numerous Outdoor Effects.

On view Saturday and Monday previous. Catalogues on the Premises, and of the Auctioneer, 12, City Road, Finsbury Square, E.C.

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MR. JOHN D. WOOD (for Mr. Leonard W. Collmann), having let the Mansion, has to announce for SALE by PUBLIC AUCTION, on the Premises, on WEDNESDAY and THURSDAY, July 28 and 29, at 1 o'Clock punctually, the choice Collection of PLANTS, including some thirty Tree Azaleas, forty-eight smaller do., twenty-five Camellias, seven Rhododendron arboreum, Araucaria, Eriobotrya japonica, Dracæna, Latania borbonica, Lomaria gibba, Ferns, Agapanthus, Pelargoniums, Begonias, Fuchsias, Bedding Plants, &c.; also the useful FURNITURE.

May be viewed two days prior to Sale. Catalogues may be had at the neighbouring Hotels, and at the Offices of the Auctioneer, 19, Mount Street, Grosvenor Square, London, W.

On Account of Expiration of Lease.
HIGHLY IMPORTANT SALE of ORNAMENTAL, STOVE, and GREENHOUSE PLANTS.

MR. PHILIP DE GROOT, NURSERYMAN, Steenbrugge, near Bruges, Belgium, will SELL by AUCTION, without reserve, on MONDAY, August 16, and following days, at 2 o'Clock precisely each day, the whole of his stock of STOVE and GREENHOUSE PLANTS, along with a great number of CONIFERS, forming one of the finest collections existing in Belgium; hardy Ghent Azaleas, Agaves, Dracænas, &c., and comprising amongst others:—4000 Palms, 9000 double and 2000 single Camellias, 4000 Azalea indica (grafted), 3500 Laurels, 1500 Laurustinus, 350 Phormiums (variegated), 450 Aucubas in sorts, 5000 Conifers, &c. All in baskets or pots.

On view on Saturday, August 14 next, and Catalogues had.

MIDDLESEX (1905).—A desirable MARKET NURSERY, 7½ miles from Covent Garden, and 1¾ acre in extent, with Dwelling House, several Glass Erections heated on modern principles, and capital Outbuildings. Price required for eight Greenhouses and Fittings thereto, Stock and Utensils-in-trade, together with the beneficial interest in the Lease, only £350.

For further particulars see the "Horticultural Register" for this month, to be obtained of Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, E.C., and Leytonstone, E.

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Cantua corymbiflora
Cyclamen Peakeanum
Convolvulus mauritanicus atrocœruleus
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ROYAL HORTICULTURAL SOCIETY.

SHOW OF ZONAL PELARGONIUMS, FRUIT, &c.,

JULY 21, 1875.

AWARDS OF THE JUDGES.

CLASS 1.—18 ZONAL PELARGONIUMS, Florists' varieties, distinct, in pots not exceeding 6 inches in diameter. (Open.)
1st, Mr. J. Laing, The Nurseries, Forest Hill.
2d, Mr. R. Roser, Gr. to M. T. Shaw, Esq., Park House, Wimbledon.
3d, Mr. W. Meadmore, The Nurseries, Romford.

CLASS 2.—12 ZONAL PELARGONIUMS, Nosegay or Hybrid Nosegay varieties, distinct, in pots not exceeding 6 inches in diameter. (Open.)
1st, Mr. J. Laing. | 2d, Mr. R. Roser.

CLASS 3.—6 ZONAL PELARGONIUMS, Florists' varieties, distinct, in pots not exceeding 8 inches in diameter. (Amateurs.)
1st, Mr. J. Catlin, Gr. to Mrs. Lermitte, Sen., Finchley.
2d, Mr. H. Atkinson, Brentwood.

CLASS 4.—6 ZONAL PELARGONIUMS, Nosegay or Hybrid Nosegay varieties, distinct, in pots not exceeding 8 inches in diameter. (Amateurs.)
1st, Mr. J. Catlin.

CLASS 5.—6 ZONAL PELARGONIUMS, Florists' varieties, sent out since 1873, or not in commerce, distinct, in pots not exceeding 6 inches in diameter. (Open).
1st, Mr. C. Burley, Paradise Nursery, Brentwood.
2d, Mr. J. Laing.

CLASS 6.—6 ZONAL PELARGONIUMS, Hybrid Nosegay varieties, sent out since 1873, or not in commerce, distinct, in pots not exceeding 6 inches in diameter. (Open.)
1st, Mr. W. Birse, Gr. to J. H. Lermitte, Esq., Knighton, Finchley.
2d, Mr. J. Laing.

CLASS 7.—8 ZONAL PELARGONIUMS, double varieties, distinct, in pots not exceeding 8 inches in diameter. (Open.)
2d, Mr. W. Meadmore, The Nurseries, Romford.
3d, Mr. J. H. Hinnell, Gr. to F. A. Davis, Esq., Anglesea House, Surbiton.

CLASS 9.—18 ZONAL PELARGONIUMS, Golden Tricolor varieties, distinct, in pots not exceeding 8 inches in diameter. (Open.)
1st, Mr. T. Pestridge, Park Road Nursery, Brentford.
2d, Mr. W. Meadmore.

CLASS 10.—6 ZONAL PELARGONIUMS, Golden Tricolor varieties, distinct, in pots not exceeding 8 inches in diameter. (Amateurs.)
1st, Mr. T. Lambert, Gr. to H. W. Segelcke, Esq., Herne Hill, Dulwich.
2d, Mr. J. H. Hinnell.

CLASS 11.—6 ZONAL PELARGONIUMS, Silver Tricolor varieties, distinct, in pots not exceeding 8 inches in diameter. (Open.)
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3d, Mr. J. H. Hinnell.

CLASS 12.—6 ZONAL PELARGONIUMS, Golden Bronze Bicolor varieties, distinct, in pots not exceeding 8 inches in diameter. (Open.)
1st, Mr. J. Laing. | 2d, Mr. T. Pestridge.
3d, Mr. W. Meadmore.

CLASS 15.—6 FUCHSIAS, distinct. (Amateurs.)
1st, Mr. T. Lambert.
2d, Mr. J. Weston, Gr. to D. Martineau Esq, Clapham Park.
3d, Mr. J. Herrington, Gr. to J. Price, Esq., Clapham Park.

CLASS 16.—24 FUCHSIAS, not fewer than 12 kinds, in pots not exceeding 8 inches in diameter. (Open.)
1st, Mr. J. Weston. | 2d, Mr. J. Herrington.

CLASS 17.—6 HYDRANGEAS. (Open.)
1st, Mr. J. Aldous, Gloucester Road, South Kensington.
2d, Mr. W. Earley, The Gardens, Valentines, Ilford.

CLASS 20. 6 CLEMATIS, distinct. (Open.)
1st, Messrs. W. Cutbush & Son, The Nurseries, Highgate, N.

CLASS 21. 12 CARNATIONS, cut blooms, distinct. (Open.)
1st, Mr. C. Turner, Royal Nursery, Slough.
2d, Mr. H. Hooper, Vine Nursery, Widcomb Hill, Bath.

CLASS 22.—12 CARNATIONS, cut blooms, distinct. (Amateurs.)
1st, Mr. J. Douglas, Gr. to F. Whitburn, Esq., Loxford Hall, Ilford.
2d, Mr. T. F. Burnaby Atkins, Halstead Place, Sevenoaks.
3d, Mr. H. Catley, 16, Claverton Buildings, Bath.

CLASS 23.—12 PICOTEES, cut blooms, distinct. (Open.)
1st, Mr. C. Turner. | 2d, Mr. H. Hooper.

CLASS 24.—12 PICOTEES, cut blooms, distinct. (Amateurs.)
1st, Mr. J. Douglas. | 2d, Mr. H. Catley.

CLASS 25.—12 Bunches of HARDY HERBACEOUS PLANTS, cut blooms.
1st, Mr. R. Parker, Exotic Nursery, Tooting.

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1st, Mr. R. Dean, Ranelagh Road, Ealing.
2d, Messrs. E. G. Henderson & Son, Wellington Nursery, St. John's Wood.

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CLASS 3.—Collection of 30 distinct varieties of ZONAL PELARGONIUMS, irrespective of class, in pots not exceeding 6 inches in diameter. (Open.)
1st, Mr. J. Catlin, £6. | 2d, Mr. W. Birse, £4.
Extra, Mr. J. Laing, £2.

CLASS 6.—24 PELARGONIUMS, cut blooms, single trusses, dissimilar. (Open.)
2d, Mr. J. George, Gr. to Miss Nicholson, Putney Heath, £1.

CLASS 7.—12 PELARGONIUMS, cut blooms, single trusses, dissimilar. (Amateurs.)
2d, Mr. J. George, £1.

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2d, Mr. G. T. Miles, Gr. to Lord Carrington, Wycombe Abbey, High Wycombe, £10.
3d, Mr. G. Sage, Gr. to Earl Brownlow, Ashridge Park, Great Berkhampsted, £7.

CLASS B.—Collection of FRUIT, in six distinct kinds.
1st, Mr. T. Bannerman, Gr. to Lord Bagot, Blithfield Hall, Rugeley, £9.
2d, Mr. W. Jones, Gr. to the Marquis of Londonderry, Wynyard Park, Durham, £6.
3d, Mr. G. Cornhill, Gr. to J. S. Virtue, Esq., Oaklands Park, Walton-on-Thames, £4.

CLASS C.—3 Bunches of MUSCAT of ALEXANDRIA GRAPES.
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2d, Mr. W. Chamberlain, Gr. to H. Thompson, Esq., The Warren, Bushey, Herts, £4.
3d, Mr. G. T. Miles, £2.

CLASS G.—PEACHES, 6 fruits, one kind.
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2d, Mr. G. Fennell, Gr. to E. Cazalet, Esq., Fairlawn Park, Tunbridge, £2.
3d, Mr. G. T. Miles, £1.

CLASS H.—NECTARINES, 6 fruits, one kind.
1st, Mr. J. Edmonds, Gr. to the Duke of St. Albans, Bestwood Lodge, Nottingham, £3.
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3d, Mr. W. Birse, £1.

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SATURDAY, JULY 24, 1875.

PELARGONIUMS.

THERE is probably no race of ornamental plants more extensively cultivated in this country than the genus Pelargonium—a genus, it must be remembered, which includes the so-called "Geraniums" of our flower-beds, as well as the greenhouse plants to which the name is often restricted in popular parlance. When we consider the number of specimens used annually in our public gardens alone, and add to this a greater or less number from almost every private garden, large or small, to say nothing of the indoor-grown examples which brighten many a cottage window, we may form some idea of the aggregate number of "Geraniums" which are in cultivation each year. To this should be added a calculation—if such calculation were possible—as to how many die at the end of each season, and how many "cuttings" are taken for the next year; and it is probable that the very magnitude of the result of such calculation would prevent us from in any way realising its extent. Yet another point strikes us at the outset, and that is the wonderful variety displayed in the form and colour of the flowers and leaves of these "bedding Geraniums," for we are not at present concerned with the greenhouse species. It is, indeed, difficult to believe that all these varieties have originated from two species, and it seems yet more strange that these have been known in England for less than 200 years, the Horseshoe Geranium (Pelargonium zonale) having been introduced in 1710, and the "scarlet" (P. inquinans) in 1714. Such, however, is the case, and now that we have among us a Pelargonium Society which has been established with the praiseworthy object of promoting the improvement of the various sections of the Pelargonium, of facilitating the introduction of new species and varieties, and of giving system and method generally to the practice of hybridisation, a few notes upon the history of cultivated Geraniums may be of some interest.

The genus Pelargonium, to which, as we have already stated, all our garden Geraniums really belong, was established by L'Héritier in 1787, and differs technically from the Geranium in having irregular flowers, and the calyx prolonged into a tube at the base. It is usually spoken of as a Cape genus, nor is this unnatural, as about 170 of the species are confined to the South African region. One or two, however, are found in St. Helena; five (one of which is identical with a Cape species) occur in tropical Africa; three are natives of North Africa and the Levant region; and two are Australian, one of these occurring also in New Zealand and at the Cape. None of these, however, are in cultivation, except perhaps in Botanic Gardens, being devoid of any special horticultural interest.

Pelargonium zonale—the Horse-shoe Geranium," or "Zonal Pelargonium" of more modern garden phraseology—although of less importance than P. inquinans, claims prior notice on account of its earlier introduction. It was cultivated in 1710 by the Duchess of Beaufort, in whose collections (which form part of the Sloanean herbarium), now in the British Museum, there is a specimen of the plant, on the leaves of which the characteristic "horse-shoe" marking is very apparent. This specimen is "made up," as was often the case with herbarium examples at that period; and the flowers, of which the umbels are adroitly composed, may be those of P. peltatum, which was in cultivation at an earlier date in the Duchess' collections. Philip Miller, in the *Gardeners' Dictionary* (1752), describes both P. zonale and P. inquinans under the name of African Tree Crane's-bill.

This species is described in some books as a native of St. Helena, and there is a specimen from that island in the British Museum herbarium, collected by Sir Joseph Banks in 1771; but it is not included in Roxburgh's list of plants published in Beatson's *Tracts Relating to St. Helena*, either as native or naturalised species, although P. zonale and some others are mentioned by him as introductions. Dr. Harvey describes it as forming in the wild state at the Cape a large shrub, with juicy green stems and thick leaves, which are usually, though not invariably, marked with the dark semicircle to which the plant owes its specific as well as its English name. By this mark, as well as by the narrower petals, it may be distinguished from P. inquinans, which is a superior plant; but many of the garden forms, which are apparently of hybrid origin, cannot be referred with certainty to either species.

The white-margined variety of the Zonal Pelargonium very soon followed, originating either as a seedling or sport from the type plant. Miller, in the *Gardeners' Dictionary* (eighth edition, 1768), says, under Geranium zonale "There is a variety of this with fine variegated leaves, which is preserved in most of the English gardens for the beauty of its leaves." Miller's specimens from the Chelsea garden in the British Museum herbarium seem to be bordered with yellow rather than white, but this may be the effect of drying. A variety known as "Miller's Variegated" has been "grown as a rather rare greenhouse plant in this country for many years," according to Mr. P. Grieve. But the white-margined Zonal Pelargonium was known much earlier than this; for, in his *Flower Garden Displayed* (1732), Sir Thomas Moore mentions a "striped-leaved Geranium," of which he says, "The leaves of this plant are edged with cream colour, and it makes one of the most beautiful shrubs among greenhouse plants. This I first brought into England from the Paris gardens, and, as it grows very freely by cuttings planted in May or any of the summer months, it has now grown very plenty in the curious gardens." Later on, this form was noticed in botanical works as β marginatum of Cavanilles; but it can only be considered as a forerunner of the "sports" of P. zonale, which have since appeared in such endless profusion.

The "double Geraniums," which have attained a popularity far greater than they deserve, although usually classed as "zonal," are apparently derived both from P. zonale and P. inquinans. Although of comparatively recent introduction to this country, they have long been known on the Continent. A deputation of the Caledonian Horticultural Society of Edinburgh made a tour through parts of Flanders, Holland, and northern France in the autumn of 1817, and in Patrick Neill's journal of its observations is the following passage:—"An ornamental variety of Pelargonium inquinans, with double flowers, is very common at Ghent, no fewer than ten different competitors having exhibited flowering specimens of it at the last festival." M. Jean Sisley says that M. Lecoq, of Clermont-Ferrand, had a double zonal Pelargonium named Triomphe de Gergovia in cultivation several years previous to 1867. Pollen from this variety was used by M. Lemoine to fertilise the fine pink zonal, Beauté de Suresnes, and from this union the well-known double, Gloire de Nancy, was obtained in 1865. The first double white, Aline Sisley, was obtained in 1872 by M. Sisley.

In connection with P. zonale, P. Fothergilli

must be mentioned, although it is a mere variety of that species, ignored by Harvey and De Candolle, and scarcely if at all distinguishable even from a horticultural point of view. Andrews figures it in his *Geraniaceæ*, and says:—"This is the largest-flowered zone-leaved Geranium, and was first raised by the late Dr. Fothergill about the year 1780. It is a plant of easy culture, and to be met with in almost every garden. Its abundance of course lessens its value, but can never diminish its beauty." From this form the modern "Nosegay" Pelargoniums have been derived.

Pelargonium inquinans, the "Scarlet Geranium," was cultivated by Dr. Compton, then Bishop of London, at his garden at Fulham, in 1714. It is a softer and more viscid plant than P. zonale, and has no horse-shoe mark on the leaves, and the flowers are shorter and broader. This is the parent of most of the "Scarlet Geraniums of our English gardens," says Dr. Harvey; notably so of the once highly popular "Tom Thumb;" but we must again remark, that the hybridising of P. zonale and P. inquinans renders it difficult to trace the origin of any garden variety with certainty. Linnæus says that the leaves stain the fingers with a ferruginous colour—*folia digitis tacta inquinant colore ferrugineo*—and hence gave the plant its specific name; but we have not found this effect produced by the leaves, and Mr. Lowe describes them as "not staining the fingers except by their dustiness." This species is a native of the Cape region only; but the author just quoted says that it is completely naturalised in Madeira, where it grows on the sea-cliffs among thickets of Cactus, extending for some distance up the ravines. It is called by the natives "Malvas," or Mallow. Like P. zonale, this species, once introduced, was soon taken into favour, and rapidly spread. John Martyn figures it in 1728 in his *Historia Plantarum Rariorum*. According to Andrews, it had become a scarce plant in 1809; he regarded the "Nosegay Geraniums" as distinct, although sometimes confounded with it.

The white-margined variety of P. zonale has already been mentioned. The corresponding yellow variety, "Golden Chain," is referred by Mr. Grieve to the species now under consideration. He says: "As to the data of the origin of this variety there may possibly be some little uncertainty; but that it is a sport from Pelargonium inquinans I think there can be little reason to doubt. In a very interesting paper communicated to the Royal Horticultural Society by Mr. Wills, then of Huntroyde, the origin of this variety is put at about 1844. But I am inclined to think that it originated long previous to this date, for I have been informed that the late N. S. Hodson, Esq., of the Botanic Gardens, Bury St. Edmunds, was in possession of a somewhat large and apparently old plant of this variety as early as the year 1822 or 1823. I can myself testify that about the year 1847 or 1848 the late Mr. D. Beaton had commenced to use it with excellent effect as a bedding plant at Shrubland, near Ipswich." *B. M.*

(To be continued.)

New Garden Plants.

SACCOLABIUM PUMILIO, *n. sp.**

A little plant with short leaves scarcely more than 3 inches long, nearly 1 wide, dark green, purplish beneath. The small flowers stand in a bent cylindraceous dense raceme. They look rather Sarcanthoid, but the features of that genus are not to be found. They might, too, be compared to the flowers of Saccolabium buccosum and fragrans. Their colour is yellowish, the lip white, with some purplish marks on the blade. I wish I had not seen the little dwarf, for its pollen apparatus is so much intermediate between that apparatus in Saccolabium and Uncifera that the latter genus rather stands in jeopardy. When it was established by Dr. Lindley no one could have doubted its excellence. Though I hope we may be able to keep it, on account of the nature of the column, yet it is very probable that another new species may take away our last hope. No real satisfaction is to be expected before we, or at least our successors, have learned the totality of all known species. The most sagacious botanist, even a Lindley, cannot know which connecting link may appear on the scene. All we can do is to state most sincerely what we see. I obtained the novelty from Mr. Bull, who introduced the plant from Manilla.

MASDEVALLIA (FENESTRATÆ) GRACILENTA, *n. sp.**

This is a small plant. The stems, including the upright leaves, are 5—7 inches high. Leaves of wild plant only green, of garden plant violet beneath. The blackish-purplish flowers are very much like those of old M. fenestrata, Lindl., but smaller, blunt at the end, not beaked, the aperture formed by an opening of the connate sepals is much greater, and the surface of the nerves is rough. The petals are not simply oblong-acuminate, but nearly rhomboid. The blade of the lip, in lieu of being hastate, is sagittate. It is one of the very numerous Costa Rica discoveries of the late M. Endres, and it has just flowered in the collection of Messrs. Veitch, as well as in Hamburgh Botanic Garden. *H. G. Rchb. f.*

CYRTANTHUS (MONELLA) MACOWANI,
Baker, n. sp.†

This is a handsome scarlet species of Cyrtanthus which I have known for several years, and which is now pretty widely spread in cultivation, but which has not yet been technically described. It is a native of Kaffraria and the eastern provinces of Cape Colony. I first saw it living in the garden of Mr. Saunders at Reigate in 1871. He received it from Mr. MacOwan, and it was then ascertained to be a new species and was drawn by Mr. Fitch for the *Refugium*, but never appeared. This present year it flowered at Kew from bulbs sent by Mr. Bolus, and my attention has also been called to it by Herr Leichtlin, who has grown it at Baden-Baden and sent fresh specimens by post. Of previously-known species it comes nearest C. collinus (*Bot. Reg.*, tab. 162), and C. odorus (*Bot. Reg.*, tab. 503), but it is scentless and may be told at a glance from either by its short perianth-limb.

Bulb ovoid, an inch thick, coated with brown membranous tunics. Leaves one to three, contemporary with the scape, erect, narrow, linear, green, quite glabrous, fleshy-herbaceous, channelled down the face, acuminate, half a foot long, an eighth of an inch broad. Scape terete, purple, a little overtopping the leaves. Umbel bearing 6—8 flowers, on pedicels from one to six lines long, the two outer spathe-valves lanceolate, an inch long. Ovary green, oblong-trigonous, 2 lines deep. Tube and limb bright scarlet, the former slightly curved, 12—15 lines long, narrowed gradually from the base to the throat, where it is a quarter of an inch thick, the recurving imbricating round-oblong segments a quarter of an inch long, with a minute pilose apical callus. Anthers oblong, yellow, biserial, nearly sessile, the upper three just below the throat, the lower three a little lower, six distinct ribs representing the cohering filaments. Style as long as the tube, tricuspidate at the very tip. *J. G. B.*

DENDROBIUM CRASSINODE, *Bens. et Rchb. f.* ALBIFLORUM.

I have at hand a two-flowered inflorescence, with pure white flowers, except the dark yellow disk on the lip. It is a very nice thing, sent me by Mr. S. Low. It belongs, no doubt, to the last fortunate importation of Moulmein Orchids. *H. G. Rchb. f.*

THE MACARTNEY ROSE.

IT is hardly probable that Rosa bracteata, the single Macartney Rose, should be utterly extinct to the world as a species, because, even if lost in the British Islands, it would most likely be still surviving in its native home, the regions of China, whence Lord Macartney brought it, whose climatal conditions suit it. For its disappearance with us, supposing it to have occurred, more than one cause may be assigned. First, its continued cultivation here would have lost the powerful support of commerce. In spite of its singular, bright, attractive foliage, its ivory-white petals, and its Apricot-like scent, the Rosa bracteata is single; and what nurseryman would think it worth while to propagate any single-flowered Rose for sale, even if he kept a specimen for the gratification of the botanical taste which many nurserymen, to their honour, possess? Still, those who live by horticulture are obliged to regard it mainly under its commercial aspect. A nursery-ground cannot be a botanic garden, although its owner may permit himself to reserve a private little nook for favourite rarities. It is in vain to urge that several single Roses are charming—witness the wild Highland Rose, which suggested—

"O, my luve 's like a red, red Rose,
That's newly sprung in June;
O, my luve 's like the melodie,
That's sweetly play'd in tune."

In spite of all that, and more that might be pleaded, single Roses will not sell. Their culture is consequently neglected, and they are literally left out in the cold. Even those which resist cold, and are perfectly hardy, are not often seen; example, the single Austrian Briar, or copper-coloured Rose (the Rose Capucine, or Nasturtium Rose, of the French) so showy while it lasts, but fleeting. It is still to be had in extensive and multifarious establishments, like Van Houtte's, of Ghent, but with the gardening public it has been supplanted by Harrison's Double Yellow and the Persian Yellow.

In no nurseryman's catalogue at hand is the single Macartney to be found, although its double-flowered descendants are offered for sale. Dauvesse, of Orleans, a celebrated Rose grower, gives amongst his "so-called climbing Roses," the old Maria Leonida, of easy culture (with protection from frost), and now flowering in the writer's garden, whose foliage much resembles its parents, but slenderer and less vigorous in growth. Many British nurseries could not fail to have it. The only Rosa bracteata quoted by Van Houtte is Alba odorata, which he describes as a charming climbing variety, producing its white, very double, yellow-centred flowers in large corymbs, and truly perpetual (*remontant parfaitement*); very useful for clothing walls, arbours, bowers, and the like. But the great effort, on the part of horticulturists, has been to obtain double Macartney Roses, although single Roses would make as striking a display as Cistuses, if they could but bloom as abundantly and as continuously. Rivers' *Rose Amateurs' Guide* (fifth edition), says that the single Macartney "now forms the original of a pretty family; its strictly evergreen and shining foliage is a beautiful feature; and I hope ere long to see numerous varieties, with double flowers of the same brilliant hues as our other fine Roses possess. I think it is not too much to anticipate that, ultimately, we shall not be satisfied unless all our Roses—even the Moss Roses—have evergreen foliage, brilliant and fragrant flowers, and the habit of blooming from June till November. The double (the old variety) was the first double Macartney raised from seed. It is mentioned here to caution any one from planting it, as it is totally worthless, its flowers constantly dropping off without opening. Maria Leonida is now an established favourite. Rosa Hardii is a most interesting Rose, raised from a variety of Rosa bracteata. This curious hybrid, like its Persian parent, has single yellow flowers, with a dark eye and evergreen foliage. It is not quite hardy. It will probably be the parent of an entirely new group; and what can be imagined more interesting in Roses than varieties with double yellow flowers and evergreen leaves!" And thus the leading thought ever is, not to be content with the preservation of what is curious and good, but to undervalue and probably neglect it in the pursuit, perhaps fruitless, of something more curious and better still. The pretty bird in hand is suffered to escape, while hunting after the prettier bird in the bush.

Secondly, and of most importance, the Macartney Rose belongs to the lengthy list of introduced plants known by the treacherous title of "half-hardies." "Half-tender" would better describe their constitution, and more safely guide their cultivator. They survive mild winters in sheltered situations. Seasons like those of 1860-1 and 1874-5 either cut them off entirely, or give them such a shock that they never recover, although they may languish on for months or years; if a nurseryman does not think them of sufficient value to be indulged with the protection of a greenhouse, in pots or otherwise, they necessarily disappear at some extreme climatal epoch or another. There are several very pretty and pleasing Roses which are now rarely seen, for one or both of the above reasons; or because, like the old Cabbage Rose, they flower only once in the season; or because they are little suited for exhibition purposes. Rosa multiflora is not a common sight, especially in bloom, nor is Rosa microphylla (the original), so remarkable

* *Saccolabium pumilio*, Rchb. f., n. sp.—Minutum; foliis oblongis apice inæqualiter bilobis subtus purpureis; racemo densifloro, foliis breviori; bracteis triangulis ovaria pedicellata non æquantibus; sepalis tepalisque ligulatis obtusis; labelli laciniis lateralibus retusiusculis angulo in medio, lacinia media oblonga obtusa, calcari planiusculo cylindrato retuso; columna retusa, rostello bidentato; caudicula sub polliniis utrinque angulata. *H. G. Rchb. f.*

* *Masdevallia gracilenta*, Rchb. f., n. sp.—Caule gracili, elato, vaginis paucis amplis; folio a basi petiolari oblongo acuto seu apiculato, minute tridentato; floribus solitariis seu geminis in basi folii Pleurothallidum more; bracteis triangulis ovariis asperulis; sepalis oblongis acutis, supra nervum medium asperulis lateralibus omnino connatis, omnibus apice cohærentibus fenestra longiuscula; sepalis rhombeis apice subserratis, trinerviis; labelli ungue lato, medio asperulo, lamina sagittiformi, multo longiori; columna tridentata. Flores atropurpurei illis Masdevalliæ fenestratæ, Lindl., duplo minores.—Costa Rica, Endres!

† *Cyrtanthus (Monella) Macowani*, Baker, n. sp.—Inodorus, bulbo ovodeo tunicato; foliis 1—3 synanthii viridibus anguste linearibus carnoso-herbaceis facie canaliculatis; scapo tereti foliis superante; umbellis 6—8 floris, spathæ valvis lanceolatis; pedicellis 1—6 lin. longis; ovario oblongo-trigono; perianthii splendide coccinei tubo clavato curvato 12—15 lin. longo; segmentis oblongo-rotundis 3 lin. longis flore expanso patulo-recurvatis; genitalibus in tubo inclusis; antheris biseriatis oblongis subsessilibus; stylo apice stigmatoso tricuspidato.

for its prickly calyx, and the numerous leaflets which compose its sparkling foliage. Both of these being tender it is easy to conceive their disappearance from English gardens without their becoming extinct as species. And then there is Rosa macrophylla (the broad-leaved Rose), which makes a handsome bush, whose foliage is singular and striking, though scarcely so elegant and graceful as that of the Macartney Rose, but as it refuses to open its numerous flower-buds in the climate of Montpellier, it would have a difficulty in retaining a footing in England, where it would tax all our skill to make it behave better.

The Macartney Rose flowers too late to ripen seed in the British Isles. Even in France it does not seed freely. Budded or grafted on an elevated stem it would be most precarious without great protection. Consequently it must be propagated by cuttings, to form plants on their own roots, which incur the least risk at the foot of a good wall. The most promising places to hunt up the Macartney, if British nurseries fail, would be the Botanic Gardens in the north of Europe, where the winters are mild, as Dublin and Brest, and those in the south of France, and in Italy. *E. S. D.*

—— If I understand rightly the purport of the note at p. 78 on the "Extinction of the Macartney Rose," I think I may say that the fact is not so universal as there stated. The statement that this Rose "has all over England simultaneously ceased to produce any fructifying buds for grafting" is to me, however, a little peculiar and "foggy." If by "fructifying buds" is meant the ordinary wood buds, which are used to perpetuate Roses generally, either by grafting or budding, I must distinctly question the statement. We have here a very old and very healthy tree of this variety, and others which I planted two or three years ago, that are growing luxuriantly. Indeed, one of these has formed a strong shoot, and reached the apex of the wall (about 12 feet high), and is spreading out and blooming most freely. I send a branchlet for your inspection. [Our correspondent sent the double variety. EDS.] They do seed occasionally, but it is a very rare thing to see ripe seed-vessels upon them. If Mr. Darwin's correspondent cares to have buds or cuttings I shall be happy to send them her. *William Earley, Valentines, Ilford.*

PICTURESQUE CISTERNS.

IN the more retired parts of England, especially the hilly districts of the west, where the cliffs, rising above the rivers, are mixed with spaces of wood or grassy slopes, one may often find in some quiet nook a natural cistern or tiny pool, perhaps only 3 or 4 feet across, at once so picturesque and so well adapted to its purpose as to give a useful suggestion for the garden.

In some points of view possibly an artificial supply of water has its advantages over the natural one, as, from being easier of regulation, the garden is not exposed to the inconveniences following on a storm in the hills, sending a deluge along the course of the stream beneath, and another point usually open to much improvement is the state of the approach. With alterations, however, some of these natural basins might take their place with thorough appropriateness amongst the more picturesque garden groupings, either with their own natural surroundings, or the substitution of cultivated plants of similar growths; and with a view to this, a sketch of a few of the most characteristic forms may be admissible.

Of these one of the simplest and most transferable is a little basin, sometimes only a couple of feet or so across, where the water collects in its course down a cliff—the little pool sometimes with bright flowering plants round the brim, the pink Lathyrus and wild Clematis hanging in festoons above, and Honeysuckle or Blackberry Briars trailing along the front edge, and falling in long garlands down the broken cliff beneath; and all thriving in luxuriance, from the united heat and moisture, forms a picturesque bit that, with the simple exchange of cultivated for wild species, would need no further alteration. The substitution of the Lathyrus latifolius (the large rosy purple flowered and doubtfully native species) for the common L. sylvestris, with Honeysuckles, and different creeping Roses, and Clematis (according to fancy and succession of season in flowering), would give all that could be needed for plant surroundings, and for general effect the so-called "holy water basin" still seen at the door of many of the old churches of former days, with its tiny basin and canopying arch, so completely conveys the whole idea, as to suggest the natural grouping as its possible origin, as the interlacing forest boughs have been imagined the originals of the interlacing arches of our cathedrals.

A larger form of watering place, in which Ferns form the chief ornament, occurs just on the edge of the small tangled thickets of Nut bushes and underwood often left open to woodland pastures. Here the pool is usually overhung, sometimes completely canopied by boughs above, while Ferns droop their fronds almost into the water, or rise in masses from the bank, to mix with the bushes round in healthy luxuriant growth, uninjured as well as untended, nothing being needed but a dry approach to make such a spot an excellent centre for a fernery in the more shaded parts of a garden shrubbery, and it is usually easy of arrangement. In the garden adaptation the red Rhododendron on the bank, with Guelder Roses and Laburnum for the higher growths, and masses of Broom trailing down towards the water has an excellent effect, but the Ferns alone make a lovely grouping with any common bushes, and form the desired effect more speedily.

The rocky cistern, formed merely of a few stones with the water glistening in the full sunlight and Stonecrop and Cistus creeping over the thin sprinkling of soil, or the little square basin with simply a formal edge of dressed stone or squared wood, in deep shade beneath a tree, with a slab of stone or wood to serve as a cover, have each their beauties and suitableness for various localities; and where circumstances permit, and a supply of pure water is desired, as well as that for more general service, the arrangement of the spring above (or the simulated one) with the water trickling into the more formally arranged dipping cistern beneath, may be made into a good picturesque combination.

The tiniest pool above, shaded by bushes or large pieces of stone as may be fancied, with the water trickling from it flowing down the broken bank into a cistern a few yards long, about a couple broad, and a yard or so high, with the two end walls vanishing into the bank, which may also slope forward into the cistern of water beneath, with bushes arranged to hang over picturesquely, and a little conduit to carry off the surplus water, is always useful, and where the ground admits of it a great ornament to the garden. On the formation of the ground, of course, almost entirely depends what arrangements can be made, but in the flattest garden, in the total absence of broken bank or hill-side slope, the small square cistern, with roughly dressed stone (or even low brick wall with flat stone coping) to surround it, properly cemented inside, and either placed against a wall, or simply in the open grass, has always a good effect.

One great point is to have the water easy of access, and for this reason it is desirable to have its source so far picturesque that it may be allowed as an ornamental object, yet also at the same time not so fanciful as to destroy its usefulness for its proper object. The ornamental fountains so often seen in the middle of small gardens are frequently well nigh useless for any purpose save pleasing the eye of those who admire that form of decoration, whilst the little cistern (like many an ornamental bit in the picturesquely arranged garden) will not stand out separately to catch the eye, but will at once blend and contrast in the same way in which buildings and woods mix in general scenery, and will also be ready for use close at hand. If the supply is natural, the water gently bubbling up or rippling across the surface, is always an agreeable object, but an artificial supply is almost equally useful; the water stands ready aired, and there is the great convenience that a little may be dipped up at a time, and the watering-pot may be rested for an instant on the stone coping, so as to dry the edge.

The gardener and his men of course are presumed to have unlimited powers of water-carrying, but for the ladies of the family some such resource in the middle of their more especial part of the garden is a great help. Also in this arrangement there is pretty sure to be a dry spot to stand on somewhere, whilst the neighbourhood of a pump is too apt to be one large wet one. All pumps certainly are not like one in existence a few years ago, arranged for general "convenience," where the handle was so high above the head that a long rope was fixed, and the pumper flew to and fro beneath at full speed, with more exertion than results; but still holding a pot beneath a pump is an operation that can be much improved on in working, though the apparatus may be made as picturesque as can be desired.

A black sodden water-cask in a corner, a sunken well which involves the necessity of the watering-pots being carried at their full weight up a flight of steps, or worse, get a slippery descent without steps requiring the firmest of heels to be achieved safely, are all very undesirable where they can be avoided; and the simplest imaginable form of basin or cistern yielding its supplies with ease and comfort to the seeker, will often be found at once a picturesque and appropriate and also a practically useful substitute. *O.*

PEASANT GARDENING.

[WE extract the following too truthful description of two villages from an interesting article on Peasant Farming and Peasant Gardening in the *Builder* of Saturday last.]

If one strolls from village to village in the remoter districts of the country, nothing is more striking than the contrast afforded by the cottage gardens. In one place Flora seems to have made her home. Every patch of ground is tended; bright with flowers, green with mown lawn, or affording a goodly promise of hedgerows of Peas and Beans. No window is without its climbers. Dense sheets of Ivy clothe the walls, and keep the rooms within both dry and warm; and here and there will be seen not only a beautiful flower—all flowers are beautiful—but a new one. How much care, and even cost, has gone to the production of the pride of some of these cottage gardeners? The yellow Austrian Briar is a matter rather of ancient heritage than of purchase; but what shall we say to the deep rich petals of the Duke of Edinburgh, or like Roses of new production and Royal or noble name! It is incredible how soon a fashionable flower will be carried by the birds to the remotest hamlet, so only there be a cottager with a passionate love of the beauties of the garden.

Go into the next village. Pick your way, and put your kerchief to your nose as you pace the heap that denotes its boundary; the heap of brickbats, stones, broken slates, utterly useless potsherds, and worse refuse, diversified by a worn-out shoe or hat, and perchance by the remains of a hunted cat or dog, and backed by a dense growth of Nettles, showing what Nature would do if gently solicited. This unsavoury altar to the terminus of the place characterises the entire village. If foul puddles be absent, if drainage has been introduced by the strong hand, still the power of listless idleness, and the utter absence of the least glimpse of order or of beauty, mark the entire group of tenements. Poverty is made more repulsive by being exhibited in its most cynical phase. The only vegetable products thought of in that village, beyond the ordinary crops which it is a daily and grudging toil in some way to tend, are the Potato and the Tobacco plant.

Where does the cause of the difference lie? We can answer the question with regard to some instances. We strongly suspect that the same answer would apply to the great majority. Where the squire is no longer to be found, it is the doing of the clergyman or of the clergyman's wife. A bright, trim, well-tended garden, in the manse or the hall; a tasteful, graceful, truly feminine love and care of the flowers, as well as of the fruit; the gift, at odd times, of spare plants, of slips, or of seed; example, and good example; tend to beautify a village by a happy contagion. So, on the contrary, the man who looks at his book alone for his lessons, and has no eyes to see the clearer and holier, as well as the more ancient, lessons that are inscribed on every form of organic life—the man who, with another world on his lips, takes no heed of what is most beautiful in this—the man who remembers nothing of the first garden but the serpent and the Apple—is not one who understands his mission to his countrymen, or whose parish will return him an odour of flowers which is no other than an odour of the sanctity of Nature.

GREENHOUSE PLANTS.—XXII.

THEIR CULTURE AND MANAGEMENT.

Pimeleas.—These well-known plants are found indigenous to New Holland, and have long been favourite subjects for pot culture. They differ very considerably, not only in the size and colour of the flowers, but also in general appearance. Of late years they have not been so much grown as in times past, neither does their cultivation appear so well understood by the plant growers of the present day as by those who some twenty-five years ago used to produce them in such fine condition, which may be accounted for in this way: they are plants that are naturally suited by their general habit for exhibition purposes, and the exhibitions of the present day are not held so early as they were some years past when the London shows used to commence in the beginning of May; now there is rarely anything of the sort attempted until towards the close of the month. This necessitates the whole of the greenhouse hard-wooded stock being kept several degrees cooler all through the winter than would have been necessary with the old time of commencing the exhibitions, and these plants do not well bear this lower temperature, not liking to be kept under from 40° to 45° in the night. A little reflection would at once lead to the conclusion that this was only what might be expected from their nature; continuing to grow all through the winter, not only by the development of the flowers, but also their formation, so different from plants that make their growth altogether, and set their flowers during the summer season, their winter growth being confined to advancing the already-formed blooms.

The different varieties of Pimelea require more water than many plants from the same country, to some extent at the root and in the atmosphere, but more particularly directly overhead, in the shape of daily syringings during their season of growth, without which

they become a prey to red spider, which soon does irreparable injury, damaging the foliage, and quickly inducing a hardened condition of the wood, which prevents free growth, a state from which they rarely, or never, fully recover. The above remarks apply in general to the different species, but, as in other matters relative to their culture, they differ considerably, it will be necessary to treat of them in some measure individually.

The first of the family undoubtedly is P. spectabilis rosea; this variety forms the largest plant, and has proportionately large flowers, which it produces freely from the points of the shoots in large ball-like bunches, white suffused at the points with rose. They are alike distinct and handsome, and, from their beginning to open until they fade, they will last about three weeks. This plant will grow in either peat or loam; I prefer the latter where it can be had of good yellow quality and containing plenty of fibre; in such it grows stronger than in peat. Young healthy plants in 6 or 8 inch pots should be potted about the end of March or beginning of April. If with plenty of active roots give them a 3-inch shift, using the loam in small lumps the size of Walnuts, to which add one-sixth of clean, sharp sand; drain effectually and pot firmly. Place them where they will receive no side air for three weeks, and keep the surface on which they stand damp, closing the house with the sun upon it, and syringing the plants lightly overhead at the same time. They also must be carefully shaded all through their growing season when the sun is powerful. This latter is not nearly so much attended to in the cultivation of Pimeleas as it should be. The flowers on the points of the shoots in good healthy plants will by this time be getting prominent, but I do not approve of their being removed early in the season, as in the case of most things, for the reason that if such is done the shoots will require stopping during the summer, which is rather a disadvantage than otherwise, causing them to make weakly growth, and to set prematurely, moreover, it deranges their time of flowering; yet it is better this first season not to let the blooms open fully, for such would somewhat weaken the plants, without any adequate return from what little flower they could at this size make, so as soon as they begin to open they had better be removed. Immediately below the base of the flower, on each branch that produces them, will be seen several young shoots breaking; many growers are tempted to allow these to remain, hesitating to remove them, but such practice is calculated to spoil the plants, by allowing them to get too long in the branches for the number of shoots they carry. The right distance to cut them back to is midway betwixt the flowers and the place where they were cut back to the preceding year; this will keep them close and bushy. Encourage them to grow freely through the summer by sufficient shade, closing in sun-heat, and the use of the syringe as already advised. The latter should be so used that the water can be got well to the underside of the leaves, turning the plants round occasionally, so that the whole surface can be well wetted, or they will get affected with their greatest enemy, red spider. Continue this treatment up to the end of August, when the syringing may be discontinued, as also the early closing, with less shade, to harden them up a little for the winter, when they should be placed in a good light situation, where they will be kept in a night temperature of as near 45° as possible.

I have said nothing about training, as the plants from their habit require very little; a few sticks may be placed to them so as to bring the branches down to keep the base well furnished, beyond this, and simply supporting the plants, they will need nothing more. During the winter they will not want near so much water, but they must not be allowed to get so dry as some occupants of the hard-wooded house. If the intention is to grow them on to a specimen size quickly, it will be advisable to remove the flowers again in the spring as advised the preceding season, cutting back the shoots similarly, and treating in every way the same. The size of the pot they are moved into must be ruled by the greater or less quantity of roots they have; if very full, they will require a 4-inch shift, using the soil in a little more lumpy state. As the plants get larger they will need greater care in getting the water with the syringe well to the inside leaves, without which they are certain to become affected with spider, and if once they are injured by this pest no after-treatment can set the plants to rights. Shade from the sun as advised for the preceding season. By the end of this summer they will get to a useful size for decorative purposes, and as such can be used for conservatory work, giving them whilst here an open, light place, not crowded by other things. After being similarly treated during another season, if all goes on right the plants will have attained the size of moderate specimens, and if required for exhibition will, from their distinct character, be well adapted for the purpose in the early part of the season. Their requirements in after years will be similar to those prescribed, so far until they get into 18 or 20 inch pots, in which size they may remain for some time, assisting them during the growing season with manure-water, after which, if they become at all bare of leaves or indicate getting weak, they may be destroyed, to make way for younger ones to succeed them.

P. Hendersoni, P. mirabilis, and P. decussata are species of much smaller growth, and produce a profusion of handsome pink flowers less than those of P. spectabilis; like it they are compact, neat-habited, dwarf bushes, flowering in May and June; they also will do in either peat or loam: in the former they grow the quickest, in the latter the flowers are usually higher coloured; they all are free growers, but do not attain nearly so large a size as P. spectabilis, and do not need so much pot-room. The strongest branches require in the early stages of their growth to be kept well down in a horizontal position so as to lay the foundation for furnishing the base of the future specimens, otherwise in a short time the bottom becomes bare and naked, which makes them unsightly, a condition much more common than it might or need be. If this matter of early training is not attended to whilst the plants are young and the shoots pliable, no after attempt at bringing the branches down will give them their wonted appearance, for they do not bend well when they have got strong, and bringing them down leaves the middle of the plant thin. All through the growing season they should be well syringed every day, getting the water to the under as well as the upper side of the leaves; nothing less than this will keep them free from red spider.

P. elegans is a very distinct species, with a somewhat looser habit of growth than the preceding; the leaves are ovate-lanceolate and much larger than in any of the others named; the flowers, which are produced in spring freely, are compact and globular, about the size of large heads of red Clover, and are yellowish white in colour. The plant makes stronger wood than the three last treated of, and should be well cut back each season after flowering or it gets into a somewhat straggling condition. It does the best in loam to which is added a good amount of sand; potting and general treatment similar to the others. It also requires a liberal use of the syringe during the growing season, and must have the strong branches well trained out whilst young.

P. Neippergiana is a small-growing, white-flowered species, that blooms in the spring. In cutting back, potting, and general summer and winter management, it requires to be similarly treated to the others already spoken of; but being a weaker-rooted plant it succeeds the best in good fibrous peat, to which add one-sixth or one-seventh of sand, according to the nature of the peat.

P. hispida is also a somewhat weak-wooded subject, of moderate size. If well managed it will flower two or three times during the season, or its blooming may be retarded by stopping the points of the shoots, as after it has made a couple of inches of growth it will set and at once bloom. The flowers are produced in loose bunches similar to those of P. spectabilis, but not so large as in that kind; they are white, tinged with pink. It is very useful, either as a summer or autumn exhibition plant, or simply as a decorative subject for conservatory purposes. It does best in peat, and at no time requires the shoots reduced further than by removing the flowers, as its persistent habit of blooming prevents the shoots running to any considerable length. If plants are procured in 6-inch pots in the spring they should not be allowed to flower for a couple of years, as its free-blooming disposition prevents it growing. The flower-buds should be removed as soon as formed until the plants have got to something like 15 inches in diameter, after which they will bloom twice in the season—in spring, and again in the after part of the summer.

As to insects, it will be understood by what has been said that the whole of the species are more than most things subject to the attacks of red-spider, and unless they are kept free from it their cultivation will not be satisfactory. The continued use of the syringe as advised will keep them clear from this pest. Greenfly sometimes affects them; for these fumigate. Brown scale will live upon them, but does not increase fast, and can be removed with a sponge and brush. If affected with the white species of this insect it is better to destroy them, as the plants will not bear any dressing that will kill it. *T. Baines.*

MEREWORTH CASTLE,

THE SEAT OF THE RIGHT HON. LORD VISCOUNT FALMOUTH.

THIS is situated in Mid-Kent, one of the most fruitful and productive county districts in England. The traveller approaching Mereworth from West Malling, by what is locally called the New Road, cannot but be struck by the rich and luxurious vegetation around him, since he will pass through Hop gardens in the highest state of cultivation, which have given this county an European fame, along with which will be seen orchards of Cherries, Apples, and bush fruits by the hundreds of acres, from which the markets of London, Liverpool, Manchester, Birmingham, Leeds, &c., chiefly draw their supplies. Cherries and bush fruits are nearly all gathered by women, men only being employed to move the tall ladders from tree to tree. The Cherry crop this season has been enormous, consequently the prices obtained in many instances has not paid for picking and carriage. Journeying along the New Road, the traveller approaching Mereworth turns sharp to the left along the Tunbridge Road to reach the Castle, which is situated on the right, the kitchen and fruit gardens being on the left, the Tunbridge Road dividing them. On entering the kitchen and fruit gardens I met Mr. Horton, his lordship's head-gardener, who very kindly showed me over the gardens and grounds. The first objects that strike the eye on entering are two very nice span-roof houses, one of which was filled with a beautiful collection of stove plants of the finer kinds, grown principally for cutting and decorative uses; adjoining this is a greenhouse, or intermediate house, used principally in winter to force Roses, Carnations, &c., now chiefly filled with the finer varieties of Zonal Pelargoniums. Fronting these houses is a lean-to pit for bedding plants, 8 feet wide and 80 feet long, filled with a fine healthy stock of the above, of which Mr. Horton puts out about 50,000. Proceeding to the top of the kitchen garden, to the fruit houses, of which there are three fine ranges, I was pleased to see the vegetable department well cared for, as testified by the health and abundance of the crops, the walls being particularly well covered with fruit trees. Peaches do unusually well outside here.

The first house of the lower of the three ranges, No. 1, was filled with Melons and Cucumbers, the plants being in fine health, carrying a heavy crop of fine fruit. No. 2, French Bean-house: this was planted with Osborn's forcing, of which Mr. Horton thinks highly—this, without doubt, is a fine Bean. Nos. 3 and 4, Strawberry-houses, all Sir Charles Napier, carrying a fine crop, and highly coloured for this variety. Second range, No. 5, Cherry-house: this was particularly well done, considering the fickleness of the Cherry as a forcing tree, the fruit being fine and plentiful. No. 6, early Peach-house, varieties Royal George and Noblesse: a nice crop, the trees looking remarkably well. No. 7, early vinery, Black Hamburgh: the crop here was nearly cut, but what was left showed they had finished well. No. 8, Muscat-house: here the crop was light, owing to the Vines being young. No. 9, second early vinery, Black Hamburgh and Muscats: there was a fine crop here, and well finished. No. 10, late vinery: heavy crop here, fine in bunch and berry, the varieties being the same—Black Hamburgh and Muscats. No. 11, second early house, Royal George, Noblesse, and Elruge Nectarine: in this house the crop was grand, and the individual fruit fine. No. 12, late Peach-house: the same remarks apply to this, the trees being models of high cultivation.

Leaving the kitchen-garden, we crossed over the Tunbridge Road to the pleasure-grounds; and passing through the entrance-gate, with a very neat, comfortable lodge on the left side, soon found ourselves opposite the Castle, a noble building in the Italian style of architecture. Immediately behind the Castle the ground rises to a considerable height, the slopes of which are finely timbered, interspersed with grand masses of bracken, affording a fine retreat to a beautiful herd of deer I saw feeding from the Castle inclosure. Surrounding the Castle are two geometrical flower gardens, laid out in Box, the effect being very rich when they are in flower. From this proceeds what is known as the straight walk, planted on each side with a line of Yews, each plant being clipped to a square shape; between the Yews and the walk are flower-beds with the usual varieties of bedding plants. On the left side of this walk is the Rosery, and here the queen of flowers appear to be at home, for they are a very fine lot. Lady Falmouth being a great lover of Roses, the newest and finest varieties are yearly introduced. Walking along the lower side of the Castle I came to the paddocks, where many a famous racer is to be seen quietly pasturing. By this time the shades of evening were closing around us, the sun having gone down in the west for some time, and its sister luminary having risen up to take its place—or, as Burns has it—

> "It is the moon, I ken her horn;
> She's blinkin' in the lift sae hie"

—I took leave of Mr. Horton, highly pleased with the satisfactory condition of the garden management at Mereworth Castle. *Wm. Bowman, Leybourne Grange, Kent.*

THE RESTING SPORES OF THE POTATO DISEASE.

(*Concluded from p.* 70.)

I NOW give in conclusion an illustration of the perfectly mature resting-spore of Peronospora infestans, as seen imbedded in the substance of the Potato leaf. These resting-spores, which carry on the winter life of the fungus, are not restricted to the leaves, for I find them sparingly in both haulm and tuber, although I have at present seen the best specimens in the leaves. The engraving given herewith (fig. 19) shows a transverse section through a black spot of one of the leaves from Chiswick, and the resting-spore is seen at A nestling in amongst the cells of the leaf. An antheridium, B, and two oogonia (C, C), from which such resting-spores arise, may be seen in the cut, and the old common form of the fungus will be noticed breaking through a hair on the upper surface of the leaf, which is a very uncommon occurrence. The situation of the resting-spores can generally be ascertained on the leaves by noticing the slightly thickened and very dark spots, for the bodies are commonly in these spots. It is, however, an extremely doubtful matter either to get them out, or, indeed, to see them when imbedded, for, when mature, they are black-brown in colour, and only a little larger in size than the leaf-cells. These leaf-cells are also intense brown-black in colour from contact with the hurtful mycelium, and almost as hard as wood. The best way to see the resting-spores is to macerate the leaves for several days in water, and then setting them free by crushing the spot between two slips of glass. The presence of the fungus in the leaf makes the cells very thick and woody as well as black, so that in crushing the leaf cells the resting-spore is not uncommonly crushed at the same time. With care, however, they can be got at, when they will be seen, as at D, covered with warts or coarse reticulations, and beautifully regular and perfect in outline: when young they are of a pure warm sienna colour, and when perfectly mature, brown-black and shining. They are sphærical or slightly egg-shaped, and measure on an average about one-thousandth of an inch in diameter. I consider it worthy of special note that these resting-spores are almost exactly the same in size, conformation and colour with Peronospora arenariæ, Berk., an allied species found parasitic on Arenaria trinervis. In looking for these bodies care must be taken not to confound them with corroded cells, granules of starch injured by the disease, or foreign bodies.

At E is shown a semi-mature resting-spore with pollinodium attached, accidentally half washed out of its coating of cellulose by maceration in water.

I may say as an addendum that to me there is a marked analogy in size and habit on the one hand between the oogonia and the swarm-spores, and on the other hand between the simple-spores and the antheridia. I consider that the oogonia and antheridia are merely the intercellular condition of the swarm-spores and conidia, which latter are the aërial state of the former.

The facts which point in the direction just indicated are these:—Sometimes there is no differentiation in the contents of the swarm-spores, but the plasma is discharged in one mass and not in the zoospore condition, the swarm-spore then resembles the oogonium. At other times the oogonium shows a distinct differentiation in its contents, and matures from one to three resting-spores, which to me shows an approach to the condition of the swarm-spore. *Worthington G. Smith, Milamay Grove.*

FIG. 19.—THE RESTING-SPORE OF THE POTATO FUNGUS (A) EMBEDDED AMONGST THE LEAF CELLS.
(Enlarged 250 diameters.)
Semi-mature resting-spore (E); mature ditto (D). (Enlarged 400 diameters.)

ELEMENTARY LESSONS IN BOTANICAL GEOGRAPHY.

(*Continued from p.* 621, *Vol. III., n.s.*)

X.—ON THE INFLUENCE OF MAN ON PLANT-DISTRIBUTION.

THE influence of man in modifying the distribution of plants has been very great, and the denser a population becomes the greater is the change produced. According to their relation to man we may class plants under seven groups as follows:—1, the wild plants that are soon destroyed in a tract of country which man occupies fully; 2, the wild plants which hold their ground under similar circumstances; 3, the plants which man cultivates for clothing, medicine, and for his own food and for that of the animals which he has domesticated; 4, the plants which man involuntarily introduces along with those which he cultivates on a grand scale, or what Mr. Watson calls "colonists;" 5, garden plants grown for ornament, and trees introduced for the sake of their timber or bushes for fencing; 6, plants of the last class which spread beyond the places where they are planted, and make themselves at home in the new country, propagating themselves from generation to generation like its original plant inhabitants — these Mr. Watson calls "denizens," and to the species of this group M. Alphonse De Candolle wishes to restrict the term "naturalised," which is often used with greater laxity of application; and 7, plants introduced with foreign ballast or which stray from garden-cultivation, but are not able to take any permanent hold upon the soil in their new country — these Mr. Watson calls aliens or casuals. I will say a few words about each of these groups, illustrating them principally by referring to the flora of our own country.

The plants which are specially liable to be destroyed in a tract of country fully occupied by man, are those that grow upon heaths and in woods and swamps. In Britain a large proportion of the whole surface is now turned into arable land, and there are whole counties in which neither a natural wood nor a patch of heatherland remains. In the north temperate zone, where the range of species is very wide, and the wood and heath plants are, as a rule, eminently social and gregarious, it is very unlikely that a species should get entirely destroyed. Our knowledge of the botany of Britain, in close detail, now goes back for a couple of centuries, and there are very few plants which we know with certainty as having grown wild in the island that are not forthcoming at the present time, though some, like Cypripedium Calceolus, Phyllodoce taxifolia, Lobelia urens, and Asplenium germanicum, are either quite extinct or trembling on the very verge of extinction. But if we take a limited tract like a county, the known loss in species is often considerable. The gradual way in which plants have been exterminated as London has grown is carefully illustrated in Trimen and Dyer's *Flora of Middlesex*, and they estimate that fifty-eight species once known, a list of which will be found in that work at pp. 345-6, are now lost to the flora of the county.

In other regions of the world, where the general plan of plant distribution is different, the change produced by the intervention of man is often far greater. In the tropics shade is an essential condition of life for a large proportion of the species, and when the forests are cut down these are killed. In the warm temperate zone the species are generally much more restricted in their range than in our north temperate latitudes. I give an account of what has occurred in South Africa almost in the words of Dr. Shaw, who has studied upon the spot the botany of the colony.

At the Cape the great grazing district is what is called the Midlands, a tract which extends from the high Snewbergen Mountains north-eastward in the direction of Natal, and includes the provinces of Colesberg, Cradock, and Albert. At the time of the travels of Burchell it was covered with luxuriant greensward, with few trees upon the plains, mainly Acacia horrida and brushwood of a few species, whilst its low hilly ranges were covered with bushes and trees, and along its watercourses various kinds of Willow and Acacia luxuriated. This has been the great wool-producing territory of the Cape, but is now being completely changed in the general character of its vegetation by overstocking. When first introduced, the sheep fed mainly on the grass, but in a country with only periodical rains and a subtropical sun this soon began to give way. Shrubs could alone stand against the sheep and climate combined. At first, and as long as the grass was prominent, the shrubs

enjoyed an immunity. But when the grass disappeared the bush and scrub came to be the main resource of the flocks, and the ground was left to them and obnoxious or poisonous weeds, Gomphocarpi, Xanthiums, Tripteres and Melicæ. The climate necessarily became affected. The rain came down less certainly. Side by side with the attacks of the sheep the more subtle and insidious agency of a changing climate came into play. The hardy weeds of the great desert Karoo on the south-west began to travel northward and added their energies towards the extirpation of the indigenous flora. Species of Chrysocoma, Pentzia, and other Karoo Compositæ came in, Chrysocoma tuncifolia has been the prevailing plant of late years. It belonged originally to the south-west of the colony, and at first was avoided by the sheep, but now they have had to fall back upon it from necessity. It is a very hardy plant, and presents a green appearance when everything else is blackened and scorched. In the southern part of the Midlands it is now so solely the resource of the sheep that the mutton from the beginning of the year to the end tastes and smells of it. In short, the district is now fast becoming, instead of a green pasture country, an extension of dreary, scrubby, half-desert Karoo.

The second class, the wild plants that hold their ground well in a fully-settled country, are those that grow in grassy places, by stream-sides, in open exposed ground, and in moderate shade. The first take refuge in the meadows and pastures, and the last upon the hedge-banks, whilst the scope for the others is not materially lessened.

Respecting the plants cultivated on a grand scale for the use of man, it is not needful for me to say much, as the part they play is sufficiently obvious. If, following the generally-accepted plan, we divide the long period of man's history which passed over before we have any knowledge derived from written records into a stone period, a bronze period, and an iron period, according as the implements used are derived from those materials, we find that in central Europe man began to domesticate plants and animals early in the first of these three periods, long before he learned the use of any kind of metal. We have the record in the Danish Kjokken-moddings of a period when man lived on fish and wild fruits, and when all domesticated plants and animals were unknown. In the earlier Swiss lake-dwellings, such as those at Wangen on the Lake of Constance, we have mixed with nothing but stone implements the remains of a kind of cloth made of plaited Flax, lumps of carbonised Wheat (Triticum vulgare), grains of Triticum dicoccum, and of two-ranked Barley (Hordeum distichum); and at Robbenhausen and elsewhere, under similar conditions, Hordeum hexastichon (the same kind of Barley that is found associated with Egyptian mummies, in fine ear), carbonised Apples and Pears of small size, and stones of the wild Plum, mixed with seeds of the Bramble and Raspberry, and nuts of the Hazel and Beech. At this era the dog, sheep, and goat were already domesticated, but the use of metals was quite unknown.

One of the most noteworthy points about the common plants of cultivation is, that many of the commonest and best-known so-called specific types amongst them, such as the Sugar-cane, Wheat, Oat, Tomato, Artichoke, Tobacco, Cotton (Gossypium herbaceum and barbadense), are totally unknown anywhere in a wild condition. But of all these, what are considered distinct species of the same genus are known wild, and it can scarcely be doubted, judging from the amount of variation which we see in types of which the origin is known, such as the Cabbage, Apple, Pear, and Cherry, that the original types of these others are not really lost, as was commonly supposed till lately, but that an amount of variation equivalent to that of an ordinary species, has been wrought by domestication. Heer has lately traced the common cultivated Linseed of the present day (Linum usitatissimum) down into Linum angustifolium at the date of the Swiss lake dwellings. This last is a plant widely spread through Europe in a wild state, which has been universally admitted as a distinct species, and I give, therefore, the characters in which the two types differ from one another.

Linum usitatissimum.	*Linum angustifolium.*
An erect annual, with a single stem rising from the root.	A perennial, with many stems spreading from the crown of the same root.
Leaves lanceolate, the largest 1½ inch long, 1½ to 2 lines broad.	Leaves linear, the largest ½—1 inch long, a line broad.
Sepals oblong-lanceolate, ¼ inch long.	Sepals oblong cuspidate, 2 lines long.
Expanded corolla an inch across.	Expanded corolla ¾ inch across.
Ripe capsule globose, ⅓ inch thick.	Ripe capsule globose, ¼ inch thick.
Seeds oblanceolate-oblong, 2½ lines long.	Seeds oblong, under ⅛ inch long.

According to Mr. Watson's estimate the Colonists of Britain number sixty-four species, or about 5 per cent. of its total wild flora. In this group we have such plants as the Poppies, Fumitories, Ranunculus arvensis, Lychnis Githago, and Chrysanthemum segetum. These are all annuals, and we have no ground for supposing that, common as they are at the present day, they may not have been introduced into Britain from the south of Europe along with Wheat, Oats and Barley. If we extend the group so as to include in it all what are commonly called "weeds," that is, plants that habitually grow in prepared arable soil, we shall have to count for Britain about a hundred species.

The most remarkable point about these annual weeds is the wonderful quantity of seed some of them are capable of producing. An average plant of Papaver dubium or Rhæas will yield twenty flowers with 300 seeds to each flower—one seed multiplied to 6000 in a single generation. An average plant of Shepherd's Purse will yield 800 flowers with twenty seeds each—16,000 seeds to a root. An average plant of Chickweed, or Spergula, will yield 300 flowers with ten seeds each—3000 seeds to a root. Twenty thousand one-seeded flowers is not an extravagant estimate for a fine plant of Chenopodium album. This explains the great rapidity with which they will sometimes spread under favouring circumstances. But if a piece of ground be left to itself these annuals do not hold it long. The first year they fill a piece of neglected arable soil almost totally; the next year the quantity is smaller, and by the third year we find they have almost entirely disappeared, and the ground is occupied by biennials and perennials, such as Nettles, Docks, Thistles, Millfoil, Ragwort, Brambles, and coarse grasses, such as Triticum, Dactylis, and Lolium.

It is very curious to note, comparing Britain with the United States, how some of our common weeds have made themselves quite at home across the Atlantic, and others that seem *à priori* quite as likely, have failed to do so. Some of our commonest and most prolific kinds have failed to spread, and, on the other hand, plants that do not, from anything that we can see, appear to have any special advantage to help them in the struggle for life, have become widely diffused. To cite a few instances—Corncockle spreads, but Poppies do not; Groundsel is unknown, but Chickweed spreads everywhere; Anthemis Cotula is very common, whilst Pyrethrum inodorum is almost unknown; Lamium amplexicaule has spread much further and faster than L. purpureum; Viper's Bugloss is in some parts a great nuisance, but the three weed Speedwells are very rare; Couch-grass and Carduus arvensis spread, but Coltsfoot is very rare, and Knautia arvensis unknown.

Respecting the sixth group, garden plants, I need say nothing. Of the denizens or naturalised plants, Mr. Watson's estimate for Britain is about fifty species, or 4 per cent. of its indigenous flora. As instances may be cited—Pyrethrum Parthenium, Artemisia Absinthium, Myrrhis odorata, Populus alba, Prunus Cerasus, Ribes Grossularia, and Ulmus suberosa. These are usually old long-established garden plants, herbs that have been largely used for their real or supposed medicinal virtues, or trees and bushes of which, in a country in which the woods have been so much interfered with as in ours, the nativity is uncertain. In St. Helena, as has been already indicated, these denizens far outnumber the natives. In Mauritius they form not less than a third of the total flora, and some of them are now the commonest plants in the island. Here they are frequently shrubs that have been introduced for the sake of their fruit or for fencing, such as Zizyphus vulgaris, Rubus rosæfolius, the Cape Rubus Bergii, and various Indian Cassias and Cæsalpinias; or trees that have been planted, like Casuarina, Hæmatoxylon, Bixa, and Anacardium, to fill the place of the wild forests that have been destroyed.

In a country like ours, with so many trade relations with other parts of the world, the number of plants that stray from gardens or get introduced with foreign seed, ballast, or wool, but fail to propagate themselves after the first generation, is very considerable. A great many such spring up year by year, especially annuals, and either never perfect good seed, or it fails to reach a place to grow in. My experience of the botany of Britain now goes back for twenty-five years, and out of the many hundreds of plants that have been introduced I can only count three or four of these aliens that have fully established themselves:—Veronica Buxbaumii, a weed of cultivated ground, first seen in Britain in 1829, which may now be fairly reckoned as a colonist in many counties; Mimulus luteus, a native of Western America, very common in gardens; Galinsoga parviflora, a Composite plant, rather resembling the common Groundsel, which got astray from Kew gardens about the year 1850 into the Asparagus beds of the neighbourhood, and is now one of the commonest weeds of the market gardens round the western suburbs of London; and Anacharis or Elodea canadensis, an American water weed, first recorded as British in 1847, which shows no particular tendency to rapid increase in its native country, but which brought into ours has become diffused in our ponds and canals in a short time in a wonderful manner, although we have one sex only, and consequently no seed has ever been produced, and it has had to multiply solely by mere vegetative reproduction. *J. G. B.*

THE BRISBANE BOTANIC GARDEN.

At p. 759, vol. iii., of the *Gardeners' Chronicle* we drew attention to, and on a preceding page illustrated, one of the attractions of the Brisbane Botanic Gardens. We then promised to refer at a future time to some other features of the garden, which we now have the pleasure of doing through the engraving on p. 109 (fig. 23). This engraving illustrates a finely grown and graceful tree of Cocos plumosa, Hook., which was presented to the garden in 1854 by the late Sir W. J. Hooker, and flowered for the first time, we believe, in 1867. This Palm has long been in cultivation in the Palm-house at Kew, where it flowered so long ago as 1859, "probably for the first time in Europe," Sir William Hooker says in the *Botanical Magazine* for May, 1860 (where it is figured at t. 5180). The plant is very straight in its growth, and has attained a height of between 50 and 60 feet at Kew. The specific name was given by Sir William in allusion to the gracefully drooping habit of its flowering branches, and we have seen the spadix itself, or central axis, after cutting the individual branches close off, converted into an excellent walking-stick — the arrangement of these drooping branches being so uniform and so closely set, that the scars after their removal give the stick a highly ornamental appearance. The tree is a native of Brazil, and judging from the size and form of the plant shown in our engraving—which is from one of a series of photographs presented to the Museum at Kew by Mr. Walter Hill, the director—the Brisbane climate seems to suit it.

Besides the ornamental character of the garden, which attracts large numbers of visitors, a very important work is being carried on in experiments with the acclimatisation of useful plants. Glancing through some recent reports by Mr. Hill we get some notion of the service the garden has effected both to science and commerce. "The experimental department," Mr. Hill justly observes, in his report for 1872, "being a very important branch of the establishment under my charge, it is gratifying to be able to report its increasing success, and that more than ever it attracts the attention of the public, and especially of those whose business is the cultivation of the soil, or who intend to engage in the occupation. Every staple of agricultural industry that is known in Queensland has been of exotic origin, and its growth at first mere experiment. These articles, however, are still very few in number, relatively to the vast area and the varied soil and climate of Queensland. I have always considered it to be the principal object of the Botanic Garden to increase their number by patient trials of the suitability of the colony for the growth of every species of the vegetable products of other countries that are of economic value." Among the plants so cultivated in the garden are some of the principal tropical fruit trees, starch and spice producing and various food plants; fibrous plants, tan, dye, and gum-producing plants, as well as those yielding oils, waxes, medicinal products, and timber trees. Large numbers of plants are distributed to colonists for cultivation in their own plantations, and in 1873 we are told that the requisition for plants of Cinchona from various persons in the northern districts, as well as for Clove, Nutmeg, Allspice, Cinnamon, Betel-nuts, Mangosteen, Durian, Bread-fruit, Cocoa, Tonquin Bean, gutta-percha, oil Palms, and Vacoa plants (Pandani), were greater than could be supplied. During the previous year there were distributed to 539 individuals and establishments 50,200 cuttings of fourteen varieties of Sugar-cane, 5000 cuttings of the white Mulberry, 5056 Coffee plants, 1020 Tea plants, 1060 Ginger roots, and 300 papers of Manilla, Havannah, and Shiraz Tobaccos.

The cultivation of dye plants seems to attact a good deal of attention among landowners in the colony, and chiefly perhaps the Indigo (Indigofera tinctoria), because, as grown in the garden, it has been proved to yield two crops within a period of five months. When sown about the beginning of November the first crop can be cut about the middle of January, and the second about the end of March. Of Coffee several thousand young plants have been distributed. The climate of the northern districts, Mr. Hill says, gives the Coffee a greater advantage over those further south, as it "comes to maturity, and bears two or three years sooner in the former than in the latter." The Chinese Tea plant has also occupied much attention, as its growth has been proved to be most satisfactory. We are told that manufactured tea from the leaves has been prepared by a native of China of some experience in the work, who speaks favourably of the leaf, and considers the flavour of Queensland tea will improve with age. Most of the Tea plants distributed from the garden have been planted on the Darling Downs, where the climate seems to be more suitable than elsewhere.

VENUS' FLY-TRAP.

By Thos. A. G. Balfour, M.D., F.R.S.E., F.R.C.P.E.

(*Continued from* p. 67.)

July 1, 1874.—A bluebottle fly was made to walk slowly over the leaf of a fresh specimen of Dionæa without any contraction occurring; the leaf was again irritated by the fly and now began to contract at a very slow rate, so much so indeed that part of the body of the fly was above the margin of the blades when the ciliary hairs or spines pressed on its body; from which pressure, however, the fly soon freed itself. When the contraction of the leaf, about an eighth of an inch below the margin, begins, the ciliary spines gradually separate from each other and bend backwards, in consequence of the eversion or retroversion of the margins of the leaf.

How long does the contraction continue? This is very much influenced by the amount to be digested. Thus in two instances, where a fly was entrapped, the contraction was only for eleven days; where a large bluebottle fly was caught it was twenty-four days before the leaf opened: where a caterpillar was enclosed it was twenty-one days. In another case where a fly was caught it was sixteen days. In one instance with beef about the size of a fly it was fifteen days, while in another similar case it was not opened on the seventeenth day. Where a plant was gorged with meat more than twenty-four days were required. The average time of contraction seems to be between two and three weeks.

Do we know anything of the nature and cause of this contraction? My excellent friend, Dr. Burdon Sanderson, showed two years ago that the peculiar electrical effect, called a negative variation, which occurs when a muscle contracts, is also exhibited where contraction of the leaf of the Dionæa occurs. This observation is one of great interest, as pointing to some special analogy between the animal and vegetable worlds.

As regards the question, "How does the irritability lead to the contraction?" we must confess our ignorance. Is the impression conveyed to some central organ from which a centrifugal force is transmitted, and can any interruption to the transmission of this influence interfere with the closure of the leaf? I spoke of co-ordinating power in the closing of the two blades; now does this reside in the hypothetical central organ, and may we, under any circumstances, have this action interfered with? Mr. Darwin has stated that he can produce this condition (a kind of palsy, if I may so style it) by pricking with a sharp lancet a particular part of the plant. This observation of Mr. Darwin is still more interesting than Dr. Sanderson's, for it points to the possibility of even a higher analogy than his. I do not know whether the paralysed leaf was on the same side which was pricked, or whether there was a crossing of the influence which produced it. Given on the authority of such an able and careful experimenter, we need not hesitate to accept it, though it is only right to state that I have not as yet been able to discover the point referred to. I have made punctures in different spots, but have never seen the operation followed by non-closure of one blade.

On July 4 I pricked a Dionæa leaf near the central hair, and it closed naturally.

July 6.—Leaf open, and responded to stimulus by both blades closing.

Only the other day I pricked with a point of a knife a portion of the midrib, almost where the petiole joins it, but no paralysis ensued.

On July 4 I also tried if I could cut off the direct transmission of the impression made on the sensitive hair, and for that purpose I performed two experiments, one on the above date and one on July 22. I first cut one leaf of Dionæa below the sensitive hair nearest the midrib, but on July 6 the leaf was open, and responded to stimulus by again closing.

July 13.—Leaf that had been incised from the front was now cut from the back, and immediately closed; the incision was made with a probe-pointed bistoury right through the one blade and extended the same length as the sensitive hairs did, so as, if possible, to interpose between them and the hinge on the left side (looking from centre of plant).

July 14.—The leaf is closed, but not very firmly. The cut was extended to-day, and care was taken that the knife went quite through the left blade without injuring the right one.

July 15.—Leaf closed; healthy look.

July 16.—Leaf partially opened towards petiole end of leaf.

July 17.—Leaf decidedly more open at the petiole end, at the part beyond that at which the cut terminates.

July 20.—Part still open, but has been closed by irritation.

July 23.—Open at end again.

The blades in this case acted in harmony, and though the leaf did not open much, this seemed owing to the shock given to the plant.

On July 22, to test whether the influence might not be transmitted from the root, I cut the midrib of the petiole quite through at about one-third of its length from the leaf; the wings of the petiole were left entire. The leaf remained open after this operation, but was closed on irritation.

July 23.—Leaf open to only half the lashes to-day.

July 24.—At 3 P.M. leaf half open, closed on irritation.

It continued to do so on July 27 and August 1.

Dutrochet in reference to the Sensitive Plant believes that there are two kinds of cells, the one exhibiting the power of contraction and the other the power of distension, and that these are situated, though in a reverse order, at the swelling of the leaflets and the pulvinar of the petiole, the contractive cells being above in the one case and below in the other, and consquently the place of irritation is in the one case above and in the pulvinar below; and as the over distension of the other kind of cells is, in his view, the immediate cause of the movement, the leaflets are forced to take an upward direction, while the petiole falls down; and he thinks that his view is confirmed by the effects of cutting the lower part of the pulvinar, which would interrupt the process on which his theory is founded.

Dr. Carpenter adopts these views, and applies them to the explanation of the closing of the Dionæa leaf. But whatever we may think as to the Sensitive Plant,* it certainly seems to fail in the Dionæa; for I have in two instances cut off a considerable slice from the lower portion of the midrib and yet the leaf has closed, so that some other explanation than that of contractile and distensible cells is here necessary. Again, if we take the case of the Droseras, which are congeners of the Dionæa we find that in D. longifolia, Whitakerii, rotundifolia, &c., the mode of contraction is just a reversal of the circinate venation which they exhibited while being developed. Now if this process depends on these kinds of cells, are we to believe that they can perform directly opposite functions? Or do the two sets of cells change places? Or, thirdly, are no such cells necessary to effect the evolution of the plant? Then, I ask, why should they be necessary in the other case, *i.e.*, in its contraction? Besides, in the case of Dionæa how can the distensible cells at the lower portion of the midrib effect the closure of the marginal bristles, which are an essential part of this wonderful contrivance for entrapping insects?

No attempted explanation, of which I am aware, is satisfactory. If I might be allowed to throw out a suggestion, I should be inclined to look for the explanation of the closing rather to the spiral vessels, which are very abundant both in Dionæa and Drosera, and which from their distribution and arrangement seem to play an important part. I shall only instance the peculiar expansion of the spiral as it enters the glandular head of the hair of Drosera dichotoma or binata. We know that elasticity is an inherent property of the spiral, and that consequently it may either contract or expand according to the forces applied to it; and in the case of Drosera binata any shortening of the spiral would certainly cause the secreting head to bend. Of course I do not mean to say that spirals will explain all the phenomena, but they may hold a very important place. I have spoken of the abundant spirals in Dionæa and Drosera, and I take this opportunity of expressing my appreciation of the kindness of Mr. Sadler, who has given me invaluable aid in investigating the microscopic structure of these plants; and any one who knows his remarkable skill and ability in preparing objects for the microscope will understand the peculiar satisfaction which I feel in having him associated with me in my researches into the minute structure of these plants.

But to return from this digression, from the midrib of the Dionæa we have at short distances spirals passing off at right angles across the blades and entering the interior of the spines or marginal bristles. They proceed to the very end of the spines, but we have not yet made out how they terminate there. But even this relation might help us to understand how the double closure of blades and spines might be effected.

But while we contemplate the marvellous but secret connection between the irritability and contraction, and mark the matchless wisdom displayed in the whole contrivance, we have the unspeakable satisfaction of knowing, and of reverently exclaiming, that "This also cometh forth from the Lord of Hosts, who is wonderful in counsel and excellent in working."

3. *Secretion.*—Ellis believed that the viscous fluid secreted was a kind of nectar, to allure the insect to the sensitive part of the leaf; but this view is entirely negatived by the fact that it is not poured out till after the capture of the insect, and it sometimes does not occur till about thirty-six or forty-eight hours after that event, though it appears to me to be generally found at the end of twenty-four hours, if not sooner. Professor Dewar, who very kindly examined some of the secretion for me, informed me that it contained no sugar. Mr. Darwin showed that the secretion was acid, and Professor Dewar writes me that the acid which he discovered was "formic acid, and that the secretion also contained chlorides; that it was of a viscid nature, and on keeping did not decompose to any great extent."* I feel deeply indebted to him for the very kind way in which he undertook to examine the secretion for me; and when I inform you that the produce of some twenty-four or twenty-five leaves amounted to only about 1 or 1½ drachms, you will at once see the trouble and difficulty of making an analysis in such a case, and I can only add that I feel most grateful to him for having done so.

The presence of formic acid in the secretion of Dionæa is peculiarly interesting. Of course most of you know that this acid derives its name from having been first found in ants, specially in the species Formica rufa; and Will has shown that the poisonous principle in certain caterpillars, especially in Bombyx processionea, consists of this acid, and that it occurs in a concentrated state in all the parts of this creature. It is also regarded as highly probable that the irritation caused by the stings of various insects is due to the same acid. In man it has been found in the blood and in the juices of muscles and of the spleen, also in the thymus gland. It is the principal volatile constituent of the sweat, and has been found in the urine, and, what is specially interesting to us, in vomited matters.

But it has also been found in plants, for it occurs in Stinging Nettles, and in some species, *e.g.*, Urtica urentissima, the effects produced by the sting are, as the name implies, peculiarly severe. In the plants in which it is found it is generally regarded as the result of decomposition, and this seems confirmed in the case of Pinus Abies, by the fact that it is found in larger amount in the needles which have fallen off than in those which are dried while fresh. As might have been expected from this circumstance the acid is also found in oil of turpentine; and when this has been kept in leaden vessels crystals of formate of lead are sometimes found.

When the fruit of Sapindus Saponaria and that of Tamarindus indica are distilled with water and sulphuric acid, formic acid is obtained as one of the products. Gorup Besanez thinks that it may be formed by oxidation of tartaric acid originally present in the fruit; and Döbereiner has actually obtained formic acid by distilling ten parts of tartaric acid with fourteen parts of binoxide of manganese and from thirty to forty-five parts of water.

Formic acid can easily be obtained from vegetable products; thus, starch and sugar when oxidised by manganese and sulphuric acid yield it. It is also got by the action of oil of vitriol on ligneous tissue, also by distilling oxalic acid with sand and glycerine, and also from carbonic acid in water, by passing through it a current of electricity. But though it might easily be formed in plants, it has not as yet been often found, and hence one of the sources of interest in this case.

Mr. Andrew Murray, in an article in the *Gardeners' Chronicle* for September last year, takes Dr. Hooker to task for his views regarding the carnivorous habits of the Dionæa, and he thinks that he (Dr. Hooker) has attached too great weight to the statements of Ellis. As a solution of the difficulty, he suggests two questions which seem to me very reasonable: the first is, "Is the secretion never present until after an insect has been captured?" In answer I may say that I do not remember of having seen it under other circumstances, and, as I said above, it is always some little time after the insect has been caught before it appears. His second question is, "Whether it is always present after an insect has been secured?" My experience is that if the plant be healthy it is always so. I am speaking of living insects. Is this fluid a real secretion or is it merely the exudation of the juices of the plant which are distinctly acid? There can be no doubt that it is truly a secretion. Its viscid nature would itself prove that the juices must have undergone some change. But I have better evidence, for I tried whether mere pressure would cause this fluid to appear.

(*To be continued.*)

* I have tried some experiments on the upper and lower parts of the attachment of the petiole, and I must own that though they have been far from being quite confirmatory of Dutrochet's view, there was one instance which seemed to support it: a portion of the upper part of the petiole was cut away and some days afterwards on touching the pulvinar the petiole did not descend to the same length as the others did, though from the weakening of the base of the petiole we should have expected it to have gone down further than any of them.

* The name of Professor Dewar is the best guarantee for the accuracy of this analysis.

FIG. 20.—GROUP OF DROSERAS AT MESSRS. VEITCH'S.

A, Drosera dichotoma. B, Drosera capensis. C, Drosera spathulata. D, Drosophyllum lusitanicum.

CARNIVOROUS PLANTS.

THE illustration on the opposite page (fig. 20) represents a group of the so-called carnivorous plants, whose habits have received so much attention of late, and the investigation of which has added a new chapter to vegetable physiology. The plants represented are Drosera dichotoma, D. capensis, and D. spathulata, and Drosophyllum lusitanicum, and were sketched in the nursery of Messrs. Veitch & Sons. A fine specimen of Pinguicula lusitanica from the establishment of Mr. Dean was given in a recent issue. The proved absorption of nitrogenous matters by the leaves of these plants gives confirmation to the plan of growing Orchids advocated by Mr. Gaylard Hadwen, and carried out at the Fairfield Nurseries, near Manchester.

Notices of Books.

A Manual of Bee-keeping. By John Hunter, Honorary Secretary, British Bee-keepers' Association. London: R. Hardwicke.

Amongst the multitude of books which have been brought out from time to time upon this subject, we have seen only one we should prefer to the present volume. We believe every scientific apiarian will bear us out in declaring that no book can compare with an American publication now well known in this country—*Langstroth on the Honey Bee;* but we as honestly and conscientiously declare we have been both surprised and delighted with Mr. Hunter's work. He does not boast of its being wholly an original work, he has borrowed freely from Langstroth, as well as from most of the best articles which have recently appeared in several weekly journals which open their pages for contributions on this interesting subject. Mr. Hunter deservedly merits the thanks of British bee-keepers for his book. Langstroth, after all, is too expensive for cottagers to purchase, and we have long wondered why no one could be found sufficiently bold to take up the subject of bee-keeping in an interesting and readable manner, so as to be attractive to the working bee-men of this country, and at the same time to be within reach of their purse; but we can now recommend them to secure the *Manual of Bee-keeping*, which meets a want long felt.

Some of the chapters in this work are exceedingly valuable, because they touch upon points upon which we needed fresh and reliable information, to be able to keep pace with our continental friends. Thus the articles upon "Cages" and "Guide Combs" are very good, whilst those upon "Queen Raising" and "Slingers" are very readable and trustworthy, and the chapter upon "Foul Brood" is not to say well, but exceedingly well written. Many chapters contain new thoughts and ideas, which we hope will act as a stimulus, when placed under good influences, and bring forth abundant fruit; they need working out by active as well as enthusiastic men. Then Mr, Hunter will not have laboured in vain during the "long evenings of February, 1875."

The chapter referring to "Ekes and Nadirs" is very short, and contains nothing new, whilst the one on "Commencing Bee-keeping" is very poor; we should also have expected something good, if not new, about "Bee Traps," but what is given is useless to practical men. With these exceptions, it is impossible to take up the book without profiting by its perusal. Of course we cannot expect every new volume on bee-keeping to be original, though we have no doubt Mr. Hunter, who is Honorary Secretary to the British Bee-keepers' Association, has done his best to bring his knowledge up to date; and as he has most worthily completed his self-imposed task, we trust he will be honoured, as he richly deserves to be, by a new edition soon being called for.

The book is judiciously illustrated, thus causing it to be very attractive to the beginner in bee-keeping, who may be desirous either to select hives, or try his hand at manufacturing wood hives. We trust to be able to again refer to the chapter on Foul Brood, which ought to be thoroughly understood by every bee-keeper; we lost fifteen stocks by this dreaded "bee plague" a few years ago. It was first introduced into our apiary by the introduction of an Italian queen.

—— The current number of the *New Quarterly Magazine* contains some articles of more than average quality, that on the modern stage by Robert Buchanan is noticeable as an original and forcible essay upholding the true interests of the drama. The article on Lord Bute will have the more interest for our readers from the fact that Lord Bute was a keen botanist and horticulturist (Butea). Miss Cobbe's article—the "Town Mouse and the Country Mouse"—is smartly written.

—— The last published number of the botanical section of the *Journal of the Linnean Society* contains the conclusion of Mr. Baker's Monograph on the Asparagaceæ, a group containing numerous species of interest to gardeners.

—— We have before spoken in approbation of the *Saturday Half-Holiday Guide* (100, Fleet Street), and can now only express our gratification that so useful a book has reached its seventh edition.

—— Messrs. Groombridge have issued a little volume entitled *Chapters on Sound for Beginners*, by C. A. Martineau, and which is an elementary treatise that may with profit be introduced into the lower grade schools.

—— The *Pomona Gardens as they are to-day* is a brief account of the spirited efforts made by Mr. Reilly to cater for the amusement of the good people of Manchester, among which, as our readers may remember, was a flower show by gaslight in December last, duly noted in our columns at the time.

—— Under the title of a *Compendious Statement of the Nature and Cost of Certain Sewage Processes*, General Scott issues a pamphlet treating of the sewage question, in which he advocates (1) the separation of the liquid excreta from the solid portions; (2) the deodorisation of the solids in a cheap and efficient manner; (3) the recovery or detention of the ammonia before letting it escape into the sewer by means of a salt, which can be made to yield all its ammonia when required; (4) the removal of surplus water. Acting on these principles a manure worth £10 a ton can, it is affirmed, be made from the excreta of a population.

—— The June number of *Grevillea* contains notices of North American fungi, by the Rev. M. J. Berkeley; and a note on Hungarian Geasters, by Professor Hazslinsky.

—— In connection with the visit of the Archæological Institute to Canterbury, Mr. J. Brent has published an interesting *Catalogue* of the antiquities contained in that institution, illustrated with lithographs. As may be expected, the collection of antiquities of all periods, from Anglo-Saxon times downwards, is very interesting, if not very extensive, and Mr. Brent's description of them is eminently trustworthy.

—— Baron Ferdinand von Mueller has completed, under circumstances of great discouragement, the eighth volume of his *Fragmenta Phytographiæ Australiæ*, containing descriptions of a large number of new Australian plants. Among the plates to the volume we find figures of Cycas Normanbyana, C. media, and Iris Robinsoniana, which have also been illustrated in our columns. Indeed, to Baron v. Mueller it was that we were indebted for the exceedingly interesting view in a Cycas forest that we were enabled to publish some time since.

—— The volume of *Transactions of the Woolhope Naturalists' Field Club for* 1871-3 is before us, containing an account of the several excursions, fungus forays, and the like of that now well-known body. Numerous illustrations of remarkable trees, fungi, &c., are given.

—— The Rev. Dr. Croumbie Brown has published an interesting volume on the *Hydrology* of *South Africa*, which seems full of facts and inferences concerning which we may have occasion to speak at greater length hereafter. Dr. Brown's remedies for the arid condition of the country consist in the proposed erection of dams to prevent the escape of a portion of the rainfall to the sea; the abandonment of the practice of burning the grass, the conservation of forests, and the adoption of measures similar to the *reboisement* and *gazonnement* carried out in France, with a view to prevent the formation of torrents, and the destruction of property occasioned by them.

—— M. Axel Blytt has sent us two parts in continuation of his Flora of Norway—*Norges Flora*. The whole work is in the Norwegian tongue, and therefore chiefly useful to natives of that country. We believe, however, that the work is a high-class one, of which indeed the name of the author, and of his father, Professor Blytt, furnish material guarantees.

—— Dr. Regel has lately published in Latin a monograph of the genus Allium—*Alliorum adhuc cognitorum Monographia*, in which 263 species are described under six sections. A clavis prefixed to the more detailed description enables the botanist to determine the species, and a full index completes this *brochure*, which is of an important character.

—— The *Financial Reform Association* have lately issued their almanac for 1875, a publication crammed full of statistical details of great value and importance, wholly independent of political considerations, which are too ostentatiously brought forward.

—— Mr. Dicks has published a set of thirty-three *Engravings from Sir D. Wilkie's Works*, at the low cost of one shilling. The low cost of the collection prevents criticism of the coarseness of the engraving. The same publisher sends us a wonderful shilling's-worth in the shape of the *Works of Alexander Pope*, over seven hundred pages of small but clear type for one shilling!—not to mention woodcuts, which latter might as well have been omitted. We sincerely trust the publisher will be rewarded for his enterprise in bringing good sound literature to the door of the poor man's cottage.

—— A second edition of Mr. Robinson's *Alpine Flowers for English Gardens* (Murray) has been lately issued. This is probably the best of Mr. Robinson's publications, and the present edition has been improved in many particulars. The excellent section on the natural contour of rocks, with the accompanying illustrations, founded on the observations of M. Lebour, is, if we mistake not, an addition to the present issue, in any case it forms one of the most original and valuable chapters in the book. The chapter on mountain vegetation in America is also, we think, new; and it contains some interesting details, particularly with reference to the Darlingtonia, which Mr. Robinson was fortunate enough to see in a wild state, where it forms a fly-catcher on a large scale. The appendix contains a list of species which could not be inserted in the stereotyped text.

Natural History.

TRITON CRISTATUS, OR GREAT WATER-NEWT.—At the season when winter is passing into the first warmth of spring the great water-newt, the Triton cristatus, again makes its appearance from its winter lurking places, and when the male has developed his dorsal and caudal crests, and his colours have gained their brightest tints for the season, he is an object of much beauty to those who have no aversion to reptile life, and of much interest from his peculiarities.

This newt, known also as the common warty newt, is distinguishable by the body being corrugated and covered with small tubercles. The upper part of the reptile is brown with darker spots, the under part of a most brilliant orange with black spots, the sides of the animal dotted with white, and the sides of the tail of a kind of semi-transparent white tint of a beautiful lustre. The length is as much as 6 inches, and the dorsal and caudal crests of the male with an interruption between, so as to be completely separate. The dorsal crest is deeply indented, and during the breeding season, when the crests reach their full development, sometimes reaches such a size as to fall to and fro from inability to support its own weight.

The warty newt (T. cristatus) is easily known from other common English water-newts by its tuberculated skin, and from the T. Bibronii, the straight-lipped warty newt, which it much resembles, by the skin not being as strongly tuberculated and the upper lip overhanging the lower; the T. Bibronii (which I have never been fortunate enough to meet with) being given by Professor Bell as "much more rugose and more strongly tuberculated," and also as having "the upper lip perfectly straight, meeting the lower, and not overhanging it."

When the T. cristatus returns to activity after its winter rest it may be found in great numbers in small ditches and pools, and especially delights to float near the surface amongst the masses of pond-weed or floating plants often lying loosely on the water, and affording at once a shelter to the creature itself and the water-insects, tadpoles, or other small animals on which it feeds. An old hamper, sunk in a shallow weedy pond, makes an excellent trap if specimens are needed for experiments, and they may be often found under logs and planks in the neighbourhood of their places of resort. Warmth also (when procurable) during the winter seems to be acceptable, for on one occasion, when the stoppage of a drain made it necessary to take up the hearthstone in a cottage during the cold season, a quantity of newts were found in the little collection of water beneath it, infinitely more comfortable than the good woman of the cottage at the sight of her unwelcome visitors.

The Triton appears especially to delight in the small drinking places arranged in some parts of the country for the use of the cattle, with water-tight walls round three sides, so as usually to have a few feet depth of water in them both summer and winter. These being rarely cleaned out, afford a plentiful growth of floating weeds and such-like matters on the surface, and a specimen may generally be secured by gently slipping a common bag-net beneath the mass, or (by a little watching) the newts may be observed without disturbance of their natural habit, the male being especially distinguishable by his great dorsal crest gently swaying to and fro with the least impulse of the water.

The female newt is stated by Professor Bell (*History of British Reptiles*, pp. 122—123), to deposit but one egg at a time, folding a leaf of some aquatic plant

together by means of the hind feet, and depositing an egg in the fold, in the operation glueing the folded parts of the leaf together. A minute account of the development of the reptile in the egg, and in its subsequent early stages, is also given by Professor Bell, but for any one who may take an interest in such studies the progressive growth is well worth observing for himself, from the changes of the embryo in the egg and its exclusion with branchiæ and slight indications of the future presence of the anterior feet, to the time when, after some weeks, the gradual growth of the front legs and feet, then the hind pair and the greater development of the branchiæ having taken place, this temporary apparatus for the aëration of the blood is absorbed, and with the gradual coincident development of the lungs the reptile assumes its perfect condition. Amongst numbers of Tritons which I have observed passing naturally through the early stages of their lives, I caught sight on one occasion of a specimen swimming about in a small pool, which appeared to have almost reached its full growth, and yet which still retained branchiæ of a larger size than I ever noticed them in others.

Weak and defenceless as these newts appear they are not without means of protection, which can make themselves severely felt as far as any personal attack from the higher classes of animals is concerned, where the attack involves the newt being taken in the mouth of the aggressor; and the obvious and visible effects on these occasions have (in popular belief) invested them with some mysterious power of doing damage, which acts as a great protective against human foes.

When alarmed the Triton emits a Poppy-like perfume, and I have found this smell especially powerful in specimens which have escaped from captivity indoors, and harboured somewhere about in dusty corners till dry and nearly dead. On placing some of these newts (in their ordinary state of health) under the influence of chloroform vapour, the viscid liquid from which the scent arises may be observed exuding from the pores of the skin, and an infusion of it in water will be found when tasted to be acrid, numbing to the tongue, and causing some degree of inflammation to the more tender parts of the mouth, the inflammatory effects lasting some hours.

In a series of experiments as to the effect of the poison conveyed directly from the skin of the newt to the mouth of the affected object it was strong and well marked on mammals, and powerful also on the Tritons themselves, foam appearing round the jaws whilst the reptile still held on to the brother newt it had been compelled to bite, followed by symptoms of varied degrees of intensity up to convulsions in the biter, the bitten newt never being in any way constitutionally affected. A cat which had been induced to attack some of the reptiles suffered similarly, a sudden flow of clear saliva in large drops being followed by foaming at the mouth, and, as with the newts, by violent action of the jaws or audible snapping of the mouth apparently quite uncontrollable. In the case of a human subject, induced for the sake of a knowledge of the sensations undergone to submit to the unpleasant experiment, the effect of the exudation was similar.

The back of a live Triton cristatus being gently pressed between the teeth of the experimenter, the first effect was a bitter astringent feeling in the mouth, with irritation of the throat and numbness of the teeth immediately holding the animal, this being followed in about a minute by a strong flow of clear saliva, accompanied by strong muscular action of the mouth, as in the case of the lower animals; the experiment being followed by headache, general discomfort to the system, and slight shivering fits—these apparently physical effects not nervous influences, as the patient being accustomed to similar experiments was not susceptible to the intense aversion which would usually be felt for the operation. In the case of the lower animals the after-effects appeared to pass away more rapidly from the system, yet not entirely from the memory, for ever after puss was as little wishful to repeat the experiment he had at first volunteered as his owner.

The Triton appears easily susceptible of excitement or alarm, sometimes manifested by the emission of a low, sharp cry, adding still more to its demerits in popular opinion. When keeping a good many of these newts in captivity they appeared endowed with most remarkable powers of escaping from the large, deep pan especially arranged for their comfort, and I was often met by the announcement that one of the "things" had been found in some unwished for locality, but the climax of disgust was reached when (having probably been roughly touched) one of the things "cried out," and by its audible protests quite secured its safety, nobody daring to meddle further with the uncanny creature, which was impounded under a basin for domestic safety, till less fearful fingers could be found to remove the inconvenience.

The circulation varies much with circumstances, and perfect opportunity for observation in this matter is afforded by the transparency of the caudal crest. By wrapping the Triton carefully round and round with folds of damp rag, so that the legs are firmly banded down, and only the tail free; this can be laid under the microscope, and observed at leisure, without disturbance from struggles on the part of the newt, the method of return of the circulation after having been entirely suspended under the action of chloroform being especially interesting as well as the rapid rate and continuous flow immediately after having been obliged to attack a companion.

For those who are partial to the study of reptile life the Triton cristatus forms a safe and easily procured object, affording an endless variety of interesting points for observation. For the comfort of their observer, the vessel they are in should be deep, or the inhabitants are apt to disperse themselves by climbing up its sides, and indeed in any case where their presence at their own disposal is objected to, it is well to have a net secured over the edge of their tub. In this way, if they are taken out about once a week, and the stagnant water and all decayed matter removed, and their bath re-filled with water from a pond, such as they would naturally frequent, with the weeds and insects adhering, all put in as they occur, they may be kept a long time in health, the only precaution requisite being a little care in handling, as the skin of the irritated Triton brought in contact with a fresh cut on the finger is apt to give a shoot of pain, just enough to be unpleasant for an instant, though of no further consequence. *O.*

Forestry.

Upon many estates it is the forester's practice to keep fewer workmen during the hay and harvest months than at any other time of the year, it being an understood thing that the men are to have the privilege of going to such work, in order to earn higher wages, as a set-off against the comparatively low rate paid them during the remaining part of the year, which is a direct advantage to the men themselves, and probably an indirect one to the estate and the public generally. As a consequence, this reduction of the workmen allows the forester an opportunity of attending to other matters more closely and assiduously than he could otherwise do, such as marking wood and timber, valuing, examining, or inspecting the woodlands under his care, all of which requires to be done leisurely and with caution and forethought when the mind is comparatively free from other concerns. As the most important part of that branch of forestry termed "thinning" consists in selecting and marking the trees, I shall endeavour to direct attention to some of the most essential points in the art and practice of thinning.

The health of a tree, generally speaking, is very correctly indicated by the state and condition of its foliage, and at no season of the year is this so perfectly seen as when it is in full leaf, and before it assumes its autumnal colour. All important and minute inspections as to health and condition of woods, forests, plantations, and individual trees should, therefore, be made at this season of the year in preference to any other. During this and next month I usually examine all the plantations and ornamental trees under my charge, but specially the young ones, in order to form a correct opinion of their condition of health, state of growth, form, and habit. The requirements of thinning, now that the trees are fully clothed, are much more easily seen than in winter, when they are bare; therefore, full advantage should be taken of marking all trees necessary to be cut during the ensuing winter and spring. While I recommend this as the best time for marking and judging of the health of both plantations and individual forest trees, I consider it at the same time to be the worst time of the year for cutting down, unless for the express purpose of benefiting the remaining crop or doing the first thinning, when no regard is paid to the trees cut down beyond getting them to decay and disappear as soon and fast as possible, which they speedily do if laid flat down upon the ground, so that the grass and other herbage grows over them.

The distance at which the trees were originally planted, rapidity of growth, exposure, &c., all contribute in determining the period at which thinning should commence; and assuming that the trees were planted 3½ feet apart—a common distance in small plantations, and shelter belts, consisting of Scotch Pine, Larch, and Spruce, and grown at an average rate—I provide myself with a light but strong, sharp hedge-bill, and proceed to work by cutting or slashing the tops of all those destined to be thinned out, leaving the crop upon the ground at about 7 feet apart, or, say, 800 trees per acre. In thinning I do not mark dead trees, as they always sufficiently distinguish themselves, and the woodmen only require to be told to cut all such down wherever they see them.

The second thinning of Pine and Fir plantations should be done at about twenty years' growth, when the thinnings are of some money value, and are useful for stackyard purposes, props for coal mines, fencing posts, cordwood, &c.

If the thinnings, after being marked, are to be bargained for and sold standing, the marking, or rather the counting and booking, must be very carefully done, more so, at least, than is necessary when cut by the forester's own men and disposed of privately.

When marking for sale standing I use a light, sharp hand-axe, with initial letters of the proprietor's name or estate upon the head of it, with which each tree is stamped; and it is necessary to examine closely from time to time, and even slightly to vary the stamp, so as to check any attempted counterfeit of it. In doing this kind of marking it is necessary to have an assistant to do the mechanical part of the work, and thus allow the forester more freedom for giving directions, counting the trees, and booking them, which latter he does by putting a stroke for each tree, completing each five with a stroke from right to left, which facilitates the work of adding, and secures correctness by relieving the mind and breaking the tedium.

In marking standing old timber, say Oak, the following is my method:—I first provide myself with a leather strap, 20 feet long, a pole 14 feet long, a marking axe with initial letters, a paint brush and red paint, a foot rule with slide, and a seasoned gig rein reduced to ¾ of an inch broad, and marked like a tape line on the one side, and similarly marked on the other, with this difference that it allows 1 inch for every foot of circumference as allowance for bark, while the other allows nothing, being chiefly used for measuring peeled timber. The pole is also marked with figures beginning at 6 feet from the ground, and marked in feet and half feet to the top. The slide is used for casting up the contents, but in extensive practice is seldom made use of, as the girths taken by the strap and lengths indicated by the pole become so familiar to the mind that the contents are at once known without the aid of the slide.

The paint and brush are for numbering the trees, which is done upon the bark after first shaving off the rough corticated surface, and making it smooth. The painted numbers will remain legible during a long period of years if put upon the outer bark, nor are they easily obliterated or washed off by rain and weather. *C. Y. Michie, Cullen House, July* 13.

Apiary.

The Cottage Frame Hive.—Bee-keeping is rapidly extending in England both among the rich and poor, and the industry rightly managed cannot fail to produce both pleasure and profit to all who engage in it. In foreign countries and in our own colonies bee-keeping is pursued in a much more intelligent and scientific manner than in this country; that is to say, among the great bulk of our rural population, where ignorance and prejudice still permit the destruction of the labourers in order to secure their stores. The introduction of the bar-frame hive is doing much to abolish this cruel and wasteful system, rightly said to be tantamount to the farmer killing his sheep to obtain their fleeces, or the gardener cutting down his trees to gather their fruit. Many a man who keeps bees would be glad to adopt the frame hive, but is alarmed at the presumed expense. Possibly in an advertisement he sees a highly-extolled frame-hive advertised as all that can be desired, and the price £2 or thereabouts. Naturally he exclaims—"£2 for a hive! Why, I can get thirty straw skeps for that;" and so he can, but then the skep wants cover, floor-board, and stand, which will probably treble or quadruple its original cost; but even then the disparity is great, and it seldom occurs to the would-be frame hivest that he could make the hive for about the same price as he could buy the skep and its accessories. In my position as Honorary Secretary to the British Bee-keepers' Association I have constant inquiries for cheap hives, and my usual answer is, where economy is a primary consideration, "make them;" and I have repeatedly asserted that any man who can manufacture a rabbit-hutch can make a beehive. Where a few pounds are not a consideration it is unquestionably desirable to obtain the hives from a professed hive maker, who utilises and incorporates in his manufactures every available improvement for the comfort and well-doing of the bees—but it is not for such bee-keepers I am now writing. How often do we find in competitive exhibitions that the man who can command every aid that wealth can procure is beaten by him who has only his own hands and brains to work with? Fourteen years ago I became a beekeeper, and knowing no one who could aid me, I bought a little book—*Bee-keeping for the Many*, and made by it eight or ten hives, which until this year I had more or less in use, but they are now dethroned for better patterns. For material I purchased a lot of inch deals which had done duty for a fortnight on Wimbledon Common for the rifle meeting fencing, and capital stuff it was too, being well seasoned; and in spite of blistered hands, which were unused to tools, I accomplished my object, and although a carpenter would probably

have laughed at my dovetails and joinery, the bees, I felt proud to say, were not so fastidious. Now-a-days, grocers, chemists, and cheesemongers have so many waste boxes and packing-cases, that the amateur beehive-maker can of them procure at little cost all the necessary wood to make the hive, and with the editors' permission I will endeavour to give such simple instructions as will enable every poor man to set up a serviceable frame-hive. Let me say perfection is not aimed at, but simply such a hive as will carry out the main principles of modern rational bee-keeping, and be infinitely better than the closed straw skep of our forefathers. The late Mr. Woodbury, of Exeter, did much to promote bee-keeping, and gave to the world the hive which bears his name. Its size is very convenient, and with some little modifications I shall follow its design.

When we build a house we commence with the basement, and so we will do the same with our hive, and proceed to describe the floor-board. Cut two pieces of wood 1 inch thick the shape and dimensions of A and B. Rule a pencil-line from *a* to *b*, and bevel off the part below it to half the thickness of the wood to form a slope for the rain to run off; then bring the two inner edges together, and prepare two battens, as C, of unplaned wood, which nail or screw crosswise underneath, about $3\frac{1}{2}$ inches from each end. The floor-board should be fastened to the body with screws. This being complete, I proceed to describe the hive-body. This is simply a bottomless and topless box made of inch deal, $14\frac{1}{2}$ inches square by $8\frac{3}{4}$ inches deep inside measure. Two pieces of wood, as F, will form the sides, and for the back and front cut two more pieces of the shape and dimensions of D and E, which having planed on one side as the others, with a rabbet-plane or tenon-saw cut out from the unplaned side of one of the long edges of D and E a rabbet, $1\frac{1}{8}$ inch deep and half the thickness of the wood, as at E. Procure two strips of zinc $14\frac{1}{2}$ by 1 inch, and fasten these with tin tacks over the angle *a*, as shown by the dotted lines, so that the upper edge of the zinc shall be exactly $\frac{1}{8}$ inch lower than the top edge of the wood; now nail these four pieces of wood together, D and E inside the F's, and the hive-body will be complete. The crown-board will be composed of the five pieces G (2), H (2), and I; these, placed side by side, with the irregular edge of G outwards, in the order of G, H, I, H, G, will cover the top. It will be perceived that I has a circular hole $1\frac{1}{2}$ inch diameter, cut clean through the wood, for use in feeding. When access to a super is required to be given to the bees, it is only necessary to reverse the pieces G, placing the slit inwards; the five parts of the crown-board will not require joining together, being handier separate, they do not cast so readily, and a portion of the hive can be uncovered at a time, without unnecessarily exposing the whole surface.

Of vast advantage to perfect bee-keeping is an upper chamber to the hive within, which supers may be placed and feeding carried on undisturbed by robber bees.

J, K, L, and M, two of each, will form this, and will be roofed by N and O. N must be nailed on before O, and the upper edge, as also the outer upper edge of the sides K must be bevelled off at such an angle as will allow O to lie flat, as in the figure of the complete hive. The fillets L, M, must be nailed on J, K, as in the dotted lines *b*, $1\frac{1}{4}$ inch on, and the same below, when the upper storey should fit easily over the hive body, the fillet keeping it securely

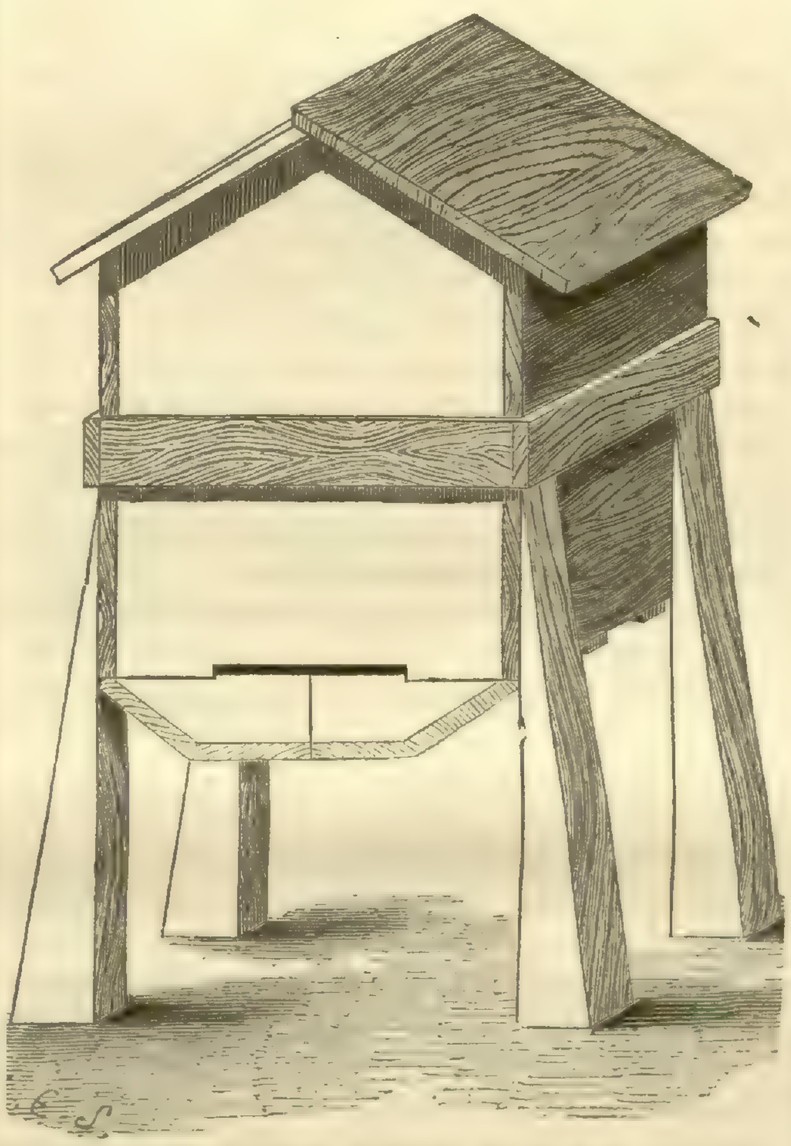

FIG. 21.—THE COTTAGE FRAME HIVE.

in place. All these pieces should be made of $\frac{3}{4}$-inch wood (excepting L and M, which should be $\frac{1}{2}$-inch), planed on one side. It will be found very convenient to have fixed on at the left side a pair of hinges, one flange screwed on the under edge of the fillet, the other on the hive's side beneath; and on the back fillet at *a*, and on the back of the hive-body $3\frac{1}{2}$ inches below that point, screw in an iron ring, and connect these two rings together with 27 inches of chain or cord, which will permit the hive cover to be raised without removal from the hive: it will be found a great convenience.

The whole externally should now be well painted with three or four coats of light-coloured paint, and will then be ready for furnishing with the frames. Slips of wood, as Q, R, and S, will make these, and should be nailed together as P: Q should be made of $\frac{3}{4}$-inch wood, R and S of $\frac{1}{4}$-inch, and they need not be planed. Now having at hand some bell-staples or French wire nails, drive one into the side of the top bar on the left hand side, as at *a*, and one into the opposite side at *b*; these pins form distance guides, and should project $\frac{19}{32}$ inch. The frames may now be placed in position, resting on the zinc slips, and allowing nearly quarter of an inch between the end frames and the sides of the hive (which may be regulated by similar pins driven there) will be found to fill up the interior, and the hive is complete. But, if thought desirable, a stand may be simply and easily made by taking a piece of quartering (T), 3 by 3; cut it as in the dotted lines, and four legs will be produced: 9 inches of the thin ends should be screwed or nailed (sloping side inwards) on the sides of the hive, which will then stand securely.

I have now described the simplest and least expensive method of hive-making. Of course, if the amateur is clever enough he may plane his wood both sides, and dovetail it altogether; or he may strengthen the joinery by nailing over all the exterior angles tin plate or zinc strips, and these may be had almost costless from old Australian meat tins. I would strongly recommend that the nails used be the French wire-pins. They may be had of all sizes, are much easier to drive, requiring no bradawl, and hold very fast. Now for the expense. If all the materials have to be purchased new, the wood (including legs) and nails will cost as nearly as possible 5*s.*, to which must be added 1*s.* for the paint. All the wood may be bought planed on one side, which only enhances its cost a mere trifle. Should second-hand material be used the cost will be, of course, considerably reduced. The wood should in no case be thinner than I have specified, and the internal measurements should be carefully adhered to. It will also be advisable to drive the principal nails in at various angles, and clench them where possible, in order that the sun and rain shall not draw the seams apart. Hammer, saw, and plane are all the tools absolutely necessary, and these most people can use with skill enough to make a hive such as I have described that with ordinary care will be found serviceable twenty years hence. *John Hunter, Eaton Rise, Ealing.*

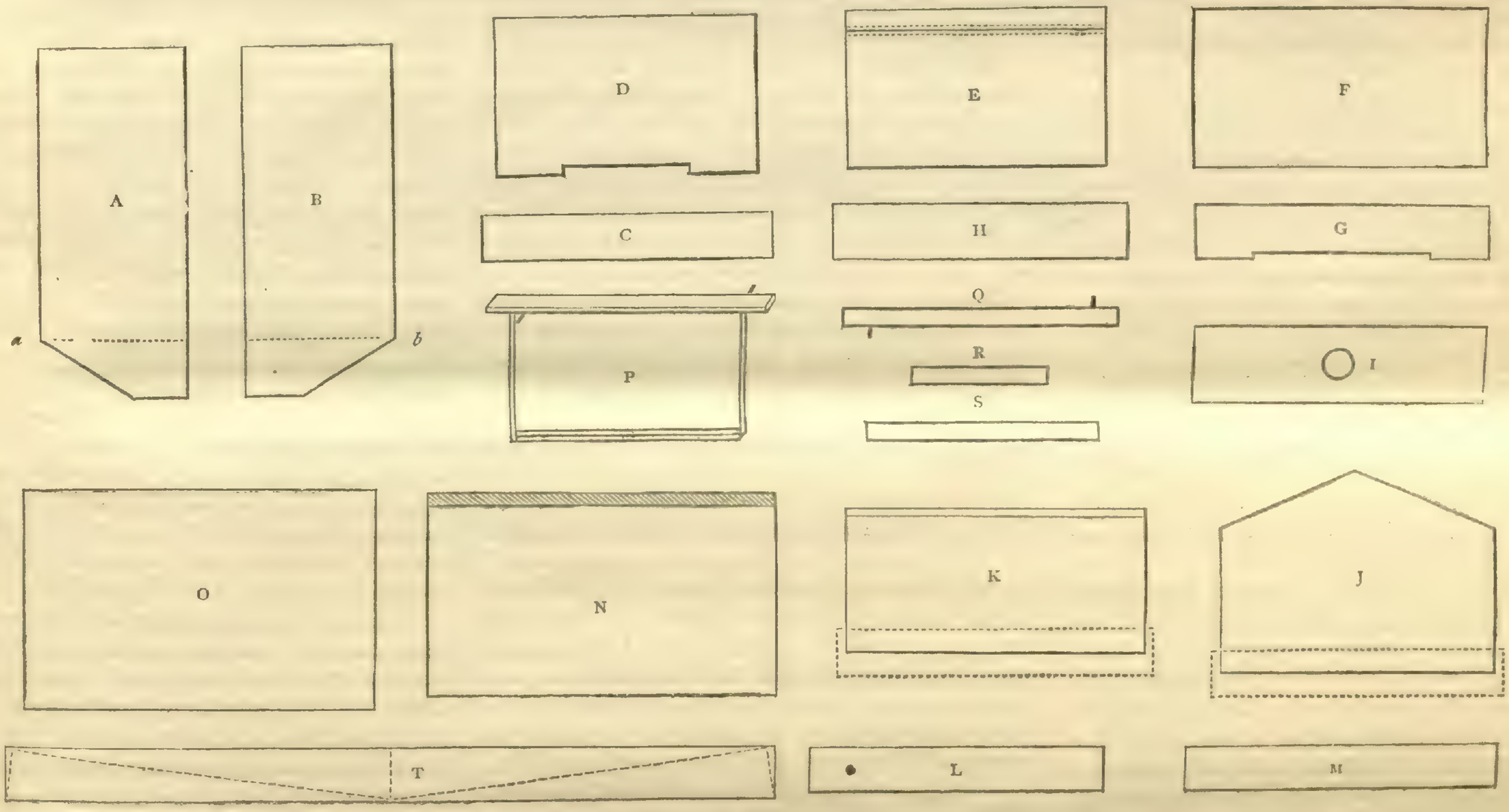

FIG. 22.—DETAILS OF THE COTTAGE HIVE.

HONEY EXTRACTORS.—One of your correspondents ("Veritas"), at p. 75, refers to a short notice of *A Book for Bee-keepers*, which recently appeared in your columns. Allow me to state that Mr. Rushbridge's book appeared on the bookstalls before *The Manual of Bee-keeping* (by Mr. Hunter), which was brought out by Hardwicke; therefore your notice was strictly correct in stating the honey extractor, or "slinger," was first mentioned in *A Book for Bee-keepers*. No doubt, however, it has been mentioned again and again in many periodicals devoting their columns to the Apiary. I observed the little and really enthusiastic volume, *A Book for Bee-keepers* (by A. Rushbridge), in several stalls and shop windows some three, maybe four, weeks before the announcement of the *Manual*—so long, in fact, that I thought the publisher must be a pushing man, and determined at all events to create a sale. *J.*

HORTICULTURAL EXHIBITIONS, 1875.

AUGUST.

2.—Peterborough Flower Show. Sec., F. G. Buckle.
4.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
6 and 7.—Manchester Botanical and Horticultural Society. Exhibition of Carnations, Picotees, New Plants, &c. Manager, Bruce Findlay.
6 and 7.—Cheadle Floral and Horticultural Society's Eighth Annual Show.
7.—Rossendale Floral and Horticultural Society's Exhibition. Sec., M. J. Lonsdale, Newchurch.
10.—Clay Cross Horticultural Society's Eighteenth Annual Exhibition.
12.—Canterbury Horticultural Society's Exhibition. Sec., Charles Sendell.
17.—Coventry and Warwickshire Horticultural Society's Show at Combe Abbey. Sec., Thomas Wigston, 3, Portland Terrace, Coventry.
18.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
24 and 25.—Metropolitan Floral Society's Exhibition at the Alexandra Palace.
25.—Isle of Thanet Floral and Horticultural Association's Annual Exhibition. Hon. Sec., C. D. Smith, Esq., 8, Marine Terrace, Margate.
26.—Royal Horticultural Society of Ireland. Autumn Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
26.—Wantage Horticultural Society's Annual Show. Sec., W. Caudwell, Wallingford Street, Wantage.
26, 27, and 28.—Dundee Horticultural Society's Grand Floral Fête. Sec., Wm. R. M'Kelvie, 51, Reform Street.
27.—Bishop Auckland Floral and Horticultural Society's Annual Exhibition. Sec., J. C. Hendy.
28.—Wakefield Horticultural Society's Annual Exhibition. Sec., A. Holmes.

SEPTEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
2, 3, and 4.—Manchester Botanical and Horticultural Society. Exhibition of Fruits, Vegetables, and Autumn Flowers. Manager, Bruce Findlay.

THE
Gardeners' Chronicle.

SATURDAY, JULY 24, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY,	July 28	Preston Floral and Horticultural Society's Exhibition (two days). Sale of a Collection of Palms, Orchids, Tree Ferns, &c., removed from Melchet Court, Romsey, at Stevens' Rooms.
THURSDAY,	July 29	Sale of Imported Orchids, at Stevens' Rooms.

THE glorious exhibition which took place in the gardens of the ROYAL HORTICULTURAL SOCIETY at South Kensington on Wednesday, and which was continued on Thursday, on account of the unpropitious state of the weather on the former day, proves incontestably that though the Society itself has been brought near to death's door by the unskilful treatment of the physicians to whose charge it was entrusted, there is still abundant vitality (as indeed could not be doubted from other evidence) amongst the horticulturists of Great Britain. We are glad to find, too, such overwhelming proof that they can make common cause when the occasion arises, and are really not so much divided by jealousy and cliquism as some persons would have us believe.

The Royal Horticultural Society has certainly never before had such an exhibition as that which has now been furnished by the spontaneous efforts of the exhibitors themselves, and since the memorable show of 1866 nothing approaching it in extent and importance has been seen either in the metropolis or the provinces. True, at this season we lack many of the more showy exhibition plants—Azaleas, Pelargoniums, Roses, &c.—which brighten up the earlier gatherings of the season, but what was wanting in this direction was more than compensated by the grand display of novelties made in such collections as those of Messrs. VEITCH and Mr. BULL, and by the admirable grouping which such large miscellaneous collections as those just named, together with those contributed by Mr. WILLIAMS, Mr. WILLS, Mr. WIMSETT, and other leading growers, permitted. Mr. TURNER'S cut Roses, too, furnished a most attractive band of colour in a prominent part of the tent. The aspect of these groups, affording as they did such ample facilities for artistic grouping, point out unmistakably that large miscellaneous collections would form a most important element of all great shows such as this; as they do, indeed, also at the minor shows the Society has been in the habit of holding. Some of the very best of these latter have consisted mainly of miscellaneous groups from our leading nurserymen, and then, as now, the additional interest afforded by the variety of subjects staged becomes a most important element of success. Whether in the future such groups, if invited, would be best limited as to number or space, is a question requiring consideration; but that they should be invited we look upon as a settled point. Let it, however, be understood that we would not sacrifice, even for the sake of these groups, the competitive element in all the leading classes of plants, for this competition forms the lever by which horticultural shows tell most strongly on the elevation and advancement of horticultural skill and science; but the miscellaneous groups might well be substituted for some of the less important classes, which are apt to find their way into a lengthened prize schedule.

One of the noteworthy features of this grand show is that it was entirely gratuitous on the part of the nurserymen exhibitors, while in the case of amateurs it was understood that an award equivalent to their expenses would be made. We were glad to welcome again the Orchids from Lord LONDESBOROUGH'S garden, which have been greatly missed of late, as well as Mr. PEACOCK'S succulents, which are always telling. These and other gentlemen, and the nurserymen who thus freely exhibited, deserve the hearty thanks of every well-wisher to the Society. We should have been gratified to have been able to add here the name of Mr. WILKINS, since the cause of offence in his case had been removed, but his fine plants were not forthcoming. The Pelargonium Society's prizes were fairly contested, and the exhibits formed a conspicuous feature of the show. Mr. CATLIN had one or two plants as near to perfection of growth as seems practicable, and we trust that the growers did not fail to notice them, as there has been a falling off in the quality of the specimens of these showy summer plants during the last year or two.

The display of Fruit brought together by Messrs. VEITCH & SONS' prizes formed the best fruit show of the season up to this date. The quality was even and good, the quantity satisfactory. There was nothing sensational, but nothing of a very inferior quality. Mr. COLEMAN was the champion, but he was run hard by Mr. MILES in the contest for the chief prize.

The object for which this show was got up was, as we have previously announced, to encourage the Council, now that they have freed themselves from the non-horticultural element, in the difficult task they have before them, of righting the Royal Horticultural Society with the horticulturists of the United Kingdom, with the Royal Commissioners, and with the Fellows generally; to show them that if they go straight to the point, and "do things in a proper way," as Mr. WILLIAMS expressed it at the exhibitors' luncheon, they will have the sympathy and support of the horticultural body, and to show the other side that horticulturists are not in these days to be pooh-poohed and disregarded in matters that relate to the management of their representative Society. The object has been worthily and nobly accomplished—"Let him that readeth understand." Let the past be blotted out, and for the future, as "union is strength," let there be united action to secure the one main end—the firm establishment of the Royal Horticultural Society on a sound and enduring basis.

THE doubt we expressed as to the identity of the new phase of the POTATO DISEASE with the "curl" is confirmed by the conflicting statements made by those who speak of the curl from personal recollection. It is quite clear that different people have very different notions, not only as to what the curl is, but also as to what the ordinary Potato murrain is. We have received samples from various persons, and we have lately had the opportunity both in Scotland and in England of seeing various patches of more or less diseased Potatos. Some of these have been pointed out to us as affected with "curl," others as with "the disease," others as attacked with wireworm, and so on. In the case of the ordinary Potato disease, most people are unfortunately so familiar with it that the misapprehensions of the few are of little relative consequence. In the case of the disease principally affecting the varieties of American origin the matter is different, and it is very desirable that people should not jump at conclusions before they really know whether the disease they are talking or writing about is really the same as that which was first observed in the Chiswick Garden. Fully half of the specimens sent to us, or that we have had pointed out to us in the country, as affected with the "new" disease, were really the subjects of some disease or morbid condition quite different in outward aspect to that which we first saw by the sea in Kent, subsequently at Chiswick, afterwards in various localities in England, and within the last few days in the south-west of Scotland. For our own parts we must still doubt the identity of the so-called new disease with "curl," as the appearances presented do not tally with the printed descriptions of that malady; while, as we have stated, the oral statements of those who were personally familiar with it are very conflicting. If these Potatos of American extraction be really affected with "curl," then the discovery of the Potato fungus in its various stages in them is of the more interest, as it shows that it must have been in the country in the old "curl" days, long before the murrain was heard of. Meantime, as some of our correspondents to whom scientific terms are not familiar, and who are not accustomed to the study of microscopic fungi, are doubtful as to what Mr. SMITH really has done, we will endeavour to put the matter into plainer language, though at the risk of sacrificing strict accuracy to clearness. The spawn of the Potato fungus permeates tuber, haulm, and leaf in the form of extremely fine whitish threads. Through the pores of the leaves it sends up branches bearing buds of two different kinds—the one sort arranged in little joints, which separate, fall off, and grow, the other sort consisting of egg-shaped cases containing minute spores, which, when they escape from the burst case, move about in the way once supposed to be exclusively confined to the animal kingdom—hence the name "zoospore." These zoospores cease their vagrant habits in a little while, and they too, grow. So far then we have the Potato fungus propagated by two sorts of buds, which become detached, and reproduce the fungus just as the bulbils of the Tiger Lily grow into a new plant. But in addition to these—which we liken to buds because, unlike seeds, they are not the result of reciprocal sexual agency—there are in some fungi, probably in all, true sexual organs analogous to the stamens and pistil of flowering plants. Now, these sexual organs were known to exist in fungi closely allied to the Potato fungus, but they had not been clearly seen in that particular species till Mr. SMITH had the good fortune to discover them the other day. MONTAGNE and BERKELEY had both been on the right track, but it was WORTHINGTON SMITH who successfully solved the mystery.

The import of this discovery will strike every one, although the practical results may not be immediate. Many plants, even among the higher plants, exist in several stages, just as an insect passes through several stages before it

FIG. 23.—COCOS PLUMOSA IN THE BRISBANE BOTANIC GARDEN.

emerges as a full-fledged butterfly. It is one of these stages—and that the sexual stage—that Mr. SMITH has discovered in the Potato fungus. We still lack the knowledge what are the conditions which induce this particular stage of existence. We are still without explanation of the fact of its occurrence mainly in American varieties, or whether it be, which is hardly likely, confined to them. We know in the case of the Bee Orchis, for instance, that the plant may go for years without flowering, and then all on a sudden the flower-stalk is thrown up. But we do not know what circumstances bring about this result, any more than we do in the case of the Potato fungus. Is this sexual stage just discovered by Mr. SMITH really of very rare occurrence, or does it occur frequently? Again, what circumstances favour it—which are prejudicial?

Answers to these inquiries must be forthcoming ere the discovery is likely to be of immediate practical benefit. Meantime, as there is no cure for an unknown disease—*ignoti nulla est curatio morbi*—so we may hope that now the disease is better known, if cure be not possible, prevention may be.

—— THE recent alarming RAINFALL has been productive of much mischief to the hanging RIPE FRUIT CROPS. All the remainder of the Raspberry crop is practically spoiled, and thin-skinned Lancashire Lad Gooseberries and Black Currants are bursting their skins. The great humid heat of Sunday following upon four days of almost incessant rain caused mould to generate abundantly, and only fine sunny weather and dry winds can keep much of the fruit in sound condition. The condition of the women employed in the Pea picking and fruit gathering last week was most deplorable, and only constitutions thoroughly hardened could come out of such an ordeal unscathed. Of orchard trees, the young Morella Cherries are just now objects of beauty; fine young trees, eight years planted, are literally laden with the rich red fruit now just ready for a first gathering. In one orchard in West Middlesex it is estimated that 40 bushels will be gathered, all from young trees. If those persons who delight in a beautiful pendulous tree in their pleasure-grounds could see these, they would admit that, valuable as the standard Morella is for fruit producing, it is not less so as an ornamental tree.

—— The near approach of the exhibition of the NATIONAL CARNATION AND PICOTEE SOCIETY, which is to take place at the Botanic Gardens, Old

Trafford, Manchester, early in August, serves to call the attention of cultivators of the Carnation and Picotee to the necessity that exists for carefully watching the advancing buds, so as to guard against incurring the disqualification of a split pod. Disbudding—which is of great importance—is done at the end of June or early in July, the time varying according to the earliness or lateness of the season; and then follows the necessary watchfulness. As the buds give signs of reaching maturity, they must be tied, to prevent the bursting of the pod—strips of soft bast matting, flat and not twisted, forms the best material for this operation. The finest flower is practically put out of court when the calyx splits. Cleanliness is of great importance at this stage of growth. The old florists used to thoroughly fumigate their plants eighteen or twenty days before the flower-buds showed signs of opening. Thrips are capable of doing much mischief to the petals by eating the edges just as they are expanding. Fumigation greatly assists the health and vigour of the plants, and they are much benefited by frequent syringings till the buds begin to show colour; after which time all moisture and the sun's rays must be kept from them, if perfect flowers are to be had. At this stage earwigs are likely to be injurious also, and they must be carefully watched for. Constant watchfulness and undeviating attention are indispensable to pre-eminence at the exhibition table.

—— BEGONIA SUTHERLANDI, a native of Natal, found at a considerable elevation, is a very pretty tuberous rooted species, for blooming in spring and early summer. It has an elegant habit of growth, the leaves are deeply serrated, and the flowers are of a pale orange colour. It makes a good companion to the popular × B. Weltoniensis.

—— We note in the *Builder* that Mr. J. O. GRIFFITS, Q.C., one of the recently *Gazetted* batch of "Her Majesty's counsel learned in the law," announces that he "has decided to signalise his preferment in the profession." This Mr. GRIFFITS intends to do by purchasing the FROGMORE GARDENS, AT HIGH WYCOMBE (his native town), and laying them out as a public pleasure-ground, and to maintain the gardens for three years, after which they are to be supported out of the Wycombe rates.

—— A fine example of YUCCA ACUMINATA is now in bloom at Mr. F. R. KINGHORN'S nursery, Sheen Road, Richmond. A remarkable feature of this form is the deep bronzy flower stems, and the reverse of the flowers is of the same colour, which gives it quite a striking appearance.

—— The MADRESFIELD COURT COTTAGERS' HORTICULTURAL SHOW is announced to take place on August 17, when the flower garden and grounds at Madresfield Court will be open to ticket-holders. This annual show was instituted by the Earl and Countess BEAUCHAMP, to promote habits of industry, and to encourage the better cultivation of flowers and vegetables, and the prizes are open to the competition of the cottage tenants or others in regular employment on the estates of the Right Hon. Earl BEAUCHAMP, as also to all cottagers resident in the parishes of Madresfield, Newland, Powyke, and Guarlford, whose rentals do not exceed £8 per annum. We notice an excellent rule in the schedule, which is well worth adopting at other cottagers' shows, and which states that in addition to money prizes paid at the show, each exhibitor in the classes for cottagers, who may take one or more first prizes, will receive a packet of choice vegetable seeds in the spring of next year.

—— Another instance of the PREJUDICE OF ENGLISH MERCHANTS to unknown articles or new sources of produce reaches us from the East. We are told that the exportation of Oranges and Lemons to Russia is yearly increasing from Sidon, Jaffa, and Tripoli, while the few produced at Beyrout were, during the past year, brought up for the same destination. The trade has so much increased as to necessitate the employment of a larger class of steamers than formerly. Speculative shipments to England of Syrian Oranges and Lemons have so far proved failures, not on account of the quality of the fruit, but of the repugnance of the buyers at home to unknown brands.

—— The beautiful and distinct CALADIUM BELLEYMEI, with its marked individuality of character and chaste marking, has been improved upon of late, and one of the most strongly marked of the type is Prince Albert Edward. The large bold leaves of this variety, which are of a shaded emerald-green ground colour, have a rich crimson midrib, radiating from the centre towards the margin, while the remainder of the leaf surface is marked, reticulated, and densely spotted with ivory-white. It was a commanding figure in a splendid group of highly-finished Caladiums, shown at the exhibition of the Wimbledon District Horticultural Society on the 14th inst. by Mr. J. Jordan, gr. to J. Brushead, Esq. Each plant was remarkable for its perfect development. Leplay, Meyerbeer, and Reine Victoria are in the same way, varying more or less in the disposition of the leaf marking, but undoubtedly of the same type.

—— In the herbaceous border at the Chiswick Garden of the Royal Horticultural Society, THYMUS MICANS is just now an interesting object. In its very dense low-spreading growth, it reminds one of Selaginella apoda, and the tuft is at the present time crowned with tiny trusses of pale rosy lilac flowers. It should be planted on a piece of choice rockwork, but requires a fair amount of moisture.

—— The PONTYPOOL HORTICULTURAL SOCIETY'S third annual show will be held on August 19, in Pontypool Park.

—— A very handsome SILVER MEDAL, value five guineas, having been placed at the disposal of the committee of the Wimbledon Horticultural Society, it was resolved that it should be presented to the exhibitor taking twenty prizes at the Society's recent show. This number of prizes was taken by Mr. WILLIAM JORDAN, gr. to J. BOUSTEAD, Esq., Cannizaro House, a young and rising plant grower of considerable ability, who bids fair to take a high position in his profession. All the leading prizes in the plant classes were taken by Mr. JORDAN, with the exception of that for six exotic Ferns, the judges apparently being led away by mere size, for the examples of Gymnogramma peruviana argyrophylla (in all probability one of the finest examples seen for many a day), G. chrysophylla, and Davallia Mooreana, being splendidly grown. Advantage will be taken of the coming annual meeting of the Society to formally present Mr. JORDAN with the medal. A patent garden frame was presented by Mr. N. VOICE, of Horley, to Mr. J. LUNN, for taking the greatest number of prizes in the cottagers' classes.

—— A meeting of horticulturists took place on Wednesday evening at St. James' Hall, for the purpose of considering the advisability of holding an INTERNATIONAL HORTICULTURAL EXHIBITION IN 1877. The attendance was limited, owing to the dinner of the Royal Horticultural Society taking place at the same time, and it was resolved to adjourn the meeting to Friday, August 20, when it is hoped a larger number of leading horticulturists will be able to attend.

—— THLADIANTHA DUBIA, a perennial Cucurbitaceous climber, is flowering on the wall of the herbaceous ground at Kew, which, though introduced more than ten years ago, is still rare, and requires attention drawn to it. With the advantage of being a fast grower, it combines foliage of a very ornamental character, and flowers that add greatly to the beauty of the plant. It is entirely without the coarseness common to the order, and where an evergreen is not necessary is strongly to be recommended for the covering of trelliswork and similar structures. This was an introduction of the French Acclimatisation Society, and was comparatively well known on the Continent before finding its way to this country. The above specimen is a male; its leaves are ovate-cordate, acuminate, of a lively green, the largest about 6 inches from base to apex; the flowers are bell-shaped, golden-yellow, and appear in profusion from June till late in autumn; the fruit is very succulent, and is eaten by the natives. It was supposed that the tubers were eatable, but even after cooking they are found too bitter for table use.

—— Mr. CHAMBERS, of the Westlake Nursery, Isleworth, has been very successful in flowering the DOUBLE BLUE LOBELIA, and he states as his experience that whilst plants struck in the previous autumn, or very early in the spring, always flower with him freely, those struck late either do not flower at all or only do so late in the autumn. If this be correct it may explain many of the failures to flower this pretty bedding plant last year. Gardeners will do well to take this hint, and work their intended stock from the next season as early as possible in the autumn. Mr. CHAMBERS has raised from it a good double white splashed with blue, and hopes eventually to secure a good double white variety.

—— Some of the Continental varieties of DOUBLE POTENTILLAS make most showy and attractive border flowers, the blossoms being very large and vividly coloured. Phœbus, bright golden-yellow; La Vésuve, deep crimson, regularly edged with yellow; and William Rollisson, clear reddish orange, are well deserving attention and a place in the mixed border. They are well adapted for cutting from, as it is stated the flowers last a long time in the cut state.

—— That pretty little berried plant, NERTERA DEPRESSA, is admirably done by Mr. CHAMBERS, by simply keeping it in a small house or frame all the winter, where it blooms in May; and then, as soon as the seed-pods are set, the plants are transferred to the open ground. Treated in this way largely, it might be made a useful and pleasing adjunct to the present system of carpet bedding.

—— The almost unprecedented rainfall in the southern, western, and midland counties, is producing such serious results, that it is well to look for what consolation we may. Some may be found in the fact that, widely spread as the devastation is, it is not by any means universal. In Scotland and the North of England generally the weather has been fine, and the crops are looking well. The fruit crops also promise well, and up to a few days since there were but few symptons of the appearance of the Potato disease, though we greatly fear that this immunity will not be of long duration. In one place in south-western Scotland we recently saw the so-called "new" disease in one patch of Early Rose Potatos. It is greatly to be hoped that we shall profit by the lessons these inundations are calculated to teach us, and not only make provisions to avert their ill effects in the future, but also take steps where necessary for the due storage of water for use in dry seasons. Even in ordinary seasons, there are scores of places where the water supply is lamentably deficient.

—— The Council of the Royal Horticultural Society pursued a very politic course in inviting the exhibitors by whose spontaneous effort so grand a show was got together on Wednesday and Thursday last to a luncheon at St. James' Hall on the first-named day. Dr. DENNY, and afterwards the Hon. and Rev. J. T. BOSCAWEN, presided. Great cordiality prevailed, every speaker insisting on the necessity of supporting the old Society and its Council so long as the advancement of horticulture was made the primary object of consideration. Messrs. WILLIAMS, VEITCH, BULL, and W. PAUL responded to the toast of the "Exhibitors," on behalf of the nurserymen; while Messrs. COLEMAN, STEVENS, JUDD, and MILES expressed the acknowledgments of the gardeners.

—— Among plants suitable for covering naked walls in stove houses, one of the best is the quick-growing FICUS REPENS MINIMA. In one of Mr. KINGHORN'S low span-roofed stoves at the Sheen Road Nursery it has actually forced its way through to the outside, between the upright support to the door and the brick-work, and is bravely taking its way along the exterior wall, notwithstanding the change in temperature. So far, it appears perfectly at home, and the fugitive shoots betray no lack of vigour.

Home Correspondence.

Culture of the Canon Hall Muscat Grape.—Your correspondent, "R. M." (p. 43), answers his own question when he says, "Training the strong shoots of all Vines horizontally is the right thing to do if they are wanted for future fruiting." I noted this as a first step, not as the "most important point in its successful cultivation." I must refer your readers to my remarks on p. 18. Undoubtedly it is the sexual organs which are at fault. I pointed this out in my first communication, and this fault being so prominent we must do something to curtail the over-growing propensities of the plant. All that "R. M." has said every one perfectly understands who has ever grown a Canon Hall or Barbarossa Grape. It is not altogether the delicacy of the sexual organs which causes abortion; it is the superabundance of nectar on the stigma. Growing the plant under a high temperature and probably a rich moist soil goes very far to cause this unusual quantity on the stigma, and it soon becomes hard on the surface, a membrane is formed which prevents the pollen passing down into the pistil, or in other words prevents absorption. To obviate this in years gone by I have oftentimes struck the training Vines hard, thereby causing some of the nectar to drop off. Having once discovered the cause I adopted other means to bring about better results. It is the root which is the most important point, but we can do nothing with this only when we first plant our Vine. The training horizontally and pinching off the young shoot at a proper joint must also be attended to for next season. I must now pass on to the fifth line from bottom of your correspondent's communication, where he asks, "Is not your correspondent treading upon uncertain ground?" &c. I answer, by no means. I have not written a word but what I know to be a fact. Every gardener who has a Muscat-house under his care well knows that shoots which have been pinched back will show fruit just at the time the principal crop is set, or has badly set, so that if really there is a bad set there is plenty of time to gain some useful winter fruit. The good cultivator needs no aid, and will be satisfied with one good crop—"the whole need no physician." I have for years examined and placed the several varieties of Grapes into three distinct classes. First, I take the Muscats and their progeny as a type requiring the higher temperature and more skilful management suitable only for high-class culture, producing fruit from June to Christmas. Secondly, the Hamburghs, Barbarossa, Frontignans, the large

varieties of Sweetwaters, &c., producing fruit at all seasons, early and late. Thirdly, the Black Prince, Esperione, St. Peter's, old Dutch Sweetwater, and Black Clusters, for open air culture in pots, on window sills, courtyards, and garden walls, as being safe to set well and requiring the smallest space, producing fruit from August to end of November. Lastly, in reference to double-bearing varieties, we see in them an additional portion of the goodness of an All-wise Creator in providing for His creatures more than we ask. *W. Prestoe.*—P.S. I began the horizontal system of training in 1827.

The Resting-Spores of the Potato Disease.—In Mr. Worthington G. Smith's very able article on "Resting-spores of the Potato Fungus," I find at p. 68—"The oospores, not till now seen for certain in the Potato disease, are the true resting-spores." If Mr. Smith will turn to the *Times'* newspaper of September 15, 1872, he will find the resting-spore described by myself, as I had found them on and in the epidermis of the diseased tuber; and I have on two occasions, three years ago, shown the resting-spore at meetings of the Croydon Microscopical Society, and have endeavoured to explain something of its function. Whilst, therefore, not wishing to detract from the merit of Mr. Worthington Smith's most accurate paper, and, at the same time, not wishing to claim for myself any originality in the matter, I wish to point out that oospores, or resting-spores, have been seen for certain in the diseased Potato three years ago, when the disease inflicted such serious ravages in all parts of the country, and they are not now seen for the first time. *Alfred Carpenter, M.D., Croydon, July* 21. [The words "on and in the epidermis" seem to require further explanation. Eds.]

Campanula Waldsteiniana and C. Zoysii.—Waldsteiniana forms quite a gay feature in the alpine beds at the York Nursery. It is a rare species of dwarf-tufted and pleasing habit, with large, brilliant purple, flattish, and star-shaped flowers, which are produced on slender, wiry branching stems only from 3 to 4 inches high, and in such great profusion as almost to conceal both the foliage and the pots in which they grow. It thrives freely when planted in a compost of good loam and broken pieces of limestone in well-drained positions. Another little gem of a Campanula was growing and flowering near the above-mentioned species—Campanula Zoysii, which is quite a miniature in the vegetable kingdom, its whole stature being only about 1 inch. The flowers are light blue, and of a singular form, being compressed in the middle, while they are closed at the mouth. This gives the plant a quaint and novel appearance. This species of Campanula is pre-eminently a limestone plant, as it is found at a considerable elevation on barren and excessively rugged limestone ridges. The stone for potting this plant should be broken into very small pieces about the size of Horse-beans, and there should be in the compost equal quantities of loam and stones. During the inclemency of our winters, it is better to shelter the plant from rain and snow. *R. P.*

Pinguicula grandiflora.—Looking over Mr. Dean's notes on Pinguicula grandiflora at p. 36, I have been induced to mention that it has naturalised itself on a somewhat mossy rock here from plants introduced from their native habitat some years ago. They are growing admirably without any soil at all, except what feeding and protection they get from the moss and rain, but no doubt, as Mr. Dean remarks, they will produce much larger and finer blooms under cultivation. *John White, Hazlewood, Sligo.*

Strawberry Culture.—At p. 79 "W. P." begs of you not to close this correspondence yet awhile, and I, for my own part, have no particular wish either to stay or prolong it, although the subject has become somewhat unintelligible, and consequently not calculated to diffuse that information which "W. P." seems so anxious to impart to the amateur artisan and his "young friends." "W. P." says, let us confine ourselves to the Strawberry; then a few lines further down we find him associating French Beans, Balsams, Vines, Figs, &c., with the subject in hand, thus showing how "W. P." practises what he preaches. "W. P." predicts a bright future for his "simple trough shelves," for he tells us that the day is not far distant when they will be used in the window-sill and on the greenhouse stage, &c., for all plants grown in pots (?). Now with regard to "W. P.'s" practice of tapping the pots during his nocturnal visits to the houses, to see if the plants require water: there is nothing new in it, except that, as a rule, it is done earlier in the day or evening; but still, I was not aware that any young gardener—to say nothing of a practitioner of fifty years' standing—has ever experienced any difficulty in distinguishing the difference between a hollow and a solid sound, or in defining what one or both meant. Now our venerable brother gardener has no wish to continue forcing any longer; the object he has in view is very different; he wishes to aid the amateur and artisan, and to give his "young friends" a good start in the right direction. No doubt his intentions are very laudable, but the information which he intends to impart to his "young friends" in the future will by them be looked forward to with pleasure, and will, no doubt, be received by them according to its sterling worth. I think it is a great pity—not to say misfortune—that "W. P.'s" "young friends" do not know his whereabouts, because then, if they found themselves in difficulties, they would know who and where to apply for the "all-sufficient remedy." *H. W. Ward, Longford Castle, Sarum, July* 17.

Failure in Melon Culture.—It is difficult to say what causes the failure of your correspondent's Melons, in the way he describes at p. 80. I should, however, think that for a pit nearly 9 feet wide two 3½-inch pipes are insufficient, and that his Melons damp off through a too low top temperature. Secondly, that as he has two rows of pipes "at bottom," and uses fermenting material as well, that his bottom-heat is too high—80° or 82° should never be exceeded at any stage. We fruit Melons from June to the end of November, and never exceed this figure by fire-heat, if we can help it, and always get a numerous set and heavy fruit. Thirdly, I would advise your correspondent not to train his plants on the bed, but on wooden trellises supported on one or two bricks, allowing the fruit to hang under, and supporting them with inverted flower-pots just before they would drop off ripe. This advice is given if he is obliged to use the frame. I have seen the plan adopted successfully in a dull climate. Fourthly, use good, but not too heavy, turfy loam alone, but pressed moderately firm. *J. S.*

—— Give the plants more water after the fruit is set, say a good soaking twice a week, and shut up with plenty of sun-heat—from 90° to 110° is none too much; do not shade: drought is the cause of failure. *R. A.*

Agapanthus umbellatus.—It may interest you and other admirers in the south of the Agapanthus umbellatus—than which there can be no plant better adapted for the purposes indicated in your Plant Gossip of last week—to know that this plant is in no danger of suffering neglect at the hands of our plantsmen in the northern metropolis. We have had it exhibited among the winning collections of stove and greenhouse plants at our recent midsummer shows, in company with the Nerium and Erythrina; the latter, however, was not in bloom, still we are inclined to accept the opinion of the grower of the premier collection at the show of the Royal Caledonian, that had the collection containing the Agapanthus included the Calla shown by the same grower earlier in the season, he might have had an easy first, so strong seems the appreciation of plants of this class. We had the temerity of elsewhere recording a word of regret that plant growing in its best sense was on the decline, that the "fashion of the day" was elbowing it into a very small corner, and consequently young gardeners of the present day had small opportunities of acquiring a knowledge of this part of the gardeners' art. Our latest information on the subject is that the gardeners of the period are engaged upon higher work. We confess our own inability to discern that work; and notwithstanding the appearance during the present season upon the exhibition benches of such old friends as the Calla æthiopica and the Agapanthus umbellatus, we know that we are not singular in longing for the appearance of more of those plants that have long been justly reckoned our finest stove and greenhouse plants. *A. G., Edinburgh, July* 19.

A Seed Measurer.—When seed merchants have to subdivide, for instance, a quarter of an ounce of very fine seed into several hundred packets, they have generally to guess and try some extremely small measures, which takes up much time. To find the quantity wanted more directly, about twelve months ago I devised a measure which I wish to submit to your readers. It is a strip of wood about 3 feet long, 3 inches wide, and 1 inch thick, with a V-shaped groove ¼ inch deep cut into the wider side, the whole length with lines measured off, as on a yard measure, on the same side—on part or on the whole of the length with but the inch and half-inch divisions. The seed being then laid out the desired length into the groove, it will be seen how much lies in a quarter, half, or inch length thereof, and the finding of the small measure for the use of packeting is simplified. *F. J. Drechsler, July* 15.

Potato Disease.—I am sorry to inform you that the Potato disease has appeared in this district in a very bad form, and unless we get a change to hot dry weather shortly, I fear the bulk of the entire crop will be ruined. At the present it is chiefly amongst the first and second early kinds. *T. Simpson, Mildmay Road, Chelmsford.*

Sulphurous Vapour and its Effect on Vegetation.—In one of the leading thoroughfares of London may be seen the deadly effect caused by sulphurous vapour acting on what would have been an ornament in the Marylebone Road. Adjoining the Baker Street station of the Metropolitan Railway may be seen a row of what were once very fine young trees, but, alas! their life is fast dwindling away, and they are fast passing to that stage when they can be no longer an ornament for such a thoroughfare as the Marylebone Road. I have also tried to train some free-growing creepers upon the front wall of one of the gardens adjoining Baker Street station; and I find that, whereas they will grow luxuriantly whilst protected by the front wall, which is about 3 feet high, yet as soon as they extend themselves to the iron railings on the top of the wall the creepers become choked by the vapour rising from the ventilators of the station. Now, if this vapour is so injurious to vegetation, it must surely be dangerous to the public health. We have inspectors for the smoke nuisance—where are inspectors for this nuisance? As it is, these vapours, evidently so deadly to vegetation, are belched forth from the ventilators, to be inhaled by the passers-by—can nothing be done to absorb or carry them away? In the case of our large manufactories enormous shafts have to be built to carry the smoke far out of the reach of human beings—surely the Metropolitan Railway Company, with such powerful engineering skill as it has at its disposal, might devise some means of absorbing or carrying away this deadly vapour, instead of sending it forth into our public streets to destroy what little vegetation there is left to us, and to poison the atmosphere breathed by a crowded population. *John Carvill, Finchley, N.*

Campanula turbinata.—This pretty Bellwort, which I had supposed to be a fairly distinct species, seems by its variation, when raised from seed, to negative this view. It is well known that the fertilisation of the Bellwort is effected before the expansion of the flowers, and hence natural hybrids, if not quite unknown, are rare in this genus. The true C. turbinata with me rarely exceeds 3 or 4 inches in height, and the stems mostly bear but a single large flower. Seedlings, however, attain the height of a foot or more, producing branched stems, with numerous flowers, the entire plant bearing a strong resemblance to the well-known C. carpatica. What is the experience of your readers in raising this plant from seed? *East Anglian.*

Violas at Eglinton Castle.—Having heard a great deal about the seedling Violas at Eglinton Castle, Irvine, I paid a visit to that magnificent place a few days ago, and was well repaid for my trouble. Mr. Gray's strain differs very much from those in cultivation, having, most of them, a peculiar rich rosy purple tinge, which makes them very attractive; besides, the flowers of all the varieties are of large size, which is an additional attraction. The five varieties are planted out in rows of about 80 feet in length, which shows them off to advantage, and gives the visitor a good idea of their effectiveness as bedding plants. The following struck me as being very superior:—Lady Gertrude, light mauve-purple, very early and abundant flowering; Lady Sophie, dark rosy violet, fine form, and dwarf habit; Lady Theresa, dark shining rosy claret, fine habit, and an abundant bloomer; Lady Diana, very dark rosy crimson, very free bloomer—a telling variety; Lottie, a seedling from Perfection, with flowers much larger and darker—free bloomer, and good habit. *John Downie, West Coates, Edinburgh.*

The Weather.—In this dry district I have learned to fear drought more than excessive falls of rain. Drainage enables us to counteract the ill effects of the latter; but we cannot cope with a long continued drought, such as prevailed throughout all last year, and until the end of June in this. Our rainfall from January to the end of June only reached 7.56 inches. The average is being made up rapidly. This month we have already recorded 5 inches, an amount almost unprecedented in my experience in the same time in this locality in July. *W. Ingram, Belvoir.*

The Melchet Court Orchids.—About a hundred specimens out of this collection are to go under Mr. Stevens' hammer on the 28th inst. Among the Orchids are a few worthy of notice to exhibitors and others. Some good old-fashioned plants, with those of more recent date, have not been overlooked, for, whether required for decoration, cut flowers, or exhibition, they can play a good part. No one can doubt the value of Cyrtopodium punctatum, Dendrobium speciosum, D. Hillii, Cattleya crispa, Aerides odoratum, Cœlogyne cristata, Lælia anceps, Oncidium flexuosum, Zygopetalum Mackayii, Lælia purpurata, Odontoglossum grande, and Cypripedium insigne. Here are a dozen of the most useful Orchids, and of the easiest cultivation, and most of them in pots large enough to satisfy any specimen grower. Among choicer Orchids may be mentioned large specimens of Phalænopsis Schilleriana, Lælia elegans Turneri, Cypripedium caudatum, C. villosum; and a plant out of the Orchid list worthy of notice to exhibitors or of those who may wish to possess a handsome plant to cut flowers from is

Anthurium Scherzerianum in a rusticated pot made by Mr. Mathews. Growers will have an opportunity of noticing whether these plants will delight in large pots when carefully attended. A specimen stove climber will be sold, one of the very best plants in cultivation as a beautiful blue flower for autumn and winter cutting—Thunbergia grandiflora. This plant was raised from seed sent from India: whether there is anything in that or not, certain it is it ought to be in every collection. These plants have been closely associated with my duties at Melchet, but they have not often appeared at our great London shows; yet where they have put in an appearance they have not returned without a mark of honour. But their best trips have been within 20 miles of home, and in these many little exciting but friendly battles they never stood second. And now on the subject of exhibiting, I am tempted to say a few words. How strange to hear gentlemen speak of exhibiting gardeners in terms other than of kindness and good feeling: such could not be were the true facts of the case better known. After months of the closest care and attention the exhibiting gardener finds the first great show of the season is approaching, when he is to do battle with all comers; and after a few anxious days and rough nights he finds himself, when the hours are small, on the van by the driver's side, or maybe, as the case requires, trudging along the road many miles to arrive at the tent not later than 6 A.M. Perhaps he has had a good railway run, and brings his van safely into the showyard. Too late to seek decent lodgings he finds an odd corner for himself and men on the bed of his van, and in a few hours awakes cold, shivering, stiff, and tired as a dog, but not "rabid." When all is staged to his satisfaction, and everything right to a twig, he hies away in search of a breakfast, and perhaps carrying with him the seeds of rheumatism, or his young men those of consumption. The show over—he is successful even beyond his expectations—the same heavy business of packing is repeated. A few more hours in the cold, hard van, chilly and stiff, and he takes his third-class tickets a hundred miles' run; horses are waiting, and after eight or ten miles' rumbling the same heavy business is again repeated. The plants in their comfortable quarters, a look round at the men and place, a good substantial meal, and for the first time for a week he takes a night's sleep. And how he sleeps! In the morning, when the many little matters are made straight for the good working of his charge, pencil in hand he and makes his reckoning. Against all expenses, which he willingly bears himself, he places the money value of his hard-won prizes. The balance may be in his favour a few pounds, or he may be £5 out of pocket. In either case, can it be doubted that the excellent example set by the Messrs. Veitch & Sons and most provincial societies, namely, the paying of all prizes before the show breaks up, is the proper course? I have heard from societies' officers more than once that the only men really benefited are the exhibiting gardeners: would that these gentlemen knew more of the facts of the case. *W. J. C.* [As we have probably heard the last of "rabid" gardeners, it is better, now that the elegant orators have departed, that their speeches should be forgotten as soon as possible. EDS.]

Polystichum munitum.—In your notice last week of Polystichum munitum as grown at Kew among the hardy Ferns, you say if it is to be found elsewhere it is extremely rare. Besides the Kew plant, there is one other that I have seen in cultivation, and that is in the beautiful fernery of Mr. Wollaston, of Chislehurst, the well-known authority in British Ferns. This plant is grown in the open air, and was raised from spores from Vancouver's Island. It is a noble species for cultivation in a hardy fernery. He kindly gave me a frond, which I have now before me. It measures, not 14 inches, as you speak of, but upwards of 3 feet in length, with a coresponding breadth, and there are many more similar fronds on the plant. This species is well worthy the attention of nurserymen, as it would prove a valuable addition to our limited collection of truly hardy exotic Ferns. *P. Neill Fraser, Edinburgh.*

Potato Sets from One Pound of Tubers.—I wish to confirm the statements regarding the many sets which may be obtained from the American varieties. The fact is, these Americans, though they have no deep eyes, have an unusually large number of eyes in clusters upon their level surface, which, if minutely dissected, may be cut into an astonishing number of sets by those who choose to do so. The Essex trial will not be prosecuted on this basis, hence, as compared with Mr. McKinlay's practice, will afford, in addition to other things, an insight into the fact as to whether the numerous sets or the more limited from a given bulk of tuber will produce the largest crop. *William Earley.*

—— There is an abundance of evidence in last week's *Gardeners' Chronicle* to show that by dividing eyes and slitting up the tubers it is possible to get seventy eyes from 1 lb. of tubers; but still I maintain that such very severe measures are not usually adopted in cultivating the Potato in the garden or the farm, and if Messrs. Hooper's conditions of competition are intended to be enforced the practice will disqualify all such competitors. As I understand the conditions, the Messrs. Hooper are desirous of ascertaining the respective merits of each variety with such culture as is usually given to crops in a well-managed garden or farm. Such, however, is the wording of the conditions sent to me; but if it is usual to cut up 1 lb. of tubers into seventy eyes or sets in well-managed gardens or farms, there are very few gardeners or farmers but who have to learn Potato culture over again, for I have been in a good many well conducted gardens since the year 1848, first as vegetable boy, and through all the progressive stages to that of head man, and I have never seen or heard of Potatos being so treated under culture that have been good and satisfactory, and such as was usual all over the country. *J. C.*

Daniel Hanbury.—Little need be added to what has already been said in this journal as to the good service Daniel Hanbury rendered to pharmaceutical knowledge, botany, and horticulture. Time will but render this more apparent. To many who knew him, and were associated with him in various scientific societies, the portrait we give in the present issue will

DANIEL HANBURY.

be welcome, even though it is imperfect as a likeness. [A slight memoir of him will be found at p. 502, vol. iii. EDS.]

The Potato Disease.—There is no doubt but that a great stride has been made in curing the Potato disease now that we know more completely the life-history of the "Peronospora infestans" by the discovery of its resting-spores, so lately made by your correspondent, Mr. Worthington G. Smith (p. 68). It is likewise satisfactory that we have not been first indebted to the Continental mycologists for the desired information, now so clearly given by the engravings in the *Gardeners' Chronicle.* I am, however, afraid that Mr. Smith's discovery of the resting-spores of this fungus will not do much to stay its ravages amongst our Potato crops in wet seasons, like the present. Of course, now that its life-history is known, some cures will be tried and promulgated in future years, with what results no one can yet prophesy. From what we know of the life-history of the mildews, or fungi, which attack the Turnip and Pea crops in dry, warm autumns—and only heavy rains or waterings are able to save the plants from being injured by them—with the Potato fungus it is different, for its greatest virulence is shown during rainy or showery weather, with a high temperature, and in a certain stage of the Potato's growth, in the end of July, and all through August, if these conditions are fulfilled. In the past week the rainfall here has been nearly 2½ inches, but, as the temperature has been low, I have seen no symptoms yet of the fungus on the early or second early varieties now arrived at the stage of being attacked. Another heavy rainfall occurred yesterday, and this morning there is a foggy, damp atmosphere, with a rise in the mean temperature of 5°, although the wind is still in the north east. I expect, therefore, if a high temperature sets in now the disease will soon be prevalent amongst the early varieties, and I should advise their being lifted either for seed or for consumption as soon as the weather gets drier. If once the fungus appears on the foliage there is danger for the tubers, and although lifted apparently sound they will soon show it on being spread out either in the open air or under cover. Potatos intended for seed have no occasion to be left in the ground until ripe, for I have found the best crops raised from tubers that were not ripe when lifted. Having studied the Potato disease since its appearance in 1845 (in good and bad seasons), I have come to the conclusion that our only safety from its attacks is in planting the early and second early varieties for our main crops. If these are planted as early as the weather permits, in the generality of seasons they will be ready for lifting in the end of July, when the disease will never be so prevalent as to injure them. We have now some seedling varieties of Potatos with an early habit which will produce as heavy crops and as well flavoured to eat as the late kinds. Something might likewise be made by crossing the best of the new American varieties with our best earlies, on purpose to have their dwarf and productive cropping qualities. On most soils there is a peculiar earthy flavour in these American seedling Potatos which might be improved if crossed with good English kinds. I have seen no symptoms here of the new disease which has attacked these American sorts in some places, and it is likely the old disease, the "curl," has been the cause in some instances, especially where cut sets have been planted. In wet seasons like the present the wireworms or other grubs eat into these cut sets, and the tubers rot before the plants have made sufficient roots to support the haulm, and curl in the foliage is the consequence. *William Tillery, July* 19.

Sweet Briar Hedge.—I have found Sweet Briars, when transplanted, after they have attained to the size of bushy plants 3 and 4 feet in height, and especially such as have not been previously transplanted for a year or two, die back as your correspondent at p. 80 has explained. The only way to overcome the mischief is to transplant very early in the autumn, or during the month of March, if showery, and to cut them back very severely, as should be done in the case of the removal of all aged Rose trees grown on their own roots. *William Earley.*

Royal Horticultural Society.—I suppose we may fairly assume that we have entered on a new phase of horticulture, as represented at South Kensington, and the party at present to the fore seem sanguine of important issues. Most heartily do I wish that all their anticipations, so far as they are for the advancement of horticulture (and I do not question them), may be realised. But I hope I may be excused for saying that horticulturists in the past have not shown themselves either clever organisers or astute tacticians. Men, however, gather wisdom by experience, and I see no reason why horticulturists should be an exception to this rule. They must not forget, however, that the hour of triumph is also the hour of trial. One of our great writers on history has observed, that "There may be and often is no connection between the vulgar talent which detects and censures the errors of the rulers of mankind and the nobler talent which discerns and knows how to pursue the path of safety and true wisdom." I have read somewhere the suggestion that we should drop and ignore the distinctive names which have been applied to the contending parties in the recent controversy. But is this politic or wise? If by ignoring them we could fuse the elements into a compound that would serve the interests of the community at large, I would say by all means do so. But if you ignore them, I opine they will still exist, and, be it remembered, these distinctive names were not adopted in derision, and are no badge of disrespect or dishonour. I would rather say keep them to the front, that the distinctive interests which have a right to be expressed and considered may not on any occasion be lost sight of. The horticultural party at South Kensington should say to horticulturists at large—"We are horticulturists, and the promotion of horticulture is the thing we have at heart; and it is for this we think and work." They should say to Her Majesty's Commissioners, "We are anxious to make arrangements with you; independent of the experience of our united labours in the past, we have reason to believe, from the fact that you are working for the advancement of kindred arts and sciences, that you are not unfriendlily disposed towards us. We do not seek advantages without being prepared to give an equivalent; we have no right to expect that you will, indeed we know that you will not, betray your trust to advance our interests; we seek an arrangement on fair and equitable terms." They should say to the residents at South Kensington, "Your subscriptions are the same to us as those of other Fellows; if the sum total of yours is larger than that of other interests, the expenditure shall be in the same proportion in your interests. I have not forgotten what are called the country Fellows, but such, unless they have town residences—when they would be included in the last division, would be cared for under the horticultural section. Finally they should say to all, "We are desirous to encourage mutual concessions and mutual forbearance

in order to unite all parties, because it is the interest of all that they should be united." I believe there is a lingering opinion among some few horticulturists that they could get on very well by themselves without the association of any extraneous aids. But their number is few, and with them I most assuredly do not rank myself. They are, in my opinion, men too full of themselves—who would sooner stand on the summit of a mole-hill than at the footsteps of a throne. I grant that the horticultural party could get up a good flower show alone, and this is a necessary and important part of the programme, but in my judgment not the most important. And then, would flower shows last if money was not forthcoming to pay for prizes, and people of the purchasing class forthcoming as visitors? Nurserymen are now our largest and most constant exhibitors, and the commercial principle would assuredly work here as it does elsewhere. One word more. It seems to me that one great object of the governing body of the Royal Horticultural Society in the future should be to preserve its universality—to hold on to the glorious traditions of the past. It must be kept national and universal, and not be allowed to degenerate into a mere local society, even with London for its centre. *Wm. Paul, F.R.H.S., Paul's Nurseries, Waltham Cross.*

Reports of Societies.

Royal Horticultural: *July* 21.—The Hon. and Rev. J. T. Boscawen in the chair. The Rev. M. J. Berkeley announced a long list of awards made by the committees, and commented in general terms upon many of the objects exhibited. Mr. Berkeley also stated, with reference to the Potato disease, that Mr. Worthington Smith had, since the last meeting, seen the mature resting-spores, an illustration of which will be found at p. 101.

Professor Dyer made some interesting observations on the Droseras as fly-catchers, illustrating his remarks with specimens of these and other bog plants brought to the meeting by the Chairman.

Dr. Masters commented on the splendid specimens of Nepenthes sent by Mr. D. Thomson, and which he had had the pleasure of seeing growing a few days previously. They might be accepted as good representatives of the general excellence in all cultural details carried out at Drumlanrig.

SCIENTIFIC COMMITTEE.—Maxwell T. Masters, M.D., F.R.S., in the chair.

Resignation of Professor Dyer.—The resignation of Professor Dyer, in consequence of his appointment as Assistant Director at Kew, was announced, and great regrets were expressed at the loss of his valuable services to the committee.

Fasciated Cucumber.—A fine specimen of fasciation in the Cucumber, the flattened stem bearing two fruits, was exhibited by Mr. Bennett, of the Rabley Nurseries.

Resting-Spores of the Potato Fungus.—A further communication from Mr. W. G. Smith, accompanied by numerous beautiful illustrations, was laid before the meeting. The substance of this communication is given at p. 101.

A letter from Mr. C. E. Broome was read on the same subject, enclosing a sketch of Diplodia-like bodies met with in the mycelial threads.

Mr. Renny expressed some doubts as to whether the Artotrogus described by Montagne was really the same as the resting-spore described by Mr. Smith, the accuracy of whose observations he otherwise confirmed.

Mr. Berkeley explained that it was the celebrated chemist, Payen, who discovered the Artotrogus, which he gave to Montagne, who published a description and figure of it.

Diseased Plum Leaves.—Rev. M. J. Berkeley exhibited leaves of Plum affected with Volvulifex pruni.

Nymphæa alba, var. minor.—Mr. W. G. Smith showed flowers of this from a lake in southern Scotland.

Tussock-grass.—Mr. A. Murray read a communication from Lady Mathison as to the Tussock-grass of the Falkland Islands (Dactylis cæspitosa), which was found to thrive well in the Hebrides, but which was much attacked by the larvæ of various insects, specimens of which were forwarded. The larvæ sent were of three kinds—the larva of a beetle, of a Lepidopterous insect (Hepialus), and of a Tipula. The matter was referred for future consideration to Messrs. A. Murray and McLachlan.

Vallisneria spiralis.—Mr. Alfred Bennett called attention to the rapid growth of the flower-stalk of this plant, which he had observed to grow as much as 12 inches in 24 hours.

Coffee Blight.—A letter was read from Dr. Imray, of Dominica, inclosing specimens of the leaf of the Coffee seriously injured by the larva of a small moth, determined by Mr. McLachlan to be Cemiostoma coffeella, and which is fully described in the sixth volume of the *American Naturalist.* Closely-allied insects produce disfigurement of the leaves of Laburnum, Broom, and Hawthorn in this country. "Catch 'em alive, oh!" fly-papers were recommended as a remedy.

Carnivorous Plants.—The Hon. and Rev. J. T. Boscawen exhibited a pan of Drosera, Pinguicula lusitanica, Narthecium, Anagallis tenella, and other bog plants.

Saprolegnia.—Mr. Renny showed a species of Saprolegnia, which might be mistaken for the spores of Peronospora.

Spot in Lilies.—Mr. Fish sent specimens of this disease in various stages, but no new light was thrown on the disease by the Lily-growers present.

Hybrid Tacsonia.—Dr. Masters showed flowers and a drawing of a hybrid Tacsonia, raised by Mr. Anderson, of the Gardens, Sowerby House, Hull, and probably a hybrid between T. insignis and T. Van Volxemii. The flowers were too withered to allow of any opinion of their merit as a decorative plant being given, but attention was called to the great interest attaching to the specimen, from the circumstance that the anthers were replaced by petals, and that from the apex of the tube formed by the petaloid stamens before their separation one from the other, a second corona of numerous blue threads proceeded, in addition to the ordinary one proceeding from the flower-tube at the base of the petals.

Malformed Cattleya.—Dr. Masters also showed a flower of a Cattleya, from Mr. Denning, gr. to Lord Londesborough, in which there were three sepals and four petals, all of them lip-like. The arrangement of these latter was such as to show that the ordinary whorled arrangement was replaced by a spiral arrangement.

Conifers.—Mr. Murray alluded to the practice of inducing grafted plants of Conifers to make a leader by bending down the head.

The meeting of this committee was then adjourned till November next.

GRAND SUMMER EXHIBITION.—The gentlemen forming the present Council of the Royal Horticultural Society must have felt highly encouraged when they saw what a really magnificent exhibition the London nurserymen gratuitously made to show their appreciation of the favourable turn which the affairs of the Society have taken, and it is not too much to say that no more thoroughly expressive vote of confidence was ever passed. Let us hope that such a unanimous and decided expression of sympathy may never again be called for at South Kensington, but that this exhibition—in all respects the grandest that has ever been held in the gardens—may prove the turn in the road to prosperity which the true friends of horticulture have long been waiting for. The plants, the grouping, were alike excellent, and only equalled by the cordial good feeling which prevailed. Mr. Barron's labours also were as admirable in result as arduous in execution. That the weather on Wednesday was as wretched as it possibly could be (the rain falling incessantly from half-past eight in the morning until three in the afternoon) was a matter to be seriously deplored, and it must have had the effect of making the show financially a failure had it been confined to that day, as was originally intended, but the exhibitors were equal to the occasion, and, with a unanimity deserving of the highest praise, decided to let their things stand for another day; but we regret to say the weather was still unfavourable.

The show of plants was held in the large tent at the bottom of the gardens, while two other tents were called into requisition, one by the Pelargonium Society and the other for the fruit shown in competition for Messrs. Veitch's prizes. The arrangement of the subjects in the large tent was all that could be desired, and as a result of each contributor making the most of the space allotted to him, and finishing off in harmony with his neighbours, the general effect was decidedly finer in every respect than can be the case where a show is made up of a number of classes; and the success of the idea on this occasion should not be lost sight of in the future.

Messrs. James Veitch & Sons contributed an immense collection of plants, which occupied the large terraced bank at the end nearest the Council-room, and the richness of quality in the plants put up, their great numbers and artistically effective arrangement, combined in the production of a most charming floral picture. The ground occupied took the form somewhat of an archer's bow, the straight side of which was composed of large Tree Ferns and Palms, forming a background to a slope covered with a mixture of flowering and fine-foliaged plants of various sizes. We cannot pretend to name half the good things which the group was made up of, but we may mention a few, to give an idea of the whole. In addition to the large Tree Ferns and Palms of various kinds, before alluded to, were many fine Liliums, including L. auratum, the true L. callosum of Thunberg, a small crimson-flowered species, L. Humboldtii, and L. neilgherense; a very fine lot of named Gloxinias, Dieffenbachias and Draciænas, finely flowered plants of Begonias Vesuvius, Model, and others, including an unnamed hybrid of a fine crimson colour; various Orchids, such as Saccolabium Blumei majus, Dendrochilum filiforme, Odontoglossum Laurenceanum, Vanda tricolor, Aerides suavissimum, and Odontoglossum Lindleyanum; ×Nepenthes Dominianum, Rafflesiana, hybrida, intermedia, ampullacea, vittata, &c. Small and highly-coloured plants of various new Crotons, nicely flowered Ixoras, a beautiful hybrid Dipladenia, Cissus Endresi, a large cordate, deep chocolate, red-leaved plant; fine specimens of Todea pellucida, and other filmy Ferns; well-flowered examples of Hydrangea paniculata grandiflora, Japanese Maples, and other pictorial trees, very finely grown plants of Droseras, Darlingtonias, Cephalotus, and Dionæas, Agaves, Yuccas, and cut Roses, &c.

Mr. Bull showed a magnificent collection of new and rare plants, not so large numerically as Messrs. Veitch's but even more select, and intrinsically of very great value, every specimen, large or small, being exceedingly perfect and very handsome. The centre of the group was composed of tall Tree Ferns and Palms, Zamias and Amorphophallus, the latter being very striking, and all most perfect in health and development. Then grouped around these, according to their height and the pictorial suitability of their colours, were such Draciænas as Rex, Excelsa, Baptistii, Mooreana, Chelsoni, Fraseri, Goldieana, magnifica, amabilis, Shepherdi, Weismanni, all from 4 to 5 feet in height; beautifully grown Dieffenbachias and Crotons, especially C. spirale, C. Weismanni, C. volutum, C. undulatum, and C. majesticum, the last two being especially rich in colour; a splendid pan of the gorgeous new Bertolonia Van Houttei, Oncidium Lanceanum, with two fine spikes; Croton chrysophyllum, a very distinct plant, with narrow, slightly twisted gold and green leaves, the former colour occupying the base half; a grand specimen of Phyllotænium Lindeni, and several good plants of Anthurium crystallinum, two of the best of Mr. Linden's recent introductions; several handsome young Palms and Pandanads, the matchless pair of Pritchardia grandis, a small group of carnivorous and succulent plants, &c.

Mr. B. S. Williams sent from Holloway a noble group of large-flowering and fine-foliaged plants, which, occupying a half-circle at the western end of the tent, was most prominent from all points of view. The background was formed of large Palms and Tree Ferns, large specimen Gleichenias and Crotons, &c., with a broad fringe of such flowering plants as Liliums, Dipladenias, Allamandas, Heaths, Ixoras, Pelargoniums, Begonias, &c., with some very brightly coloured Crotons, and many new plants of great beauty and interest.

Mr. Wills, Sussex Place, South Kensington, made a very large display on a bank opposite Mr. Bull's, and a very excellent lot of plants he put up. Amongst the more remarkable were fine plants of Maranta Makoyana, the pans or pots being concealed with Lysimachia, pretty examples of the Nertera depressa before mentioned, groups of Kalosanthes coccinea and of Lilium lancifolium, Tillandsia Zahnii in flower, Acalyphya tricolor well coloured, fine Draciænas, and other ornamental foliaged plants in great abundance.

Mr. Turner contributed one of the most striking groups in the show, and which consisted of a nice collection of trained Ivies intermixed with Lilium auratum and fringed with cut Roses, small Palms being placed between each box. Mr. Turner's plants formed one side of a triangular group made up on the other sides by Mr. B. S. Williams and Mr. J. H. Ley, Croydon, the latter of whom had Palms and such-like handsome plants of a very excellent description. Mr. Stevens, Trentham, also staged here a pretty little group of choice Orchids.

Messrs. Osborn & Sons, Fulham, contributed a very large collection of ornamental foliaged plants, all of which, especially the young Palms and Ferns, were of exceedingly good quality; and a large and very interesting group of Cape Pelargoniums came from Messrs. E. G. Henderson & Son, who also staged a nice group of succulent plants in a class in which Mr. R. Dean was 1st with a collection of great merit.

Messrs. E. G. Henderson also contributed a fine group of Lilium Humboldtii, edged with a border of L. longiflorum. This was placed on a mound, and formed a striking object on entering the tent.

Messrs. W. Rollisson & Sons, Tooting, had a large and very attractive group of plants, which admirably set off one corner of the tent. The principal features of interest were very fine Palms and Crotons, richly coloured Draciænas, a grand plant of Todea superba, and many nice little plants of Reidia glaucescens, which is highly recommended as a table plant; two charming pans of the scarlet-berried Nertera depressa, several nice Orchids, &c.

Mr. J. W. Wimsett, Ashburnham Park Nursery, contributed a large group of very handsome fine-foliaged plants, very tastefully grouped and highly commendable for the omission of the usual white labels, which, however desirable from a commercial point of view, have anything but an artistic effect. The principal subjects represented were Palms, Draciænas, and Marantas, with a few Ferns and other decorative plants, and all were of high quality.

Messrs. J. & C. Lee, of the Royal Vineyard Nursery, Hammersmith, made a very large contribution of first-rate stove and greenhouse plants, such as Palms, Ferns, Yuccas, Cycads, and Alocasias, and of flowering plants, Heaths, Lilies, Cut Roses, &c. The Messrs. Lee also showed cut sprays of several Conifers, deciduous trees and shrubs, including a specially interesting group of about fifty varieties of ornamental Oaks, Quercus.

Mr. J. Aldous, florist, South Kensington, had a good-sized group of decorative stuff—a perfect thicket of plants and flowers, put up rather too densely, after the fashion of a London window box.

Messrs. James Carter & Co., Sydenham, sent a showy group of plants, principally richly coloured Coleuses, mixed with Palms, Pandanads, &c.; and next to Messrs. Carter's collection came a very bright patch of colour, composed of scarlet and other Zonal Pelargoniums from Mr. William Paul, Waltham Cross. From Messrs. T. Jackson & Son, Kingston, came a dozen very fine Heaths, and Messrs. J. & C. Lee also put up a similar number of smaller plants. A group of fine-foliaged plants, small in numbers, but most admirable in all other respects, came from Mr. Harrow, gr. to H. Bessemer, Esq., Champion Hill, S.E. The most conspicuous were a large Cyathea dealbata, a splendidly furnished Cycas revoluta, and Crotons Weismanni, Veitchii, variegatum, augustifolium, and pictum, each from 4 to 5 feet in height and almost as much through, and splendidly coloured. A group of large and fine Palms, &c., also came from Mr. Burley, Hereford Nursery, Bayswater.

Messrs. William Cutbush & Son, Highgate, contributed a pretty group of small Palms, Crotons, Dracænas, and other fine-foliaged plants, intermixed with nicely flowered plants of Clematis Jackmanni, rubro violacea, Tunbridgensis, purpurea, Star of India, &c. Messrs. Cutbush & Son also took the 1st prize for six Clematis.

From Messrs. Ivery & Son, Dorking, and Mr. Parker, Tooting, came beautiful groups of hardy Ferns, including many of the choicest forms in cultivation; and Mr. E. Morse, Epsom, sent a very effective group of Heaths, consisting of good specimens of E. Parmentieriana rosea, E. obbata, E. Savillea, E. pulcherrima, E. Aitonia turgida, E. tricolor Holfordii, &c. Mr. G. Wheeler, gr. to Sir F. H. Goldsmid, Regent's Park, put up a large and very effective group of flowering and fine-foliaged plants; and from Mr. Croucher, gr. to J. T. Peacock, Esq., Sudbury House, Hammersmith, came a small group of handsome Palms, and a collection of succulent plants of rare interest, which shared the circular bed in the centre with a grand lot of Orchids shown by Mr. Denning, gr. to Lord Londesborough, and which included finely-flowered examples of Dendrochilum filiforme, Vandas Batemanni and Bensonii, Oncidium Lanceanum, Saccolabium Blumei, &c.

FUCHSIAS were shown by several exhibitors, but call for no special comment.

CUT ROSES were well shown by Mr. Prince, Oxford, Messrs. Cranston & Mayos, Hereford, Mr. H. Coppin, Shirley, near Croydon, and Messrs. Paul & Son, the latter of whom introduced a little novelty into their collections by staging their blooms in "fours," instead of "threes" in the ordinary way. Messrs. Paul & Son also staged cut branches and sprays of many hardy ornamental trees. Mr. Turner and Mr. Hooper sent very fine examples of Carnations and Picotees; and Mr. Douglas had by far the best amongst amateurs.

THE PELARGONIUM SOCIETY'S SHOW.—If the skies were dark and lowering, and the thick falling rain was anything but welcome at a flower show, there was no lack of brightness and colour in the Pelargonium tent, but it was sadly marred by the wretched dulness without. Truly it was a feast of Pelargoniums—ample, and of high-class quality, and here we were brought face to face with the latest improvements in these popular and showy flowers. Few men among the many raisers of the present day had greater reason for gratification as they surveyed the productions of the long lines of tables than Dr. Denny and Mr. J. R. Pearson. Next to them in honourable mention comes Mr. J. George. The finest productions of these renowned raisers were presented in fine condition, as good flowers always deserve to be.

It was curious to notice the comparative absence of white varieties among the Pelargoniums. Dr. Denny has worked wonders with the Zonal type and Mr. Pearson with the Nosegays or, as they are now somewhat loosely termed, hybrid Nosegays, but they have left the white varieties almost untouched. Perhaps the purest and best shown was Snow, raised by Mr. Postans, of good shape, and really a white; then came Snowdon, with no raiser's name attached, also pure in colour, and there were also Woman in White (Postans) and White Clipper.

Taking the ascending scale in the matter of colour, we next come to the salmon-coloured varieties, and the best of these were Nobby (Catlin), a barbarous name, but a good variety notwithstanding, pale salmon, with carmine stains round the eye, fine pip, and good truss. Mrs. Catlin, by the same raiser, has pale salmon flowers, and light margins, and bright carmine centre, fine pip and truss. Polly King (George) is very chaste and pretty, and a favourite variety. Maude (Pearson), carmine blotches round a white eye, and broadly margined with white, is also worthy of notice. Venus (F. & A. Smith), is a pretty variety in the same way, the truss small as shown. Remus (Paul) almost goes into the white section, flowers of good form, and marked with bright carmine round the eye. Salmon Beauty (Laing) is of a pale salmon colour, much flushed with orange, and good form. Edith (Laing) is a delicate flower, pale salmon in colour, charmingly reticulated with white. Princess Beatrice (Gordon), pretty and chaste in appearance, white, with salmon-carmine round the eye, makes a good pot plant. One of the finest in this section is Mrs. Collier (Collier), very pale salmon, orange blotches and narrow margin of white, very fine form; Acme (Smith), very large pip, of fine form, and bold carmine centre, is a taking variety; Lizzie Hefford (Hefford) is a very pretty and distinct Nosegay: clear salmon carmine centre, with slight lines of the same, and pale margin; Desdemona (Burley), delicate salmon, very chaste and pretty; Maud (Pearson), white with orange-salmon centre, and broad pale margin; and Ellen Douglas (Kingsbury), salmon, much flushed with orange on the petals, are all well worthy growing.

A few flowers of a rosy-salmon shade, and very attractive too, may be appropriately grouped together. They consist of King of Roses (George), very pretty and distinct; Circulator (George), fine form and good truss; Caven Fox (George), orange-cerise, fine pip and truss, and very effective; and Charles Burrows (Pearson), bright cerise-rose flushed with orange.

We are now very rich in Pinks, and between the pale soft hue of Mr. William Paul, and the deep rose pink of Pearson's Ethel, there are many intermediate shades, all more or less attractive varieties. Mr. Pearson has produced some superb varieties, all well worthy of cultivation. The best in this section are:—Lucy, bright pucy-pink, fine form; Mrs. Turner (Pearson), very fine, noble truss; Lady Byron (Pearson), rich dark pink, fine form; Rose of Allandale (Denny), clear pink, good form; Ethel (Pearson), rich deep magenta-pink, extra fine; Lady Louisa Egerton (Pearson), in the way of Rose of Allandale, but not so good; Miss Blanche Story (Pearson), bright soft pink, very pretty; Lady Emily (Pearson), clear rose-pink, a very pleasing glow of colour; Mr. F. Burnaby (Pearson), violet-pink, very charming hue of colour; Mrs. Fytche (Pearson), pretty in colour, but flowers somewhat loose; Beauty of Dulwich (Smith), clear soft pink, fine pip, of good substance; Le Lord Maire (Lemoine), lively violet, pink, wanting form, but very pleasing; Mrs. Augusta Miles (Pearson), rich pale rosy pink, fine and showy; Lucy (Pearson), deep rich pink, extra fine truss, a grand exhibition variety; Robert Evans (Pearson), bright pale pink, very fine; and Matilda (Pearson), pale glowing pink, very fine. Older varieties, like Florence Durand, Bluebell, and Mr. William Paul, are yet of excellent character.

The scarlet and crimson coloured flowers are so numerous that if the leading varieties were described great length of space would be required. Of the Zonal section with bright flowers, Dr. Denny has given us splendid things in the following:—Idalia, scarlet flushed purple and orange, distinct and fine; Eros, very bright and shiny; Lancelot, rich orange-scarlet, fine pip; Œnone, very fine quality; Brassidas, extra fine; Rienzi, large pip, of fine form; Richard Cœur de Leon, large bold pip; Salathiel, bright orange-crimson, very large truss; Lavinia, extra fine; Aspasia, Oberon, Portia, Alonzo, fine pip and noble truss; Imogen, distinct and very fine; Zuleika, a flower of great refinement of character; and Æneas, rich deep orange-scarlet, extra fine quality. The following are of Mr. Pearson's raising, but belong to the Nosegay section:—Mrs. Whiteley, Mrs. Seacroft, Robert Evans, very fine; Mrs. W. Brown, finely-formed pip; Dell, very fine; Percy Cooper, Thomas Adams, Colonel Wright, H. R. Clifton, Corsair, Mrs. Hetley, Mrs. Huish, Mrs. Vincent, very fine; John Fellows, and Rev. F. Atkinson. The great characteristic of all these is the immense trusses of flowers they carry, and being very fine, are unsurpassed for decorative and exhibition purposes. Of flowers produced by other raisers, there were A. F. Barron (George), very fine; Mrs. J. George (George), fine pip and large truss; and Richard Dean (Standish), bright, showy, and good form. Some of the darkest are Colonel Holden, Douglas Pearson, H. R. Clifford, Mrs. Saunders, and Sir H. S. Stanhope, raised by Mr. Pearson; Minerva (Denny), very fine; Diana (Denny), Prince Bismarck (Burley), rich dark, fine pip and truss; Lord Macaulay (Denny), very fine; Globosa major (Denny), a Nosegay with immense trusses; Heartsease (De Waldie), purplish crimson, distinct, and fine form; Wellington (Denny), The Shah (George), very large pip and extra fine; and Cassandra (Denny), bright deep crimson.

Dr. Denny exhibited a box of single pips of seedling varieties of the Zonal section, all of high-class quality; and Mr. J. R. Pearson, a box of cut flowers of some of his newest productions, in excellent condition.

MESSRS. JAMES VEITCH & SON'S PRIZES FOR FRUIT.—The competition for these valuable money prizes added a feature of rare excellence to the general exhibition, and successful as the competitions have hitherto been, the show to-day was in excess both as to quantity and excellence of quality of those gone before—a fact which must be most gratifying to the Messrs. Veitch and to the Council too. The exhibition was held in a long tent devoted solely to fruits and cut flowers; and, but for the extraordinary rainfall on Wednesday, which rendered the ground as elastic as a sponge, it would have proved a source of delightful interest to visitors. In the class for the best collection of fruit in ten distinct kinds there were three competitors, and the 1st prize was won by Mr. Coleman, gr. to Earl Somers, Eastnor Castle, whose collection was a credit to his abilities as a fruit grower. The dish of Black Hamburgh Grapes (three bunches, weighing 11 lb.) was in every respect perfect in finish and development of berry, and his Muscats were of nearly equal merit. In addition to these Mr. Coleman had a fine sample of his Eastnor Castle green-fleshed Melon, very finely coloured; Elruge Nectarines, and Royal George Peaches; a capital dish of Oxonian Strawberries, Golden Gage, and Early Prolific Plums, and excellent Brown Turkey Figs. Mr. Miles, gr. to Lord Carington, took 2d honours, with a collection nothing inferior to Mr. Coleman, except in the black Grapes, which were smaller both in bunch and berry. Buckland Sweetwater was shown first-rate by Mr. Miles, and the other productions were a fine Queen Pine, grand Royal George Peaches, and Elruge Nectarines, very large Brown Turkey Figs, splendid dishes of Bigarreau Napoleon and Black Circassian Cherries, a fine hybrid Cashmere Melon, and Jefferson Plums. Mr. Sage, gr. to Earl Brownlow, Ashridge, had the 3d prize, and in his excellent exhibition the chief feature was a splendid bunch of Bananas, weighing 60 lb. For a collection of six distinct kinds Mr. T. Bannerman, gr. to Lord Bagot, Blithfield, came in 1st amongst five competitors, showing very good Black Hamburgh and Muscat of Alexandria Grapes, a fine Trentham Hybrid Melon, Royal George Peaches, Elruge Nectarines, and Smooth Cayenne Pine—all of excellent quality. Next in order of merit came Mr. Jones, gr. to the Marquis of Londonderry, Wynyard Park, Durham, who had a very fine sample of Black Hamburgh Grapes, good bunches, with grand berries, and all well finished off; good bunches of Muscats, weak in the point of colour, excellent Peaches and Nectarines, Melons, &c. Mr. G. Cornhill, gr. to J. S. Virtue, Esq., Oatlands Park, Walton-on-Thames, was 3d, and the other competitiors were Mr. Oliver Goldsmith, Polesden Lacy, and Mr. Burnett, The Deepdene. The best of twenty-six single dishes of Peaches was one of Bellegarde, magnificent in size and colour, shown by Mr. Richards, gr. to Baron L. de Rothschild, Gunnersbury; while Noblesse, of grand size, contributed by Mr. Fennill, gr. to E. Cazelet, Esq., Fairlawn Park, Tunbridge, came in 2d; and a splendid dish of Grosse Mignonne, from Mr. Edwards, gr. to the Duke of St. Albans, Bestwood Lodge, Nottingham, was 3d. The varieties above named, together with Royal George, Barrington, and Violette Hâtive, were also staged in superb condition by other exhibitors. A large dish of two dozen Peaches, not for competition, were contributed by Mr. J. Horwood, gr. to J. Lovibond, Esq., Start's Hall, Farnborough. The best out of nineteen dishes of Nectarines, all of which were of high quality, came from Mr. Edwards, Bestwood, who staged Elruge, magnificent both in size and colour. A specially fine sample of Violette Hâtive, from Mr. Birse, gr. to J. H. Lermitte, Esq., Knighton, Finchley, stood next, followed by Elruge of very high colour from Mr. Jack, gr. to the Duke of Cleveland, Battle Abbey, Sussex. In the class for three Pine-apples there were nine competitors, and the 1st award went to Mr. H. Scammell, gr. to C. Reily, Esq., the Priory, Nevill Park, Tunbridge Wells, who had very handsome Queens, weighing 6¾ lb. and 5¼ lb., and a Charlotte Rothschild of the weight of 6 lb. The weight of the next best three perfectly-ripened and well-swelled Queens—contributed by Mr. W. Chamberlain, gr. to H. Thompson, Esq., The Warren, Bushey Heath—was not stated; but three other Queens, shown by Mr. G. T. Miles, and which came in 3d, weighed in the aggregate over 15 lb. Out of fourteen competitors with single dishes of Black Hamburgh Grapes, Mr. Coleman, Eastnor, came in 1st with a sample, not the heaviest shown, but even in bunch, large and even in berry, and splendidly finished off in the matter of bloom and colour. The next best came from Mr. T. Coomber, The Gardens, Hindre Park, Monmouth; and Mr. Jones, Wynyard Park, was 3d. An extra prize was voted to Mr.

Wallis, gr. to A. M. Mundy, Esq., Shipley Hall, Derby, who had also a very fine sample. Mr. T. Bannerman, gr. to Lord Bagot, had the best dish of Muscat of Alexandria Grapes, large in bunch, a little uneven in berry, but fairly well coloured for the season. Not so large or so regular bunches, but better ripened and coloured specimens from Mr. J. Louden, gr. to T. Barnes, Esq., The Quinta, Salop, came in 2d; and Mr. Woodbridge, gr. to the Duke of Northumberland, Syon House, was 3d, with good bunches and berries, wanting only in colour to send them higher up in the prize list. The competition in the class for three bunches of any varieties but Black Hamburgh and Muscat of Alexandria was rather limited, but Mr. J. Louden was 1st, with Seacliffe Black, Madresfield Court, and Golden Champion; and Mr. Cox, gr. to Earl Beauchamp, Madresfield Court, 2d, with Buckland Sweetwater of excellent quality. Amongst miscellaneous productions shown not for competition were some fine dishes of Peaches and Nectarines, Plums and Cherries, from Mr. Jones, the Royal Gardens, Frogmore, which gained an extra prize. From Mr. J. Walker, Thame, Oxon, came a large collection of Gooseberries.

Mr. Monro, Potter's Bar, Barnet, offered prizes for his Duke of Edinburgh Cucumber, the 1st of which was won by Mr. Bennett, the Nursery, Rabley, with nice samples cut from an extraordinarily fasciated branch. The rest of the exhibits in this class were very moderate.

FLORAL COMMITTEE.—Mr. B. S. Williams in the chair. First-class Certificates were awarded to Mr. Bull for Dracæna triumphans, a narrow, dark bronzy-leaved form, very distinct; and for Kentia Moorei and Martinezia nobilis, two new Palms of a fine character; to Mr. Fleming, gr. to R. Houghton, Esq., Sandheys, Liverpool, for Adiantum concinnum var. Flemingii, with finely divided arching fronds; to Messrs. Ivery & Son, Dorking, for Polystichum angulare var. grandidens pumilum; to Mr. G. Smith, Tollington Nursery, for Pelargonium Wonderful, a sport from Vesuvius, semi-double, and of a bright scarlet colour, remarkable for the lasting qualities of its flowers, and quite the finest thing in its way yet introduced; to Mr. Green, Holmesdale Road, Reigate, for Aloe Greenii, a shining mottled green species, with recurved spiny leaves; and to Messrs. J. & C. Lee for Juniperus virginiana Triomphe d'Angers, a pretty silvery variegated form. Botanical certificates were voted to the Rev. J. B. Norman, Whitchurch Rectory, Edgware, for Masdevallia elephanticeps, and another pretty species provisionally named M. Normani; and Certificates of the second class were voted to Mr. William Paul for Pelargonium Talabot, a double variety with dark crimson flowers; and to Messrs. E. G. Henderson & Son for Pellæa Bridgesii, a small-growing species of Fern with glaucous fronds. Many other plants were brought before the committee to-day, including a grand lot of pitchers of several species of Nepenthes, sent by Mr. D. Thomson, gr. to the Duke of Buccleuch, Drumlanrig.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. A Cultural Commendation was awarded to Mr. Perkins, gr., Thornham Hall, Suffolk, for an exceedingly fine dish of large red Tomatos; and an excellent sample of Carter's Green Gage variety came from Mr. Gilbert, Burghley. Mr. Jones, The Royal Gardens, Frogmore, exhibited a dish of fruit of a new seedling Apricot, called Frogmore Early. It is of small size and excellent flavour, and was ripe on July 12 on the open walls—a point in its favour which easily gained it a First-class Certificate. A seedling white-fleshed Melon of a very promising character came from Mr. Wildsmith, gr. to Viscount Eversley, Heckfield, but as it was evidently not at its best, and having a very thin rind, the committee requested to see it again. Mr. Raynham, of Newmarket, also sent a handsome seedling scarlet-fleshed Melon, which was likewise requested to be shown again. From Mr. Tillery, Welbeck, came very fine samples of Galande Peaches and Violette Hâtive Nectarines, which gained a Cultural Commendation. G. F. Wilson, Esq., Heatherbank, showed some well-ripened Beurré Giffard Pears from a pot tree; and Mr. Woodbridge, Syon, a heavily-laden branch of Bigarreau Napoleon Cherries. Mr. Miles (Wycombe Abbey), Mr. Cox (Madresfield), and Mr. Turner (Slough), sent specimens of a new Pea named Dr. Maclean, which will be sent out by Mr. Turner next season, and which is a large, handsome, and full-podded variety, of moderate height and rare cropping qualities. We have seen the Pea growing, and can speak highly of its merits. It will prove a useful addition to the section of which James' Prolific is the type.

Royal Botanic: *July* 14.—It is greatly to be regretted that a pouring rain and driving wind prevented so many people attending the evening fête of the Royal Botanic Society on the 14th instant. Those who have watched the progress of art in the arrangement of flowers during the last few years, and who were able to be present on this occasion, cannot fail to have been delighted at seeing the general improvement in style of the great majority of the exhibits; the few competitors who still persist in adopting the heavy, crowded, and glaring arrangements of flowers with little or no foliage, being in all cases tradesmen who expect by these means to attract attention to their massive, lumpy wares in silver, china, and glass. Modern dining and supper-tables, which rarely exceed 6 feet in width, are quite unsuitable for services of this character; in which, it may be further remarked, any flower of smaller size than a Dahlia is lost, and its beauty thrown away. If such dinner-services, or supper-services, were shown upon a table 10 or 12 feet wide and of a proportionate length, and were judiciously decorated with Pæonies and their foliage, or with Dahlias, Hollyhocks, or Sunflowers, and the leaves of Rhubarb or the Globe Artichoke, a handsome and bold effect would result, which from the harmony of all its proportions, and the suitableness, each to the other two, of the three elements, table, service, and decoration, would command the approval of most persons, however unsuitable the decoration might be to their own requirements.

The liberality of the Botanic Society in offering more than £112 in prizes naturally drew a great many exhibitors into the field, or, rather, under the tents; and as many parts of the enclosures were not proof against the searching rain and wind, while the ground was everywhere wet, the lady exhibitors deserve immense credit for the displays which they effected under such damping influences. The prizes were divided into an open class and a class for "amateurs (ladies only)," and the competitors in the latter class wisely manifested their confidence in their own powers by "entering the lists" in the open class also, and in many instances carrying off prizes. The tables provided for decoration for a dinner, for a supper, and for a buffet were all of one size, 10 feet by 5; and no less than thirty-eight tables were furnished (and mostly very elegantly furnished) in competition for the fifteen prizes offered. In addition to this fine display, which in both numbers and quality surpassed the notable exhibitions at South Kensington and at Birmingham (described in our columns of May 18, 1872, and June 29, 1872), there were twelve competitors for the six prizes for an arch of cut foliage and flowers suitable for a sideboard, twenty seven competitors for the nine prizes for single table decoration, and twenty-one competitors for the nine prizes offered for a hand bouquet. Besides these there were competitions for hanging baskets with cut flowers; also for hanging baskets and for standing baskets, furnished with growing plants; and for groups of plants arranged for the decoration of a recess, alcove, or fire-place in a room.

We regret much to notice the small competition which appeared in the classes mentioned in the last paragraph, and to observe the want of originality on the part of the few who did exhibit, and that, notwithstanding prizes to the amounts of £2, £3, and £5 were offered, only fourteen competitors entered for the twelve prizes. Our opinion of the poor quality of these exhibits is confirmed by the fact that the judges withheld half of the prizes, including three out of the four first prizes.

The general appearance of the dinner and supper tables was so much like those of the last year or two at the metropolitan flower shows, that we need not now repeat the details of arrangement which have so often been described in our columns; and the more so when we mention (in alphabetical order) that they were the productions of the well-known prize-winners—Miss E. Blair, Mrs. Burley, Mr. Buster, Mr. Chard, Miss E. Harris, Mrs. Hudson, Mrs. Seale, and Mrs. Soder, with the character of whose work many of our readers are doubtless familiar. To this list we have to add the names of Mrs. Boulton, Mrs. Crump, and the Misses Cicely and Florence Gardner. While noticing with great satisfaction the better finish and taste exhibited in the decoration of the tables generally, we feel bound to particularly remark on the improvement in Mrs. Seale's handiwork, which shows more freedom and boldness, and to express the hope that Mr. Buster, who has always been great in grasses, will give up arranging them after the model of the final discharge of rockets at the Crystal Palace fireworks.

There were, however, some few novelties in the arrangements which deserve passing comment. Amongst flowers not commonly used must be mentioned Dipladenia boliviensis, and the beautiful hybrid Begonias introduced by Messrs. J. Veitch & Sons, the bright vermilion blossoms of which had an exceedingly pretty and cheerful appearance, drooping from the edges of the tall trumpet-shaped vases, now so commonly and deservedly in use. Amongst unusual ornaments for the glass stems of vases, mention must be made of Thalictrum minus, and of Adlumia cirrhosa, both hardy plants. Perhaps the prettiest single vase in the whole of the extensive collection shown was that which gained for Miss E. Harris the 1st prize for a table bouquet, not tied. In a trumpet vase about 12 inches high she had placed as a centre flower a spike of an elegant Orchid with half-a-dozen blooms of a rich orange colour, and around this were arranged a few blossoms of blue Cornflower, a couple of light spikes of single Tuberose, and a few trusses of Pelargonium Pink Manglesii, the whole being relieved by just enough Maidenhair to balance the other colours without hiding anything. Another novelty was that which secured for Miss E. Blair the 1st prize for a centre table decoration. It consisted of a pretty plant of Cocos Weddelliana, taken out of its pot and mossed, and a pyramid of mixed fruit arranged around its base, the dulness of the colours of the fruit being relieved by two or three single blooms of Lilium candidum, by two or three pieces of white Campanula rotundifolia, and by a few fronds of Maidenhair. Dishes of fruits mixed are so rarely well-arranged, that this grouping deserves special notice. Mention must also be made of two noble arches of cork, in which well-selected fine-foliaged plants were arranged, and which surrounded a central mirror. One could not but be struck with the similarity of workmanship, though they gained prizes for Miss Cicely Gardner and Messrs. D. Radclyffe & Co. respectively.

There are many other little details of interest of which we took notes, and to which we cannot further allude for want of space. We must not, however, conclude without complimenting Mr. J. Bromwich, of Buckingham Palace Road, upon the light and free style of the bouquets with which he took the 1st prizes both for bridal and for ball-room bouquets. Every one possessed of good taste will join in thanking all who are bold enough to "break through the ice" which binds the fashion of the present day to the Cauliflower-headed arrangements of hand bouquets now in vogue.

Altrincham and Bowdon United Floral and Rose: *July* 16 *and* 17.—Seldom is a flower-show held amid more beautiful surroundings than the very pretty and meritorious exhibition which came off at Bowdon, Cheshire, on the 16th inst. Closely adjacent to this ancient village, now fashionable through nearness to Manchester, 12 miles distant, is Dunham Park, a seat of the Earl of Stamford and Warrington. Some dozen or fifteen years ago the hall became the residence of a private gentleman, but the park is of course unchanged, retaining all the immemorial charms which come of noble Oaks, green undulating sweeps of turf, with fern-covert for the deer, sylvan shades, winding walks, and everything else that helps to render the home-domain of an English nobleman "a joy for ever." Bounded on the eastern margin by the high road to Chester, hereabouts the park supplies a number of pleasant open spaces, little natural lawns, circled by venerable Scotch Firs, the ruddy trunks and boughs showing grandly against the verdure of the general scene, and the dark tops against the bright blue sky, while the surface on which we stand needs only to be cleared of its abounding bracken to give one the idea of a settlement in a primeval forest. If the "murmuring Pines" be not "bearded with moss, like Druids of old," at all events we need not look far for festoons of Ivy and Honeysuckle. Such was the locality chosen for the present year's exhibition, which deserved, to say the least, the best setting that Art can receive from Nature. A flower show is always, in the very nature of things, a treat; embosomed by magnificent trees, it becomes a luxury. Bowdon, and the contiguous village of Altrincham, renowned for its Carrots, have latterly become a really high-class horticultural centre. The place is unquestionably very favourable to gardening. The soil is sandy, the climate is warm, and, by contrast with that of the opposite side of Manchester, almost enervating; and being situated upon rising ground, there is a sensation at times of the tempered breezes from the Irish Sea. At Lymm, a little further towards the west, there has been observed during heavy storms a deposit of salt upon the shrubs.

As far back at least as forty years ago the gardeners were accustomed to have their annual exhibitions, displaying their triumphs and honours in a booth set up in the market-place, vegetables perhaps in the ascendant, though always with plenty of floral balance. Now that the population has so vastly increased, and that so many wealthy families have fixed themselves at Bowdon, which is to Manchester a sort of Richmond, the shows, as would be expected, have commensurately expanded and improved. Exhibitors now find it worth their while to come from distances so considerable as Hereford and Oxford. It was Cranston & Mayos, from the old cathedral city, and George Prince, from the banks of the Isis, who the other day divided between them the prizes for cut Roses. The amount of prize-money on the 16th was £200, an excellent commercial stimulus, and rendered all the more efficient by guarantee of payment. Whatever else an executive may do or leave undone with prize-winners, they should pay the prize-money promptly. The original Bowdon Floral Society lasted for about twenty years. In 1860 it was re-constituted, and everything since that period has

gone on prosperously. In 1874 a "Rose Society" was established. It has been found best, however, for the interests of all parties, and for those of floriculture in particular, that the societies should work hand-in-hand, and they have now very wisely amalgamated. In byegone days, when Mr. Horatio Micholls resided at Bowdon, the shows were made attractive by Mr. Baines' splendid plants. It is satisfactory to observe that although this famous grower has taken his leave other cultivators are to the front with specimens quite as emphatic. The display on the 16th inst. of first-class stove and greenhouse plants, both flowering and fine-foliage, with supplement of Palms and Ferns, was as fine as in the past, and in some respects decidedly superior. We do not remember ever to have seen better examples of Bougainvilleas and Alocasias. Orchids were shown in fair quantity, Brassias, Miltonias, Oncids, and Lælias being predominant; Ericas also, Fuchsias, Pelargoniums, Achimenes, Pansies, &c., with a sprinkling of the always welcome miscellanea which though not exactly floral are so interesting to the physiologist, Sarracenias for example. To introduce such plants at a flower show is to fulfil the part of a public benefactor, since people of sense go to the shows not so much for the sake of the lively colours and the spicy odours, as to pick up ideas; and there can be no question that the man who sends even so simple a thing as a Bee Orchis renders a service quite as thorough as he who contributes a Theophrasta imperialis. Good things, depend upon it, are always most surely known, not so much by their simply catching the eye as by their detaining the mind.

In addition to the pot plants there were bouquets, both daylight and opera, the distinction consisting in the colours of the flowers employed; baskets also, vases, epergnes, and other dinner-table devices. A novel and exemplary feature in this department of the show, was that all the latter classes of competitive objects were submitted to the decision of a committee of ladies. Another class was constituted of bouquets, prepared, exhibited, and judged exclusively by ladies. If we may venture upon a suggestion to the fabricators of certain of these bouquets and baskets, we would say, do not in future employ so many flowers. Several of the baskets contained flowers enough to fill a dozen. Nor was this all: they were in other cases a simple blaze of scarlet and crimson. The two colours which above all are indispensable to a chaste floral design, one of the chief features of which should be perfect repose, are white and green, and these, in the baskets referred to, were also absent. The true idea of a *recherché* basket, as well as of a gracefully dressed epergne, and of a prize-worthy bouquet, is that it presents in miniature the general spectacle of a good garden, no single colour and no solitary kind of flower in excess, or overweighting the others. How sweet a contrast to some of those flaming volcanos of red was the exquisite little bouquet which carried the 1st prize! Every one knew this at a glance to be the best, by virtue of its dimples of blue Forget-me-not. In another matter we have to enter a decided protest, namely, the exhibition of Lily blooms upside down, the flowers being arranged in a tray of moss, like a row of tea-cups. A similarly frightful mode of exhibiting Lapageria blooms is not uncommon, in the latter instance rendered still more shocking by their being bunched five or six together. Is there no floral Humane Society to take cognisance of such barbarities? If cut Lily blooms and Lapageria blooms are to be shown at all, let them at all events come upon their stems, and hang in the way that they were always intended to. At a flower show, above all places in the world, the least violence that is possible should be done to natural habit and disposition. The climber, of course, must be tethered to a frame; the fragile must be propped; and the trailer must be accommodated with a hanging basket, over the edge of which the long branches may depend. Expedients of this description are not only needful to the security of the plant, but in harmony with its proper character. Nature is often a willing consenter to a change of attitude. See how charmingly the Moneywort and the Disandra change from their trail upon the ground to pendulous drooping from the clefts and ledges of a moist rockery! Innumerable tasteful adjustments of plants to new circumstances are at the command of the skilful florist, and may legitimately be practised, but it is quite another matter to go in direct contravention of Nature. Directly that the original sweet attitude held in the Garden of Eden is upset violently, there is an end at once to pleasure in the beholding. While rendering suggestions, we have a word also for the executive. The great tent, some 60 yards in length, in which the chief part of the exhibition is set out, though the historical scene of a hundred splendid shows, is, after all, very unfit. The material, too, seriously excludes the light. The interior is much too dark, even in sunshine, for the colours of the flowers, and on dark days it can be little better than a den. Even the Fuchsias near the entrance the other day had a beclouded appearance. Another consideration is worthy of note. The ladies dislike such dimness. Flower shows reckon with the ladies as little festivals; they are a sort of botanical Ascot, a time for the newest and gayest apparel. And, although it may be quite true that, like Una in the "Faërie Queene," they are competent in themselves to "make sunshine" in a far shadier place than the Bowdon or any other dingy tent, they do, nevertheless, prefer plenty of that particular sunlight which brings out the beauty alike of petals and of silks. What is good for the raiment of the flower they know full well is best for themselves. White canvas, such as Sullivan employs for the great annexe at Manchester, is the proper material for a roof that at the best can only be semi-translucent.

The cut Roses from Hereford and Oxford were exceedingly beautiful. Those grown in the neighbourhood were likewise, considering the recent wet weather, very praiseworthy. In all there were about 2000 blooms. Fruit and vegetables were likewise shown in plenty, and of excellent quality. An exhibition is never complete without a good display of what is eatable as well as of what is merely pretty to look at. Fruit and vegetables are the best certificate of good gardening, for, although flowers may often be vastly improved, there are enough to fill the largest of gardens that are perfect aboriginally, whereas Nature gives scarcely anything that is fit for the daily sustenance of civilised mankind except in response to his intelligence and industry. Fruit and vegetable culture ought to count perhaps with the Fine Arts, for assuredly nothing better illustrating how the common things of Nature, the dull and useless wayside weeds, and the crude berries of the wilderness, may be turned by horticultural genius into blessings of the profoundest value.

Taken for all in all, the Bowdon show of July 16 was unquestionably the most beautiful ever yet held by the Society; happily, the day also was brilliant, rendering the affair in every way a success. *Leo Grindon, Manchester.*

Stevenage Horticultural: *July* 7.—If anything were required to demonstrate the valuable influence of this Society, it would be found in the increase in quality as well as in the extent of the cottagers' productions at the two exhibitions held during the summer. It is essentially a cottagers' exhibition, covering a wide district, as its operations include not only Stevenage, which is a large parish, but surrounding villages, such as Graveley, Wymondley, Knebworth, &c., and some of the cottagers who exhibit bring their productions two and three miles, in their desire to take a good position on the exhibition table. Last year, owing to a temporary falling off in the subscriptions, the committee had to cut out some of their prizes; but this season, owing to the unwearied exertions of the hon. secretary, Mr. George Dunn, surgeon, of Stevenage, the financial position was so far improved that an extended schedule was put forth, and the exhibition, which always takes place in the Town Hall, Stevenage, was one of the best ever held. It is a flower show pure and simple, as there is no band to act as an alluring agency, and there being no tents the cost of management is very slight.

In the cottagers' classes the exhibition of plants is confined to single specimens, one class being for a plant other than Fuchsia, Pelargonium, or Calceolaria. The two best were Hydrangeas, capitally grown and flowered; the third being a pretty rose-coloured Cactus, freely bloomed, and, like all the plants shown here, bearing traces of window cultivation. Some small but very nice examples of Fuchsias were shown in that class, and among them was the pretty little Fuchsia microphylla, shown as a neat little bush. The best Pelargonium was one of the old scented species, grown in a cottage window, and well flowered; the next best a large-flowered variety; and succeeding these double and single varieties of the Zonal type. The best Calceolaria, a herbaceous variety, with healthy, vigorous, and remarkably clean foliage, and a fine head of bloom, reflected great credit on the cultivator.

Fruit and vegetables were well shown also. Such hardy fruits, Gooseberries, red, white, and black Currants, Cherries, and Raspberries, would have done credit to many a high-class kitchen-garden; and the same holds good of vegetables. The best red kidney Potatos were Purple Ashleaf and Early Rose; the best white kidney, Ashleaf and Lapstone; Turner's Union and Fortyfold were the best round varieties. The value of quality is quite understood by these cottagers, and year after year the competition becomes keener, and the exhibits more nearly approach each other in the matter of finish.

Prizes are also offered for competition among *bond fide* amateurs, of which, however, there are but few at Stevenage; and there is also what is termed a "general class," in which professional gardeners can compete. The leading feature was a contribution of fruit from the gardens of Knebworth, the residence of Lord Lytton, which included Black Hamburgh Grapes, some very fine Peaches, Nectarines, Cherries, and black, red, and white Currants.

The best collection of miscellaneous plants came from J. Bailey Denton, Esq.; and some capital Balsams came from the Rev. J. V. Seager. Fruit, cut flowers, and vegetables, were well represented, and the competition was quite spirited in some instances. The basket of vegetables exhibited by the Rev. J. V. Seager was quite complete, comprising all the leading vegetables grown in a garden, and neatly and even tastefully arranged in a large, square, shallow wicker basket.

Prizes are also offered for the best cultivated cottage gardens in the different parishes, and this has been found to produce the most beneficial results. (*From a Correspondent.*)

Bury and West Suffolk Horticultural: *July* 8.—The summer *fête* of this old Society was to have been held at Hardwicke this year, but the death of Lady Cullum, the late proprietor, not only deprived the Society of the most paying place in the neighbourhood for the holding of its out-of-door show, but also of the lesser contributions from Hardwicke. Taking these drawbacks into account, the show in the Botanic Gardens, Bury St. Edmunds, on the present occasion, was a very creditable one. Those who went to the show went also chiefly to see the horticultural productions, as it lacked on this occasion the additional attraction of a first-class military band from the metropolis, and could only substitute for that the 13th Suffolk Rifle Volunteers, who played remarkably well throughout the afternoon and evening.

Perhaps the best feature of the show was the Roses, the chief exhibitors and prize-takers being Messrs. Nichols, Southgate, Raynham, and Squibs. The champion Rose was La France, a magnificent bloom, worthy of its name and fame. Special means must have been taken to protect the show flowers, for during the last few weeks Roses have been sorely tried and marred by a succession of dashing rains and storms that have fallen almost without intermission. Messrs. Snelling and Foulcher divided between them most of the prizes for Fuchsias and Pelargoniums. Mr. Allan, of Barton, showed beautiful Gloxinias and Achimenes. Mr. Wright, gr. to the Rev. E. M. Gaze, of Ingham, made a fine display of Ferns, Caladiums, Ericas, stove and greenhouse plants, new plants, fine-foliaged plants, and Coleus. Mr. Petit, of the Botanic Gardens, showed fine Delphiniums, Sweet Williams, and herbaceous plants; as did Mr. Harris, of the nursery, St. Andrew Street, Bury.

There was a pretty good display of fruit, black Grapes being perhaps the most creditable fruit exhibited. The President's prize (J. P. Clay, Esq.), for the best three dishes of fruit, was taken by Mr. Nichol, who showed black and white Grapes. These were held not to be distinct varieties—a singular ruling, in the face of all precedents at the metropolitan and other great shows. But the judges, by two to one, upheld their award, and gave Mr. Squibs, who showed the next best collection, an extra prize. Mr. Squibs was also 1st for black Grapes and for the best collection of vegetables, in which class there was a spirited competition, no fewer than eight exhibitors trying for the Royal prize—so called as arising from the interest of the Bury portion of the profit on the first provincial show of the Royal Horticultural Society.

Hand bouquets were of about the average merit, and there were several collections of wild flowers gathered by children.

The cottagers' vegetables, &c., were numerous and good. This important department of the Bury Horticultural Society has always been carefully worked, and has brought forth abundant fruit, the cottagers' gardens for a circle of 4 miles around Bury being, perhaps, better furnished and kept, and more profitably cropped, than in almost any other part of the county. Prizes are also given for the best window plant and the best hand bouquet, and it is pleasing to note the successful attempts at good culture and taste that are put forth by the cottagers and their children.

Altogether this old society seems still doing good work. It assuredly gets together, with hardly any special effort, and in the absence of all sensationalism in either its schedule or programmes, some of the most prominent shows, at a wonderfully cheap rate to the Society. (*From a Correspondent.*)

The Villa Garden.

WEEDS AND GARDEN REFUSE.—The recent heavy and continuous rains, which, by reason of their remarkable duration, have practically excluded the Villa Gardener from his garden, have, it is to be hoped, to some extent exhausted themselves, but they have caused abundance of work. They have indeed served to give point to the old adage that "ill weeds grow apace," and they have certainly grown during the past week or so with a luxuriance worthy of a better cause. But it is of no use attempting to hoe them up, for there is no chance of their withering away while the atmosphere is moist and cool, and hoeing is so much time wasted. Let every one of them be pulled up by the hand and carried away to the refuse heap.

This is a thorough process, as the weeds are hauled up by the roots before they have a chance of seeding, and their career is conclusively cut short. When weeds are simply hoed in damp weather, a good many of the roots remain in the ground, as well as the stumps of the stalks, and they soon spring up again; and if they are left lying on the soil they simply root into it again, and make a fresh start of growth.

If there be a spare corner in the garden that will accommodate a refuse-heap, there let it be formed. All garden refuse should be saved for manurial purposes, and, if properly managed, it need not become offensive. All the vegetable refuse from the kitchen is stored away on our refuse-heap, and all the fine siftings from the ashes taken from the fire-grates are thrown over it, and in hot weather some soot and lime dust. These, while they act as disinfectants, also assist the putrefying process, and hasten decay. This refuse can be utilised in various ways. We put some at the bottom of Celery trenches, and dig some into spare pieces of cleared ground. It can also be put into the foundations of beds for placing cold frames on, and it is by no means to be slighted as a fertiliser.

WEEDS IN WALKS.—After a drenching rain the gravelled walks should be gone over to draw out from them any weeds. Little tufts of grass that root firmly into the gravel, and are difficult to extract in dry weather, come out with comparative ease when the paths are thoroughly moist; and when they are pulled out the roller should be run over the paths to get the surface smooth again. Such little attentions as these do much towards keeping a tidy appearance about a garden; untidy walks are quite unpardonable. Box and grass edgings just now grow with great rapidity as a result of the late rains, and though we only recently enforced the necessity for keeping these trimmed, it is necessary to advert to the subject again, because in a wet season trimming is more frequently required than in a dry one.

CINERARIAS.—A little seed should now be sown in a light compost made up of leaf-mould, a small quantity of loam, and some silver-sand. Fill the pan with soil, and then gently press it down, making a flat surface. Over this thinly scatter a few seeds, and then cover them with a thin layer of the soil, and gently sprinkle it. Then lay a piece of glass over the pan, and put it on a shelf in the greenhouse; and if the weather be warm and bright put a Rhubarb leaf over the glass, as that will keep the pan cool and moist. It is a very simple process raising seed of Cinerarias, and we knew an old gardener who used to scatter some seed on a bed of fine ashes, and cover it with a hand-light, and it used to grow with great freedom. It is no use for Villa Gardeners to attempt to raise Cinerarias unless they have some means of keeping them through the winter, as some artificial warmth is essential to their well-being during the winter, and especially during frosty weather. They could be wintered in an ordinary frame if it could be heated in any way when required. But they want a good deal of attention, as the leaves are apt to get mildewed in early winter, and when kept close the plants are apt to get affected with greenfly. The Cineraria is such a charming decorative plant in early spring that it is no wonder attempts are made to keep the plants through the winter for the sake of their high floral service.

PRIMULA SINENSIS FIMBRIATA.—A sowing of this fine biennial should be made, following the plan recommended in the case of the Cineraria. The Primula can be wintered better than the Cineraria, as it is not so susceptible of the influence of frost. Last winter, which was an unusually severe one, we kept some plants of Primula sinensis through the winter on a shelf of our greenhouse, and notwithstanding they were frozen hard several times during the winter, yet by keeping them perfectly dry they stood the test unharmed. Our advice to Villa Gardeners is to sow at once as directed, and grow the plants on in small 60-pots, giving them a shift into large 60-pots as soon as they are large enough, and encourage them to fill the pots with roots by the early part of the winter. They will then be nice, wiry-habited, sturdy plants, and if kept dry in time of frost they will winter, on the whole, well, unless there should happen one of those terrible visitations of frost that play havoc with vegetable life. They do not become so subject to attacks of greenfly, nor so uncleanly as the Cineraria; and that is of great advantage to the cultivator.

HARDY PLANTS IN POTS.—Now is the time of year when such hardy spring flowering plants as Auriculas, Primroses, Polyanthuses, &c., should be repotted into their flowering pots, in order that they may get firmly established during the summer and autumn, and thus ensure fine heads of bloom in the spring. We are glad to know that a taste for growing such plants in pots is gaining ground among Villa Gardeners, and suitable pits, frames, and houses are being erected for the purpose. In repotting, turn out the plant from the pot in which it has been growing, remove the crocks at the bottom of the ball; and crumble away a good deal of the soil without altogether reducing the ball. A 48-sized pot will be found the most suitable for plants; but if they are extra large, use a 32-sized pot. Use a compost made up of plenty of leaf soil, some good fibry loam, well rotted dung, so dry that it will crumble to pieces in the hand, and a little sand, well mixed together. All these hardy plants do best when well drained, therefore put a layer of crocks fully half an inch in thickness over the bottom of the pot, and on it some pieces of fibry turf, then some soil, and repot. Pot firmly, and place the plant low enough in the soil, remembering that in the spring roots are thrown out from what is termed the crown of the plant, that is, at the base of the leaves, and as the lowermost leaves decay during the winter there is need for the plants being kept low in the soil. Then stand the plants out-of-doors on boards, or an ashbed in a partially shaded place, and allow them to remain. Here they will mature their growth, and the roots will lay hold of and spread through the soil, and lay the foundation of strong flowering plants for next spring. If hot weather should set in during September the plants should be placed in a cold frame or plunged in an ashbed till the approach of winter necessitates the removal of the plants to the shelter of a greenhouse or frame. The great thing is to have the plants well established in the pots during the autumn and winter, then they make a strong growth in early spring, and flower with great profusion, to the great gratification of the cultivator.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JULY 21, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
July	In.	In.	°	°	°	°	°	°			In.
15	29.48	−0.33	59.4	54.0	5.4	55.7	− 7.0	53.8	94	E.S.E.: E.: E.N.E.	1.16
16	29.63	−0.18	60.5	56.4	4.1	56.8	− 5.9	54.0	90	E.: E.N.E.	0.76
17	29.63	−0.17	63.5	55.2	8.3	57.2	− 5.5	56.0	96	N.E.: N.N.E.	0.42
18	29.58	−0.23	74.9	57.2	17.7	63.9	+ 1.3	56.8	77	N.	0.13
19	29.66	−0.14	63.0	58.2	4.8	59.1	− 3.4	57.0	93	S.W.: S.S.W	0.10
20	29.75	−0.04	69.5	57.5	12.0	61.3	− 1.1	57.6	83	W.: W.S.W.	0.00
21	29.68	−0.11	63.5	54.8	8.7	58.2	− 4.1	52.1	80	W.: WSW: WNW	0.29
Mean	29.63	−0.17	64.9	56.2	8.7	58.9	− 3.7	55.3	88	N.E.: W.	sum 2.86

July 15.—Overcast, dull, and heavy rain fell throughout. Cold.
— 16.—Overcast, dull, and rain fell throughout. Cold.
— 17.—Overcast, dull, and rain fell till 3.30 P.M. Tolerably fine afterwards.
— 18.—Dull and rain in early morning. Fine, bright and warm afterwards.
— 19.—Overcast, misty, and rain fell till 4 P.M. Fine and clear afterwards.
— 20.—A fine day, dull and cloudy at times.
— 21.—Overcast, dull, and rain fell till 2.45 P.M. Fine, but cloudy afterwards.

—— During the week ending Saturday, July 17, in the suburbs of London the reading of the barometer at the level of the sea decreased from 29.63 inches at the beginning of the week to 29.51 inches by the morning of the 11th, increased to 30.10 inches by the morning of the 13th, decreased from 29.65 inches by the morning of the 15th, increased to 29.87 inches by the evening of the 16th, and was 29.77 inches at the end of the week. The mean reading for the week was 29.87 inches, being 0.18 inch less than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged between 66° on the 12th and 59½° on the 15th, the mean for the week being 63°. The lowest temperatures of the air varied from 46° on the 13th to 56½° on the 16th, with a mean for the week of 51¼°. The mean daily range of temperature in the week was 11¾°, the greatest range being 19¾° on the 13th, and the least 4° on the 16th. The mean daily temperatures of the air were as follows:—11th, 54°.3; 12th, 56°.6; 13th, 54°.7; 14th, 54°.8; 15th, 55°.7; 16th, 56°.8; 17th, 57°.2; and the departures in defect of their respective averages were:—8°; 5°.8; 7°.8; 7°.8; 7°; 5°.9; 5°.5. The mean temperature for the week was 55°.7; being 6°.8 below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 126° and 127¼° on the 11th and 12th; on the 15th 66½° was the highest reading. The lowest readings of a thermometer on grass with its bulb exposed to the sky were 42° and 45¼° on the 13th and 14th; on the 16th 55° was the lowest reading; the mean for the seven low readings was 48°.

The direction of the wind was N.E. and S.W., and its strength gentle.

The weather during the week was dull, cold, and the sky generally cloudy. Heavy rain fell from Wednesday at 11 A.M. till Saturday afternoon at 3 30 P.M., with the exception of a few breaks of fine weather on Friday. Rain fell on five days in the week, and the amount measured was 3.04 inches.

In England, the extreme high day temperatures ranged from 76° at Manchester to 63° at Newcastle-on-Tyne, the general average over the whole country being 69½°. The extreme low night temperatures varied between 49° at Liverpool and 40¼° at Eccles, the general average being 44°. The mean of the extreme ranges of temperature in the week was 25½°, the greatest range being at Eccles, 34¾°, and the least at Liverpool, 17¾°. The mean high temperatures observed by day ranged between 67¼° at Manchester, Cambridge, and Sunderland, to 60¼° at Newcastle-on-Tyne, with an average value of 64¼°. The mean low temperatures observed by night varied from 52½° at Truro to 45¼° at Newcastle-on-Tyne, with a general average of 49½°. The mean daily range of temperature in the week was 14¾°, varying from 18¾° at Eccles to 10¾° at Norwich. The mean temperature for the week was 55°, being 9° lower than the value for the corresponding week in 1874. The highest occurred at Truro, 57½°, and the lowest at Newcastle-on-Tyne, 50¾°.

Rain fell on four or five days in the week at most stations; the amounts measured varied from 3 inches at Blackheath and Bristol to three-tenths of an inch at Bradford. The average fall during the week over the country was 1⅛ inch nearly.

The fall of rain during the last four days was remarkable at southern stations, as will be seen in the following Table, showing the fall on each day at several stations:—

Stations.	Fall on Wednesday, 14th.	Fall on Thursday, 15th.	Fall on Friday, 16th.	Fall on Saturday, 17th.	Total.
	In.	In.	In.	In.	In.
Truro	0.90	..	..	0.08	0.98
Bristol	..	2.55	0.13	..	2.68
Blackheath ..	0.49	1.16	0.76	0.42	2.83
Leicester ..	1.07	0.27	..	0.02	1.36
Birmingham ..	..	1.36	0.38	..	1.74
Norwich ..	..	0.52	0.35	..	0.87
Wolverhampton	1.19	0.38	..	0.11	1.68
Cambridge ..	..	1.06	0.37	..	1.43
Nottingham ..	..	1.18	0.47	..	1.65
Sheffield.. ..	0.62	0.05	..	0.35	1.02
Liverpool ..	0.43	..	..	0.17	0.60
Manchester ..	0.39	..	..	0.18	0.57
Eccles	0.45	0.02	..	0.19	0.66
Hull	..	0.02	..	0.99	1.01
Bradford ..	0.04	0.11	0.01	..	0.16
Leeds	0.05	0.10	0.02	..	0.17
Sunderland ..	0.03	..	..	..	0.03
Newcastle-on-Tyne	0.04	..	..	..	0.04

The weather during the week, particularly at southern stations, was dull and very wet, and the sky generally overcast. At northern stations it was generally fine, with slight showers of rain.

A slight thunderstorm occurred at Norwich on the evening of the 17th.

In Scotland, the highest temperatures ranged from 77° at Paisley to 64° at Leith; the general average being 68¼°. The lowest temperatures varied between 45° at Greenock and 38½° at Aberdeen, with an average value of 41½°. The mean range of temperature in the week was 26½°. The mean temperature for the week was 55¼°, being ¼° higher than that of England, and 6½° lower than the value for the corresponding week in 1874. The highest happened at Dundee and Greenock, 56¼°; and the lowest at Leith and Aberdeen, 54¼°. The fall of rain during the week was small, the largest fall being at Leith, seven-tenths of an inch; and the smallest at Glasgow, four-hundredths of an inch. At Greenock and Paisley no rain fell. The general average over the country was two-tenths of an inch.

At Dublin the highest temperature was 69½°, the lowest 38¼°, the mean 55¼°, and the fall of rain seven-tenths of an inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—Late sown *Celosias* intended for autumn flowering, at which time they are far the most useful, should receive attention. Do not let them get cramped in the pots for want of root-room, for if this takes place the growth becomes stunted, and the flowers begin to form, after which the most liberal treatment will fail to induce them to grow freely, or make good plants. This is the more to be avoided as the display they make in the shape of producing fine

heads of flower is commensurate with their strength and size. To grow them large they should have 10-inch pots, and never receive a check until the blooming pots are full of roots; if too tall and the bottom leaves are wanting, half their beauty is spoilt. To avoid this keep them as near the glass as possible, in the lightest situation the house or pit will afford. They are subject to red-spider, which in a very short time will destroy the colour of the leaves; to keep this in check syringe daily, give manure-water once a week.

Young plants of *Anthurium Scherzerianum*, that are required to be got on into good sized specimens without delay, should not be allowed to form and mature their seeds, as this seriously retards their growth. Unless where it is the object to raise young stock from seed, the flowers, as soon as they begin to fade, should at once be removed. The different forms of this plant, large or small flowered, light or high coloured, red or yellow in the spadix, do not reproduce themselves true from seeds; but, it is not desirable to raise seedlings from small or inferior-flowered sorts, as the disposition in the progeny hitherto has generally been to deteriorate rather than improve upon the parent form. The seeds are long in coming to maturity, taking at least eight or nine months from the flowers' first opening, the time of their ripening depending upon the season of blooming: where late autumn flowers were allowed to remain the seeds will ere this be ripe, and may at once be sown, washing them out of the pulpy mass in which they are enclosed, similarly to the way usually done with Melon and Cucumber seed. The seeds of this Aroid will not come up well if treated as most things by being covered more or less when sown; they succeed best in very porous material—sphagnum chopped fine and mixed with one-fourth its bulk of sand answers for them; half fill an ordinary good-sized seed pan with drainage, on which place as much of the sphagnum and sand as will bring it up to the level of the rim, pressing it firmly down, giving a watering so as to settle the surface, which again press smooth so that the seed may not get buried or washed down by future waterings, as those that get below the surface will not come up freely. On this scatter the seeds, and place the pan in a warm house, where the temperature is about 60° in the night. Keep damp and shaded from direct sun; in a few weeks the seedlings will make their appearance, when give more light, but do not expose to the full sun, and as soon as large enough to handle prick them out thickly into pans similarly drained, adding one half chopped fibrous peat to the sphagnum and sand. Keep them on growing, and when large enough move singly into thumb-pots, using similar soil to the last described. Take especial care of the strongest plants that take the lead of the others, as I have found these continue to be the best growers, and also produce the finest blooms. Large specimens of this *Anthurium* that require more root-room cannot be moved at a better time than the present, when the principal flowering is over. It makes its best growth during the winter, and if potted now the plants will reap the benefit of the new soil. It is a surface-rooting subject, and does not need a great depth of material to grow in, but must have plenty of drainage.

Eucharis amazonica.—Where the demand for cut flowers is considerable, too much of this plant can scarcely be grown. Where a sufficient number of specimens exist it can be had in bloom all the year round by growing and resting some portion of the stock at different seasons. Plants that flowered early and have since made sufficient growth should now be put to rest by withholding water until the leaves flag slightly, when they should have a little given them, but not enough to cause them to again commence growth. They may then be placed in a lower temperature for five or six weeks, and just receive as much water as will keep their leaves from injuring; after which, if returned to heat, they will quickly throw up their flowers.

Ferns.—Such things as *Adiantum cuneatum* and *Pteris serrulata* that are grown for cutting are, as has been before advised, the best confined in small pots—6 inches diameter is large enough. They will now have made good growth if they have been well attended to, and should be placed in a situation where they will get properly hardened off before winter, for on this depends in a great measure their future usefulness. Place them where they will get plenty of light and enough air, but if they have been grown under the influence of anything like a moist atmosphere, and a deal of shade, do not allow them now to receive much sun, or they will lose their colour; neither must they be allowed to want for water, or they will suffer similarly. *Tree Ferns* will now have matured the principal lot of fronds which they throw up in the spring; take advantage of this to give a thorough cleaning to any that are affected with scale. This insect is usually confined to the older fronds that hang lowest; remove with brush and sponge all the largest insects, after which, if the plants can be laid on their sides, and the affected parts dipped in Fowler's Insecticide, 5 ounces to the gallon, it will destroy most of the young scale, and save a deal of labour in the slower process by sponging. *T. Baines.*

FLOWER GARDEN, &c.

FLOWER GARDEN AND PARTERRE.—Flower-beds will now require frequent looking over to remove dead or decaying leaves and flowers. Seed pods of *Pelargoniums*, *Verbenas*, *Violas*, and indeed all kinds of bedding plants, should be removed directly the petals fall, as the production of seed, besides giving the beds a shabby appearance, tends greatly to the exhaustion of the plant and the free production of flowers. This is especially the case with *Verbenas*, particularly with that popular old favourite, *Purple King*. Seed bearing soon exhausts this variety, and stops its continuity of bloom. To have fine beds of these they must be frequently picked over, and kept well thinned by nipping a portion of the branches back, so as to let in a fair share of light and air and to bring up fresh young growth. By keeping them sturdy and constantly growing in this way they are not at all subject to mildew—a pest that is sure to attack them if they are allowed to become thick and drawn, and in which state they get beaten down by the first heavy rain.

Calceolarias, *Violas*, *Verbenas*, and such-like plants should have an abundant supply of water, should the weather set in dry, but the former should not receive it overhead, on account of the form of their flowers, which fill with water and fall off. Such free-growing plants as the *Mesembryanthemum cordifolium variegatum*, *Stellaria graminea aurea*, and others used for carpet bedding, soon encroach on varieties less free of growth if not frequently looked to and pinched in, and the effect of this style of bedding is greatly marred unless the marginal lines forming the different patterns are kept clear and distinct.

Continue the sowing and pricking out of hardy perennials, such as *Picotees*, *Brompton Stocks*, *Wallflowers*, &c., as soon as large enough to handle, and note the merits of any new plants on trial in the reserve garden as to their adaptability for any particular purpose. Choice strains of *Phlox Drummondii*, *Dianthuses*, and other border flowers should now be marked for purposes of propagation. The latter have been much improved of late, especially the Heddewigii section. These are a very beautiful class of plants for cutting and to form gay clumps in the mixed border, for which purposes they are most valuable, both on account of their gay colours and continuity of bloom. *Zinnias*, with their large vivid coloured flowers, are very effective in like positions, and for forming large beds where their flowers are valuable for cutting. These and *Asters* should now receive plentiful supplies of manure-water, and if the flowers are required of extra large size for exhibition purposes, the buds must be freely thinned out.

The growth of the various sub-tropical plants will now be very rapid, and unless watched and securely staked and tied as they advance, they are sure to be broken down or damaged by the wind. The same remark applies to *Dahlias*, *Hollyhocks*, and indeed all border plants having a large leaf surface for the wind to act on. The above plants can scarcely be overfed, and liberal supplies of liquid manure should be administered, according to the state of the weather and other circumstances. *Roses*, too, will be greatly benefited by the same treatment, and this will induce them to make fresh growth to bloom in the autumn. Should mildew make its appearance, as is frequently the case at this season, syringe with dilute pentasulphide of calcium, using about a wineglass to a gallon of water, or dust over with dry flowers of sulphur. Push on the budding while stocks and buds are in such good condition, and continue to make cuttings and insert the same under handlights on gentle heat.

Much difference of opinion exists as to the proper time to prune the different varieties of coniferous plants and other trees and shrubs; but any one who has carried out the above operations during the midsummer months, cannot fail to have been struck with the rapid way in which the wounds, made in severing large branches at that particular season, heal over. This, therefore, points to the summer months as the proper time to operate on any choice specimens requiring assistance, such as is sometimes called for in shortening back straggling branches, or entirely removing such as are crowded or cross each other so as to affect the symmetrical shape of the tree. Lovers of coniferous plants are generally averse to the use of the knife, preferring to let the different specimens assume their own natural forms, and in most cases no doubt this course is the best; but it sometimes occurs that two leaders start away, each contending for the mastery, and in this case, as in others stated above, it is necessary to bring the knife into requisition. In geometrical gardens it generally occurs that the trees and shrubs, beds of evergreens, &c., introduced in the arrangement, have to be kept somewhat stiff and formal, and this necessitates a free use of the knife or shears to keep the various plants to the size and shapes required. The shears should be avoided in all cases as much as possible, as tending to disfigure the plants for the time being by severing the leaves, &c. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

MELONS.—The weather is equally bad for Melons as for Cucumbers, and much of the instructions offered in this week's Cucumber Calendar are applicable to the Melons. With an absence of sun-heat, fire-heat should be employed both to plants setting their fruits, as well as to those that are ripening them. It is impossible to secure a good flavour without a good heat. A very dry atmosphere should also be secured to the plants in either of the above stages of growth. In pits and frames the last batch should be growing freely. Train one leader to the back, and the other to the front, and the laterals both ways at a right angle from it. Do not stop the leader till it has travelled two-thirds of its distance, and remove at least every alternate lateral with the thumb and finger directly they can be perceived. Maintain a firm condition of the soil about the roots. Unless already done, the last batch should be sown at once, but it is quite useless to sow thus late, unless plenty of heat can be afforded hereafter. Queen Anne's Pocket Melon can be well grown in pots, and a spare corner in the Pine-stove might be utilised for the production of a late crop of this variety. If previous advices have been well read and acted upon, there remains but little to add just now. Discontinue the use of the syringe to plants in any stage of growth this weather, and be very watchful for canker at the collars, and also for cracked fruits. *Thos. Simpson, Chelmsford.*

THE ORCHARD-HOUSE.—The various kinds of fruit trees in this structure will include *Apricots*, *Peaches*, *Nectarines*, *Pears*, *Plums*, &c., all of which will now be rapidly swelling their fruit, and should be supplied with abundance of water, whether planted out or in pots. The latter will also relish occasional doses of not too strong liquid manure, and the surface dressing may also in some instances be renewed; while the roots may be allowed to freely enter the border on which the pots are placed, and no check should on any account be given to the trees at the present time. Maintain also a somewhat moist and genial temperature by syringing the trees freely and closing the ventilators not later than 5 or 6 o'clock each evening; they may again be opened soon after 6 A.M. when the day is likely to be fine. Stop or pinch back strong shoots where necessary, and rub off superfluous ones, in order to admit light and air freely to the fruit.

Cherry trees in pots should as soon as the fruit is gathered be removed to a favourable situation in the open air to insure the ripening of the young wood and fruit spurs for the following season. And if at all infested by insects, such as the black-fly, red-spider, &c. (which is not unlikely to be the case, on account of the necessary suspension of syringing while ripe fruit hung upon the trees), they should now be thoroughly cleaned by repeated syringings, or otherwise, so that the foliage may remain in a healthy condition as long as possible.

Fig-trees in pots may still have the young shoots stopped where found necessary; they should have plenty of water while the fruit is swelling, and great care must be taken to prevent anything like a check to the trees, the result of which would be the almost certain dropping of the fruit. The foliage should also be kept free from red-spider, if possible, but syringing must soon, in their case, be discontinued, or as soon, at least, as the fruit shows symptoms of ripening, when, if water come in contact with it, it will be likely to rot or damp off. A second crop of ripe Figs cannot always be depended on from trees grown in an unheated orchard-house; but if such trees are in good condition, and the shoots have been judiciously stopped, &c., they will generally (if removed, as soon as the first crop has been gathered, into a structure of some kind where they can have the benefit of a slight amount of artificial heat) produce a crop of fruit equal in flavour, if not in size, to that of the first crop.

Where the *Grape Vine* is grown in this structure whether in pots, as standards or otherwise, or planted out, the fruit will now require to be carefully thinned out, if this has not been already done. A rod of such varieties as the *Royal Muscadine*, *Sweetwater*, or the *Black Esperione*, may always be trained under the glass over the paths in orchard-houses, without in any way interfering with the other sorts of fruit trees contained in the structure, and such Vines will generally produce fruit of excellent quality. The roots of the plants may be inside the house or otherwise, as may be most convenient; but in most cases, in order to give up the interior of the structure as much as possible to the other varieties of fruit trees, the roots of the Vines trained in this manner may, with advantage, be kept outside in a bed of suitable soil prepared for them. *P. Grieve, Culford, Bury St. Edmunds.*

CUCUMBERS.—The weather for the past fortnight has not been quite favourable to the Cucumber; for the rain "it raineth every day," and the almost total absence of sun, has in many quarters in this Cucumber growing district resulted in a plentiful crop of yellow fruits, together with mildew in the foliage, and canker both at the collar and in the old growths, and this has happened more particularly in establishments

where fire-heat has been dispensed with. I recommend, therefore, that a gentle fire-heat by night, if not by day, be employed during a continuance of this weather. For the destruction of mildew there is nothing better than flowers of sulphur or Simpson's antidote, and for canker, as I have many times pointed out, there is nothing so efficacious as freshly slaked lime. We may hope for better and brighter weather shortly, when the blind should be rolled down a little earlier than usual, to prevent flagging. I have previously pointed out that to allow the foliage of the Cucumber to flag not only destroys the energies of the plants, but offers a foothold for red-spider. Pot off the autumn fruiters in due time, nipping out the growing points above the second rough leaf, and complete the preparation of the dung and soils, rooting out the old plants, and thoroughly cleansing the house preparatory to a fresh start. Preserve all the small fruits from the exhausted plants for pickling. Fumigate on the appearance of the first green or black fly. In pits and frames the plants might have the benefit of a gentle shower occasionally. Keep the growths fairly thin, and add a little more soil from time to time where possible. Ridge Cucumbers are just coming in, and may be allowed to grow pretty much as they like. *Thos. Simpson, Chelmsford, July* 20.

Answers to Correspondents.

THE CHARLOTTE ROTHSCHILD PINE-APPLE (Qy. 54, p. 54): I am unacquainted with the origin of this variety. I can, however, readily understand its being likened to a "Queen" in certain places, because there are undoubtedly two varieties of it extant. The stock which we possess was obtained from two different sources, both being very vigorous growers and of similar habit, but the character of the fruit in appearance is very distinct, one having large flattened pips, resembling those of a well swelled smooth-leaved Cayenne, the other answering to the information given by your correspondent, "Pengwern." I propose shortly to submit a fruit of each of these varieties for the opinion of the Fruit Committee of the Royal Horticultural Society. *Geo. Thos. Miles, Wycombe Abbey.*

BOOKS: *Amateur.* You will not get all you seek in any one book; but if you will get Williams' *Select Stove and Greenhouse Plants*, vols. i. and ii., and Thomson's *Handy Book of the Flower Garden*, you will probably find most of the information required.

DRACÆNA: *J. M.* You will do well to adopt the customary pronunciation, as if the word were written "Drasena."

FIGS: *An Inquirer.* The Figs grown at Arundel are Brown Turkey, and a very fine white variety known in the neighbourhood as the "Arundel Fig." Whether it is identical with any other known sort we are not aware. On the high dry-lying garden at Arundel any plant, such as the Fig, liable to suffer through the cold of our winters, would no doubt be in a more favourable position than where the ground was lower and damper; but we attach much more importance to situation than to soil. The coast of Sussex is celebrated for its Figs.

INSECTS: *A. D.* The beetle sent produces larvæ, which are white, curved, and quite like the Nut maggots. *I. O. W.*

INSECTS ON POTATO LEAVES: *E. B.* We found one plant-bug (Phytocoris, pupa), two froghoppers (Cicadella), and the skin of one aphis on the leaves sent. Their attacks by sucking the leaves would be unappreciable, and would not affect the haulm. *I. O. W.*

NAMES OF PLANTS: *J. E. Daniel.* Lilium pardalinum, var. pallidifolium: a Californian plant, widely spread in cultivation.—*J. S. Updown.* The Fern is the form of Adiantum Capillus-Veneris sometimes called Moritzianum; and might be open to objection if shown as a British plant, though it is now and then allowed to pass.—*A. W.* Achillea Ptarmica fl. pl —*C. Dimmick.* Metrosideros tomentosa.—*H. K.* 1, Amorpha fruticosa; 2, Gleditschia sinensis. The fly-catcher is Apocynum androsæmifolium. In this case the object seems to be to secure the proper fertilisation of the flower.—*J. W.* Medicago arborea.—*W. D. H.* Linaria vulgaris (yellow), Ononis arvensis (pink).—*C. W. D.* Gnaphalium uliginosum, and Crepis biennis.—*Portlogan.* 1, Aira caespitosa; 2, Glyceria fluitans; 3. Arrhenatherum avenaceum; 4. Poa pratensis; 5, Lolium perenne; 6, Bromus mollis.—*John Godfrey.* 1, Briza media, common Quake-grass; 2. 6, 7, Agrostis vulgaris, common Agrostis; 3, Hordeum pratense, Meadow Barley; 4, 9, Phleum pratense, Cat's-tail; 5, Alopecurus pratensis, Meadow Fox-tail; 8, Cynosurus cristatus, Crested Dog's-tail; 10, Lolium perenne, Rye-grass Lolium; 11, Anthoxanthum odoratum, Vernal-grass; 12, Holcus lanatus, common Holcus.—*Ebor.* 1, Cattleya Harrisoniana; 2, Cattleya guttata var.; 4, Oncidium Wentworthianum; 5. Stanhopea oculata; No. 3 we are unable to name, and have sent it to Professor Reichenbach for determination. — *C.* 1, Lastrea tenericaulis; 3, Sedum spurium probably, but without flowers we cannot be certain; 4, Helichrysum rupestre; 5, Pleopeltis; 6, Aloe sp., probably distans or brevifolia, but we cannot say which without flowers and a description of the habit.

RESTING-SPORES OF PERONOSPORA: *W. M. Ely.* We have looked at the plate you mention, and have conferred with Mr. Smith and others, who, while not expressing an opinion as to what the bodies figured are, are unanimous in saying that they are not the resting-spores of the Peronospora.

ROSE LEAVES: *H. A. B.* Your Rose leaves are covered on the under side with the Uredo spores of Phragmidium mucronatum, which is just beginning to be developed. If brought to perfection, the leaves will be black instead of yellow. Unhappily there is no remedy, for the spores fall to the ground, and even the following season, if favourable, it will appear again, but possibly with far less virulence. No chemical has any power over such a blight as this. *M. J. B.*

TRICOLOR PELARGONIUMS: *An Inquirer.* No treatment could be more unsuited for Tricolor Pelargoniums than keeping them in a warm moist house. So treated, the leaves are sure to suffer. Grow them in good fibrous loam, to which add a little sand. Do not give them too large pots. Keep through the winter in a night temperature of 45° to 50°, and as near the glass as possible. All Pelargoniums like a dry atmosphere, especially in the winter; through the growing season they will be benefited by a sprinkling over-head with the syringe on bright afternoons, still giving them plenty of light and air. Treat the silver kinds similarly, but they are more delicate than the golden.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

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COMMUNICATIONS RECEIVED.—J. D.—D. T. F.—J. Carter.—C. Y. M.—J. S. B.—J. C.—B. G.—R. B.—J. M.—A. W.—W. P.—R. A.—J. A. H.—W. J.—H. H. C.

DIED.—At The Lodge, Kintore, on the 13th inst., FARQUAHARSON SMITH, Seedsman and Nurseryman, Aberdeen and Kintore. Friends will please accept this intimation.

Markets.

COVENT GARDEN, *July* 22.

A more adverse season for fruit than this we have never known; at least more than half of the crops have been entirely destroyed, and what is left is barren of quality. There have been a great many West India Pines imported during the last three weeks, of very good quality, and importations of Gages and Plums are large; there has also been offered this week, from France, some Jargonelle and Bon Chrétien Pears of fair quality. Hothouse Grapes very plentiful, but not first-rate. *Thos. Taylor, Wholesale Apple Market.*

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, 12 blooms	0 6–	2 0	Nemophila, 12 bun.	1 6–	3 0
— Clove, per doz	0 3–	0 9	Pelargoniums, 12 spr.	0 6–	1 6
— mixed, 12 bun.	4 0–	12 0	— Zonal, do.	0 3–	1 0
Cornflower, p. doz. bun.	3 0–	6 0	Primula, dbl., p. bun.	0 9–	1 6
Deutzia, per bunch	0 4–	1 0	Roses; indoor, p. doz.	2 0–	6 0
Eschscholtzia, 12 bun.	3 0–	6 0	— outdoor, 12 bun.	4 0–	9 0
Eucharis, per doz.	6 0–	12 0	— Moss, 12 bun.	6 0–	12 0
Gardenia, per doz.	2 0–	6 0	Spiræa, 12 sprays	1 0–	3 0
Heliotropes, 12 spr.	0 6–	1 0	Stephanotis, 12 sprays	2 0–	6 0
Lilies, white, p. bun.	0 6–	1 6	Stocks, 12 bun.	6 0–	12 0
Mignonette, 12 bun.	4 0–	6 0	Sweet Peas, 12 bunch	4 0–	9 0
Myosotis, per bunch	0 4–	0 9			

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0–	12 0	Hydrangeas, per doz.	9 0–	24 0
Bouvardias, do.	9 0–	18 0	Lilium lancif., p. doz.	24 0–	60 0
Calceolarias, do.	6 0–	18 0	Lobelia, do.	4 0–	9 0
Crassula, do.	12 0–	30 0	Mignonette, do.	3 0–	6 0
Cyperus, do.	6 0–	12 0	Myrtles do.	3 0–	9 0
Dracæna terminalis	30 0–	60 0	Pelargoniums, dble., per doz.	6 0–	12 0
— viridis, per doz.	12 0–	24 0	— Scarlet, do.	3 0–	9 0
Ficus elastica	1 6–	7 6	Petunia, per doz.	6 0–	9 0
Fuchsia, per doz.	3 0–	18 0	Roses, do.	12 0–	60 0
Gardenias, do.	12 0–	60 0	Solanums, do.	6 0–	18 0
Gladiolii, do.	9 0–	18 0	Spiræa, do.	12 0–	24 0
Heaths, in var., doz.	12 0–	30 0	Stock, do.	3 0–	6 0
Heliotrope, per doz.	6 0–	12 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0–		Leeks, per bunch	0 2–	0 4
Aubergines, per doz.	4 0–		Lettuces, per score	1 0–	
Beans, French, per bushel	10 0–		Mint, per bundle	0 4–	
— broad, per bushel	3 0–		Mushrooms, per pott.	1 0–	2 0
Beet, per doz.	1 0–	2 0	Onions, young, bun.	0 4–	0 6
Cabbages, per doz.	1 0–	2 0	Parsley, per bunch	0 4–	
Carrots, do.	0 6–		Parsnips, p. doz.	0 9–	1 0
Cauliflowers, spring, per doz.	2 0–		Peas, per quart	1 6–	
Celery, per bundle	1 6–	2 0	Radishes, per bunch	0 2–	0 4
Cucumbers, each	1 0–	2 6	Shallots, per lb.	0 3–	
Endive, per doz.	1 0–	2 0	Salsify, per bundle	1 6–	
Herbs, per bunch	0 2–	0 4	Sprue, French, bund.	1 6–	
Horse Radish, p. bun.	3 0–	5 0	Tomatos, per doz.	4 0–	
			Turnips, per bundle	0 8–	
			Veg. Marrows, doz.	2 6–	

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 3*s.* to 7*s.* p. cwt.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0–	2 0	Lemons, per 100	8 0–	12 0
Apricots, per box	1 0–	3 0	Oranges, p. 100	8 0–	12 0
Cherries, per lb.	0 6–	1 6	Peaches, per doz.	6 0–	18 0
Currants, red, ½-sieve	2 6–	4 0	Pine-apples, p. lb.	2 0–	5 0
— black, p. ½-sieve	4 0–	6 0	Strawberries, per lb.	0 4–	1 6
Figs, per doz.	4 0–	8 0	Walnuts, p. bush.	16 0–	
Grapes, per lb.	2 0–	5 0			

SEEDS.

LONDON: *July* 22.—The excitement now existing on the Corn Market has to some extent communicated itself to the seed trade, and in certain descriptions a good amount of business, at considerably enhanced rates, has been the result. For Trefoils there is a very active demand, the impression being quite general that the recent unpropitious weather cannot but have done great damage to the new crop, some heavy sales have consequently taken place at an advance from the lowest point of £4 to £5 per ton. There is a fair trade doing in Trifolium; the present tendency of values, owing to the excessive rains, is upwards. It appears probable that the French will this season be buyers of this article rather than sellers. Clover seeds are just now neglected. Mustard and Rape seed are in improved request on former terms. For Canary seed the sale is small, the opinion being held that, notwithstanding the recent remarkable decline of about 50 per cent., very much lower rates must shortly be reached. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

At Mark Lane on Monday Wheat was held for 1*s.* per quarter more money than on Friday, or an advance of from 4*s.* to 5*s.* on the week. The fresh supply of English was short, while that of foreign was rather good. Barley was not appreciably higher in price. Malt remained dull, at late rates. Oats were quoted from 1*s.* to 2*s.* per quarter dearer, but dealers were slow in operating. Maize was dearer, and rather firmer. Beans and Peas were taken off quietly, at about 1*s.* per quarter advance. Flour was very firm; town made, top price, 47*s.* per sack; country sacks were 5*s.* to 6*s.*, and American barrels from 2*s.* to 4*s.* higher than on this day week.—On Wednesday, the weather continuing unsettled, the market showed increased firmness. English Wheat was in short supply, and quite 2*s.* per quarter higher in price; but there were liberal arrivals of foreign, and the advance in this description was not so easily made. Barley participated in the upward movement, and so also did other descriptions of spring corn, and for flour enhanced rates were demanded.—The average prices of corn for the week ending July 17 were:—Wheat, 46*s.*; Barley, 33*s.* 11*d.*; Oats, 30*s.* 4*d.* For the corresponding week in last year:—Wheat, 60*s.* 10*d.*; Barley, 39*s.* 6*d.*; Oats, 31*s.* 2*d.*

CATTLE.

At the Metropolitan Market on Monday the demand for beasts was not brisk, and prices cannot be quoted higher on the average. There were a few more sheep, but the demand was pretty good, consequently a fair clearance was effected at about late rates. Trade was heavy for lambs, and the top quotation was but rarely reached. Calves were plentiful, trade was slow for them at lower rates. Quotations:—Beasts, 4*s.* to 5*s.* 4*d.*, and 5*s.* 10*d.* to 6*s.* 6*d.*; calves, 4*s.* 4*d.* to 5*s.* 6*d*; sheep, 5*s.* 4*d.* to 5*s.* 10*d.*, and 6*s.* 4*d.* to 7*s.*; lambs, 6*s.* 4*d.* to 7*s.* 8*d.*—On Thursday choice quality beasts were scarce and dearer. There was a fair demand for sheep, at fully Monday's quotations. Lambs were on the average dearer, as were also choice calves. Trade continued dull for both English and foreign milch cows.

HAY.

From Whitechapel we learn that, with no increase in the supply, and no decrease in the demand, prices have advanced this week, prime Clover making from 100*s.* to 155*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 152*s*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 40*s.* per load.—Cumberland Market quotations: Superior old Clover hay, 150*s.* to 160*s.*; inferior, 110*s.* to 126*s.*; new hay, 115*s.* to 132*s.*; superior old Clover, 140*s.* to 155*s.*; inferior, 110*s.* to 130*s.*; new Clover, 105*s.* to 135*s.*; and straw, 42*s.* to 47*s.* per load.

POTATOS.

The Borough and Spitalfields markets reports state that the arrivals are to some extent interrupted by the rain; trade is steady, and prices show no great alteration from last week. New English Shaws, 90*s.* to 120*s.* do. kidneys, 100*s.* to 140*s.*; do. Regents, 110*s.* to 130*s.*; Jersey rounds, 80*s.* to 100*s.*; do. kidneys, 130*s.* to 160*s.* per ton. Last week's imports consisted of 106 tons, 600 boxes, and 682 casks from Barfleur; 921 boxes, 317 casks from Cherbourg; 71 tons from Jersey, 191 packages from Guernsey, 14 casks from Hamburg; and 12 tons, 660 casks, from St. Vaast.

COALS.

The market on Monday was characterised by firmness, but there was no change in price; the same remarks apply to Wednesday's business. Quotations:—Bebside West Hartley, 19*s.* 9*d.*; Hastings Hartley, 19*s.* 9*d.*; Wallsends-Lambton, 21*s.* 6*d.*; Kelloe, 19*s.* 6*d.*; East Hartlepool, 21*s.* 9*d.*; Original Hartlepool, 22*s.*; Tees, 21*s.* 9*d.*

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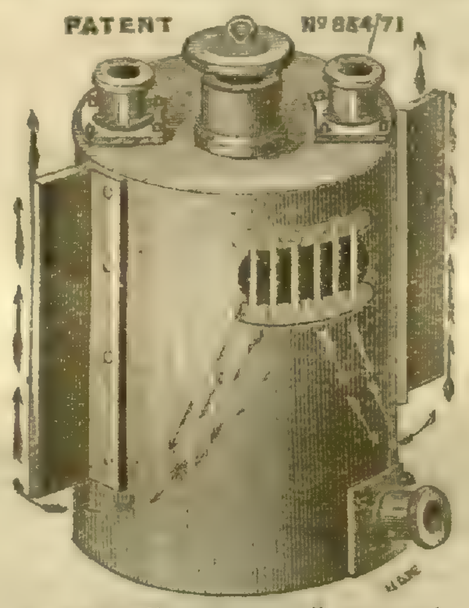

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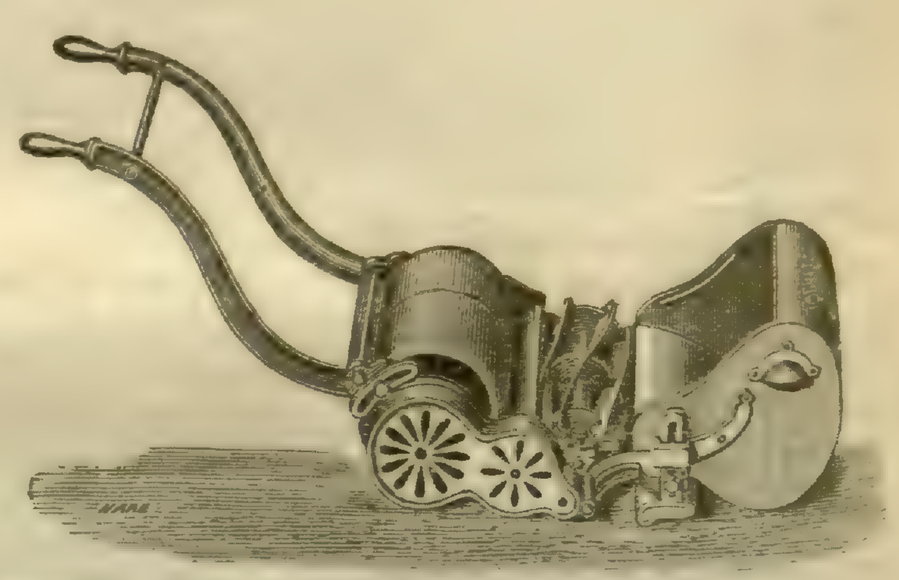

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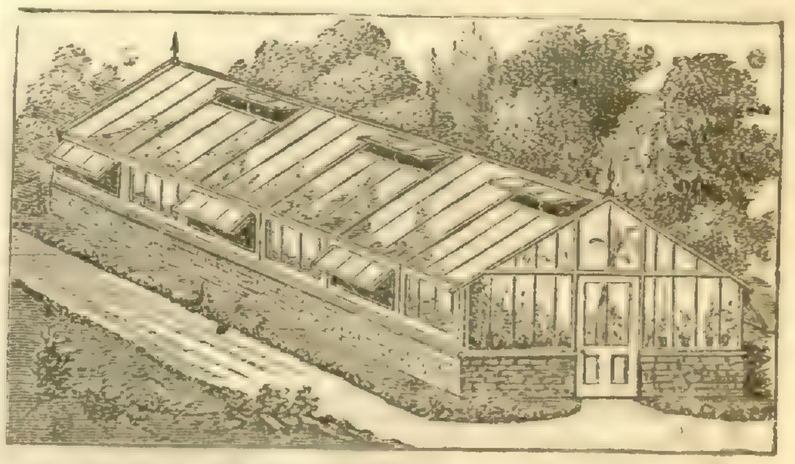

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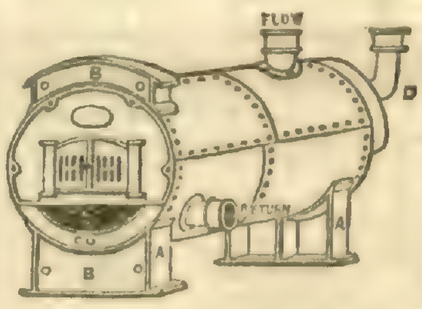

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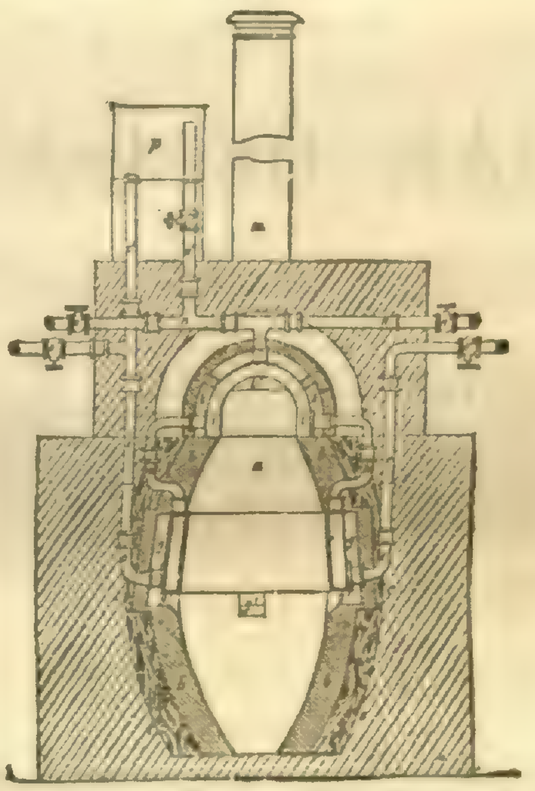

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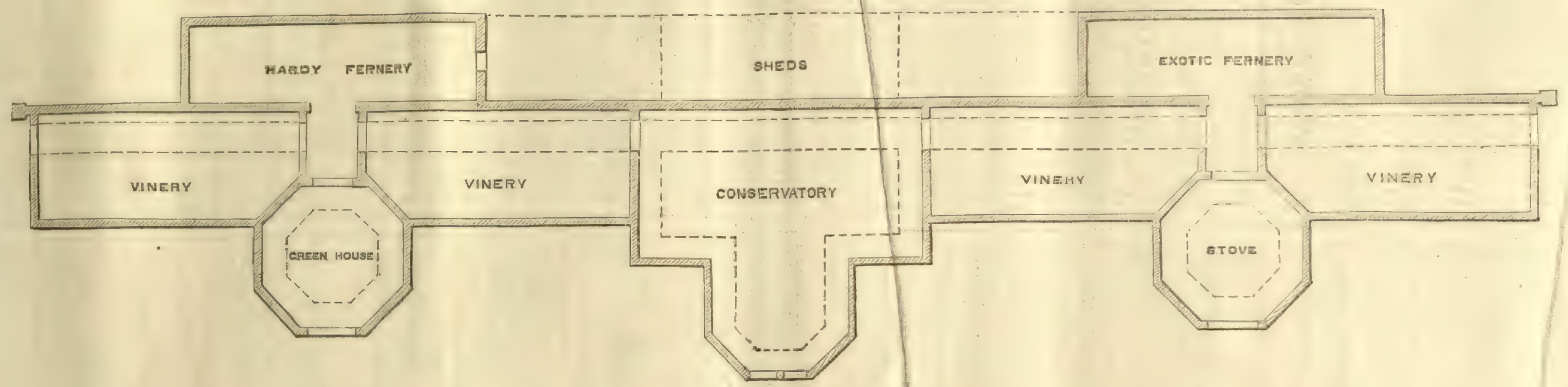

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T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.
Carlton, Tasmania.

Strawberries.

CHARLES TURNER can now supply good Plants from the select collection grown at Slough. Orders given at once will ensure a good crop of fruit next season. A DESCRIPTIVE LIST can be had on application.
The Royal Nurseries, Slough.

Pines a Bargain.

SUCCESSIONS and SUCKERS, including about 5 dozen Queens, 2 dozen Jamaicas, and 1 dozen Smooth Cayennes, all clean and very strong. Price and particulars of
EDWIN HILLIER, Nurseryman, Winchester.

SUPERIOR SEEDS for AUTUMN SOWING (Carriage Free).—Turnip of all sorts, Rape, Scarlet, and all other Clovers; Italian and other Rye-grasses, Mustard, Permanent Pasture Mixtures, and all other Seeds for present sowing of very superior quality.
JAMES DICKSON AND SONS, Seed Growers, 108, Eastgate Street, Chester.

PYRUS MAULEI.—The hardiest and most beautiful New Fruit (from Japan) ever introduced to this country. Established plants, in pots, now sending out at 21s. each; smaller sizes, 15s. and 10s. 6d. each. Trade as usual.
WM. MAULE AND SONS, The Nurseries, Bristol.

200,000 Vegetable Plants, now Ready.

WHITE BROCCOLI, SAVOY, BRUSSELS SPROUTS, SCOTCH and other KALE, all of the best sorts, 3s. 6d. per 1000 for 5000; 5s. per 1000 for 1000, assorted. Carriage paid to London. Cash or reference.
H. J. HARDY, Stour Valley Seed Grounds, Bures, Essex.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

SPHAGNUM for ORCHIDS, 10s. per sack, of splendid quality and largely used.
JAMES ANDERSON, Nurseryman and Valuator, Meadowbank, Uddingston, Glasgow.

COCOA-NUT FIBRE REFUSE (newly made), 20 bushels, 6s. 8d.; 20s. per 100 bushels, 45s. per 300 bushels. Larger quantities contracted for.
J. STEVENS, Fibre Works, High Street, Battersea, S.E.

COCOA-NUT FIBRE REFUSE (H. Wright's Pure) for all Gardening purposes, as supplied to 1200 Nurserymen and Gardeners—20 bushels, 6s. 8d; 50 for 12s. 6d.; Truck, 45s. Delivered free within six miles, or on rail. Sample bushel, sack included, on receipt of twelve stamps.
HENRY WRIGHT, Fibre Merchant; Warehouse, 81, Bishopsgate Street, London, E.C.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.
BROWN and BLACK PEAT, for general purposes.
Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5s. 6d. each.
FRESH SPHAGNUM, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1s. 6d. and 3s. per bottle—1s. 9d. and 3s. 4d. per bottle, if packed for travelling, of the Manufacturers,
EWING AND CO., Norwich.

SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6s. Supplied to Seedsmen and Chemists.
Prepared by JOHN KILINER, Wortley, near Sheffield.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100s.; Petersburg, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; packing Mats, 20s., 30s., and 35s. per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens, sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Metallic Hothouse Builder to Her Majesty.

HENRY HOPE (late Clark & Hope, formerly Clark), HOTHOUSE BUILDER and HOT-WATER APPARATUS ENGINEER,
55, Lionel Street, Birmingham. Established A.D. 1818.
BOOKS of DESIGNS, 5s. each.
☞ The Extensive Ranges of Metallic Hothouses in the Royal Gardens, Windsor and Osborne, were executed at this Establishment.

SALES BY AUCTION.

Alteration of Date.—Hackney, E.

CLEARANCE SALE.—To GENTLEMEN, FLORISTS, BUILDERS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Welsh, to SELL by AUCTION, on the Premises, Morning Lane, Hackney, E., on THURSDAY, August 5, at 11 for 12 o'Clock precisely, without reserve, the remaining choice STOVE and GREENHOUSE PLANTS, Hybrid Perpetual and other ROSES in pots; Variegated IVIES, CLEMATIS, and other Climbers; large ADIANTUMS, in 12-pots; LOMARIA GIBBA CRISPA, in 48-pots; BOUVARDIA, in 12-pots; PICOTEES and CARNATIONS, and PHLOXES; also the erection of 10 GREENHOUSES, Ranges of PITS, SHED, 6 3-light BOXES, HOT-WATER PIPING, BOILERS, quantity of BRICKS, 400 casts of GARDEN POTS, 2 Iron ROLLERS, BARROWS, Iron PUMP, and other effects.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, Valuers, and Estate Agents, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Extensive Consignments of First-class Dutch Bulbs
OF SUPERIOR QUALITY.

Messrs. P. & M. have personally visited the Farms in Holland, and have arranged with the Best Growers to consign only the Cream of their Stock.

MESSRS. PROTHEROE AND MORRIS call special attention to their WEEKLY SALES, without reserve, of the above, which will take place, at the Mart, Tokenhouse Yard, City, E.C., commencing MONDAY, SEPTEMBER 6, and continuing till DECEMBER 13 NEXT.

Catalogues (when ready) may be had of the Auctioneers, 98, Gracechurch Street, City, E.C. Twelve stamps will secure the transmission for three successive months.

Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions from O. O. Wrigley, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, August 4, at Half-past 12 o'Clock precisely, a COLLECTION of fine ESTABLISHED PLANTS—of Pleione, including maculata, lagenaria, humilis, and Wallichiana, with from 18 to 110 flowering bulbs in each pot; Calanthe Veitchii, nivalis, Turneri, vestita lutea and rubra, all strong and fine; several grand specimens of Cœlogyne cristata, 3 to 4 feet in diameter; also, Cattleyas, Lælias, Oncidiums, Odontoglossums, Chysis, Pescatoreas, Dendrobes, Cypripediums, Masdevallias, Ferns, &c., all well-grown healthy plants from the collection of O. O. Wrigley, Esq., of Bury and sold for want of room.

On view the morning of Sale, and Catalogues had.

Important Sale of Specimen Plants.

MR. J. C. STEVENS has been favoured with instructions from Ambrose Basset, Esq. (who in consequence of his intention to travel is parting with his plants), to SELL by AUCTION, on the Premises, Sister House, Clapham Common, on THURSDAY and FRIDAY, August 5 and 6, at half-past 12 o'Clock precisely each day, his entire COLLECTION of PLANTS, consisting of upwards of 100 Azaleas, specimens of various sizes, all well trained plants, and in the best possible health—no expense has been spared to make this the best collection in the kingdom; a magnificent collection of Camellias, consisting of the best kinds in cultivation, all well set with bud, and varying in size from 2 to 10 feet high; a carefully selected collection of greenhouse Rhododendrons—these are admirably adapted for decoration or for use as cut blooms; valuable Stove and Greenhouse Plants, consisting of Allamandas, Dipladenias, Crotons, Dracænas, &c.; also Orchids, Palms, Ferns, Tree Ferns, Specimen pot Roses of the best kinds, &c.

May be viewed the day previous and mornings of Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.

Admission to the Sale by Catalogues only.

Cirencester Great Ram Fair.

MESSRS. ACOCK AND HANKS will SELL by AUCTION in the above Fair, on MONDAY, August 2, about 15 COTSWOLD SHEARLING RAMS, the property of Mr. Swanwick, the College Farm. This Flock has this year obtained at the Royal 1st and 2d prizes for Old Rams, 2d for Shearlings, and 1st for Theaves; and at the Bath and West of England, 1st for Old Rams, 1st and 2d for Shearlings, and 1st for Theaves; besides numerous Prizes at Local Shows.

Blount's Farm, Sawbridgeworth, Herts.
IMPORTANT SALE of CORN CROPS.

MR. G. E. SWORDER begs to announce that he has been favoured with instructions from John Prout, Esq., to SELL by AUCTION, at the above Farm, on FRIDAY, August 6, the excellent GROWING CROPS, comprising 200 acres of Wheat, 130 acres of Barley, 50 acres of Oats, together with the whole of the straw; also 52 acres of second-cut Clover, and two stacks of capital first-cut Clover Hay (about 115 loads).

The Crops may be viewed at any time. Luncheon at 10 o'Clock.

On Account of Expiration of Lease.
HIGHLY IMPORTANT SALE of ORNAMENTAL, STOVE, and GREENHOUSE PLANTS.

MR. PHILIP DE GROOT, NURSERYMAN, Steenbrugge, near Bruges, Belgium, will SELL by AUCTION, without reserve, on MONDAY, August 16, and following days, at 2 o'Clock precisely each day, the whole of his stock of STOVE and GREENHOUSE PLANTS, along with a great number of CONIFERS, forming one of the finest collections existing in Belgium; hardy Ghent Azaleas, Agaves, Dracænas, &c., and comprising amongst others:—4000 Palms, 9000 double and 2000 single Camellias, 4000 Azalea indica (grafted), 3500 Laurels, 1500 Laurustinus, 350 Phormiums (variegated), 450 Aucubas in sorts, 5000 Conifers, &c. All in baskets or pots.

On view on Saturday, August 14 next, and Catalogues had.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

To Florists, Fruit Growers, &c.

TO BE SOLD, with immediate possession, a first-class DWELLING HOUSE with HALF an ACRE of GARDEN (more Land adjoining if wanted), enclosed by substantial Walls, with Three very Large Hothouses, heated by 4-inch Pipes and Patent Boiler. Ten minutes' walk from Fulwell Station; 12 miles from London. Apply to Mr. McLEAN, Queen's Road, Hampton Hill.

To Market Gardeners, Farmers, and Others.
STABLE MANURE.

TO BE LET, the MANURE of about eighty-three Horses, standing at Haydon Square, Minories, E. Terms upon application to PICKFORD AND CO., Gresham Street, E.C.

To Contractors, Landscape Gardeners, and Others.

BOROUGH of BIRMINGHAM. — The Baths and Parks Committee are prepared to receive TENDERS for the WORKS required to be performed in Forming and Draining the Walks and Laying-out and Planting Highgate Park.

Plans, Sections, and Specifications of the proposed Works may be seen at the undermentioned Offices on and after the 30th instant. The Tenders to be sent in on TUESDAY, August 17.

The Committee do not pledge themselves to accept the lowest or any Tender, and will require satisfactory security for the due performance of the Contract.

WILLIAM S. TILL, Borough Surveyor.
Borough Surveyor's Offices, Moor Street, July 23.

GOVERNMENT EMIGRATION.

SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For passages and further information, apply to the AGENT-GENERAL, 3, Westminster Chambers, Victoria Street, S.W.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of CHARLES J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

Carter's

PRIZE SEEDS OF FLORISTS' FLOWERS.

CALCEOLARIA, "the best," per pkt., 2s. 6d.

CINERARIA, "the best," per packet, 2s. 6d.

PRIMULA, "the best," per packet, 2s. 6d.

Post Free.

THE QUEEN'S SEEDSMEN,
237 and 238, HIGH HOLBORN, LONDON, W.C.

NEW CLEMATIS, now being sent out by JOHN STANDISH AND CO.:—

ASCOTIENSIS.—The flowers are considerably larger than Jackmanni, and are well shaped, containing six petals each; colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit. 10s. 6d. each.

MRS. QUILTER.—A magnificent white flower, containing eight petals; it is the largest, smoothest, and purest of all the whites, and a very free bloomer, with strong habit. 10s. 6d. each.

The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.

Royal Nurseries, Ascot, Berks.

CALCEOLARIA, CINERARIA, PRIMULA and CYCLAMEN.

The best strains in the kingdom, including James', Waters', and other well-known growers,

Price, per packet, 2s. 6d.; or one each of the 4 varieties for 7s. 6d.

CYCLAMEN BULBS for Christmas blooming, James' Prize, 2s. 6d. and 3s. 6d. each.

HARDY PERENNIALS, 12 choice varieties, 3s. post free.

THE HEATHERSIDE NURSERIES CO. (Limited), 59, Queen Victoria Street, London. Nurseries—Bagshot, Surrey.

Bedding Roses.

CRANSTON'S CRIMSON BEDDER; strong plants, in 5-inch pots, 30s. per dozen.

TEA-SCENTED, CHINA, NOISETTE, and HYBRID PERPETUAL ROSES, in 4 and 5-inch pots, 9s. to 15s. per doz.

Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.

Address, CRANSTON AND MAYOS, King's Acre Nurseries, Hereford.

Sutton & Sons

RECOMMEND THE FOLLOWING CHOICE

ONION SEEDS

FOR PRESENT SOWING.

These varieties, if sown at once, will come to a very large size next spring and summer.

NEW QUEEN.—The earliest of all Onions. If sown at once will be ready for use this autumn. 1s. 6d. per packet.

NEW GIANT ROCCA.—Very large, mild flavour; can be grown 2 to 3 lb. weight. 1s. per ounce.

LARGE EARLY RED ITALIAN, LARGE EARLY WHITE ITALIAN.—Very large, hardy, and good keepers. Each, 1s. per ounce.

GIANT LATE RED ITALIAN, GIANT LATE WHITE ITALIAN. Coming in a fortnight after the preceding. Very large. Each, 1s. per ounce.

NEAPOLITAN MARZAGOLA.—Very quick growth. 1s. per packet.

☞ *Postage 2d. per ounce extra.*

PARTICULARS OF OTHER CHOICE

VEGETABLE and FLOWER SEEDS

For Present Sowing, gratis on application.

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

NEW PLANTS.

Amaryllis Hendersoni	Crowea angustifolia
,, ,, coccinea	Dracæna Duffii
,, Henry Little	Epigynium acuminatum
Asplenium nobile	Hæmanthus Rooperi
Armeria cephalotes alba	Ixora Fraserii
Blandfordia flammea elegans	Nerine rosea
Bouvardia bicolor (hybrid)	Plumeria bicolor
,, multiflora (species)	Sonerila Hendersoni
Cantua corymbiflora	,, ,, argentea
Cyclamen Peakeanum	,, ,, marmorata
Convolvulus mauritanicus atrocœruleus	Yucca stricta, &c.; with other new Florist Flowers.

The above, first offered in Trade this season, are now ready for sending out. See full descriptions and prices in

E. G. HENDERSON AND SON'S

PLANT CATALOGUE for 1875,

which will be forwarded on application, and to regular customers will be sent their

SEED CATALOGUE for 1875,

Containing the following Flowers for present sowing, of choice quality:—

CALCEOLARIA, mixed colours, 1s., 2s. 6d. and 5s. per pkt.
CINERARIA, mixed, or separate colours, 1s., 2s. 6d. and 5s.
PRIMULA SINENSIS FIMBRIATA, fine strain, colours separate or mixed, 2s. 6d. and 5s. per packet.
,, RUBELLA, fl.-pl., double red, 2s. 6d. and 5s.
,, NIVEA, fl.-pl., double white, 2s. 6d. and 5s.
,, PRINCE ARTHUR, double red, 2s. 6d.
,, PRINCESS ALICE, new, double blush-rose, 2s. 6d. and 5s.
CYCLAMEN PERSICUM, mixed colours, 1s. and 2s. 6d.
,, Double-flowered, 2s. 6d. and 5s.
MYOSOTIS DISSITIFLORA, true variety, 6d. and 1s.
CINERARIA, double-flowered. The seed now offered is saved from fifty to sixty plants selected from a thousand (the remainder being destroyed), and these again divided into two sections. 1st section, 5s.; 2d section, 2s. 6d. per packet.

The Wellington Nursery, St. John's Wood, London, N.W.

TREE FERNS.

THE LARGEST AND BEST STOCK IN EUROPE.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above; also of his

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

NEW GIANT CYCLAMEN

CYCLAMEN PERSICUM GIGANTEUM.

B. S. W. has much pleasure in offering, for the first time, New Seed of this splendid novelty.

The variety now offered, "giganteum," is the commencement of a new and greatly improved type, having very broad, beautifully mottled coriaceous leaves, and stout flower-stalks, throwing the flowers well above the foliage, each flower measuring from 2 to 2½ inches in length, with broad petals of great substance, pure white, with a fine bold violet-purple eye.

Per Packet, 5s.

BENJAMIN S. WILLIAMS,
VICTORIA AND PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

Scott's Wasp Destroyer.

J. SCOTT offers his well-known preparation to Fruit Growers at 1*s.* 9*d.* and 2*s.* 9*d.* per bottle, post free, on receipt of stamps. No one who has fruit to grow should be without it. May be obtained through all Seedsmen, or direct from
JOHN SCOTT, The Seed Stores, Yeovil.
N.B. Beware of spurious imitations.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
CORN MANURE, for spring sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

TANNED GARDEN NETTING, 1½*d.* per Square Yard, for Protecting Seed-beds, Peas, Fruit, Strawberries, &c., from Birds, Frost, Blight, &c., and as a Fence for Fowls, in 1, 2, 3, and 4-yards widths. Hexagon, Tiffany, and other Netting, Galvanised Wire Netting, Pea Hurdles, and Seed Protectors, by
C. WRIGHT, 29, Lime Street, E.C., late 376, Strand, W.C.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable, at 1*d.* per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.
EDGINGTON'S CRICKET and GARDEN TENTS are the prettiest.
EDGINGTON'S MARQUEES for Hire are the most elegant and capacious.
EDGINGTON'S RICK CLOTHS for 69 years have maintained their celebrity as the best.
TIFFANY, SCRIM CANVAS, and every other kind of NETTING.
Be particular—FREDK. EDGINGTON AND CO., Rick Cloth, &c., Manufacturer to Her Majesty, 52, Old Kent Road, London, S.E.
A quantity of good Second-hand Government TENTS for Sale, Cheap.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.
TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3*d.* per yard, or 100 yards, 20*s.*, 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.*
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
TIFFANY, 6*s.* 6*d.* and 7*s.* 6*d.* per piece of 20 yards.
EATON AND DELLER, 6 & 7, Crooked Lane, London Bridge.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle; Prince Christian for Frogmore Lodge; the Royal Gardens, Kew; the late Sir Joseph Paxton; and the late Professor Lindley, &c.
MADE of PREPARED WOOL and HAIR.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied.
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" CANVAS—
2 yards wide .. .. 1*s.* 10*d.* per yard run.
3 yards wide .. .. 3*s.* per yard.
4 yards wide .. .. 3*s.* 10*d.* per yard.
"FRIGI DOMO" NETTING.
2 yards wide .. 1*s.* 6*d.* and 1*s.* 10*d.* per yard run.
None genuine unless stamped with Name and Trade Mark.
E. T. ARCHER, Stanstead and Brockley Roads, Forest Hill, S.E.; and all Nurserymen and Florists. All goods free to London.

The Royal Pottery, Weston-super-Mare.

UNDER ROYAL PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.
JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

Lightning Conductors.

Experience, accumulated since the time of Benjamin Franklin, proves conclusively that a Conductor made of copper of adequate size is the best of all appliances for the Protection of Every Description of Building from the destructive effects of Lightning.
NEWALL AND CO.'S PATENT COPPER ROPE LIGHTNING CONDUCTOR,
As applied to all kinds of Buildings and Shipping in all parts of the World with unvarying success, is the most reliable, most effective, and cheapest Conductor offered to the Public. It is simple in its application, no insulators being required, and it costs only 1*s.* per foot for the standard size, which is safe in any storm.
R. S. NEWALL AND CO., 130, Strand, W.C.; 36, Waterloo Road, Liverpool; 68, Anderston Quay, Glasgow.
Manufactory—Gateshead-on-Tyne.

Notice.

(*By Appointment to the Royal Horticultural Society.*)
To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.
ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.
ADAMS AND FRANCIS, Advertisement Agents,
59, Fleet Street, E.C.

Under the Patronage of the Queen.

J. SMITH'S IMPROVED METALLIC LABELS.

The above Labels—which have just been adopted for the Royal Gardens at Windsor—are made of a White Metal, with RAISED BLACK-FACED LETTERS, and are of various shapes and sizes. Samples and Price List free.
Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

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SATURDAY, JULY 31, 1875.

PELARGONIUMS.

(*Continued from* p. 98.)

NEXT in importance to the "bedding Geraniums," which we have already noticed, comes *the* "Pelargonium" of popular nomenclature. If the variety observable in the former species was remarkable, what shall we say of the range in colour and form which is displayed in the blossoms of these most beautiful plants? It would be impossible to believe that such results could be produced by cultivation if the plants themselves were not a living evidence of the fact; and the wonder is increased by the recollection that this class of Pelargoniums is of much more recent introduction to our collections than the "zonal" and "scarlet."

It would be impossible to ascertain with any degree of certainty the parentage of any given variety of Pelargonium. Mr. Hemsley, following MM. Decaisne and Naudin, says that they are "the descendants of P. grandiflorum and some other species;" but judging from figures and specimens the species named has no very obvious connection with most of the "fancy Geraniums" now in cultivation. It is normally a white-flowered plant of diffuse habit, having a very long slender tube to the calyx and long-stalked deeply-lobed leaves: it was introduced by Masson about 1794, and specimens from Kew Gardens in 1798 are in the British Museum herbarium. It is a pretty plant enough, and would be an interesting reintroduction, and may have had considerable influence upon existing varieties; it is figured in Sweet's *Geraniaceæ* (tab. 29), and Andrews' *Botanists' Repository* (tab. 12).

It is, however, probable that many of the greenhouse Pelargoniums are connected with P. cucullatum, a handsome species which was introduced to our gardens by the Earl of Portland as early as 1690. Dr. Harvey considers that many of the garden hybrids are derived from this species, which is very common about Cape Town, where it is often used as an ornamental hedge plant.

In Andrews' *Geraniums* there are several Pelargoniums which have a very strong resemblance to certain of the varieties now in cultivation. Such, for instance, is his Geranium angustum, a robust plant with large, rather coarse leaves and pink flowers, the two upper petals of which are striped with dark red; this "was raised by Mr. Perry, nurseryman, at Banbury, in Oxfordshire, in 1809, and was there sold at a guinea each plant, being then a novelty, and only in one person's possession. But a lapse of seven years from that period has spread it about in all directions, and few good Geraniums are now so common or cheaper." We may note *en passant* that, although the above passage must have been written in 1816, if the date of the raising of the plant be correctly given, the two volumes of *Geraniums* bear the date 1805 on their title-pages. Andrews' Geranium pubescens is similar to another common greenhouse variety, which is characterised by its leaves, stems, and calyces being covered with a soft, more or less viscid, pubescence; the flowers are of a pinkish lilac throughout, the two upper petals being delicately and copiously veined with blackish red, with a spot of the same colour in the centre. This, Andrews says, "appears to be the compound production of several different species." His Geranium speciosum is a familiar white-flowered form, the upper petals of which are veined, but not blotched, with red-purple; and his variety of G. formosum is a similar plant, but the upper petals are both blotched and veined with purple. But nothing can be gained from any further citation of names which have been unanimously and deservedly ignored by recent botanists—"truly trivial names," as they are well termed by Dr. Harvey, who does not attempt to identify the Pelargoniums named by Sweet and Andrews. The monograph of the genus in De Candolle's *Prodromus* does indeed take up these names and figures, but it is of little practical use. At the end of Andrews' book he figures "a flower of an homogeneous genus, called Hoareianum," with "variations of it," which represent many still popular forms of Pelargoniums: these, he says, "are all varieties of our G. maculatum, with little, if any, essential variation of foliage beyond the latitude that must be allowed this vacillating tribe of plants. We could have added more variations connected with this species, if the limits of our plate would have admitted them." He also figures a range of varieties of P. grandiflorum.

In the five volumes of Sweet's *Geraniaceæ*, which followed Andrews' book, and were published in 1820-30, very many of the Pelargoniums now in cultivation are beautifully figured, their origin being in many cases stated; and several species and varieties not now grown are also illustrated. Too much praise cannot be bestowed on the care manifested in the plates of this work, which throws much light upon the history of "fancy Geraniums," but which space will not allow us to do more than refer to *en passant*.

The Ivy-leaved Geranium (P. peltatum), "Geranium Ivy," or "Flowering Ivy" as it is often called by cottagers, with whom it is a special favourite as a window climber, was raised in the Duchess of Beaufort's garden in 1701 from seeds brought from the Cape. It spread very rapidly in English gardens. Petiver, in the *Philosophical Transactions* for 1713, writes of it as follows:—"This is a spreading low plant, with shining, thick, juicey, tart, round, umbrella leaves; those towards the flowers are angular and pointed: its tassel-flowers are large, of a blush colour; the petals all of the same size, and the two uppermost streak'd with red. It flourishes most part of the year at Chelsey, Fulham, Enfield, &c. It grows wild in the districts of Haycoon at the Cape of Good Hope." A copy of this description accompanies a specimen from Petiver in the Sloane herbarium. Several forms of this species are in cultivation, notably a variegated one, and one with a dark zone in the centre of the leaf; the former variety is figured by Andrews. The hybrids lately produced between this species and P. zonale have deservedly attracted much attention.

The "sweet-scented Geraniums" next come under notice. Three species at least are in popular cultivation under this name, viz., P. graveolens, P. quercifolium, and P. capitatum. The first of these is the one most frequently met with: it has long-stalked hairy leaves, which are palmately lobed or nearly partite, the segments themselves being also deeply cut; the flowers are small, pale pink or lilac, the two upper petals being each marked with a darker spot. It was introduced to England by Francis Masson in 1774, and specimens grown at Kew in 1778 are in the British Museum herbarium. Mr. Lowe says that it is used everywhere in gardens in Madeira for forming ornamental clipped hedges. In this island it forms a stiff bushy shrub, from 1 to 3 feet high. The familiar odour of the leaves is differently regarded by different persons; thus Dr. Harvey calls it "balsamic," while Mr. Lowe characterises it as a "strong, disagree-

able, though subaromatic scent." Many varieties of this species are in cultivation in English gardens.

The Oak-leaved Geranium (P. quercifolium) is also an old garden favourite, introduced from the Cape in the same year, and by the same collector as the last-named species. It has much general resemblance to P. graveolens, but the leaves are not nearly so much divided—Dr. Harvey describes them as "sinuato-pinnatifid." They are but shortly stalked, thus giving the plant a more solid and bushy appearance; the flowers, too, though similar, are larger. The scent is also different—disagreeable according to Dr. Harvey, but pleasant to others.

A near ally of this species is P. glutinosum, which was introduced to Kew Gardens by Messrs. Kennedy and Lee about 1777; specimens from them in 1780 are in the British Museum herbarium. This is a large plant, the leaves of which are more hastate in outline than those of P. quercifolium, but otherwise resemble them, and are very viscid or clammy to the touch. The flowers, too, are larger and more ornamental. This is another species which is naturalised in Madeira, where it is very extensively used as a hedge plant. The scent, which Dr. Harvey characterises as heavy and balsamic, is, according to Mr. Lowe, "strong, but to many people not altogether disagreeable, something like that of a tan-yard, but combined with a pleasant aroma." P. tomentosum—a plant with soft, velvety lobed leaves and very small white flowers, is another species which has been in cultivation on account of its scent, which somewhat resembles that of Peppermint: it was introduced in 1790.

P. capitatum—sometimes called the "Rose Geranium"—is another scented species which is of some economic importance. We are indebted for it, as also for P. cucullatum, to the Earl of Portland, by whom it was introduced in 1690. It has lobed cordate long-stalked leaves, and densely crowded heads of numerous deep rose-coloured flowers; the whole plant is soft, with long white hairs. This species is extensively cultivated in Provence and other parts of central France, an essential oil which is extracted from its leaves being largely employed in perfumery, and for adulterating the essential oil of Roses. Dr. Piesse, in his *Art of Perfumery*, gives some interesting details as to the cultivation and use of this species, to which he seems to refer under the name of P. odoratissimum. He says:—

"The leaves of this plant yield by distillation a very agreeable rosy-smelling otto, so much resembling real otto of Rose that it is used very extensively for the adulteration of that valuable scent, and it is grown very largely for that express purpose. It is principally cultivated in the South of France, and in Turkey, by the Rose growers. In the department of Seine-et-Oise, at Montfort-Jamaury, in France, hundreds of acres of it may be seen growing. One hundredweight of leaves will yield about two ounces of essential oil. Used to adulterate otto of Rose, it is in its turn itself adulterated with Ginger-grass oil (Andropogon), and thus formerly was very difficult to procure genuine; on account of the increased cultivation of the plant, it is now, however, easily procured pure. Some samples are greenish-coloured, others nearly white, but we prefer that of a brownish tint. When dissolved in rectified spirit, in the proportion of about four ounces to the gallon, it forms the extract of Rose-leaf Geranium of the shops. A word or two is necessary about the oil of Geranium, as much confusion is created respecting it, in consequence of there being an oil under the name of Geranium, but which in reality is derived from one of the Andropogons cultivated in the Moluccas. The said Andropogon (Geranium!) oil can be used to adulterate the true Geranium, and hence we suppose its nomenclature in the drug markets. The genuine Rose-leaf Geranium otto fetches about 6*s*. per ounce, while the Andropogon oil is not worth more than that sum per pound. . . Some fine samples of otto of Geranium have been brought to England, being the produce of Spain, very nearly as good as the otto imported from Grasse. It was sold at 3*l*. 6*d*. per ounce."

In our concluding notice of Pelargoniums we propose to draw attention to a few of the more remarkable and desirable species which have been, but are not at present in cultivation.* *B. M.*

* In last article, p. 97, col. *c*, line 14 from top, for "zonale" read "inquinans."

New Garden Plants.

SACCOLABIUM DIVES, *n. sp.**

This is quite a botanic curiosity. The leaves are 7 inches long by ⅝ inch wide, very straight and rather of strong texture. The inflorescence is very rich, of whitish yellow small flowers, making one think of the rich racemes of some Erias. I have no knowledge whence it comes. It ranks near Saccolabium gracile, Lindl., but that has much narrower, smaller leaves, and distant flowers. I obtained it from Mr. Bull. *H. G. Rchb. f.*

MUSCARI MOSCHATUM VAR. CRETICUM, *Baker.*†

I take this to be a curious variety of the well-known Muscari moschatum, but added to its botanical differences from the type, which reduce themselves to a diminution in the size of all the parts, and the flowers being furnished with distinct pedicels, it is entirely without scent and flowers a month or six weeks later. It was in full flower on June 20, on which date my notes were made. The bulbs were procured by Mr. Elwes in Crete, on the White Mountains, at a height of some 7000 feet above sea level, and it was flowered by him at Cirencester this present year, and a specimen presented to the Kew collection. Leaves in shape and texture just like those of Muscari moschatum, three in number, sub-erect, 3—4 inches long. Scape 2 inches long. Raceme deltoid, moderately dense, 1½—2 inches long. Lower flowers greenish with a mere purple tip, oblong, 4 lines long, supported on patulous pedicels nearly as long as themselves. Bracts just like those of common moschatum. Upper flowers smaller and entirely purple. *J. G. B.*

* *Saccolabium dives*, Rchb. f., n. sp.—Foliis lineari-ligulatis apice inæqualiter oblique retuse que bilobis; racemis densissimis plurimifloris decurvis (semper?); bracteis triangulo setaceis, ovaria pedicellata non æquantibus; sepalis tepalisque oblongo-ligulatis obtusiusculis; labelli laciniis lateralibus semioblongis, lacinia media triangulo-lineari introrsum uncata; calcari cylindraceo, apice subito attenuato; columna antrorsum gibba. *H. G. Rchb. f.*

† *Muscari moschatum var. creticum*, Baker.—Inodorum, æstivale; foliis 3—4 linearibus glaucis suberectis 3—4 poll. longis; scapo bipollicari, racemo deltoideo 1½—2 poll longo; floribus inferioribus oblongis 4 lin. longis viridulis apice leviter purpureo-tinctis, pedicellis patulis 3—4 lin. longis præditis, superioribus minoribus prorsus purpureis.

THE RESTING SPORES OF THE POTATO DISEASE.

(*Concluded from p.* 101.)

As I have now had the fungus which causes the Potato disease under close observation for the past seven weeks, I send you some of the most noteworthy facts which have more recently attracted my attention.

1. The plants sent to the Royal Horticultural Society by Mr. Dean on July 21 were covered with the Peronospora far beyond anything I had ever seen before. The haulm, the leaves (on both sides alike), and the berries, were covered. Some of these plants, after being placed on a garden bed, and covered with leaves (to keep them moist), were the next day one white mass with the Peronospora.

2. The Potato fungus (as commonly seen) bears a far larger number of simple spores than inflated vesicles containing the zoospores or swarm-spores, but in Mr. Dean's plants the fungus produced zoospores almost exclusively, and in the greatest abundance. As the zoospore is a higher development of the plant than the simple-spore, this latter observation points to the unusually robust health of the fungus this season.

3. On suspending the infected leaves over a glass of water for from twelve to seventy-two hours, the swarm-spores fell in abundance (either free or in the vesicle) on to the water, and there germinated. No single drop of the water could be taken up for examination without meeting with the germinating spores, the threads radiating over the water in every direction, evidently in quite a congenial element. It brought the following fact to light, which is of importance—some of the vesicles which usually discharge the swarm-spores discharged instead a thick mass of mycelium; and this cord, when it had proceeded a considerable distance over the water, there had its contents differentiated in a necklace-like manner, and gave birth to the zoospores far removed from the original vesicles. The same thread also produced two true oogonia on the water.

4. In your last report of the meeting of the Scientific Committee (p. 113, middle column), under Saprolegnia, you say Mr. Renny showed a species of Saprolegnia which might be mistaken for the spores (meaning oogonia) of Peronospora. But if reference is made to my original paper it will be seen from the first that I have perceived the intimate connection between the new condition of the Potato fungus and the Saprolegnieæ. On my side I have the high authority of Thuret and Berkeley for similar alternation in the diseases of silkworms, flies, &c. I am quite prepared, therefore, to consider Mr. Renny's plant the same, or some close ally, with mine, even if it should turn out to be a true Pythium, and its oogonia produce zoospores in water, especially after what is known of the nature of Cystopus, the close ally of Peronospora. Two strong points in favour of this view are these:—(1.) The resting-spores of Pythium are *unknown*, but if I find Pythium inside Potato stems and leaves mixed up with the Peronospora, and the same Pythium in the very centre of the tuber of the Potato (as I have done), there maturing itself and forming its resting-spore, then the identity of the two may reasonably be assumed, and the resting-spore of the Pythium, as well as the Peronospora, is found. (2.) The same cells in the Saprolegnieæ will alternately produce, under the same (or different) conditions, zoospores or resting-spores, therefore, if zoospores are produced in Mr. Renny's oogonia in water, it is reasonable to assume that under different conditions resting-spores would be formed by similar cells. I have, from the first, believed the Saprolegnia condition of the fungus to be widely diffused, and when in that state it quite possibly grows on diverse plants and substances in watery places, as you well explained the subject last week. The Saprolegnia is the caterpillar condition (belonging to the water, like the larva of the dragon-fly), the Peronospora somewhat analogous with the perfect butterfly, and the resting-spore with the chrysalis.

5. I find by experiment, when badly diseased haulm and fruit is partly submerged for from one to four days, the Peronospora changes its character, and produces the Pythium or Saprolegnia-like growth on the submerged parts. On examination of the plants this may be easily overlooked, as the Saprolegnia commonly frees itself and floats on the surface of the water, and must be carefully taken off (invisible as it is) with a camel-hair pencil. If the oogonia now produce zoospores in the water, as in Pythium, which is possible and even probable, it in no way invalidates my views, or makes the connection less probable between a true Pythium and the Peronospora.

6. The aërial spores of the Peronospora never become globular in water, whilst the oogonia and antheridia are always so.

7. A superabundance of water excites the growth of the mycelium, but it retards the proper production of the resting-spore, just as a superabundance of water in most plants makes leaves and retards flowers.

8. In my calendar of the weather I find we had here only five wet days from May 7 to June 10 (no wet between May 8 and 20), and it was during this dry weather that the potato fungus this year lived inside, and at the entire expense of the plant, and there perfected its resting-spores. With the twenty-two wet days after June 10 the Peronospora put on its usual shape, and came to the surface.

9. I have got my most abundant materials from the tuber when soft and almost transparent, like painter's size; in this state the starch is utterly destroyed, and, what is most curious, there is no offensive smell. The tuber frequently decomposes with a horrible fœtor, and turns whitish inside; the starch is then all present and not much injured, and very little indeed can be seen of the fungus.

10. The season is too far advanced, and the fungus has already caused too much destruction, to think of grappling with it this season, but when it is remembered how the Vine and Hollyhock parasites have been restrained, it certainly does not seem impossible that means may be found to mitigate the damage done every year by the Potato murrain. *Worthington G. Smith.*

HALF HOURS AT KEW.—IV.

ACACIAS.

(*Continued from p.* 815, *Vol. III., n.s.*)

HAVING said something respecting the geographical distribution of the species of this attractive genus of plants, and given a few historical notes on the history of the introduction of some of those in cultivation, we may now proceed to the consideration of the merits of certain species for ornamental purposes. From our remarks on their distribution, it will be understood that by far the greater portion of them will succeed best in a temperate house or greenhouse, but they

range from hardy in the milder parts of the south-west of England and Ireland, to those requiring a tropical climate. For the winter and spring decoration of the conservatory, or any house in which the temperature is not allowed to fall below the freezing point, few things are more showy; and they bear the dry heat of a room pretty well. Of course, to have them in bloom in winter it is necessary to maintain a somewhat higher temperature, say never below 40°, rising to 60° during sunny days. It is to these cool and warm greenhouse and nearly hardy species that the following remarks apply; indeed, we confine ourselves here to the Australian and Tasmanian forms. A word respecting the use of the appellations—New Holland, Swan River, &c., as applied to the whole or a part of Australia. In various works on gardening, gardeners' dictionaries, and nurserymen's catalogues, it is not uncommon to see "New Holland" given as the native country of one species, whilst the next is reported to come from "Australia," a third from "Swan River," and so on. Taken singly each one is right, but these names have so much the appearance of referring to different countries, that the sooner people leave off calling Australia New Holland the better; and the Swan River settlement in West Australia, forming part of the colony of Western Australia, is no longer generally known by that name. It is not surprising, after this carelessness on the part of book-makers, to see collections at our shows labelled in the same inconsistent manner. Indeed, we have observed this anomaly in some of the collections exhibited by the foremost nurserymen this season. Van Diemen's Land, the name formerly applied to Tasmania, is also made to ring the changes with the adopted one.

Limiting ourselves, then, to the Australian, including, of course, the Tasmanian, species of Acacia, they may be divided into those having only bipinnate leaves, and those having all or most of their leaves reduced to a "phyllode" or flattened leaf-stalk. Taking the "flat-leaved" section first, they may be subdivided into two groups, one having the flowers clustered in small globular heads, and the other in which they are arranged in oblong or cylindrical spikes. The characters for the minor divisions are mainly drawn from the shapes and nervation of the phyllodes. A peculiarity possessed by most of the species in common is the presence of one or more glands on the upper edge of the phyllodes. In the flat-leaved section these glands appear to occupy the points whence a pair of pinnæ would be given off, were they developed. At least this seems to be the case in A. melanoxylon and others which produce some true leaves. The purpose of these honey-secreting glands has not been thoroughly investigated, but it is a subject that is very interesting. We, here, can only speculate on their use in the economy of the life of the plant; but an attentive study of the species in their native country might reveal their true nature.

Following Mr. Bentham's arrangement in the *Flora Australiensis* and in other works, we have first, in the division with globular heads of flowers, a series of species termed the Alatæ, on account of the phyllodes being continuous with the branches, and running down two sides of them in the form of wings. A. alata, introduced from West Australia in 1803, is a good example of this series. The form in cultivation is very hairy, and is a compact, free-flowering bush, 4 to 6 feet high. Like all the western species this requires a moderately warm greenhouse with a dryish atmosphere. A. platyptera, figured in the *Botanical Magazine*, plate 3933, is a variety with longer narrow phyllodes, raised from seeds sent home by Drummond. A. diptera, and the variety erioptera, with hairy phyllodes and larger flowers, are from the same region. The latter was introduced in 1840.

The next series, the Pungentes, includes a larger number of cultivated forms, characterised by having usually very narrow or linear sharp-pointed phyllodes. This series is subdivided into minor groups, of which the first has usually two or more nerved phyllodes, the second one-nerved phyllodes, and the third is remarkable in having spicate flowers; all the others of this character forming a series by themselves at the end of the Phyllodinea. To the first group belongs the not very attractive A. cochlearis, a West Australian species, introduced in 1818. The one-nerved set includes several cultivated forms, among them A. juniperinæ, with small, linear, sharp-pointed leaves, giving it some resemblance to a Juniper. It is one of the most desirable species for general cultivation, and has been in our gardens ever since 1790. In cultivation it grows 6 or 8 feet high, and it is covered in early spring with a profusion of pale yellow flowers; slightly different varieties have received distinct names as species. This species has a wide range of distribution on the eastern side of Australia, from the Brisbane River to the extreme South, and extending to the island of Tasmania; it is reported to grow in rocky places and in light sandy soil. A. diffusa is an allied species from Victoria and Tasmania of more recent introduction. It is of a looser, more spreading habit, and grows naturally in healthy ground in Stringy-bark forests, and other dry and barren places. Two very curious species of this group—not, so far as we know, in cultivation—are A. quadrisulcata and A. laricina. The former is a straggling, viscid, pubescent shrub, with narrow, almost four-sided phyllodes; and the latter is a dwarf bush, 1 to 2 feet high, with Larch-like foliage: both are western forms.

Coming to the group of this series with spicate flowers we have such familar species as A. Oxycedrus, verticillata and Riceana, all three very ornamental and hardy. A. verticillata grows in moist situations in various parts of Tasmania, Victoria, &c.—a fact to be borne in mind in its culture. It was introduced in 1780. The ordinary form has very narrow rigid sharp-pointed phyllodes, about half an inch long, and usually arranged in whorls of six to eight; the variety latifolia has lanceolate or oblong phyllodes, and ovoidea is a handsome Tasmanian variety with very short spikes. Dr. Hooker collected it among grass in dry places. A. Riceana is a highly ornamental species, hitherto only found in moist shady places on the river Derwent, in the south of Tasmania. It has dark green very narrow phyllodes, which are scattered or whorled, and its general aspect is that of a slender Conifer. If trained up the roof of a conservatory it will make flexible, cord-like branches, from 20 to 50 feet long. As a tree it has gracefully pendent branches, but it is perhaps scarcely so profuse a bloomer as some species. This would, doubtless, succeed out-of-doors in the milder parts of the United Kingdom.

The Calamiformes form the next series of the species, which are chiefly remarkable for their often very long and narrow or terete phyllodes. A. calamifolia, from desert regions in New South Wales and Victoria, is the only species of this series in general cultivation. This has narrow phyllodes, 3 to 4 inches long, and is more curious than beautiful; it was introduced in 1823. A. restiacea, juncifolia, scirpifolia, and ericifolia are very curious species, not in cultivation, bearing some resemblance in their foliage to the plants from which their several specific names are derived. A. squamata is remarkable for the imbricate striate scales which cover the unexpanded flower-heads.

A very remarkable series, the Brunioideæ, follows. All the species are from the northern parts of Australia, and none, we believe, are in cultivation. The names cedroides, lycopodifolia, hippuroides, and galioides will suggest some of the strange forms belonging to this series.

The series Uninerves is a very large one, including nearly one hundred species, inhabiting the most distant parts of the country. The phyllodes are vertically flattened, and almost invariably furnished with one central or nearly marginal nerve, very rarely with two nerves, and usually devoid of a sharp point. The first group of this series consists of about half a dozen West Australian species, with spinescent branches, none of which appear to be in cultivation. Then comes a small group, of which the familiar A. armata is a good type, all of them having short, more or less undulate phyllodes, and one-headed peduncles. A. armata was introduced in 1803, and from its dark green foliage, compact habit, and abundant flowers it has become a general favourite, and is now found in almost every collection of hard-wooded plants. It is a very variable species, having a wide range of distribution, and, under cultivation, it has given birth to several varieties, some of which, possibly, are of hybrid origin. Mr. Bentham considers A. undulata as a variety of armata, and ornithophora of Sweet, hybrida of Loddiges, and tristis of Graham, and micracantha of Dietrich, are referred hither. The remaining groups of this series we must reserve for another article. *H.*

DARLINGTONIA CALIFORNICA AT GLASNEVIN.

WE took occasion a few months back to allude to the remarkably fine specimen at Glasnevin of this singular production of the boggy slopes of the Sierra Nevada, and expressed our belief that it was the finest example of this curious plant to be met with anywhere in Britain. We mentioned at the time that it was this plant which furnished the splendidly developed pitchers with which the distinguished President of the Royal Society illustrated his remarkable lecture on "carnivorous" plants before the British Association last autumn, at Belfast, and expressed an opinion that, large and fine as these pitchers were, their dimensions would probably be "considerably increased this season," as the plant had just then been "transferred from the pot in which it was growing to a pan of large dimensions, where it will have a larger feeding ground." That this anticipation has been more than realised will appear from what we are about to state as to the present aspect and condition of the plant.

Of pitchers, old and new, small and large, it now carries about a score; but towering stately far above their fellows are the wonderful half-dozen of this year's growth. In every way these latter are nearly, if not quite, double the size of those produced last year, from which were selected the specimens used by Dr. Hooker to illustrate his lecture, and which we heard him state on the occasion were the finest which he had ever seen. We believe, in fact, that they were larger and finer than any met with on the plant in its native habitats, and were regarded at the time as being exemplars of about the maximum development of which the plant is capable in respect of its seductive insecticidal amphoræ. As above remarked, those of the present season's growth are six in number; the height of the tallest is about 2 feet 6 inches; the inflated tessellated hood or dome measures about 6 inches by 4 inches, and would scarcely be covered by a partially closed hand of largest size, and the usually small orifice leading to the tube, which is covered by the hood, is fully an inch and a half wide. The two singular, fish-tail, coloured flaps which depend from and then diverge laterally in front of the dome are each about 3 inches long, and measure fully a span from point to point.

The medium in which the plant is growing so vigorously is chiefly composed of chopped sphagnum combined with a portion of rough, fibry heath soil and lumps of charcoal, the whole surfaced over with growing sphagnum. The drainage has, of course, been well cared for, and the plant sits slightly elevated on its mossy mound, over which is dotted, here and there, tiny plants of that begemmed little insect trapper of our own bogs—the round-leaved Sundew. This remarkable specimen of the Californian Pitcher Plant stands on the front shelf of a low span-roof house, with a north-west aspect, in companionship with such things as Dionæa, Cephalotus, Drosera binata, and that prettiest of Sundews, Drosera capensis. Dr. Moore has reason to be proud of his Darlingtonia, and, we think, may safely challenge the gardens of Europe to show such another. *Irish Farmers' Gazette.*

THE ALIMENTATION OF PLANTS.

IN the *Gardeners' Chronicle* for May 15 there is a little paragraph which contains within it considerably more than meets the eye. Although so full of meaning it is no more than this:—"At Belvoir granite dust is found an admirable soil in which to grow Vines, while the bunter sandstone, deficient in lime, is valued for Camellias."

The fact is suggestive, and may have caused some of our readers to reflect whether the principle it involves be not capable of much wider application. To help them we give the substance of two remarkable papers, entitled "l'Alimentation des Plantes," contributed a few days previously to *Le XIXme. Siècle* by Monsieur Xavier Dubois, engineer.

Nobody will deny, he says, that if one thing be absolutely necessary for man's existence it is his alimentation. If he do not eat he dies; it is one of those truths that are sometimes worth recalling to mind. They are so clear that they are apt to be misunderstood in consequence of the disdain with which we regard them. But if we are all aware that we must not fail to eat, if we strive to fulfil that function regularly and as pleasantly as possible, we are apt to forget one elementary truth—namely, that we are nourished, not by what we eat, but by what we digest. We pay much more attention to the toothsomeness than to the hygiene of our bills of fare.

If we act with such thoughtlessness in a matter which concerns our own proper selves it will not be surprising if we treat the alimentation of plants in an off-hand way. The preparation of their food is not an agreeable task. "Give them manure," say routine people; "that's enough." Manure, no doubt, is a capital thing; but the question is, whether it is always sufficient—whether it cannot be made more complete and effectual by the addition of other fertilisers; whether every manure is equally suitable to arable land and to the crops which that land is expected to produce.

"But to ascertain that," say the routineers, "we must study chemistry; we must find out the way in which plants are fed. It's a heap of trouble; it's much too difficult." And then they mumble Ollivier de Serres' old saw, "Never change your ploughshare!" That is to say, "Do what was done before your time, and never set a step in a forward direction."

It is so convenient to slumber in ready-made habits, dozing on old prejudices accumulated by time—never to make an intellectual effort to open one's brain to anything new—that we are obliged to excuse them, or at least not to scold them severely. A great and frequent weakness is the fear of difficulty. People refrain from learning a heap of things because they fancy they are too difficult to be learned. If they were

not paralysed by this apprehension they would make the attempt, and then they would perceive that the difficulty is like the famous Castle of Fear, which vanishes as soon as one is resolved to approach it. There is no need of deep research to know that a plant is an organic body, like a man or an animal. All animal and vegetable organisms have this in common—namely, that they are developed, they grow, and that they cannot grow unless they are fed.

But the first-come food that may fall in their way no more suits plants than it does human beings. We have a great advantage over vegetables in possessing teeth. We can masticate our food, and, after it has undergone that preparation, we can despatch it into our stomach, there to be dissolved. As plants have no analogous machinery, they are obliged to take their food in a state of solution through the agency of their roots. Rain-water, charged with divers elements taken from the atmosphere—particularly with carbonic acid, nitrate of ammonia, and chlorides—is the means by which those active principles are brought within the reach of the roots. The more soluble the food the more efficacious it is.

Under the action of light the leaves decompose the carbonic acid of the air, fix the carbon, and allow the oxygen to escape. The leaves also treat the atmospheric ammonia in a similar way; and it is thus that light is as indispensable to vegetables as to the human race. But this class of phenomena does not belong to our present subject.

A vegetable has been compared to a sponge, one half of which is in the air, the other half inserted in moist earth; the sponge continually regains from the earth what it has lost by evaporation in the air. The water absorbed by the roots escapes through the leaves into the atmosphere; the roots recover from the soil the moisture lost by evaporation. The elements dissolved in the water penetrate together with it into the roots, and the plants, by the act of nutrition, appropriate to themselves those elements. Water, therefore, is the vehicle which supplies vegetables with nutritive substances. When the plant increases in size, the reason is that it transforms into its own proper substance the materials which it obtains from without. If you burn plants and then analyse their ashes, you will find some among the following constituent elements—potash, phosphoric acid, silicic acid, sulphuric acid, lime, magnesia, sea-salt, iron, manganese, fluorine, iodine, &c. If they are found in the ashes of the plant, it is because they have entered into the plant; if they have entered it, it is because they were needful for that plant's nutrition. If, therefore, we wish a plant to be well fed, to enjoy good health, and to grow with vigour, we must cause those elements to enter it. How can we help them to enter it easily? how make sure that the plant never wants for any of those substances? Such is the question to be resolved.

Many persons are still insufficiently convinced of the necessity of giving a complete supply of food to plants. In agriculture, as in so many other matters, we readily content ourselves with a tolerable approach to what is requisite. We feed our plants somehow or another, giving them at once too much and too little. The worse for them if they don't take to that regimen! Unfortunately, it is also the worse for us. One very simple thing might, nevertheless, be done — when one of the elements required for plant nutrition is defective in the soil, merely to add that element. It is the story of the man who betted that he would eat nothing but pigeons, and who died of that diet, or had a narrow escape, because pigeons, however good they may be, do not contain all the elements which make up a complete supply of nourishment. Now, if only one element necessary to a plant's nutrition be wanting, it languishes and is stunted in its growth.

A good cultivator ought, therefore, to see that the alimentation of his plants leaves nothing to wish for. Endeavours are made to attain that end, more or less empirically, by means of rotations of crops, so as to allow the elements of the soil to be renewed. But this being insufficient, complementary manures are added; and for want of knowing how to employ those manures advantageously, unnecessary exposure is incurred, without benefiting anybody, not even the vegetables. We want to find the means of avoiding all needless outlay, while supplying the plants with all needful nourishment. Do those means exist? M. Xavier Dubois answers "Yes," and thus proceeds to prove it.

It has already been stated that plants absorb mineral elements by their roots, which elements have no power of entering unaided into a vegetable organism. They must be carried there somehow; and they have water for their vehicle. It is evident that they cannot penetrate in large masses into the cells and capillary vessels of plants. They can only enter them in the state of a very diluted solution. The rapidity of the action of this sort of plant-food is in close relation with its solubility. It is useless, therefore, to throw into a field enormous quantities of nutritive principles. The plant only takes up the quantity necessary for its subsistence at the time; the rest is, for the moment, useless, and often hurtful. Plants require to have all the elements of their nutrition within their reach and ready for easy assimilation. If those elements are contained only in masses isolated here and there—if water cannot ceaselessly convey them to the roots of the plants—for plants so cultivated the result is the same as if the fertilisers did not exist.

Liebig made the following calculation:—A hectare (or a million of square decimetres) of good Wheat land produces on an average 2000 kilogrammes of grain and 5000 of straw, which, together, contain 250 millions of millegrammes (250 kilos.) of mineral substances. Every square decimetre (or 100,000 square millemetres) of this field supplies, therefore, to the plants growing on it 250 millegrammes of mineral principles. Every square millemetre ought to contain, in a vertical direction, the quantity of nutritive substances corresponding to the wants of a radicle taken separately. Let those substances be deficient in a portion of the soil, that portion will be unable to feed the plants that grow upon it. The nutritive power of the soil is in proportion to the nutritious matters contained in each square millimetre, in a vertical direction.

Plants do absorb these substances, which ought, therefore, to be renewed and placed in contact with them. It is a necessity which has not been understood until within the last few years, and that not by everybody. Formerly, people were fully persuaded that the fixed principles in soils were inexhaustible. As every crop carries away with it some few of those principles, and as manure cannot restore them all, it follows that soils are condemned to exhaustion at a more or less distant date, but which, nevertheless, is inevitable. To obviate this Liebig went no further than to regret that, in towns, human dejections and sewage water should be so carelessly lost to agriculture. He was right so far; but the remedy was incomplete. A French manufacturer, after making the same observations as Liebig, could not content his mind with this insufficient antidote. "It is impossible," he said to himself, "to restore to the earth all the elements which she has yielded to us. There will always be a certain amount of loss. The question involves a higher aim. We ought not only to hinder her exhaustion, but to increase her fertility." Such is the problem which M. Menier has propounded and solved, grounding his proceedings on the following axiom: — Arable land is a residue resulting from mechanical actions on rocks by powerful agents, which have crushed them, and from chemical actions, which have attacked and decomposed them.

What is to be done, then? We must do exactly what has been done by Nature. "We can only triumph over Nature," says Bacon, "by obeying her laws." Since arable land is a mixture of the rubbish and waste resulting from mechanical action exerted on rocks, we must renew, we must augment, our arable land by crushing rocks, which are to be applied to it systematically, so as to restore to it the fixed principles of which vegetables deprive it. Arable land will be reconstituted by employing the processes which originally formed it. Nay, more, an arable soil will be made under any conditions laid down as requisite —we can make arable soils to order. Any result that may be desired will be thus obtained. Agriculture will be carried on with the certainty of a manufacturing process. Nothing, in fact, is easier. M. Menier has proved, by numerous experiments, that the dissolution of a solid substance takes place in proportion to the surfaces in contact with the active liquid agent.*

The whole mass of substance which lies beneath the surface of a boulder, a stone, or a bit of gravelly shingle, is evidently inactive on vegetation, because it remains undissolved. Surfaces are multiplied by reducing a block of stone to an impalpable powder. Pulverisation transforms hard rocks into soft rocks, impermeable stone into porous stone. By crumbling rocks, it offers a multitude of surfaces to liquid agency. Scatter this impalpable powder over a field; it enters immediately into the soil; it lies within the reach of all the roots of plants; water, having such a multiplicity of surfaces to attack, dissolves it, and transports it into the organisms of vegetables. By adding to the soil of your field the fixed principles of which it was being gradually exhausted, you render it almost a virgin soil. Something of the kind is effected by scattering marl over a field; but the marl is often in little lumps, which take ten, fifteen, or twenty years to dissolve. An enormous quantity has therefore to be brought at once; a large instalment has to be made in advance, with the certainty of having to wait for results to be slowly, irregularly, and unequally obtained.

By pulverising supplementary manures, you are able to give your land the exact dose requisite to obtain an immediate result. There is, consequently, less advance of money which has to lie idle, less outlay for transport, and that with a sure and immediate return, which cannot be denied to be some advantage. However proud we may be of the results obtained by science and industry during the last hundred years, we still ought to speak and think with a certain degree of reserve and modesty. We permit a frightful amount of waste. There is an immense fund of forces which we might utilise, but which we allow to be lost with a carelessness so perfect that we do not even suspect that we might turn them to account.

In the present case the suggestion is made to utilise a portion of those wasted forces—wind and water power, for instance—in the crushing of granite, fossil phosphates, marls, sandstones, and feldspars. We must take up cookery for plants, or at least the preparation of their food. For the teeth which they have not we must substitute crushing-machines, which will present them with their aliments ready masticated, that is, in a state easy to be dissolved. Arable lands must be renovated little by little, according as they are exhausted by the crops we draw from them. We must treat our plants as we treat our animals. We know that they require this or that element in such and such quantities, and we give it to them. We shall one day fatten our plants as we now fatten our bullocks and our pigs. And it is not of the needful elements that we run short—Nature holds in reserve an enormous stock, which we are only just beginning to consume. What runs short is the means of employing them. The whole question lies in knowing how to appropriate them to our requirements.

In the present instance, M. Menier points out to agriculturists the rocks that are met with almost everywhere, and which are useless, an incumbrance even. Close to them are lands undergoing the process of exhaustion, begging for fertilisers; which fertilisers are procured at great expense, but insufficiently. We remain with folded arms waiting for time to effect the liberation of those elements, the wished-for disintegration of the rocks. Ages must pass away before the result is realised which might be obtained in a few hours by utilising wasted force, such as wind and water, in crushing those rocks. It has long been suspected that there was something to be done in this direction. The idea has been hovering in the air, especially during the last twenty years. In the last century Changeux caught a glimpse of it. But to M. Menier belongs the honour of having enunciated, formulated, and verified it by experiment, as well as of having demonstrated all its consequences. Those consequences, Monsieur Dubois insists, are immense. They will figure in the fortunes of France (and of other countries willing to learn) by milliards of francs. It is a complete revolution in agriculture; it is the constant regeneration of exhausted soils. It is the bringing into cultivation of soils hitherto deficient in indispensable elements; it is the substitution, in agriculture, of scientific processes for the empirical processes employed up to the present time.

M. Dubois might have confirmed his theory by examples, instancing some of the most productive market-garden districts in the world, which must lie within his cognisance. The Petit Courgain at St. Pierre-les-Calais, Rosendael, near Dunkerque, which supply whole towns and fleets with vegetables, are pure sand. Now what is sand? Is it not a mixture of rocks, stones, and pebbles pounded small by the mechanical action of the sea-waves or of torrential currents, or crumbled by the atmosphere, by heat and frost, and by the still unknown influences radiated from the sun? Roscoff, in Brittany, which exports early vegetables even into foreign countries, is enabled to do so by the quality of its soil, consisting of shell-sand mixed with pebble-sand and the muddy sediment resulting from the abrasion of sundry and diverse rocks, the whole manured in great part with seaweed, itself rich in mineral elements.

From these instances (which might be multiplied) it will be seen that M. Xavier Dubois' speculations deserve serious consideration, if for no other reason than that they explain why, at Belvoir, granite-dust should be found an admirable soil for Vines, and the bunter sandstone should be valued for Camellias. *D.*

* See the *Mémoire sur la Pulvérisation des Engrais*; par Menier. One vol. in 8vo. G. Masson, Editeur, Paris.

VERY EARLY PEACHES AND NECTARINES.

ALTHOUGH the season is a late one, our earliest orchard-house Peaches (without any fire-heat) have not been materially backward. It may be useful to give the dates of four of these, which are the best, as follows, from 1869:—Early Beatrice ripened thus, in June, 12, 15, 21, 12, 15, 15, 11; Early Louise, 21, 27, 22, 12, 24, 11; Early Rivers, 30, 10, 15, 10, 14, 15, 11; Early York, July 6, 6, 12, 6, 2, 10, and hardly by July 15 this year. From these dates a fair estimate can be made of the comparative ripening powers of the above four fine early Peaches.

Another of Mr. Rivers' excellent early seedlings is Early Leopold, which ripened thus:—July 20, 8, 8, 2, last year, and shows no great signs (July 15) this year. When we all remember how Early York, that most valuable Peach, was thought a miracle of precocity some seasons ago, we can judge of the commercial value of the earlier fruits we now possess—thanks to the skill and enterprise of my good old friend.

We want still an earlier Nectarine, and one of a good size. Early Beatrice I still find too small, though beautifully coloured even this sunless season. Early Louise will very likely be our earliest Peach on outside walls for years to come, unless some cross be effected between it and Early Rivers, much to their mutual gain, for the defect of the latter fine Peach, viz., of the stone decaying within, though not at all so great this year with me—and I have many trees of this sort—is a drawback on what, otherwise, from the first was evidently a marvellous Peach. Here it is always large and prolific, and I cling to it with hope. Early Louise is still unknown, so to speak, in France; although the other three very early Peaches here spoken of are certainly quoted in M. Baltet's catalogue for this year, still they are not described in such a manner as would argue either great knowledge of their merits or respective qualities. For example, Early Beatrice is defined to be "good, said to be middle-sized, ripe in July;" "Early Rivers, said to be middle-sized, pale, good, ripe in July." The difference in size between these two Peaches is always very great here, sometimes three to one. Early York, exactly the same description, with the date of the "beginning of August" for its maturity. Now this does not show that Rivers' seedlings are very much understood as yet, when we read such descriptions in one of the very best French catalogues, and when Early Louise, which I should say would exactly suit their climate, and become their most valuable and earliest Peach for the Montreuil gardens, is not mentioned at all in this catalogue. I have not at this moment Leroy's (Angers) catalogue, and so cannot speak of it. A Peach of American origin, which is likely to be a valuable early one here, is Hale's Early, well known in its native country; it is a week at least earlier than Early York, and of fair size. This is described in M. Baltet's catalogue as "said to be middle-sized, good, end of July." A second early Peach, which I strongly recommend, is Early Silver. It is very large, juicy, and prolific. Early Chevreuse, and Belle de Doué are also capital early orchard-house Peaches.

As to Nectarines, Hunt's Tawny is still our earliest, followed by Lord Napier. This last is a very fine Nectarine. I understand that Mr. Rivers has a still earlier seedling under observation before sending out; if so, we shall hail its appearance, as we greatly need a very early Nectarine of good size. After all, small fruits are not worth growing in orchard-houses. Among the later Nectarines Humboldt is pre-eminent—large, and of a fine aroma, something like that worthy favourite, Pine-apple. *T. C. Bréhaut.*

BRITISH GARDENERS.—XXII.

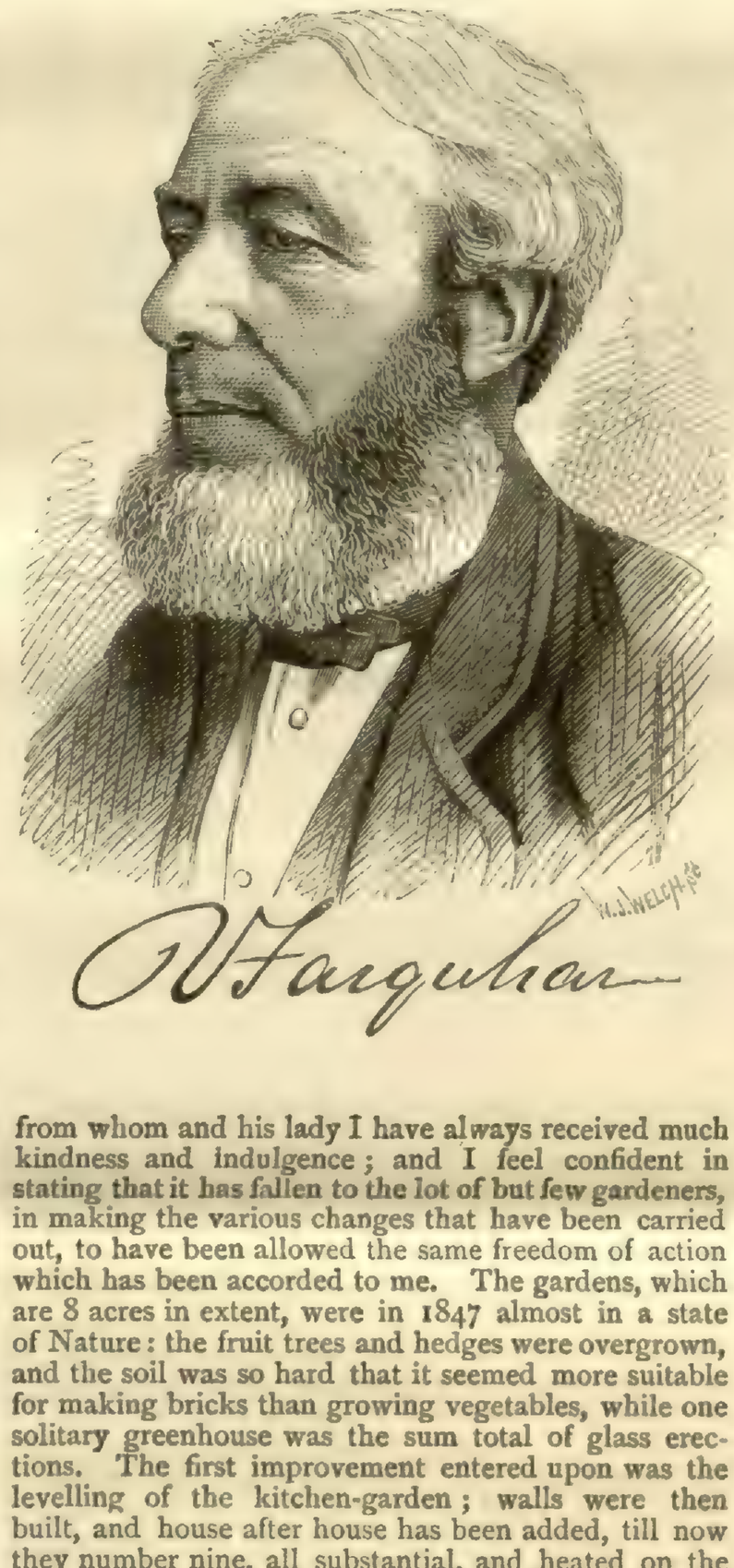
ROBERT FARQUHAR.

THE subject of the portrait we publish to-day, Mr. Robert Farquhar, of Fyvie Castle Gardens, was born in Aberdeen on January 4, 1821. When he was but a few weeks old an accident which happened to his father, who had just left the situation of farm overseer to Colonel Leith of Whitehaugh, and which occasioned his death, led to the removal of the family from Aberdeen to Monymusk, where the son was brought up amongst his relatives, and attended the parish school till about the age of fourteen years. He was then sent as an apprentice to the gardens at Cluny Castle, which then, as now, had the largest extent of glass of any garden in the county—this being chiefly devoted to Grapes, Peaches, and Melons; stove and greenhouse plants not having then taken great hold so far north. After serving the usual time he went to Mr. Roy's nursery in Aberdeen, which was then an open receptacle for all young gardeners out of a situation; and here he remained for six months, when he went as journeyman to Thainston, Kintore. Mr. Wm. Taylor, now deceased, had just previously left the situation, after being nineteen years head gardener; and he being a man of considerable taste, and with a botanical turn, the gardens contained, writes Mr. Farquhar, "the choicest and best arranged collections of shrubs and herbaceous plants I have yet seen at any private residence, and which very much influenced my taste to hold on to gardening as a profession.

"After two years' stay at Thainston I went as journeyman to Woodhill, which then belonged to Geo. Hogarth, Esq., who took a very warm interest in gardening matters, and his views were promptly met by Mr. Aitcheson, who had just come from Dalkeith to take the management. On leaving this I was engaged to go to America, but my mother, who still survived, being against this course, I gave it up and went to London, when I was engaged as journeyman at Caen Wood, the seat of the Earl of Mansfield, at Highgate, under Mr. Cockburn. Here everything was upon a very extensive scale, but the grounds and flower gardens were the chief features of the place then, and few places around London had the same extent of bedding-out. While here I also had the advantage of seeing several of the leading horticultural exhibitions, the Botanic, Royal, and other gardens of interest, and of taking notes of what the memory could not retain, amongst which I have found much which has proved useful. A staff of twelve workmen was kept in these gardens, and some of my associates have proved men of talent, while a few have achieved distinction in the profession.

"In the autumn of 1841 I again returned to Aberdeen, as gardener to Charles Runcy, Esq., Millbank, who was then noted for his interest in Grape growing; so in order to keep pace with my employer I was even then a reader of the *Gardeners' Chronicle*, and carefully read and pondered over every article that had any connection with Vine growing, which enabled me to serve him with satisfaction during my stay of four years. Here I was a regular competitor at the shows of the Aberdeenshire Horticultural Society, mostly with Grapes and plants; and for two years in succession (1844 and 1845) carried off the awards of the greatest merit in the exhibitions.

"My next change was to Aden, Old Deer, the seat of Colonel Russel, where I only remained one year, at the end of which time I returned to Millbank, and had not been there long when I heard of contemplated changes at Fyvie Castle, through the death of the proprietor. I at once became a candidate, and being privileged to be selected out of twenty-eight applicants, I entered here on May 26, 1847—twenty-eight years ago—as gardener to Colonel W. Cosmo Gordon,



from whom and his lady I have always received much kindness and indulgence; and I feel confident in stating that it has fallen to the lot of but few gardeners, in making the various changes that have been carried out, to have been allowed the same freedom of action which has been accorded to me. The gardens, which are 8 acres in extent, were in 1847 almost in a state of Nature: the fruit trees and hedges were overgrown, and the soil was so hard that it seemed more suitable for making bricks than growing vegetables, while one solitary greenhouse was the sum total of glass erections. The first improvement entered upon was the levelling of the kitchen-garden; walls were then built, and house after house has been added, till now they number nine, all substantial, and heated on the best principles, by means of three boilers; while for early vegetables and bedding-out plants there are brick pits and frames to the extent of 150 feet run. One of the last improvements has been the introduction of water; a liberal supply is not only maintained in every house, but it is so laid on that it can be used in any part of the kitchen or flower garden.

"While I have a wish to see everything under my care prosper, the stiff, adhesive nature of the soil, and the requirements of the cook, compel the largest share of my attention to be given to vegetables; and if, amongst these, any one thing more than another receives especial favour, I must plead guilty to my love for the 'noble tuber,' to which I have paid due devotion for the past thirty years, during which time scarcely any Potato announced as meritorious has been offered to the public but I have given it a trial. In 1873, when Potatos were one of the articles for trial in the Royal Horticultural Society's garden, and nearly 150 varieties were reported upon, Mr. Barron very kindly sent me this report, and, on looking it over, I found that I had several sorts not described, which I forwarded last spring for trial; and of the five First-class Certificates awarded to Potatos in 1874 I hold two. Besides these I hold several trophies of my success in vegetable and Potato culture from the Aberdeenshire Horticultural Society, of which I am now the oldest competing member.

"This year, besides seedlings, I have planted sixty-five varieties of Potatos—too many, I admit—but, while I have every season discovered some to discard, still every year adds its quota of new sorts, and who, when so many temptations are ahead, could do without Alpha, Eureka, and Snowflake? The Americans are giving us shape and quantity, and I hope we shall have quality next; at all events I have learned so much from them of late years that I think our entire system of culture in gardens will to a great extent be revolutionised.

"I may further mention with satisfaction that most of the young men I have had with me have turned out well; many of them now hold excellent situations in various parts of the world. Some of them having gone to the New England States of America, there has, in consequence, for the past six or seven years, been a pretty regular demand for young men from this quarter; and, as a proof that the change has been satisfactory to all concerned, I shall conclude by adding a quotation from the *Banffshire Journal* of November 10, 1874:—

"'It is our pleasant duty to record a case of grateful remembrance which has just come under our notice. Mr. R. Farquhar, gardener at Fyvie Castle, who has for many years taken a lively interest in procuring suitable situations for young men who have been apprentices or otherwise employed by him, has very unexpectedly met with a recognition of his services, which we think deserves to be recorded, as it is alike creditable to Mr. Farquhar and the parties concerned. It happens that a number of his late *employés* and others have, through him, got located in some of the New England States of America, where it was known they were highly prosperous and perfectly satisfied with their condition in the land of their adoption. Letters have frequently come from them recording their success and happiness, but on this occasion they have made a more tangible expression of their gratitude by sending along with one of their number, now on a visit to his native country, a splendid silver table pitcher. Some idea of its value may be formed when it is stated that it stands 2 feet 7 inches in height, and has a bracket on each side with a silver cup on each. The internal capacity is one gallon, and it bears the following inscription:—"Presented to Robert Farquhar by a few of his friends in America, as a token of respect and esteem. October, 1874." Mrs. Farquhar was presented with an elegant silver tea service, with a suitable inscription.'"

Foreign Correspondence.

NOTES FROM KASHMIR.—At a time when most of your readers are planning trips abroad for their summer or autumn recreation, it may not perhaps be devoid of interest to them to read a few notes from Kashmir. It had long been a pleasant dream to think of visiting "The Happy Valley," and so early in April we set off. Having heard and read so much of its beauties, it is something to be able to say we were not disappointed. The scenery is grand in the extreme in some places, and varied in all. Every thing that an artist could wish for is here combined; and I think if one was bold enough to venture so far, the only difficulty would be how to get him out of the country again, such endless subjects would he find for his pencil and brush. At times one seems encircled by snowy ranges, some looking dim and ghost-like in the distance, others standing out clear and bold in their closer proximity. Here and there one felt surprised at a snowy peak rising unexpectedly behind some sombre Pine-clad mountain, the snowy purity of the one being brought out in yet more vivid relief by the dark hue of the stately Pines in the foreground, and of these last there is an endless variety—the graceful Deodars with their lighter tints and feathery foliage, and the noble and majestic Cedars looking dark and grand. Then you come to sunny glades and Devonshire-like lanes, clad in the bright fresh greens of earliest spring; Horse Chestnuts in bud only, but Hawthorn in fullest bloom and scent which we had not seen since we left England; delicate Bluebells, carpets of white Strawberry blossoms, these all precious as *souvenirs* of the old country; wild white and pink Roses filling the dewy morning air with their delicious fragrance, and side by side with the pearly blossoms of the former many a scarlet bud of the Pomegranate set in the small dark glossy leaves; masses of Barberry in golden bloom; the exquisitely delicate Acacias in bloom also, some with pale mauve blossoms, others with circular crowns, yet more with splendid yellow flowers standing erect like the Horse Chestnut instead of drooping like Laburnums; quantities of white Clematis with their large starry gems clambering in richest luxuriance over every tree and bush within their reach; and fruit trees of many kinds,

but of these the blossoms were over—Walnut, Mulberry, Apples, Pears, Plums, Apricots, Figs, and Vines.

Out of these sun-lit glades you descend the hill into deep, cool gorges, where the Maidenhair and other Ferns reign supreme; the splash and ripple of the clear mountain streams sounding welcome to the ear; pretty waterfalls here and there, and above all the sullen roar of the Jhelum as it goes dashing and tumbling on its rocky way at express speed. Considering the vastness and retirement of these woods, one would have expected them to be full of song, whereas beyond the note of the cuckoo and the first early waking twitter of the birds they were almost entirely silent, save for the soft notes of the wood pigeon and the monotonous sound of a woodpecker: these seemed but a poor exchange for the flood of song which would have filled such woods and forests at home. But though the ear was not charmed with their song, the eye was enchanted with their brilliant plumage: occasionally a beautiful bird—the magpie of Kashmir—would fly across one's path, the body a pretty blue, with long feathery tail, on which were white markings, which it spread into fan-shape as it flew away; exquisite jays, brilliant kingfishers, the pretty king-crow, and crested hoopooes. Now and then a group of the small red monkeys would scatter in alarm at our approach, but not a deer was to be seen, and of bears and leopards we had no wish to have a near view: the former come down to feast on the Mulberries when they are fully ripe, and seem then so engrossed with their occupation that they afford but poor sport for those in quest of such; they are chiefly of the red kind, but black ones are also found, also the markhor, ibex, and other deer.

As we neared Baramula, where we go up the river by boat to Srinagar, the beauty of the scenery seemed to increase, and the grandeur of the cliffs as they rose, sheer out of the Jhelum, to heights of from 300 to 500 feet, was refreshing to the eye, wearied with the dull level of the Indian plains, crowned as they were with splendid Pines, and of course towering in yet loftier grandeur, the mountains capped with snow. The bridges one meets with are decidedly primitive, and need a nation of teetotallers to cross such fragile supports with steady heads; in places they are formed entirely of rope, three ropes tied together to walk on, and two stretched across and kept up by two sticks tied on at intervals for the hand to cling to, others again of rough Pine log, fastened together with wooden pins, and some, I believe, formed of a single log roughly hollowed out, also some consisting of a single rope, with a triangle of wood suspended on it; the traveller sits on the horizontal bar of this, and works his way along the rope with his hands. Those in Srinagar, of which there are some seven, are built entirely of Deodar logs, crossed and bolted together. The durability of this wood is marvellous, remaining below water-mark for many years uninjured. The planks are laid across, with spaces of about a foot wide, somewhat like an inverted cone; the interstices are possibly most judicious engineering, as the water, when the Jhelum is in flood especially, rushes through, meeting with little resistance.

The population is estimated at about 150,000, the larger part being Mahommedans, some 20,000 Hindoos. The houses are chiefly wooden, often three or four storeys high, so fires are disastrous enough, but the combination of wood and stone serves in some degree as protection in the event of earthquakes, which are not infrequent. The roofs, which are pent-shape, are often covered with the Iris, which grows in such profusion at Baramula that the ground is literally blue with its blossoms for some considerable space, and also in parts of the river banks there are also white and yellow varieties. On both sides of the river are rows of stately Poplars, and there is an avenue of them more than a mile in length, which is one of the sights of Srinagar. The "Chenar," or oriental Plane, is one of the most beautiful trees both for shade and foliage; it is not indigenous, but has taken most kindly to the soil.

People who have visited Venice, say that Srinagar somewhat reminds them of it, but the light, graceful gondolas would be a wondrous contrast to the clumsy, awkward-looking boats, which, however, form the home of the boatmen and their families the whole year round; they have sloping grass roofs woven thickly together, and screens of the same construction to keep out the fierce rays of the sun. The name Suryea Nagar means "City of the Sun," and even in "the happy valley" it must be admitted one is glad to avoid its heat at noon. The boat-women are very pretty, and, indeed, they are so throughout the valley. The men are a fine stalwart looking race. The dress of both is a kind of loose shirt—the men have trousers in addition—that of the women gray, but occasionally of bright colours; the sleeves are very long and loose, and turned back at the cuffs, and sometimes girt in at the waist: on their heads they wear a broad red band with a loose "chudder" or sheet poised on it, and falling gracefully over the shoulders, in no way concealing the features, which are tolerably regular, large black eyes, and even white teeth, fair complexions, with quite a rosy tint beneath. The girls wear their hair in numerous plaits, to add to the length of which they mix in black wool till it reaches below the waist, and then all is united in one tassel; these look as if but rarely unplaited. Both men and women have much natural politeness, generally saluting you as you pass, but in a frank, fearless way, with none of the cringing servility of the Hindoo in Bengal, the fine *physique* of the Kashmiri being also a striking contrast, and the salute, sometimes an inclination of the head only, much more that of an equal. The Kashmiri dialect is, of course, quite different, but the boatmen, shopkeepers, &c., all understand and speak Hindu, and many of the latter know some English, which they are eager enough to display.

The shawls are of course too well known and noted to need comment, but many of the fair owners whose shoulders they adorn would truly marvel could they see the homes out of which they had come, and the rough looms in which some are woven; the Kashmiris not being noted for their cleanliness, it is consolatory to think they have had a good washing in the river ere they are sold, by being beaten somewhat roughly against blocks of limestone kept for the purpose at the river's edge. The tradespeople generally offer tea to intending purchasers, and it is not unfrequently made with rose water! Imagine the horror of a tea-taster. The embroidery of all kinds is beautiful, and marvellous must be the patience that can accomplish so much by hand alone; the gold and silver work is also exquisite, and accomplished with such rough tools as would be the despair of an English artisan. They make tea services in this way, goblets and bottles, also bracelets, ear-rings, brooches and lockets; they also engrave on gold alone, and silver, also copper, using largely the shawl or Pine pattern. Dr. Ince, in his valuable *Hints on Kashmir*, says that the windings of the river have given them the idea for these patterns. They also weave various soft, warm materials from the hair of a goat, such as puttoo, pushmeena and muleeda, and an almost softer material, used for shawls, called toza, made from the down on the breast of a bird, which is, however, comparatively rare. The *papier mâché* work is fine and good, and the blending of colours tasteful and oriental.

The "Takht-i-Súlimán," or Throne of Solomon, is a stone temple situated on a hill more than 6000 feet above the sea. It was built by Jaloka, about 220 B.C., and, from its commanding position, can be seen from all parts of the neighbourhood. It is in fair preservation, and still used as a place of worship by the Hindoos. When we visited it in the early morning we found three Pundits chanting their morning orisons. The view from so great a height is beautiful and varied, comprising the valley with its lovely lake, canals, and winding river, green fields, and stately Poplars, the crowded city, and picturesque old fort rising from its midst, and many a beautiful hill rising bare and rugged, bounded by the grand range of snowy mountains. "Pandriton" is also an interesting ruin to visit; it is an old Buddhist temple, dating B.C. 263 to 226; it is situated in the midst of a tank, surrounded by Willows, and overgrown by Rushes and Iris. The building is entirely of stone, containing the usual Trefoil arches; the blocks are so large and solid that the natives say no human agency could have shaped or raised them to their present position. They assign the preservation of this temple (when the surrounding city, once the capital, was consumed by fire) to superhuman agency, the protection of the water god! and not the water. Speaking of massive ruins, about a day's journey by boat up the river and you arrive at Awantipore, which was also once the capital. The ruins are extensive, and if much excavated would doubtless reward the antiquarian and the archæologist; three fragments of temples remain standing, and portions of cloisters have been dug out at Bishop Cotton's instigation. "Martand," another ruined temple, of Bactrian architecture, in the eastern part of Kashmir, is the finest in the country; the solid blocks of stone prove the goodness of the engineering in those days, (A.D. 370 to 500), and far surpass any monuments that 1875 seems likely to leave in Kashmir. The temple was dedicated to the worship of the sun, whose ardent rays certainly made themselves felt, as there is not a tree worth mentioning anywhere near it, but the views of hill and valley and snowy ranges are indeed magnificent in the extreme.

In the neighbourhood of Martand are many springs, hot, cold, and mineral, and large tanks full of sacred fish which the Pundits feed with rice and chupatties, burning sandal-wood and fragrant spices and chanting a low song the while. There are some caves also visited by pilgrims, but the bats have made them their special home, and the skeleton of a fakir remains after you have penetrated some 80 feet into the interior—hardly a sufficient compensation for the closeness of the air. The "dal" or city lake is the most beautiful of those in the immediate vicinity of Srinagar; it is some five miles long, the water exquisitely clear, and on either side are beautiful gardens made by Jehangir, full of fruit trees and Roses, with tanks and fountains, and splendid Chenar or Plane trees, giving the deepest shade all day long. The noted Shalimar with its marble pavilions is one of these, but I venture to think the "Nichàt Bagh," or Garden of Bliss, still more beautiful. The floating gardens are curious, formed chiefly for Cucumbers and Melons, of water weeds and plants matted together, making a framework on which the earth rests; they are kept in place by stakes driven into the ground. White and yellow Water Lilies float on the clear stream, and I noted the broad handsome leaves of the edible Lotus, Nelumbium speciosum, which do not rest on the water but stand a foot or so above it.

In July, when the rains are disagreeable in Srinagar, and the valley, in consequence, unhealthy, the Resident, and with him all the visitors, migrate to either Sonamurg or Gulmarg; the former lies to the north-west of Srinagar, and at a considerable elevation—about 8000 feet above the sea. They are both mountain meadows, noted for pasturage and flowers. The cost of living in Kashmir is ludicrously small—milk, ¾*d.* a quart; bread, ten loaves for 1*s.*; eggs, 2*d.* a dozen; fowls, 3*d.* and 4½*d.* a-piece; ducks about 6*d.* each; geese, 2*s.*; and mutton, though small, fat and of good flavour, 2½*d.* per lb. These are the prices in the capital; in the villages, of course, they are less, and a whole sheep may be purchased for about 2*s.*

The Maharajah treats the English visitors very liberally, providing them with houses rent free, and the greatest civility is shown by all the officials, one of whom, a Baboo, daily makes the circuit of houses and tents to see that every one is comfortable and satisfied; another gorgeous gentleman, with a necklace of gold coins, daily brings round baskets of fruit with the Maharajah's compliments. *Louisa C. Johnstone, Srinagar, Kashmir, June 9.*

RARE CONIFERS.

WITHIN the last six months important researches have been partly published which claim to furnish new data for the determination of Conifers, and it has become necessary to study them in order to see how far they threw light on the matter in question. These are my apologies for my delay in replying fully to Mr. Syme, which I hope he will accept as a compliment instead of a neglect. He will have seen, however, that I had not overlooked the subject, as the remarks on Picea magnifica, printed at p. 753, vol. iii., show. By some misadventure the notes on that species were published before the present paper, which was intended to be introductory. It may be well, also, to point out that the cone of P. magnifica, figured at p. 753, was, by error, called in the legend P. nobilis, though the context would prevent misapprehension on this score.

The new characters to which I wish now to refer are drawn from the internal structure of the different parts of the plant. The histological anatomy of Conifers and their allies has occupied the attention of vegeto-physiologists for a considerable time past, but the assaults upon the subject have been isolated and fragmentary. One man has written upon the structure of the Yew, another on that of Phyllocladus, a third on that of Sciadopitys. Some have studied the vessels of the stem, others that of the fruit, or the cellular tissue, the resin canals, and so on. In fact, there is room for a very learned historical treatise on the progress made in our knowledge of the physiology of Conifers during the last fifteen years, and the reader may thank me that I resist the temptation to inflict one on him, and content myself with merely citing the names of the most prominent authors who have contributed to it, viz., Geyler, Wiesner, Schröder, Thomas, Frank, Von Mohl, Hildebrand, Schacht, Hartig, Göppert, Dippel, and Strasburger, besides compilers and authors who have availed themselves of their researches. None of these, however, have treated the subject as a whole, but in the last number of the *Annales des Sciences* (Botanique) another observer, Mr. C. E. Bertrand, has commenced a paper in which he undertakes to do so. Only the first part of his paper has yet appeared, but it occupies the whole of the number (128 pages), and, as usual in the *Annales*, is liberally illustrated with engravings of the anatomical details which he describes.

Of each genus or group he gives—1, an historical account of the present state of the science regarding it; 2, an account of the structure of the stem; 3, of the leaves; 4, of the scales; 5, the general course of the primary bundles of the stem; 6, a synoptical table of the anatomical characters of the species in each group; 7, their synonymy and geographical distribution.

In fitting himself for this task Mr. Bertrand informs us that his first step was to prepare a monograph of each genus. That done, he says that he

found that, with the exception of the Cupressinæ (under reservation of the genera Cryptomeria, Taxodium and Fitzroya), all the genera could be differentiated anatomically; whence he deduces the conclusion that the genera of Coniferæ are separated one from the other by differences much more trenchant than the other genera of Phanerogams; a conclusion, it is unnecessary to say, very much opposed to the general views of authors on the subject.

It is from the internal structure of the leaves that he draws the characters which he chiefly uses, in addition to the old ones, for distinguishing species. I need not describe the whole of their anatomy, but shall merely say that the two characters most relied on are the presence or absence and position of the hypoderm and the number and place of the resiniferous canals. The hypoderm is a term applied by Dr. Kraus of Erlangen to the thickened cells which often lie under the epidermis, strengthening the epidermal tissue, but not belonging to it genetically, its connection rather being with the parenchyma; and the kind of position which it occupies when present will be understood from the following sections of the leaves of two or three of them, where H represents it or portions of it in all the species, and it will be seen that it varies in extent and position in each. In some it is absent altogether. In Pines it consists of thick-walled sclerenchyma-like bast cells. The resin canals are indicated in the sections by R C, and they vary in number and position in different groups or genera, and even in different species of the same genus; E represents the epidermis.

Now before we adopt these characters as of specific value, there are two or three things that we require to know. The first of them undoubtedly is, how far we can depend upon Mr. Bertrand's observations. This is for experiment, and I am happy to say that there is every prospect that the verification will be made by one of our own botanists. Dr. Wm. McNab, Professor of Botany in the Royal College of Science for Ireland, has already commenced to do so, and if the results will warrant it we shall no doubt by-and-bye have a monograph of Conifers from the anatomical standpoint. Knowing this I asked him to favour me with his opinion on the species which have given rise to this paper, and he has not only done so, with permission to use his information, but favoured me with the accompanying sketches of the sections, and I was glad to get these, for Professor McNab has paid particular attention to the physiology of plants and especially their histological details. I shall presently give the reader the benefit of his observations on the species in question, but now I only refer to them to say that in them his results are not in accord with Mr. Bertrand's. That gentleman makes both P. concolor and P. lasiocarpa a synonym of P. grandis, but Professor McNab regards them all as distinct. Now, if we were sure that Mr. Bertrand had determined his synonymy upon the anatomical characters of the leaf, then we should at once be able to say, here is either inaccuracy on his part or Professor McNab's, or else the character trusted to is not constant, and consequently not to be relied on. But as Mr. Bertrand in making his arrangement of species, and of course in determining his synonymy, does not confine himself to the anatomical characters of the leaf, but also takes into account the old external characters, and has omitted (at least in the part of his paper published) to state the grounds on which he has arrived at his synonomy, we cannot tell whether he has determined concolor and lasiocarpa to be grandis upon internal or external grounds. Perhaps the next part of his paper may disclose this. As yet the plates relating to the Firs have not appeared.

Let us in the meantime assume that his anatomical results do not clash with those of others, or that where they do it is the result only of error or imperfection of observation, such as all of us are liable to—in other words, that the anatomical characters are reasonably constant, and let us then see how, on his own showing, they will work. The first thing I observe is that although in some cases they may be generic, that is, the same in every species of a genus, this is a rare exception, and that usually they are merely specific, varying with different species. Thus I find (always using Mr. Bertrand's data) that in the three-leaved section of Pines, P. Taeda has no resin canal, P. ponderosa has four, and Pinus canariensis and two others only three; so in the Cembras, the Weymouth Pine has two and Pinus excelsa three. In the two-leaved section, P. Pinaster has five resin canals, P. pungens three, and P. contorta none. Then as to the hypoderm—the Yew has none; but in Cephalotaxus, C. Fortunei has hypoderm, while C. pedunculata has none. So much for the differences; but in some the resemblances are still more remarkable, although others are not surprising; and here, be it again observed, that I do not take into account his opinions as to synonyms, but only his statements of anatomical identity. Thus he says, "P. Pumilio, P. Laricio, P. Brutia, P. austriaca, P. Massoniana, P. Salzmanni, and P. halepensis, do not differ anatomically from P. sylvestris." "P. pyrenaica and P. Lemonia (Lemoniana) resemble P. Pinaster in their histological organisation." "P. tuberculata, P. australis, P. Sabiniana, P. Coulteri, and P. Benthamiana, present the same anatomical structure as P. ponderosa." "Abies Nordmanniana appears to me scarcely to differ from pectinata. A. Webbiana does not differ anatomically from Pindrow, A. religiosa from A. bracteata, A. amabilis from Fraseri, Picea rubra from P. nigra, P. orientalis, microsperma, and japonica from P. excelsa;" and so on.

There is no doubt that in many of the above cases the anatomical identity corresponds with the natural affinity: but few will be disposed to admit that because it is so all the allied forms are to be quashed as species and regarded as varieties. But the inequality of the working of the test seems a still stronger objection to its adoption. We are to unite Nordmanniana to the common Silver, but we are to keep the three Cedars distinct. We are not only to keep distinct, but to place in different sections Abies bifida and A. firma, although we believe it has been found that the former is only the young stage of the latter; while we are to unite A. bracteata and A. religiosa—two as distinct species as one could point out.

It would therefore seem that, as at present expounded, these anatomical characters cannot be applied to any serious rearrangement of the Conifers. That they may be very useful in aid of the old characters in decypher-

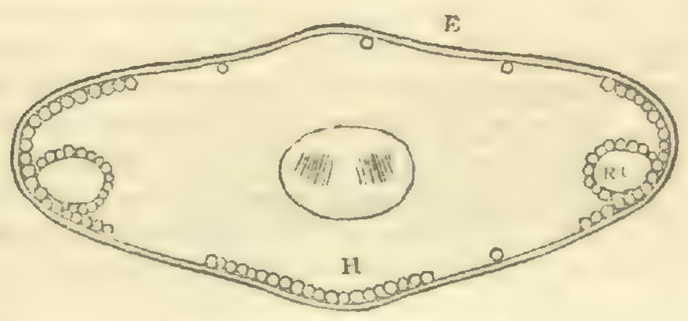


FIG. 26.—PICEA CONCOLOR.

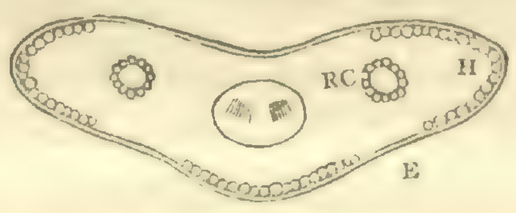


FIG. 27.—PICEA LASIOCARPA.

ing species, when once their distribution in such species is authentically settled, I do not dispute. Wherever there is a difference in external appearance there is always a chance that there may also be some corresponding modification in internal structure, and, therefore, I would go further, and say that these minor anatomical characters may even prove useful in helping to distinguish varieties; but they do not seem of that nature or importance to warrant us in treating them as of equal value with the old ones. M. Bertrand's own plan of arrangement supplies what I think is a good illustration of their relative value.

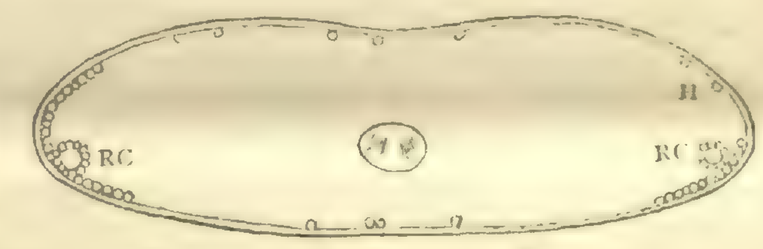


FIG. 28.—PICEA GRANDIS.

He establishes a section (Pseudotsuga), I shall not say for the Douglas Fir, but in which he places the Douglas Fir. Many people have before thought of a section for it and one or two others (Hookeriana and Pattoniana, which two, by the way, he classes as synonyms, although Professor McNab finds them distinct on his own characters) which lie between the Hemlock Spruce and the Spruces; but this section he composes of P. Douglasii, P. jezoensis (my Fortunei, a true Silver, with erect cones and non-persistent scales), P. Davidiana, a species introduced from the Himalayas in December, 1871, and which I have not seen, but of which the description quoted by Mr. Bertrand unfortunately does not tell whether the cones are pendent or erect, and the scales caducous or persistent; and lastly P. nobilis. I have endeavoured to find special characters on which this section is based in Mr. Bertrand's diagnose, but I have not succeeded. I find some characters "comme chez les Tsuga," others common to all the sections, but nothing given, so far as I can see, that is special. He says, indeed, "the P. nobilis and P. Douglasii have very great resemblances to each other," but does not indicate where they lie. We all know that there are very marked differences between them, such as that the cone of nobilis is that of a Silver, while that of Douglasii is persistent like that of the Spruce; but until we know what are the resemblances or points of affinity which are to overrule these important differences, it would be premature to condemn this new arrangement; only at the first blush it is rather startling, and does not tend to encourage our faith in the premises out of which it arises, or in the author from whom it proceeds.

In my next I shall try how these new characters apply to the rarer Conifers which we have been previously considering. *Andrew Murray.*

THE POTATO DISEASE.

UNFORTUNATELY, with the new light thrown on the life-history and the resting-spores of the Potato disease by the valuable experiments of Mr. Worthington Smith, so lucidly illustrated and described by that gentleman in your pages as to lay us all under the deepest obligation to him, the Potato disease has again broken out with a spontaneity and an energy beyond precedent. It can hardly be said to have come unexpectedly. The Potato crop, up till now, has been one of unusual promise. The recent rains, however, have produced an extraordinary length and succulency of stem. Both these were sources of danger. All, however, generally promised well until within the last two or three weeks. The early crops, somewhat more watery than usual, were a beautiful yield, and of fair quality. The late ones made unusual progress alike above and below. Such strong growers as the Climax, Late Rose, Sutton's Flourball, Red Regents, Flukes, &c., were all simply magnificent. But the heavy rains and semi-saturated atmosphere and soil, combined with the soft succulent growth of the Potato plants, have at length originated the disease almost everywhere, and it is spreading with more than usual rapidity. Its fatal effects are seen running in black lines and patches through almost every garden and field, and the unwholesome odour of diseased Potatos is wafted abroad on almost every breeze. The resting-spores, now proved by Mr. Smith's experiments and observations to be always present, have been stimulated into active life by climatal and vital conditions most favourable to their development, and have made haste to possess the Potato plant and its produce, and lay both low in rottenness.

Can anything be done to arrest its progress or save the crops, so plentiful and fine, from destruction? Such has been the sorrowful query asked hundreds of times during the past weeks, as I have examined scores of cottagers' gardens well stocked with fine crops of doomed Potatos. Mr. Smith's discoveries, by enlarging our knowledge, may ultimately supply an answer; but at present they seem to make the enemy more powerful by showing that it is always lurking near, ready to strike when conditions of earth, air, and plants are most favourable. It also shows the Peronospora more powerful, by revealing its threefold or more modes of reproduction. Destructible in some states, it seems positively ubiquitous and invulnerable in others. For the present it almost seems as if the Peronospora had completely over-matched our skill to destroy it. We know better what it is, and also seem more unable to cope with it. Meanwhile, in its more common and well-known form, it is sweeping down our crops by wholesale, and converting thousands of tons of wholesome food into loathsome rottenness.

As we cannot arrest the destructive force of this disease, may we not save something by lifting the Potato crop at once? This is what I have advocated for years, and each season's experience proves it the best method of saving part of the crop. Left in the soil with the tops either on or off destruction mostly runs through to the bitter end; lifted as soon as the disease is seen on the leaf, and before it has time to reach the tubers, the major portion of the crop may be saved. I know the stock objections that have been raised, such as a loss of weight, of flavour, and also losses from disease. As to the two first, is it not better to lose some and to have inferior Potatos than to have none? Besides, quality is very much a matter of storing. Interlayer the Potatos with earth and even miniature Potatos are not bad eating. As to rotting after lifting, this only happens when the lifting has been too long deferred. So harvest the crop before the disease hits the tubers, and it will not affect them afterwards. The testimony of experience is pretty uniform on this point. The apparent diversity of results in the sound keeping of early lifted Potatos has arisen from the disease being too far advanced before they were harvested. If the

seed of the disease has first reached the tubers, no doubt it will be developed into rottenness after lifting and storing, but not otherwise. Therefore the only chance of saving the bulk of the Potato crop is to harvest all that are fit and all that are in danger at once. Fortunately for the practicability of the course I am advocating the two terms are well nigh convertible. Potatos are fit to eat, almost fit to keep, before they are in much danger from disease. The Peronospora makes little progress until the plants approach maturity. Of course, these assertions are meant to be understood in a general sense, and in a sort of wholesale way. The exceptions, however, though at times they may be rather numerous, but confirm the rule. It is, therefore, practicable in most cases to harvest the crop between the period that elapses from the manifestation of the first symptoms to the destruction of the tubers.

As to the so-called new disease, it is in symptoms and results at least as old as my recollections extend. If, as Mr. Smith contends, it is our old foe in a new state, then is the Potato disease a much older malady than has generally been assumed. And I believe it is. No doubt it has become more general, and now and then it is developed into abnormal destructiveness; but facts and observations, could they be carefully collected, would probably confirm the natural inference that science would now draw from its knowledge of the pest—that the Peronospora, in some form of its manifold life, has clung to the Potato from or before its introduction into Europe. One or two points, however, do not seem to be made quite clear by Mr. Smith. If the destruction of the top is caused by this same pest in the new disease, why is the mode of destruction so different, and how is it that it stops short of the tuber? In the many cases of new disease that I have examined in cottagers' gardens over a wide area during the last week, not a single diseased tuber was found. The stem, roots, and in most cases the old tubers of the Potatos, were entirely gone, but the Potatos, whether large or small, were quite sound. Again, the old sets were not always rotten. Further, the disease does not seem to have any uniform time of development either as regards season of the year or state of plant. Potato plants in all stages of growth seem to have been attacked; hence sound tubers were found ranging in size from marbles to full-sized Potatos, and the latter seem little if at all deteriorated in quality by the loss of the tops. In all these particulars the new disease seems identical in its effects with the old "curl," and no doubt tubers without tops, and roots of small tubers undeveloped or arrested by some cause, have been more or less common from the beginning of the cultivation of the Potato in Europe. The fact is quite familiar to all who have had experience in the lifting of Potatos, consequently I think we have little to fear from the new disease, excepting in so far as it may strengthen and multiply our old foe, the Peronospora infestans.

Mr. Smith's discoveries concerning the resting-spores of the latter would point to steeps for the seed, and frequent changes of ground for the crop, as the likeliest means of killing or starving out the disease. If it is possible to use steeps that will kill those resting-spores in or upon the Potatos without injuring the vitality of the seeds, we may thus rid ourselves of the pest. Again, if, as seems probable, the spores cannot rest more than a season, may it not be possible to starve out the Peronospora by growing such crops in succession to Potatos as the spores can neither vegetate nor develope into other forms upon? A further knowledge of the likes and dislikes of the Peronospora in all its multiform modes or forms of life might enable us to select anti-Peronospora crops to starve or poison out the pest in all its stages. Unfortunately the cottager is almost always obliged, from the smallness of his holding, to grow Potatos after Potatos on some portion of his garden. This is doubtless a sure mode of perpetuating the Potato disease; and, indeed, it is found as a matter of actual observation and experience, that what is termed Potato-sick soil is that in which the disease has hitherto been most destructive, thus confirming, as it were beforehand, Mr. Smith's discoveries, that the earth is the hiding-place of the resting-spores; that in due time they are roused to life, perish if they cannot find a suitable matrix, such as the Potato plant, for their development, and run through their transformations and destroy the Potato crop, should it be within reach. It therefore follows that a total change of ground annually, which cultivators have found to be the best mode of insuring high quality, is also likely to prove the best safeguard against the Potato disease, old or new. *D. T. Fish.* [We advise burning the whole of the haulm and decaying foliage as early as possible when attacked, instead of allowing it to rot, and thus deposit the resting-spores, fresh and sound, in the very best position for attacking the crop the following season. This might not get rid of all, but it would lessen their numbers, and therewith the chances of an attack. EDS.]

FRUITS OF ALGERIA.

IT has been said by competent authorities that to France the world owes a debt of gratitude for having converted a country which on the sea-coast was a nest of pirates, the terror of the Mediterranean, and in the interior a chaos of anarchy and civil war, into a colony, not yet, indeed, as prosperous as its rich soil and unequalled climate ought to make it, but requiring only tranquillity and population to make it again what it once was—the granary of Southern Europe. The Republic of Carthage extended its influence much beyond the immediate seat of the capital city, and comprehended a great multitude of tributary hordes who, like the present Arabs, led a nomadic life. The whole coast from Scherchell to Algiers is strewn with the ruins of ancient cities, that prove the former salubrity, populousness and opulence of this region. The Carthaginians, although commerce was the main source of their power, bestowed abundant care upon agriculture; and the beauty, fertility, and cultivation of the territory of Carthage at the time of the Roman conquest, and till the irruption of Genseric, are attested by classical pens. When the army of Metella marched against Jugurtha, it found, in places where the French troops would now die of hunger, numerous and clear signs of great agricultural prosperity. The fields were covered with labourers and flocks; and magistrates of the town and country came to offer to the Romans corn, provisions, fruits, and means of transport. In the middle ages these same regions presented a flourishing condition, and Africa with Spain show that the Arabs could excel in agriculture as well as in architecture.

The French portion of Northern Africa extends along the Mediterranean coast for the length of 600 miles, and contains an area of upwards of 100,000 square miles. It is divided into three provinces—that of Algiers in the centre, that of Constantine on the east, and Oran on the west. Nature has separated this again into three zones or grand divisions, which influence the climate and the character of the ground. The first zone commences from the coast, and is called by the natives the Tell, from an Arab word signifying hill. It occupies a surface of 15,000,000 acres, and has justly been called the granary of Algeria, for it is the scene of all cultivation and crops, as well as the great forests of the country.

Here in the extensive valleys were the corn lands that supplied the granaries of imperial Rome, and at the present day the Arabs, when they resort to the northern markets, are accustomed to say—"The Tell is our mother; whoever may be her lord he is our father." Nearly all the Saharian tribes pay an annual visit to the Tell. In winter they have water on the southern plateaux and plains, but at the end of spring they come northward and reach the Tell about harvest time. There they remain in their black tents during the summer heats, and an active commerce is carried on during their stay, but when summer is at an end they all depart, and go home about the middle of October, when the Dates are ripe. The Tell, which would support a population of many million inhabitants, enjoys an exceptionally advantageous position, for it is rich in calcareous deposit or in alluvial soil. Besides this it is well watered on the whole throughout its entire extent, although the rivers are not sufficiently large for the purposes of navigation. The Tell is traversed by a long bony structure of hills, running parallel with the sea—the Greater and Lesser Atlas—which form the next division or zone of pasturage. This consists of a series of vast plains, seemingly without limit, which are admirably adapted for the rearing of sheep. Along the north these plateaux are enclosed by the mountains of the Tell, and along the south by the chain of the Sahara, beyond which again stretch the interminable wastes of the Great Desert. Thus while the Tell promises the colonists a rich harvest in cereals, fruits, and vegetables, the steppes assure him an abundance of animal food, as well as wool wherewithal he may be clothed.

The Sahara was long a fabulous land, being called by some the Great Desert, and by others the country of Dates. It was generally supposed that from the mountains of the Tell to Nigritia stretched one continued plain of sand, a wilderness infested by savages. Such is not, however, the true aspect of the Sahara, which consists of a vast archipelago of oases, each offering an animated group of towns and villages. A large belt of fruit trees surrounds each of these villages, among which the Palm rules supreme from its height and value, though there are also Pomegranates, Figs, Apricots, Peaches, and Vines. The Palm grows better than any other in this scorching soil, but it is seldom found in groups—generally singly or in twos and threes: hence the natives call this tree the "Hermit." Palm trees are not nearly so common as other fruit trees; they are found on hills, in valleys, and among thickets; they are propagated mostly by young shoots, taken from roots of full-grown trees. These, if planted with care, will bear fruit in the sixth year, attain to maturity thirty years after transplanting, sometimes continue flourishing for seventy years, bearing yearly clusters of fifteen or twenty Dates (each weighing 15 or 20 lb., altogether between 300 and 400 lb. of fruit); after this age the tree begins to decline, and falls about the latter end of its second century. It only requires to be well watered once in four or five days, and to have a few withered boughs occasionally lopped off. The Date Palm when it dies is always succeeded by others from shoots or kernels; whence may probably have originated the fable or allegory of the Phœnix. The inhabitants of the Tell are agriculturists, and those of the Sahara are shepherds and gardeners.

Consequent upon the varied elevation of the land is a great variety of climate; the temperature ranges from perpetual snow to tropical heat. Four distinctly different climates may be reckoned, that of the coast, which is under the influence of the sea, that of the hills, which is healthy and bracing, that of the Steppes, which is feverish and damp, and that of the Desert, which is hot and dry. February is usually the coldest month, and August is most unbearable from the heat. The sirocco wind is very prevalent, and originates in the Sahara. It is like air that has passed through an oven, bringing with it languor and lassitude, and bearing in its breath an impalpable red dust, which penetrates painfully into the eyes, nose, and skin. Its heat averages 130° in summer, and 100° in winter.

A French officer, whilst describing the impressions likely to be experienced by a stranger, brings before us in a vivid manner the broad features of Algerian scenery. He says: "After a frugal repast of Dates, and a refreshing draught of the crystal brook that laves his feet, let our new acquaintance climb that ruinous pile to the left, and gaze at the strange scene unrolled before him. His eye wanders over a vast, treeless plain; and his spirit is roused by one of those mighty impulses that issue from the bowels of the earth in Africa, and to which Europe is a stranger. Large salt-lakes at his feet sparkling like diamonds, immense waves of land lost in mirage rolling away to the background, rocky arid ridges breaking the horizon on one side, a dark line in the distance seducing the imagination with Mediterranean dreams, the spectral Arab flying across the plain, and the dazzling Koubbah with its venerable Plantains. As this strange solitary landscape unfolds, the spectator is filled with indescribable sadness; yet is the feeling mixed with grandeur, elevating instead of casting down the soul. The shades of ages hover over you, and these plains and mountains, the battle-field and grave of mighty nations long since gathered to their fathers, seem to retain some mysterious enchantment that inspires you. Hence the attachment felt by all who have visited it to that land of fables, prompting private or commander to escape from the monotony of the Bois de Boulogne or Elysian Fields and to seek once more the risks, the accidents of flood and field, and those African breezes that are life to the soul." *E. T. B.*

(To be continued.)

PEACH BLISTER.

EVERY one who is acquainted with Peach trees is probably equally well acquainted with the disease of the leaves known as "Peach Blister." This disfiguring disease of the foliage is not confined to the Peach but occurs on Almonds and allied plants, is generally most common in spring and early summer, and makes itself manifest by large leathery red wrinkled blisters on the leaves. A fungus known as Ascomyces deformans (so named by Mr. Berkeley) frequently or invariably accompanies this red blister; it grows upon the blister of the leaf, generally upon the lower surface, but not unfrequently upon the upper side. At times the fungus may be sought for in vain, in fact, judging from our own experience, the blister is far more common than the fungus which is said to produce it. This has led Mr. Smee, who grows and carefully observes a large number of Peach trees, to say that the distorted leaves are caused by an injury inflicted by an aphis, and he states his belief that the aphis is constantly present, and that the fungus is but rarely so. An opinion, too, has recently been printed from an authority equally good with Mr. Smee, that the blistering is "caused by spring frosts rupturing the sap-vessels," "and that the fungus lives upon the extravasated sap." De Bary, on the contrary, describes and figures the fungus in an early state as living inside the leaf amongst the cells, and at length only emerging to perfect itself on the exterior. This seems very reasonable, and would in a way account for the discoloured cells in the blister, which change in the diseased state from green to vinous red, and a similar discoloration (not red, but blackish brown) takes place amongst the cells in Potato leaves when they come in contact with the corrosive spawn of the fungus which is supposed to cause the murrain.

Owing to the kindness of Dr. Hogg, we have recently had a good opportunity of examining this Peach-leaf fungus when in the best possible condition, and we here give a figure of it as seen under the microscope (fig. 29). To make the parasitic fungus at once clear to the mind, we have engraved a single blistered leaf natural size (A), with the fungus at B, which is almost invisible to the unaided eye, and can only be seen with a strong lens as a fine white pulverulent stratum.

Now to get a really good view of this damaging fungus it is necessary to cut an almost inconceivably thin transverse slice out of the lamina of the leaf. It is not every one who can perform this feat to perfection, but practice and perseverance at length overcome all difficulties. At C C is shown one of these extremely thin transverse slices from a part of the leaf where there is no disease, and D D shows a similar section, but cut out of the thick, leathery blister, with the fungus *in situ* on the top. C C and D D show respectively the thickness of the diseased and healthy portions of leaf, and this shows how very small the fungus is in comparison with the thickness of the leaf. The section from the uncontaminated quarter of the leaf needs no comment, but it will be seen at a glance that the whole of the cells in the diseased portion are morbidly enlarged in size and materially increased in number. If our figure had been coloured the cells would all be green in the healthy slice, and corroded to crimson in the diseased one. The fungus is clearly capable of exciting a morbid growth, both in the number and size of the component parts of the leaf.

The fungus Ascomyces belongs to the same order with the large and delicious Morel and the various species of Peziza, some members of the order being amongst the largest of known fungi, whilst Ascomyces is amongst the smallest, and, says Mr. Berkeley, "the lowest form to which the Ascomycetes can be reduced." The white pulverulent stratum, when enlarged to 200 diameters, is seen as shown at E, and consists of a basement of threads from which arise numerous sacs (asci) intermixed with necklace-like organisms, which latter, when broken up, doubtless form a second form of fruit. The true sporidia are contained in the asci, eight in a sac, and this latter membranous receptacle at a certain moment of excitement opens a sort of mouth at the top, and discharges the sporidia into the air, as is shown in the engraving. The sporidia (= spores, or analogues of seeds) are seen to better advantage at F, where they are still further enlarged to 800 diameters, to better show the one, two, or three nuclei with which they are furnished, and which remind the botanist of a similar structure in the sporidia of the genus Propolis. There are various other species of Ascomyces met with in this country on the leaves of the Pear, Walnut, &c., and one on the Continent, with which we are acquainted, which grows upon the leaves and fruit of the Plum. The latter we have not at present seen recorded from this country. *W. G. Smith.*

FIG. 29.—PEACH BLISTER AND ITS ACCOMPANYING FUNGUS, ASCOMYCES DEFORMANS, BERK.

VENUS' FLY-TRAP.

BY THOS. A. G. BALFOUR, M.D., F.R.S.E., F.R.C.P.E.

(*Continued from p.* 103.)

SEPTEMBER 26.—At 3.50 P.M. a portion of litmus was placed on the internal surface of a leaf of Dionæa, on which a piece of flattened wood had been previously firmly pressed, and no change in colour followed. The litmus was then moistened with water and applied as before, but without any change. The moistened litmus was then placed between the two portions of leaf, and these were firmly and strongly compressed by the fingers, and yet the litmus was unchanged in colour.

What secretes it? Ellis long ago stated that the surface of the leaf was studded over with red glands, which secreted what he regarded as sweet fluid, but which we know to be of an acid nature. These glands are among the most beautiful objects in Nature, their graceful symmetry, since the regularity of their cells, and their lovely colour render them most attractive microscopic objects. In some leaves, however, their colour is green and not red. If beauty of form and brilliancy of colour can be appreciated by flies, then we have a sufficient object of attraction for these insects, without having recourse to Ellis' nectar. They are very numerous, being studded over the upper surface of the leaf (excepting a small strip at the base of the marginal spines), and being most abundant and in lines in the immediate neighbourhood of the sensitive hairs. They are somewhat elevated above the surface, and have a dome shape; the larger cells, which have a crenate margin, contain in their interior numerous red rounded cells, which seem to contain the secretion.

That Ellis was right in supposing these to be secreting glands can scarcely be doubted, if we consider their structure and the position which they occupy on the leaf relatively to the fluid which is poured out. But there is an argument from analogy which seems quite legitimate and conclusive, and it is this: in other genera of the same natural order, as, for example, the Droseras, we find that the secretion in their case is effected by glands of a similar colour, and there can be little doubt that these sparkling vegetable rubies have a similar ultimate design, viz., to attract the insects within the reach of the secretion, which is accomplished at once in the case of the Drosera, but only after a time in that of the Dionæa.

This secretion is not poured out needlessly.

The following experiments will afford the best answer to Mr. Murray's first question:—

July 4.—A piece of wood on leaf of Dionæa, a piece of lime on another leaf of same plant, and a piece of iron on yet another.

July 6.—Exactly forty-eight hours afterwards no fluid was secreted in any of these cases.

Even when a fly is shrivelled up, if the secretion be poured out in any quantity whatever it is long delayed, thus—

July 7.—Piece of Fuchsia on Dionæa leaf.
July 8.—Leaf open, and a fly now added.
July 10.—Do., no secretion, closes readily.
July 13.—Fuchsia leaf with white fungus on it; this leaf and the bottom of the leaf of Dionæa are moist; fluid faintly acid.

The mere moisture, the faintly acid character, and the long delay in this particular case, establish the fact of there being no needless waste of the secretion.

But this peculiarity is also manifested in another way, so far as I have seen in one or two instances. The acid secretion after being poured out either changes so as to be much less acid, or the subsequent fluid poured out has only a faint acidity, while that in contact with the insect is intensely so.

Examples.—A Dionæa leaf containing a fly was open on the seventh day, and a great deal of fluid was found, specially at the distal end of the leaf, where the fly was; this was very acid, but fluid at petiolar end only feebly reddened litmus.

What amount of secretion is poured out? This seems to vary according to the creature or substance introduced. If it is a *bonne bouche*, such as a fat spider, or a smooth caterpillar, or a fresh fly, or a piece of raw meat, the secretion seems abundant, but if a shrivelled fly be inclosed there is, as we have already seen, little or no secretion.

We know the old saying about "making our teeth water," which refers to the increased secretion of saliva which is poured out when a choice morsel is before us, or placed in our mouths, or, as French has shown, even when it is introduced into the stomach by a fistulous aperture, without ever being in the mouth. No doubt this also bears a relation to the amount to be digested, for a good spider is not only a tasty article of diet, but contains a large amount of material available for nutrition.

July 24.—At 3.30 P.M., a living spider of large size was inclosed in a large healthy Dionæa leaf.

July 27.—The spider was dead, and was surrounded with fluid, which forms almost a little well near the apex of the leaf. Six tubes* of secretion were withdrawn, and the remaining fluid, which was small in amount, was carefully mopped up. The first two tubes had clear fluid, but the other four had a whitish opalescent appearance (all more or less gummy to the touch), and the fluid was acid in all. The leaf was allowed to close.

July 28.—At 3.30 P.M., spider again surrounded with fluid, and five tubes of secretion were removed, which was somewhat viscid and quite acid, and only slightly opalescent. One of the blades was unfortu-

* The tubes which were used were the medium-sized capillary ones used in vaccination.

nately torn a little in opening it up; the leaf was treated as on the former day.

July 29.—Small amount of fluid to-day, only about a half-tubeful, quite acid, and somewhat viscid.

July 30.—No secretion to-day, either on the spider, which is quite dry, or on the blades of the leaf.

Aug. 1.—There is a damp appearance on spider and leaf to-day, but no accumulation of fluid.

Another experiment was tried on July 25. A living spider of smaller size was put on the leaf of another plant. On July 27, at 4 P.M., it was surrounded with fluid, which was all wiped away, as a whitish semi-fluid substance was found coming from the hinder part of the spider (a similar substance may have caused the opalescence in the former case also). The leaf was allowed to close.

July 28.—One tube of clear fluid was taken away to-day; it was acid. The rest was wiped up.

July 29.—Little fluid to-day; only enough to half fill a tube. It was neutral.

Aug. 1.—There was simply a dampness on spider and on sides of leaf.

Yet another experiment was made with a spider, which in this instance was a very fat one, and apparently in an interesting condition! It was entrapped on July 27, 1874, and on the 28th it was found surrounded with fluid: two tubefuls of this were removed, and the remainder was wiped off.

July 29.—The interior of the spider seems squeezed out, the fluid about it is abundant and quite acid; two and a half tubefuls were taken, which had a reddish colour from contents of spider.

July 30.—The fat spider is much broken down, and a great deal of fluid of a reddish colour (from mixing with contents of spider) was removed. Four tubefuls were taken.

Aug. 1.—Two and a half tubefuls of reddish fluid withdrawn, and the spider was left damp. This experiment, like many others, was abruptly terminated at this date, as the Scottish Alpine Club can brook no delay.

There was one circumstance which I noted on more than one occasion. It was this: that if the meat was not put well down, so as to be near the sensitive hairs, there was little or no secretion. I shall give one example. On July 1, 1874, at 3 P.M., a piece of raw beef, about the size of a bluebottle fly, was brought into contact with the hairs of a leaf of Dionæa; in this case the contraction was rather rapid, and the meat, having been slightly moved, was fixed at the part of the leaf a little below the marginal bristles or spines, and there it was found on July 3, looking dark, dry, and somewhat shrivelled. On that date, however, I pushed it down to the hinge, and in twenty-three hours after it had been pushed down, on separating the blades, the intermediate space was found very full of fluid, and the meat was pale, like veal, and partly digested.

Now, if these observations be proved to hold generally good, it would point to a beautiful relation existing between all the properties already mentioned, viz., irritability, contraction, and secretion, for we must remember that a piece of meat placed near the marginal spines is not in accordance with the natural process, which renders it necessary that the insect should be down in the neighbourhood of the hairs when it is caught, so that no insect would naturally be found in such a position as the beef was, unless the plant were very sickly and closed so slowly that the creature would have time to creep up to that position, but this would indicate in the plant a feeble or unhealthy condition, and, under such circumstances, absence from animal food is usually enjoined.

I come now to speak of the fourth head, which is

4. *Digestion*, or the action of the contraction and secretion in favouring the solution of the animal matter, and preparing a pulp suitable for absorption. If this effect is produced then there can be no question that true digestion has occurred, whether it be in the stomach of a man, or of a beast, or in the leaf of a plant, or in the interior of a glass vessel. No doubt it may be a more complicated process in the one case than in the other, but the essential parts of the process are alike in all, and I cannot see why Mr. Murray should so strenuously oppose the use of the term digestion in the case of Dionæa. Dr. Hooker, I am certain, knew as much about the structure and functions of the human stomach when, by way of illustration, he beautifully compared the action of the Dionæa leaf to it. Mr. Murray cannot suffer this statement to pass; and he asserts that even in this Dr. Hooker "will scarcely deny that, put it any way he likes, the analogy is of the feeblest." And Mr. M. goes on to say, "Would it not be an anomaly in the economy of Nature if a complicated apparatus should be provided to do something which is of no advantage to the plant, and which it seems to be able to do quite well without? Of course there are no flies for the Pinguicula to feed on in winter, and yet it grows as well then as in summer. For three weeks of the time I observed it we had a great deal of rain and the leaves were washed free from all remains of flies, yet the plants seemed to thrive better and better. Drosera was in the same predicament, and I presume Dionæa must be so too." Now in these sentences there are two or three asumptions which it might be well to notice; the first is that "the process is of no use to the plant." He is referring to Pinguicula, but from his concluding sentence, he seems to include Dionæa also. On what grounds does he rest this opinion? Mr. Lindsay, a very intelligent person and a careful observer, informed me that when they used to grow young plants of Dionæa under bell-jars they found that they never throve so well as those which were left free. As regards his remarks about the rain washing off the remains of flies, he seems to forget that where there were "remains" the substance must have gone to feed the plant; and if not entirely gone the rains which swept them away must have favoured their decay and brought them in contact with the roots of the plants, and thus have contributed to the nourishment, for no one, so far as I know, ever asserted that the leaf was the only medium through which the Dionæa was supplied. Surely Mr. Murray must know that though there is such admirable provision in the human mouth, stomach, &c., for receiving food for the nourishment of the body, yet the skin may absorb nutriment, as in the case of baths of milk, but who would assert that the fact of the one doing so precludes the action of the other?

Again, Mr. Murray says, "The entrapped insects do melt away under the influence of the secretion, but no more, I apprehend, than they would do under the influence of any other feeble acid. Now the secretion is slightly acid; not quite so much as the juices of the plant itself, but still slightly so. The juices of most plants are acid." . . . . . "It is not an unnatural assumption that the secretion exuded will participate more or less (less rather than more) in its acidity; and so it does." He then, in reference to the acid juices of plants, exclaims, "Here is a means of dissolution which is applied universally to assist decay; but something more is needed to make digestion. If you apply the litmus paper to the moist or half rotten leaves of Sphagnum or Polytrichum you will find them much more acid than the Pinguicula; but no one will consequently propose to endow them with digestive powers." And, after other remarks, he concludes thus, "I do not believe that had this question not been complicated by the curious machinery of Dionæa, for which it is so difficult to find a purpose, that we should ever have heard of carnivorous plants or digesting vegetables." This argument, if carried out, would apply equally to the acid secretion of the stomachs of men and of the lower animals; for, stated in the broad and general way in which he has put it, we might explain that, as acid is the general agent of decay throughout all Nature, we cannot believe that we should ever have heard of carnivorous beasts or digesting animals if it had not been for the curious machinery found in their bodies. And had we only lived before the structure and functions of the stomach had been so thoroughly investigated we might have boldly asserted that no true digestion did take place in that organ, but only a process similar to that we see around us, whether in the kitchen or in the mill, or throughout all Nature; and we might have fortified our position by an appeal to most eminent authorities, for Hippocrates held that digestion was merely a cooking process; while Borelli, Bœrhaave, and others regarded it as a mere mechanical trituration; while Plistonicus held that it was simply a putrefaction.

But surely, after all, there is a decided difference between the juice of a plant and its secretion. In the Dionæa I grant that the acid character is of about equal intensity in both. In the Drosera dichotoma, however, it is far otherwise, for while the juice is quite acid, the drops of secretion are scarcely, if at all, so. But in both Dionæa and Drosera we find that while the juice is thin and watery, the secretions are gummy and tenacious, which certainly indicates that a great change has been effected by the secreting cells.

Another circumstance indicating digestion is this, that putrefaction does not occur during the whole period, even when we find that the secretion has become only faintly acid. This certainly is not what we should find under ordinary circumstances. Even the Sphagnum is no exception. Mr. Murray is right in saying that it is acid, but he makes a great mistake when he asserts that the disappearance of insects in the Dionæa and Drosera is simply by a process of decay caused by the acid fluid, just as in the case of the Sphagnum. On June 8, 1875, I placed a piece of raw beef in the centre of a considerable amount of Sphagnum, partly green and partly decayed, and again I placed another piece more loosely amongst the leaves of this plant, while, on the other hand, I put a similar piece of raw beef on the leaf of a Dionæa. On June 10, at 6 P.M., the first two pieces were putrid, while the piece in Dionæa had no bad smell whatever.

I could give many illustrations of this, as almost all the ordinary experiments attested it. In order, however, to prove that the mere exclusion of much air and the coolness of the leaf had nothing to do with the absence of decay, I took a piece of meat, and having selected a leaf of Stadmannia australis (which was in the same house with the Dionæa), on July 4, 1874, I got Mr. Lindsay to tie the meat up in the leaf, which was then folded several times. On July 6 the meat had a darkish look and a putrid smell, and on wetting it with water only a very faint red was given to litmus, which indicated that ammonia, one of the earliest products of decomposition of animal matter, had been developed to such an extent as nearly to neutralise the natural acid of the beef. On July 11 the meat was very putrid and quite decayed.

But a more striking instance, inasmuch as it illustrated both processes, was this. Mr. Lindsay had gorged some leaves with raw beef—so great was the quantity given that the meat projected beyond the marginal spines or bristles. This was done on July 4, 1874.

On July 6, on opening one of the leaves, it was found that while the portion of meat beyond the marginal hairs was dark and dry, and had a faintly putrid odour, the portion contained within the leaf was white and had the appearance of having been macerated, and had no apparent putridity, but seemed quite fresh. The meat was now taken from the leaf, and the tainted portion having been cut off from the fresh portion, this latter was put under a wooden box (to keep away flies) to see if the partial digestion which it had undergone would retard decay. This was done on July 6.

July 7.—The tainted meat cut away is much more putrid, while the partially digested meat has no smell.

Another interesting fact is that when meat is partially decayed, if it be put amongst the secretion it will lose its smell.

On July 6 one of the gorged leaves, on which the part projecting gave a very putrid smell, had this portion pushed within the leaf, and on July 8 no putrid smell could be discovered. On opening the leaf there was much acid juice, and the meat was much whiter, but no smell was discoverable.

How is the process carried on, and what is the result?—In answer to these questions I would say, slowly but steadily; and if we select raw beef for observing the changes, we find that it soon loses its red colour, as in the instances just cited, and is gradually disintegrated more and more till ultimately the state of pulp is produced. In one instance, viz., that of a piece of raw beef, about the size of a bluebottle fly, which was introduced on July 1, it was found on July 23 reduced to the state of pulp, quite free from smell.

Ex uno disce omnes.

(*To be continued.*)

Apiary.

WORK FOR AUGUST.—Those of our readers who are well up in the management of their stocks, will not need to be told to seek amongst the cottagers in their neighbourhood for condemned stocks. For our own part, and speaking from past experience, we have been most successful in the apiaries which are the pride of many of our farmer's wives. They, in nearly every instance, manage their stocks on the old-fashioned method in small straw skeps, and if not seen in time they invariably destroy them over the brimstone pit. They are, however, very thankful to any one who will save them the trouble and annoyance of this method by driving the bees instead of destroying them by wholesale. The author of the *Manual of Bee-keeping* states—"Driven out bees may often be bought in rural districts at about 1*s*. per lb., and are well worth the money to the advanced apiarian." We have hitherto, by a little courtesy and tact, had no difficulty in securing more condemned stocks than we have been able to find room for, just for the trouble of driving them. We think it would be an insult, or considered as such, if we offered to pay for them in the North of England; they are only too thankful to be saved all trouble, as above stated, and think this abundant recompense for the bees. Nay, in many instances, we have been asked how much they must pay for our labour in coming to take them? We reckon amongst the most happy and enjoyable days we have ever known, our bee-driving expeditions in the autumn, in company with two or three valued friends—one of whom is far from being a total abstainer; in fact, he always returns home singing, and as jolly as possible with the good wine brought out by daughters of our noble yeomen, whom, to say the truth, it is hard to resist. We take with us empty skeps, &c., on an old perambulator, which will hold, maybe, eight or ten stocks when tied on, and return home just in the cool of the evening.

We urgently advise every bee-keeper whose stocks are weak to strengthen them with driven stocks, and then to feed them up liberally before the winter sets in. Every second swarm or cast should be inspected, for these are often worthless as separate colonies, except they are increased with condemned stocks. Looked at even in this light driven bees are exceedingly valuable. Many apiarians believe it is impossible to place condemned stocks in empty hives to make them into good colonies. We say, once for all, try it; nothing can be done without trying. It is

very easy to say it can't be done, but this should never be said without adding, "I will not take the trouble to try." Some of our best and most profitable stocks have been formed solely out of condemned stocks, placed, too, in empty hives. It is, however, far better, if you use the bar-frame hives, to build-up several bars by tying a little deaf comb in each bar; this gives them a good start, they do not lose much time in fastening the comb to the bars, and increasing it by making new combs if they are liberally fed with syrup.

The poor gentlemen who have lived in great luxury all the summer, and taken their usual afternoon's drive in splendid style, are now found to be an incumbrance and a burden upon the working community, not unlike thousands of drones in the human hive. The apostle wisely wrote, "If any would not work, neither should he eat." The little workers are observed exceedingly busy, tumbling these idlers out of the hive. We have often felt sorry for them, because they are compelled to become murderers of their own brothers. We often find the fat—and shall we say corpulent?—gentry, minus their wings, making a terrible noise as they waddle upon the ground near the, up to this time, hospitable home. The first indication of this slaughter is casting out the imperfect, or baby drones, to perish. If the latter part of the month of July is wet, or but little honey gathered by the workers, they then commence to get rid of the drones; if a good honey harvest is prolonged to this month, they seem to have no time to think about their friends, but they are not slow in telling them their minds when food is scarce. They have different ways of killing the drones; it is often a slow and painful task under any circumstances, for we have not unfrequently found them driven into a corner of the skep, there, when deprived of food, to gradually starve, until they are finally carried out dead. Often they tease and tire them, by biting vigorously at their wings and legs, and compel them to fly off in haste; when they are obstinate, and determined not to quit by fair means, they are stung to death—though this is a rare circumstance, for it may also cause the death of the worker bee. The bees, when the slaughter is in active progress, are not very good tempered; woe be to any one who interferes, though it may be only to aid them. Is it not wise to save the workers so much extra labour by employing a "drone trap?" There are several kinds of traps, which may be purchased from any respectable dealer in apiarian furniture, but they are all made upon the principle of allowing free egress to any worker bee which may accidentally find its way into the trap.

Look carefully over your stocks: if you do not observe them carrying in pollen they should be suspected; if the stock is queenless it will quickly be infested by thieves, and when robbing once sets in it is more difficult to stop again than many persons imagine. Not only so, the inmates become dispirited, and allow it to become a resort for the bee-moth.

Also, it is well to use every precaution just now, when opening hives, or making use of honey, to allow none to lie about; honey being scarce it will cause fighting and much trouble, which can be easily prevented, by not giving any occasion for it. Those hives on which the supers still remain had better be attended to. We should now advise all the supers to be removed, for, except in most favourable localities, very little more honey will be gathered. *R.*

HONEY EXTRACTORS.—Perhaps you will permit me to say that your correspondent "J.," in his communication at p. 107, is decidedly wrong. My *Manual of Bee-Keeping* was first announced in the *British Bee Journal*, April 1 — Mr. Rushbridge's *Book for Bee-Keepers*, May 1. The former was issued to the public May 14 (I myself posted forty on the 15th), the latter not till a fortnight afterwards, and you, Mr. Editor, were furnished with a copy of my book for review before the other book was published. Of course, I cannot tell when "J." saw the books on bookstalls, but his statement that he did so three or four weeks before the announcement of my *Manual* is simply impossible. [Not necessarily.] I enclose the advertisement of both works; the one dated May 1, you will see, announces that the *Book for Bee-Keepers* "will be ready shortly." *John Hunter, Ealing.* [We can insert no more on this subject. EDS.]

THE COTTAGE FRAME-HIVE. — The following dimensions for the details of the cottage hive should have accompanied the cuts in our last issue (p. 107) illustrative of this subject:—A and B, 19½ × 8⅛; C, 16 × 2¼ (two pieces); D and E, 14½ × 8¾, and the piece cut out of D should be 7 × ½; F, 16¼ × 8¾ (two pieces); G, 16¼ × 3 (two pieces), and the slot cut out of the sides should be 10 × ¼; H, 16 × 3 (two pieces); I, 16¼ × 4¼; J, 15¼ × 12 at the apex, and 8 at the sides (two pieces); K, 16½ × 8 (two pieces), the upper edge of these should have three-quarters of an inch bevelled off to allow the roof to rest flat; L, 16⅛ × 3 (two pieces); M, 17½ × 3 (two pieces); N, 19 × 11; O, 19 × 13; Q, 15¼ × ⅞ (ten pieces); R, 7⅛ × ⅞ (twenty pieces); S, 13 × ⅞ (ten pieces); T, 42 × 3 × 3.

REMOVING SUPERS FROM THE HIVES. — Many bee-keepers experience great difficulty when removing their supers at this season to get rid of the bees, who seem often reluctant to quit the richly-laden combs. Sometimes we are recommended to place them in a shady part of the garden at a distance from the apiary, when, finding out the loss of their queen, they rapidly leave the super. We have done this to find, in a few hours, all the honey taken out of the combs far cleaner than we could have performed the operation, by robber bees.

Mr. Cheshire exhibited a little contrivance at the Crystal Palace show which attracted much attention, and we have found it most useful. It is a simple trap, which, whilst allowing the bees to escape, prevents them from again entering the super if ordinary care be exercised. It can be made in a few minutes, by even a lady amateur. First, procure a box sufficiently large to contain the supers, and bore two or three ¼-inch holes in its side; over these place a pin exactly in the centre, which is kept in its place by two other pins, placed just beneath the head, and two at the point. The bee pushes up the central pin to escape, but the pin again closes the hole against an entrance. The box should have a tight-fitting lid to exclude any light, except that admitted through the ¼-inch holes. The annexed illustration (fig. 30) will explain its working, as well as show how it can easily be put together. An ordinary ½-inch board, planed, may be converted into the "five-pin bee-trap"—a name given to it by Mr. Cheshire—or even thick cardboard can be made

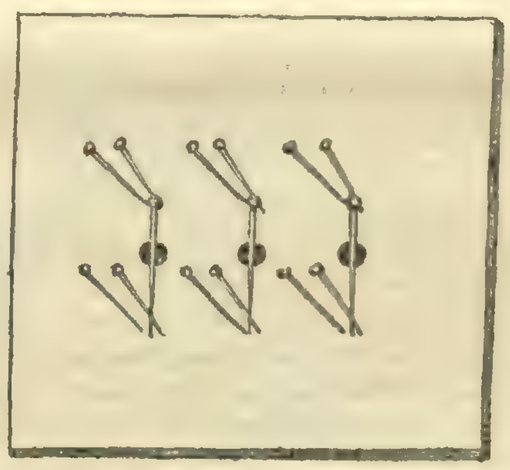


FIG. 30.—CHESHIRE'S BEE-TRAP

to answer. We have found the common American cheese boxes, which can be purchased at any provision dealers for *2d.*, useful for small honey glasses (supers), such as those sent out with Neighbour's cottage hives. *R.*

—— Can either of your correspondents account for the wonderful number of swarms of bees I have had? I began this spring with four stocks, from which I have hived eight large swarms, besides having others which flew away. For nearly thirty years I have kept bees, and never knew them to throw off so many swarms. What to do with so many bees I know not, it seems a shame to kill them, and yet this locality does not produce sufficient food for so many. It does not appear to be a good honey season. *A. G., Southgate, N., July 23.*

Forestry.

I AM responsible for the statement on Bark in your impression of May 8 last, to which "W. H. M." calls attention. On looking over the article, I find I had made a transcript error in substituting 50 feet for 30 feet, which is to be regretted; but this having led to further investigation, I hope the advantages will compensate for any evils that may have arisen therefrom.

With a view to show how differences of opinion may arise, and different results appear in connection with such a subject, I submit the following statements, not as the result of practical measurements, nor as arithmetically correct, but in order to show the proportion of bark produced from trees of different sizes, and the different results produced by two different methods of measuring. The results shown are based upon the calculation of the bark weighing 16 ounces per superficial foot, and the other more important particulars will appear in the annexed tabular form.

Trees.	Length.	Girth.	Cubic contents by Method 1.		Cubic contents by Method 2.		Superficial feet of bark.	Number of trees required to produce one ton of bark.	Cubic feet required to produce one ton of bark by Method 1.	Cubic feet required to produce one ton of bark by Method 2.
	Ft.	In	Ft.	In.	Ft.	In.	Feet.	Trees.	Feet.	Feet.
1	20	24	5	0	6	3	40	56	280	356
2	30	28	10	2.6	13	0	70	32	326	415
3	36	36	20	3	25	9	108	21	425	534
4	36	56	49	0	62	3	168	13½	637	831
5	45	96	180	0	228	9	290	7	1260	1373

C. Y. Michie, Cullen House, July 20.

Obituary.

JOHN STANDISH, whose death we regret to have to record, though it has been imminent for some time past, was in his sixty-second year. His father was a native of Yorkshire, and about the year 1813 or 1814 became forester to the late Marquis of Lansdowne at Bowood, an appointment he held till his death. John Standish was born either in Yorkshire or at Bowood—we have not been able to ascertain which. Early in life (at which period he lost his father) he evinced a taste for the garden, and commenced his career in the famous gardens at Bowood. After his apprenticeship he became foreman in the gardens of the Duchess of Gloucester, Bagshot Park, under Mr. Andrew Toward. Here he began to make a name, which has now become known over most parts of the world. He it was who hybridised Rhododendron catawbiense with a scarlet variety of R. arboreum, and produced R. Blandyanum and many other fine kinds. This alone was almost worth a life, but he did not stay his hand here. About this time—1837—Fuchsia fulgens was introduced. The plant at first puzzled the botanists, and they were divided in opinion amongst themselves as to its precise position; whilst the learned in science were debating John Standish practically solved the problem, and gave to the world a hybrid between Fuchsia globosa and F. fulgens—× Fuchsia Standishii. This obtained for him the friendship of the late Dr. Lindley, and introduced him as a nurseryman to the whole gardening fraternity. Dr. Lindley became a warm friend, partly because Standish's practical experiment proved Dr. Lindley's opinion the correct one. He afterwards had the good fortune to raise Fuchsia corymbiflora, as also many hybrids. He next became famous for Calceolarias, and even for a time he led the van. New plants, Rhododendrons, &c., engaged his attention for some years, and in 1846 he was joined in partnership by Mr. Charles Noble. The two worked together for some time, and perhaps no two men ever made a shorter road to popularity. They took a very prominent position in the grand Rhododendron exhibition at the Regent's Park; they became the agents to receive and distribute the magnificent introductions of Mr. Fortune, the result of several visits to China; the enumeration of the valuable plants they circulated in the ten years 1846 to 1856 could not be given here. In 1852 was published a valuable little book, entitled *Practical Hints on Planting Ornamental Trees*, of which the remark was made at the time that it "was one of those excellent practical works from which the most unlearned may profit as much as the most learned"—a verdict which the lapse of time has so far confirmed that we can only regret that a new edition has not long since appeared. A dissolution of partnership was arranged in 1856; the cause, as Standish himself remarked, was that two suns could not shine in the same horizon. This dissolution caused some coolness between the former partners, and each went his own way. But soon after the former friendship was renewed, and it is gratifying to know that his former partner was in close friendship with Standish during his illness, has performed the last sad rites for his old friend, and has been selected to care for the interests of the widow.

Since 1856 the Royal Ascot Nursery has been established by Standish, and is now known as the firm of Standish & Ashby. New Grapes, Strawberries, Peaches, as well as the grand Japanese plants brought home by Mr. Fortune, have all combined to render the name of Standish a household word in the gardening world. His last great triumph (which he has not been allowed to fully realise) was the production of some hybrid Peas. These last, it is believed, are a valuable legacy to the rising gardeners. Had he lived one more month he would have also left to posterity some hybrid Wheat. Such was the versatility of his active brain that he always lived as it were a year in advance. We must not omit to mention the establishment, under his auspices, of one of the most important bouquet businesses in London. Here, as in many other emanations of his brain, he bore down all difficulties and opposition.

Mr. Standish, as may have been gathered from the foregoing remarks, was very successful as a hybridiser, but he did not confine himself merely to the practice. He did what it is to be wished more would do—kept accurate records of his experiments, and of the conclusions to be drawn from them. Many of his contributions have appeared in these pages, and in the *Journal* of the Royal Horticultural Society, and they evince much natural shrewdness, improved by careful observation and just reflection.

This imperfect and scanty glance at the career of John Standish will prove that he has at any rate left his footprints on the sands of time. His manly presence, genial manner, and generous disposition, will be sorely missed among his colleagues. We hope shortly to be able to lay before our readers a portrait of this sterling representative man.

HORTICULTURAL EXHIBITIONS, 1875.

AUGUST.

10.—Clay Cross Horticultural Society's Eighteenth Annual Exhibition.
12.—Canterbury Horticultural Society's Exhibition. Sec., Charles Sendell.
17.—Coventry and Warwickshire Horticultural Society's Show at Combe Abbey. Sec., Thomas Wigston, 3, Portland Terrace, Coventry.
18.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
24 and 25.—Metropolitan Floral Society's Exhibition at the Alexandra Palace.
25.—Isle of Thanet Floral and Horticultural Association's Annual Exhibition. Hon. Sec., C. D. Smith, Esq., 8, Marine Terrace, Margate.
26.—Royal Horticultural Society of Ireland. Autumn Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
26.—Wantage Horticultural Society's Annual Show. Sec., W. Caudwell, Wallingford Street, Wantage.
26, 27, and 28.—Dundee Horticultural Society's Grand Floral Fête. Sec., Wm. R. M'Kelvie, 51, Reform Street.

THE
Gardeners' Chronicle.

SATURDAY, JULY 31, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Aug. 2	Peterborough Flower Show.
TUESDAY,	Aug. 3	Sale of Poultry, Pigeons, &c., at Stevens' Rooms.
WEDNESDAY,	Aug. 4	Royal Horticultural Society: Meeting of the Fruit and Floral Committees. Sale of a Collection of Established Orchids, at Stevens' Rooms.
THURSDAY,	Aug. 5	Sale of a Collection of Stove and Greenhouse Plants at Sister House, Clapham Common, by Mr. Stevens.
FRIDAY,	Aug. 6	Sale of Plants at Sister House continued. Cheadle Floral and Horticultural Society's Show (two days).
SATURDAY,	Aug. 7	Littleover Horticultural Society's Exhibition. Rossendale Floral and Horticultural Society's Show.

PRACTICAL horticulturists and agriculturists are aware of local differences in climate in its relation to vegetation that would surprise those whose avocations do not lead them to study THE PHENOMENA OF METEOROLOGY. Certain restricted areas are remarkable for the mildness of their climate, and it is not always easy to determine the real cause or causes. In the *Oesterreichisches Landwirthschaftliches Wochenblatt* for July 10, Dr. H. HOFFMANN has an interesting article on the "Influence of Inland Water on the Vegetation of the Shore Lands." It is well known, he says, that not only lakes of some extent, but also many rivers, exhibit an exceptional climate, inasmuch as at certain spots on their banks the vegetation is of a more southern character, and tenderer plants flourish than are found in the surrounding country. This is notably the case on the Rhine, in those districts where its course is from east to west; and more especially so in the Rheingau, where Germany's most generous wines are produced. The same thing may be observed at Wurzburg on the Maine, at Dresden on the Elbe, and at Grein and Krems on the Danube; and whoever has visited Frankfort must have been struck with the marvellous vegetation on the north bank of the Maine. Without following Dr. HOFFMANN closely in his description of localities, we may mention that the Rhine district, from Bieberich to Niederwold, as far as this river flows from east to west, is one of the most striking examples. In this as in other districts, it is the north bank that offers the more favourable climatal conditions to the cultivator. Here the mountain chain to the north rises to a height of upwards of 1700 feet, affording an important shelter from northerly winds, and the easy slopes are fully exposed to the rays of the sun; but this does not explain everything, for it is the low land forming the actual bank of the river that possesses the greatest climatal advantages. Dr. HOFFMANN seeks to show that these are in a great measure due to reflection of light from the surface of the water, and the vapour which rises from the river and is deposited in the form of dew upon the neighbouring vineyards. Indeed, the inhabitants of the district in question unanimously oppose a project of the Prussian Government for narrowing the channel of the river in the interests of navigation, alleging that the superior quality of the Grapes is essentially due to the reflected light and increased warmth of the broad surface of the river. And again, the frequent river fogs in autumn supply just the necessary amount of moisture needed in this otherwise favourable, rainless, and sunny region to bring the berries to perfection. Undoubtedly a large body of water maintains a more equable temperature. It must often happen, too, that the river in this region is warm enough to give off a considerable quantity of water in the form of vapour, and the temperature of the air having been greatly reduced during the night by radiation, it is incapable of absorbing it; hence it is again condensed and precipitated as a heavy dew. On an average there are 102 days with fog at Coblenz, 52 at Giessen, and 33 at Daun in the Eifel.

Thus far we can agree with Dr. HOFFMAN respecting the beneficial influence of the river, though we should attach less importance to the narrowing of the channel of the river by embankments. But when he says that the fogs are a protection against the late frosts in May he is less intelligible. True, the veil of vapour over the low-lying country would impede radiation, and probably the river would communicate a certain amount of warmth during cold nights, but the colder currents from above we should have expected to counterbalance its effect. Our experience is that spring frosts are more destructive in warm, humid valleys than on the elevated table-lands and hill-sides. Possibly, however, the larger body of water and other local conditions may afford the protection claimed for the fogs in the immediate vicinity of the river. Respecting the influence of large lakes, Dr. HOFFMAN gives some instructive particulars. It is always on the northern banks or on islands that the most favourable climatal conditions exist. According to LADAME the upper stratum of the water of the Lake of Neuchâtel has a mean annual temperature of 10°.8 C. (about 50° Fahr.), whilst the mean annual temperature of the air is 8°.4 (about 47° Fahr.). Lake Erie, North America, freezes only at the outside, and the Swiss lakes are very rarely frozen all over. The actual lowest temperature observed at Neuchâtel was 50° Fahr. against 10°.75 Fahr. at Paris and 7°.6 at Lyons. Taking the Lake of Geneva we have, for Geneva, south shore, a minimum of 13° Fahr. against 3°.65 at Lausanne, and 9°.5 at Montreux. We forbear quoting more figures, which all prove the same law. The influence of reflected light is more especially dwelt upon in the latter part of the article, and the character of the vegetation of the Italian and Swiss lakes pointed out, and reference made to the climate of the south and west of the United Kingdom. To give an instance, the Cherry Laurel stands out without protection on the classic ground of Küssnacht, on the north side of the Vierwoldstädter lake, whereas it will not withstand the climate of Frankfort, Giessen, or Vienna. We will conclude with the following table, illustrating the difference in temperature in favour of the side exposed to the reflected rays of the sun from a pond in the Botanic Garden at Giessen, of oval outline—axis running south-west and north-east, length forty paces:—

Date.	Hour.	Maximum on the		Difference in favour of the reflection side	
		East side.	West side.	in deg.	p. cnt.
		°	°	°	
April 14	5 to 5.31 P.M.	11.0 R.	9.0 R.	2.0	18
,, 17	4.38 to 5 P.M.	15.0 R.	14.1 R.	0.9	7
,, 18	9.15 to 9.45 A.M.	11.3 R.	12.1 R.	0.8	6
,, 20	5.42 to 6.5 P.M.	24.3 R.	20.5 R.	3.8	16

THE new—or shall we say amended?—Council of the ROYAL HORTICULTURAL SOCIETY have so far justified the confidence that was placed in them, and have at once succeeded in coming to terms with Her Majesty's Commissioners—terms which are alleged to be of a very satisfactory character. Money, the most pressing necessity of the moment, has been forthcoming, and that, too, be it observed, through the good offices of certain residents in South Kensington. So far so good. The next question that arises is as to the Presidency. On this point there can be no doubt that the general feeling is, that a Society which owes so much to the Prince CONSORT, and which, had he been spared to us, would, in all probability, never have fallen into its present low state, should be presided over by his nearest descendant. It is, perhaps, premature to expect H.R.H. the Prince of WALES to preside over a Society till lately so distracted by conflicting strife, but so soon as the Council have brought matters into shape, and set themselves to realise in so far as in them lies the ideal of the Prince, then it will be fitting to ask the sanction and support of H.R.H. the Prince of WALES. There would be an especial fitness in asking the son of the Prince to preside over a Society expressly founded to carry out those researches in science and art which the Prince CONSORT did so much to promote. Moreover, the Prince's popularity is so great that his sanction could hardly fail to reinstate the Society in public favour, while his exalted rank would prevent all appearance of party strife and sectarian dispute. In the meantime it is believed to be the Prince's wish that the services of an able and influential nobleman should be secured, and such an one has, we believe, in response to the Prince's wish, expressed his willingness to serve if requested to do so. Constituted as the Society is of members with very varied interests, the majority perhaps caring little for horticulture *per se*, still less for horticultural science, the appointment of a President of exalted rank and great influence, but not identified either with any section of the Society, or with the Commissioners, is perhaps the best course. Had it been otherwise—were the Society less fettered and more free to follow its legitimate objects uninfluenced by other considerations—we should have preferred the nomination of some gentleman or nobleman of special attainments able to appreciate from personal familiarity the labours of the Society for the benefit of practical and scientific horticulture, and if such an one be forthcoming we need hardly say how welcome his presence would be among us.

An impression has not unnaturally got abroad that the Royal Horticultural Society has "proved a failure" from the point of view of science. Such is the statement made in a letter to the *Times* of the 28th inst., and it is one shared by many persons. Now we do not hesitate to say that, if all things be considered, and especially the deficiency of funds, this statement is at most only partially true. The Chiswick garden has done, and is doing in a quiet way, excellent service in the way of experimental horticulture; the committees, too, are doing good work, and they should make it constantly a point of honour to maintain the credit of the Society rather than the interests of the mercantile community. When "Fiat Justitia" penned his letter to the *Times* he had probably not read the important discovery relating to the history of the Potato disease, lately made by Mr. WORTHINGTON SMITH, and which has conferred so much lustre on the Society. We are quite well aware of the shortcomings of the Society in the matter of science, but we venture to think, from the tone of "Fiat Justitia's" letter, that he is entirely unaware of what has been done in and by the Society, even of late years. The fact is, that much that has been done has been hidden under a bushel, from the want of regularity in the publication of the *Journal*. That *Journal* will, we make bold to say, compare favourably with any similar publication as to the value of its contents. But it appeared at

FIG. 31.—VIEW IN THE GARDEN OF M. THURET, AT ANTIBES.

uncertain and irregular intervals, and it was *caviare* to the bulk of the Fellows, many of whom knew nothing of its existence; or, if they did, cared, if possible, less. We append the letter of "Fiat Justitia," to show that the Council of the Society must continue to do their utmost to increase public confidence. As to the Commissioners and their responsibility to the public, that is a question we cannot now enter into. But it must be remembered that the horticulturists are tied to the Commissioners for good or ill; independent action is only possible under the circumstances to a very limited extent, and hence whatever concerns them concerns us. We must, while maintaining our own independence as far as circumstances will allow, work with them, and indeed we can but acknowledge that we are under obligations to them, and that it is an imperative condition to success that the two bodies should work together.

—— THE Prince of WALES presided on the 22d inst., at Marlborough House, over a MEETING of HER MAJESTY'S COMMISSIONERS FOR THE EXHIBITION of 1851. There were present—the Duke of Buccleuch, the Marquis of Lansdowne, Lord Spencer, Lord Carnarvon, Lord Granville, Lord Aberdare, Sir Stafford Northcote, Sir Bartle Frere, Sir William Knollys, Mr. Playfair, Sir William Anderson, Sir Francis Sandford, Mr. Edgar Bowring, Mr. John Evans, Mr. Field Gibson, General Ponsonby, General Probyn, and Major-General Scott, Secretary. Sir Henry Thring attended the meeting at the request of the President. The Commissioners considered a proposal from the COUNCIL OF THE ROYAL HORTICULTURAL SOCIETY to the following effect:—"1. That the Society should raise its annual income from subscriptions to £10,000, an amount that would provide adequately for the promotion of the science and the encouragement of the practice of horticulture, and for the efficient maintenance of the gardens. 2. That the Commissioners should waive the imminent forfeiture of the lease for non-payment of rent for a sufficient period to give the Society an opportunity of re-establishing itself." The Commissioners accepted this proposal as the basis of an arrangement.

—— The following letter appeared in the *Times* of Tuesday last:—

"The *Times* has lately published an official announcement that the Commissioners of the Exhibition of 1851 have accepted the proposal of the Royal Horticultural Society 'to waive the imminent forfeiture of its lease' (in 1876, if the Society cannot pay its five years' rental of £2500), provided it will raise its annual subscriptions from £7000 to £10,000. Allow me, as a subscriber to the Exhibition of 1851, who helped to give the Commissioners a trust fund of about £180,000, to remind them that this money, and the gardens purchased out of it, are really public property. The lease to the Horticultural Society has proved a failure from the point of view of science, management of the gardens, and commercial profit; and it cannot be revived or made a success by any such annual income from subscriptions as £10,000 a year. This sum, if all paid to the Commissioners, would not give 2 per cent. on the present value of the gardens! Is this proper management of a public trust? *Fiat Justitia, Manchester, July 27.*"

—— The annual meeting of the youthful PELARGONIUM SOCIETY was held on the 22d inst., on which occasion the members present dined together at the "Criterion." The treasurer, Dr. DENNY, was able to report a healthy state of the finances, a balance of £20 8*s*. 4*d*. remaining after paying the prizes awarded at the exhibition on the previous day, and all the working expenses. The sum paid out in prizes was £40. A hope was expressed that the Society, now that it had become better known, might draw around it more abundant support, so that encouragement might be extended to other classes of Pelargoniums, besides the Zonals, which was the class specially in view when the Society was originally founded. It was also thought that the inducements offered by the Society might set hybridisers to work, and so be the means of obtaining new types of this useful decorative genus. The chairman, treasurer, hon. secretary, and committee were re-elected, the latter body being strengthened by the addition of the names of Mr. ANDREW HENDERSON, Mr. G. T. ROLLISSON, Mr. B. S. WILLIAMS, and Mr. J. F. WEST. A very pleasant evening was spent, in the course of which a most interesting discussion took place as to the influence of the pollen in cross-breeding, and on other matters connected with the history and improvement of the Pelargonium. Mr. PEARSON suggested that the Society should endeavour to find and to fix satisfactory and intelligible names for the different groups of Pelargoniums, instead of the inapplicable ones—show, fancy, tricolor, zonal, &c.—now in common use. In reference to the origin of the Fancy Pelargonium Mr. COOLING stated his belief that the first variety of this type, which must have been raised forty years ago, was one called Willoughbyanum, and that it had been bred from the ordinary varieties of that period crossed with such sorts as Moore's Victory, Fair Helen, &c., Willoughbyanum being one of the seedlings thus produced. Mr. WILLIAMS urged that the objects of the Society were too restricted, and that other flowers should be included; but this objection was met by the argument that to extend the scope of operations would require more funds, and would create a divided interest, whereas it was better for the Society to concentrate its present efforts on the flower which had been selected, and that other elements would be found in the show with which that of this Society would always be associated—that of the Royal Horticultural Society for example, as was the case this year.

—— Mr. ANDERSON, of Meadow Bank, writing of VANDA SUAVIS, remarks that it is most desirable, now that we have in cultivation so many plants of one species, to have the best of them singled out for distinction, as the question now comes to be, not Have you got such and such a species? but What is your variety? All first-rate varieties should, he argues, bear a distinctive name, and the additional appellation should, if possible, lead the novice to understand in what the superiority consists. This perhaps cannot always be done, but should never be lost sight of. The following notes offer an example:—

"*Vanda suavis major.*—This is the largest and, I think, the best in point of substance of all the forms of Vanda suavis which has come under my notice. The segments are larger, the spotting and barring more prominent than in the original type; the labellum is higher coloured, particularly towards the base, and the fringe-like extremity longer and broader than in any existing form that has come under my notice. It is quite first-rate. The substance of the flower, too, is very remarkable, and its persistency, therefore, as spoken to by Mr. THOMSON in the accompanying note is not so much to be wondered at. Mr. THOMSON writes on July 9:—

"'The late terribly hot weather has told on the remaining spike of the variety of Vanda suavis. My other varieties of V. suavis, V. tricolor and V. insignis, that came out at the same time, have been out of bloom for five weeks; and if care had been taken the one of which I send a bloom would have stood a week or two yet. It has hardly any shade, and the sun during two days I was away almost finished it. I think it sufficiently distinct to deserve some distinctive addition to the name, such as V. suavis robusta, gigantea, or major. I think the latter best describes it.'

"*Vanda suavis, Heaton Park var.*—This differs from Mr. THOMSON'S major in its flower being less prominent both in size and in colour. The inferior segments are broader than major, but neither the spotting nor barring is so decided. It is a good variety, differing from VEITCH'S suavis principally in the colouring and form of the flower. This one flower is more oblong, and the plant bears more elongated racemes.

"*Vanda suavis Veitchii, Dalkeith var.*—The ground colour of this flower is fairer than in either of the above forms; the segments are shorter and broader, the spotting and barring are more regularly dispersed over the flower than in the others, and altogether it has a much cleaner appearance, and that, too, well up to the time the flowers are on the wane.

"All these forms differ in some particular from the original Vanda suavis, which I always reckoned as VEITCH'S variety, and considerably from Vanda suavis Pescatorei. *James Anderson.*"

—— We are indebted to the Rev. HARPUR-CREWE for forwarding to us flowers of AMARYLLIS ACKERMANNI VAR. PULCHERRIMA, which is grown as a hardy bulb at Calke Abbey, near Derby. It is satisfactory to know that so fine a crimson-flowered Amaryllis should prove hardy in the midland counties.

—— Mr. LATOUCHE, in his interesting volume, lately published, entitled *Travels in Portugal*, has the following description of a waterproof cloak used by the natives of the province of the Minho:—

"There was a fair or market going on somewhere on the road, and I overtook several parties of sturdy farmers on horseback. Many of them carried long ox-goads in their hands, and as the day was rainy, they wore the curious waterproof cloak made of Rushes, which is peculiar to the province of the Minho—a waterproof which has many advantages over the very best macintosh coat, being, in the first place, much lighter; in the second place it does not make the wearer hot, nor give him a headache nor smell of tar; in the third place a good one costs less than a shilling. Its appearance, however, is rather against it, and the wearer looks exactly as he were thatched with straw from head to foot. These *palhoças* are extensively used by all conditions of persons, and enable labouring men to do field work on the rainiest days, when the water descends in tropical torrents, and when, without some such protection, no out-of-door labour could be done. Like many other customs and institutions in this province, where the Roman colonists have left such numerous traces of their presence, the *palhoça* may, perhaps, be an inheritance from Roman times, and may be the representative of the *toga viminalis* of the Romans—the toga made of twigs."

—— The beautiful white-flowered form of LILIUM KRAMERI, exhibited by Mr. WILSON at South Kensington on the 21st inst., has, it appears, been identified by the Lily authorities with the long-lost LILIUM JAPONICUM. It is a beautiful flower, and we were somewhat surprised to find that no notice was taken of it at the meeting above referred to. Possibly our horticulturists have been so much excited by recent events that they had scarcely sobered down to everyday practical work.

—— We are requested to state that the CARNATION SHOW announced to be held at the Botanical Gardens, at Old Trafford, Manchester, on August 6 and 7, will take place on August 13 and 14 instead.

—— The *Times* correspondent at Calcutta, writing under date June 29, states that a paper by Captain COUSSMAKER, published in the last number of the *Gazette of India*, contains some interesting information regarding the CULTIVATION AND MANUFACTURE OF TUSSUR SILK in Bombay, and its value in the English market. The opinions expressed by English manufacturers are, on the whole, rather favourable than otherwise, and hold out hope that the trade in this article, which is yet in its infancy, may in time develope into an industry of some importance. They describe the material as very strong and durable, and they say that great brilliancy can be imparted to it when scientifically manipulated. On the other hand, it has not the beautiful softness and smoothness of good silk, it is capricious in taking dye, and the reeled fibre is irregular and loose; but Captain COUSSMAKER thinks that culture and careful manipulation may do much to remedy these defects. For this purpose he recommends that the villagers should be encouraged to collect and send in cocoons to a central depôt at Sattara. There some would be kept for breeding purposes, others would be converted into raw unreeled silk, and others sold in bulk. If great care were taken to clear the cocoons, and proper attention paid to the collecting, breeding, and rearing of the silk-worms, the manufacture would, he thinks, prove a financial success.

—— It may be interesting to record the fact that about the end of last month a plant of EUCALYPTUS GLOBULUS flowered very freely in the garden of R. W. HALL DARE, Esq., Newtownbarry House, co. Wexford. The tree is in a dry and sheltered position; it has been planted out about four years, and is 20 feet high, and very healthy.

—— The POTATO DISEASE, as ordinarily known, has made rapid progress amongst the Potatos at Chiswick since last week, the Ashleaf Kidneys, Lapstones, Regents, Breadfruit, &c., being most attacked—the haulms rotting off very rapidly, and the tubers also. It may be noted that this ordinary form of the disease manifests itself in plots hitherto the most healthy, and not at all amongst those that have been left from the attacks of the so-called new disease.

—— WHAT SOLDIERS ARE CAPABLE OF BECOMING under certain favourable conditions, and also what may be done with soldiers by kind and judicious management, may be witnessed at Eastney, near Portsmouth, where, says the *Times*, the fine corps of Royal Marine Artillery are stationed. The barracks are extensive, and are pleasantly situated facing the sea. They are new, and, as they have been built with all modern conveniences, they afford a strong contrast to some of the barracks which are allotted to the line regiments. They comprise admirable mess-rooms, schools, reading-rooms, &c., and have also the additional attraction of a theatre, which is greatly patronised by the corps, and which is almost exclusively maintained by the men themselves, with assistance from the officers. Most of the married soldiers live in cantonments outside the barracks with their wives and families, and to each a garden allotment is given, which they are encouraged to cultivate by means of periodical flower shows, to which the officers contribute prizes. Any neglect or indifference is punished with the loss of the ground. This, however, is a penalty which has very rarely to be enforced. Indeed, the demand for gardens by the corps is so great that fresh land has been enclosed and divided into allotments for the benefit of the troops. To such an extent is this the case that the Government land in the neighbourhood of Lumps Fort, and extending to the eastward as far as Langston Harbour, which only a few years ago was unreclaimed waste, has been brought under cultivation by the men of the Marine Artillery, and is now covered with flowers and vegetables. The allotments comprise about 10 rods each, and they now number, at the end of seven years, 200 cultivators. On Wednesday, July 21, the military floral and horticultural exhibition was held in the gun drill battery, near the officers' gardens, and proved very successful. The prizes were distributed by Mrs. ELLIOT, the wife of Admiral G. ELLIOT, who, with Lady M'CLINTOCK, was present during the afternoon. The arrangements were carried out by a committee, composed of Colonel DIGBY, C.B., Lieut.-Colonel COX, Captain Moore, Quartermaster HEALEY, Barrack-Sergeant PATTERSON, Staff-Sergeant BLACKBURN, and Sergeant M'MANUS. The cultivation of the allotments, besides being a source of pecuniary profit to the men, exercises a wholesome moral influence upon the corps.

—— The Vine border in front of three houses at Abney Hall, Cheadle, the residence of Sir JAMES WATTS, is just now covered with a beautiful sheet of flowers of NEMOPHILA INSIGNIS. When the sun shines it is as pretty a border as there is on the place. There is little trouble with it, and as for injuring the roots, Mr. MACKELLAR, the able gardener in charge of the establishment, does not think it will do much harm. The Nemophila does not grow so rank as Mignonette, which is often used for the summer garnishing of Vine borders, and it is more showy. Another feature, that has been tried at Abney Hall for the first time this season, is the white East Lothian Stock for ribbon bordering; and as an associate for scarlet Pelargoniums Mr. MACKELLAR does not think there is any other white to equal it.

—— Some idea of the enormous quantity of PEAS grown in the neighbourhood of London for market purposes may be inferred from the fact that recently a grower in West Middlesex paid the large sum of £90 in one week for picking Peas, paying at the rate of 5*d.* per bushel. The cost of cultivating and getting to market was said to average about 1*s.* per bushel, but this does not include rent and rates and taxes. The market value of good Peas has ranged from 2*s.* 6*d.* to 3*s.* 6*d.* per bushel; and the hint ought not to be disregarded by market gardeners, that the better the quality of the Pea grown the higher price does it command in the markets. We have now some quick-growing Peas of high-class quality, that are heavy croppers, while of moderate growth; and already some of these are taking the place of varieties that have been grown for years, but are of a precarious market value.

—— A valuable collection of Orchids, Palms, and other stove and greenhouse plants, was sold at Stevens' Rooms on Wednesday, when the following amongst other prices were realised:—Odontoglossum Alexandræ, 100*s.*; Cattleya Dowiana, 178*s.* 6*d.*; C. crispa, 157*s.* 6*d.* and 115*s.* 6*d.*; Lælia anceps, thirty-nine growths, 231*s.* (J. DAY, Esq.); Oncidium concolor, five breaks, 300*s.* (Rev. J. B. NORMAN); Lælia elegans Turnerii, 966*s.* (Messrs. VEITCH); Phalænopsis Schilleriana, a large specimen with twenty leaves, which has been awarded the Lindley Medal, 672*s.* (Sir TREVOR LAURENCE); Saccolabium guttatum, 294*s.* (J. DAY, Esq.); Cypripedium caudatum, the plant figured in this *Journal* on February 13 last, 336*s.* (J. C. BOWRING, Esq.); C. villosum, 200*s.* (J. DAY, Esq.); Lælia purpurata, 220*s.* 6*d.*; L. superbiens, 168*s.*; Aerides odoratum, 100*s.*; A. Lindleyana, 170*s.*; A. roseum, 110*s.*; Vanda cœrulea, 189*s.*; Aerides Fieldingii, 147*s.* A specimen of Anthurium Scherzerianum, established in a 30-inch pot, realised 651*s.*, being bought by J. F. WILLIAMS, Esq., Worcester.

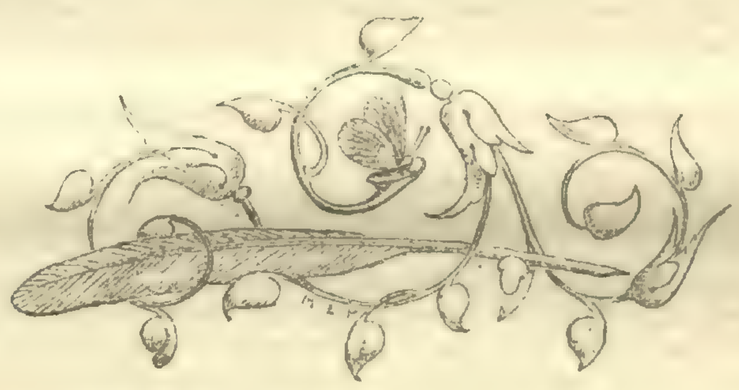
—— On Wednesday next Mr. STEVENS will sell, at his rooms in Covent Garden, a collection of about 200 established Orchids, the property of O. O. WRIGLEY, Esq., of Bury; and on the two following days the valuable collection of stove and greenhouse plants got together by AMBROSE BASSET, Esq., will be disposed of at Sister House, Clapham Common.

—— We have lately given several illustrations of the garden of the late M. THURET, of Antibes—a garden so truly remarkable for the vast numbers of most interesting plants, especially succulents and "New Holland" plants, grown therein. This week we give another view, on p. 141, showing the entrance to M. THURET'S house, covered with Bougainvillea and other climbers, and flanked by a fine specimen of Agave Salmiana. The engraving is taken from a photograph of M. BORNET'S.

—— We are informed that at the next meeting of the Royal Horticultural Society Mr. W. G. SMITH will exhibit some PHOTOGRAPHS OF THE OOGONIA AND ANTHERIDIA OF THE POTATO FUNGUS as seen within the tuber of the Potato itself, and taken direct from the microscope. Mr. SMITH will also show a photograph of Dr. MONTAGNE'S Artotrogus, to the same scale, to show the positive identity of the two bodies with each other. Our readers will remember that Mr. BERKELEY has from the first correctly considered the Artotrogus to be the second form of fruit of the Potato disease.

—— The supposition that Cheiranthus Marshalli resulted from a cross between Cheiranthus ochroleucus and Erysimum Peroffskianum—the former a very showy hardy perennial of dwarf growth, with pale yellow flowers, and the latter a well-known hardy annual producing deep orange blossoms—appears to be to some extent verified by the dual character of seedlings raised from C. Marshalli. In the spring of 1874, as we are informed by a correspondent, Mr. JAMES ALLEN, of Shepton Mallet, had occasion to cut over some plants of C. Marshalli when in flower, removing all the blooming stalks. The result was that the plants threw up a second lot of flowers towards the end of the summer, which somewhat unusually produced seed-pods, and matured the seeds. These were soon after sown by Mr. ALLEN, and some of the seedlings have just bloomed; and the following account of them, received from Mr. ALLEN, sets forth their characters. He states: "My Cheiranthus Marshalli seedlings are a puzzle to me. Many of them are now showing blooms, and some twenty plants have already opened their flowers. Most of these are from 18 to 24 inches high, and appear to have lost their perennial character, and to be only improved forms of Erysimum Peroffskianum, with colours varying from that of Cheiranthus Marshallii to that of Erysimum Peroffskianum. I notice that one plant has much larger and stouter flowers than A. Marshallii. Some of the transplanted seedlings as yet unbloomed have the habit of C. Marshallii, whilst many others have that of E. Peroffskianum. As so very few have so far bloomed, I cannot say much about them yet, but I am convinced I have two distinct classes of plants from one parent. I am hoping to have a Cheiranthus with the colour of E. Peroffskianum and the habit of C. Marshalli, but with larger flowers, and I hope to have have also an improved strain of E. Peroffskianum. I think it is very evident C. Marshalli was a hybrid, and my seedlings are 'harking back' to the two parents."

—— It appears that BEANS, as well as Potatos, are much affected by the recent deluge. The leaves are covered with black spots, which, however, are not all caused by fungi, though the Bean Uredo is also very prevalent, but clearly by unusual cold and wet weather. The stem is also affected, so as to look very like that of the Potato when decomposed by the Peronospora, but much darker, and eventually the leaves hang down and wither. Some years since a precisely similar affection was prevalent amongst Beans, and a curious incident happened connected with it. A first-rate cultivator, near Northampton, found that his crop was so diseased that there was not the slightest chance of any produce; and, in consequence, ploughed it up to act as manure. A farmer, whose crop was perfectly healthy, having great reliance on his neighbour's skill, without knowing what led him to destroy his crop, followed his example; and was, in consequence, much ridiculed. Except the attack is very virulent, we should be inclined to let matters take their usual course, and the fodder might prove quite as valuable as the manure. It is well not to be too hasty. *M. J. B.*



Home Correspondence.

The Fruit Crops in Central Yorkshire.—The season has now arrived when we can form a pretty correct estimate of the fruit crops for this year. The past winter, which was so severe in some districts, was in this immediate neighbourhood more remarkable for the length of time the cold weather continued than for the great severity of the frost. A few days towards the end of December the frost was severe, but, with that exception, the cold was not very intense during the continuance of the storm; the thermometer rarely indicated more than 10° or 12° of frost. With the exception of some vegetables, very little suffered in this neighbourhood from the frost. The dull, sunless weather and cold winds that continued late into spring kept everything in a backward state. When the trees came into bloom there was no frost to do any serious injury, and heavy crops were naturally looked for, but these anticipations have not been quite realised, for the crops, though good in general, are not extraordinarily heavy ones. There was a great abundance of blossom of most kinds, but some of it was weak and defective—not bold and finely developed; this, in my opinion, accounts for the crops not being so heavy as was anticipated, as much of the blossom fell off without setting. There was a great deal of Apple blossom, and the crop is a fair one; it is by no means a heavy one. Some trees are heavily laden, whilst others, and these the same kinds, growing close to, have few or no fruit. The Cockpit is one of the most certain bearers in this district: if the fruit was properly thinned a failing crop would rarely occur. The tree is a stiff, robust grower, and forms spurs the whole length of the branches, so that it is not only a certain but also a great bearer. The fruit should always be well thinned, otherwise it will be small. It is a famous Apple in this district, and is to be found in almost every orchard. There are more trees of this kind planted annually than of any other that I know of. Pears are an average crop; on walls they are pretty good. Jargonelles are a very heavy crop in general. There is a deal of this kind grown in this district by farmers, &c., against the houses and outbuildings. The crops on standards and pyramids are pretty good; some trees heavy, whilst others are light. Plums are a fair crop—much better than was expected, as the trees suffered much last season from aphides. The Victoria is the one most grown for market in this district, its size and colour always recommending a ready sale. It should always be well thinned, as the fruit sets so thick in clusters. Apricots are a moderate crop, owing to the crop of last year being a very heavy one: there was not much bloom. Peaches and Nectarines are a heavy crop here. We have had to remove immense quantities, so thickly were they set. Figs on walls a good crop, and promise to be fine. The crops of bush fruit of all kinds very good, but very late in ripening. Strawberries have only been a moderate crop in general; some kinds on some soils have been pretty good, whilst on others they have been light. But in general most kinds have been light, owing, in my opinion, to the drought of last summer. The plants started into growth too late to form and mature good crowns. Nuts are an abundant crop, as are also Walnuts. All fruit trees are remarkably free of insects, and healthy. Plums, Cherries, &c., present a very different appearance from what they did this time last year. Hot, bright weather is now much wanted to swell and ripen off the fruit, and to mature the wood properly—a matter of great importance in regard to the crop of 1876. On the whole, the fruit crops of 1875 are fair average ones, and perhaps more satisfactory than if they were excessively heavy ones, which would cause them to be of inferior quality, and would so exhaust the trees as to render the chances of a fruit crop next year very uncertain. *M. Saul, Stourton.*

The Potato Curl.—As I judge from your remarks in last week's issue that there is some doubt whether the disease known as the "curl" is identical with that which has appeared at Chiswick and elsewhere, I send you herewith the haulm and roots of a Dalmahoy Potato, a whole quarter of which is badly affected this year by the curl, or at least what I have always regarded as that disease—having seen it often enough before, though never to a serious extent, and more frequently amongst the Dalmahoys than any other, which is also one of the worst for taking the Potato disease, so called. There is rarely a season in which individual plants of this variety could not be found curled; but, as a rule, the variety is good, and an enormous cropper. This year it is a complete failure, all the plants presenting the appearance of the one sent. The leaves have been crumpled or curled since they came through the ground, and the tubers, which should have been twice the size of one's fist by this time, are not much larger than marbles. The spots which you will observe on the leaves have set in recently, and the piece of a shoot marked No. 1 is the same variety from the same quarter, but not so badly affected as the generality of the plants are. I send it that you may see what the foliage of this kind is like when not curled, though it is by no means a healthy sample. We have no American kinds on the place. *J. Simpson, Wortley.* [We believe yours to be the same form of disease as that which appeared at Chiswick. EDS.]

The Potato Disease.—Naturally enough, this is now the all-absorbing topic of discussion amongst all concerned in its culture, and that means almost everybody. In this part of the country the fungus is leaving its mark at a most destructive rate, and a few days of warm sunshine, with drying wind, has only served to make its effects the more apparent. Nothing short of a period of dry, warm weather, can now check the progress of the disease, or save us from experiencing one of the most disastrous years for the Potato since 1845. Our hope lies in the weather, and especially in drying winds. At the same time it is only too evident that in the case of all but the very latest kinds growth is hopelessly checked. Should, however, the disease not manifest itself largely in the tubers, the crops will not be so very small, as the immunity from frost in the spring enjoyed by the haulm has been of great service in promoting early growth and maturity. The absence of big Potatos in a crop is no evil—rather the reverse—still there is reason to fear, should the tubers not be largely injured, that they may lack the quality and flavour usually found in thoroughly ripened roots. However, it is not worth while to anticipate. But there are many who wish to know what is best to be done under the circumstances, and I would advise them to exercise patience. Except where the soil is pulverous and dry, and the crop nearly ripe, I would not at present advise lifting, as I believe that the tubers will mature more thoroughly if left undisturbed. Most of the second early kinds are too much attacked to grow farther, but the latest sorts are still robust, and with dry, warm weather, may continue to exist for several weeks, during which time the tubers will double in

size. About here, where the soil is close, the tubers when lifted come out covered with earth which is still very wet. In such a case, to lift any bulk of tubers would be sheer madness. It is best to wait for a week or two longer, until the soil has become moderately dry and warm, and by that time the tubers where the foliage is quite destroyed may have their skins so far hardened as to render them less liable to excoriation. Tubers now lifted, if ever so slightly diseased, cannot be, by any process, saved for any length of time; the best may be at once used, but the saving in that way will be small, whilst those that are sound may hardly be benefited. I think most growers of experience have now come to the conclusion that it is best, in the case of all crops intended to be housed, to let them remain in the ground until those diseased have definitely rotted away, or have so far become affected as to ensure their being cast aside. It is less disappointing to lift the crop at such a stage, when the actually sound can be definitely assorted from the bad, than it is to store the crop and then, in a few weeks, find that one-half has rotted. If ever truly remedial measures are to be applied they must begin before the fungus is manifested, and not after. *Alex. Dean, Bedfont.*

Hedge of Scarlet Thorns.—Have you seen a hedge planted with single and double scarlet Thorns? I have two hedges which were put in about five years ago and which have been much admired. If cut about this season they never miss being covered with flowers. Another advantage is that a 4 or 5 feet fence can be got the first year, especially where nurserymen grow them as pyramids. *John Carter.*

Strawberries for Forcing.—In reading over the interesting articles on Strawberry culture that have appeared of late in the *Gardeners' Chronicle*, it is a little disappointing that the names of more varieties for forcing purposes are not quoted, as it would give one an idea of the merits of the different sorts used for that purpose in various localities. I will by your permission name a few varieties which I have found to be good for forcing. I may first say, that Fairy Queen, in my experience, is the best forcing variety grown. It is a heavy cropper, and Early Garibaldi is also a heavy cropper, but not so early as the former. Alexandra (Worthy) is a very early and excellent variety. Eclipse (Reeves) is also good. Eliza (Rivers) is a fine Strawberry, and does well forced. Prince Arthur (Ingram) is also a good forcer; and Princess Frederick William is a fine early variety. The Lady (Underhill) is an excellent forcer, and Vicomtesse Hericart de Thury is a most excellent variety for forcing purposes. Where Strawberries are forced to any extent it is better to have a house erected on purpose, as it is dangerous to force them on shelves in the vineries for fear of swarming the Vines with red-spider. I have forced them early in vineries on temporary stages below the Vines, and removed them into later ones to colour. I have tried several sorts of manure, but found nothing better than horse droppings both in a dry and liquid state. *William Paul, Edinburgh.*

Graft Hybrid Potatos.—It is four years, I think, since I sent you a grafted Potato taken up out of the soil, in order that you might have ocular evidence of the fact of the united stock and scion, and the perfect healing over or cicatrisation of the skins. You acknowledged that fact, and from other evidence which I have from time to time been enabled to give you, I seem to think I have almost persuaded you to become a believer in the procedure. At any rate, your inclinations that way have proved some encouragement to me, considering the cold, wet-blanketing administered from many other quarters. I have just sent you up another box containing Dame Nature's handy-work this time, and I should say that her epidermis, considering the wet she has experienced of late, would prove quite as impervious as mine; not so her foliage to the Potatos, for ever since the time that I caught a glimpse of the disease all energy of mine has been futile in preventing its spreading throughout the entire Solanum tribe in this garden, always excepting my seedlings and those others in pots which I keep under glass in an orchard-house. However, I am digging up as fast as possible, and I am happy to say I have got splendid crops very nearly free from the murrain in the tubers, and should they "go off" now they are up, of course they will be watched to go into the copper, and be boiled, with the addition of a modicum of salt afterwards, as they become strained from the boiling-water and rammed down into tubs, and kept air-tight by turves, or something else impervious to the air. Thus I proceeded in 1845 when I lived at Stanton Lacy, in Shropshire, and I rode off to Welch Knighton and purchased some hungry pigs to eat them. Jones, our parish clerk, I remember, twitted me when they arrived, asking me "What I was going to do with those greyhounds?" Ah! Jones, Jones—you of the kindly heart, and the rubicund face, and the portly mien—when shall I look upon your like again? Peace to your manes! The boiled Potatos kept good for fully three months, and the pigs ate them with avidity to the last, when a sack each of barley-meal finished them off. I sold them to the late Mr. Harding, grocer at Ludlow, and they averaged twenty score apiece. I got the laugh at poor Jones then, and it rather astonished others of my neighbours, who did then, and possibly may even this year, whoever of them may be in existence, leave their stricken Potatos in the ground to rot. I have been led into this digression as I find a correspondent recommending the very sensible plan of taking up the Potato crop immediately, but he left out the tag about watching them and boiling them down as above, at least those of them which are sure more or less to become diseased after the severe visitation which the haulm is experiencing this season. Well, Nos. 1, 2, and 3 in the box may prove a caution to the condemnators of Potato grafting. I always felt certain in myself that I had accomplished that fact, but I never could have infused one variety to sport into that of another in the remarkable way of the proofs I send you, unless the work had been really accomplished; and when we find an Onwards top with a Lapstone tuber for its set, and that a Lapstone became dwarfed, and a month at least in precociousness to the kind from whence the graft was taken, what next are we to think? I noticed this sport in the variety three years ago, and dug them out, after showing them to Mr. Alexander Dean, for we both concluded they had become mixed with some Onwards tubers accidentally. The same thing occurred again last year, which I pointed out to your commissioner and Mr. Barron, &c.: no credulity. But to find the same thing happening again this season is coming it rather too strong, and perhaps you will say so after examination of the examples which I send. I am sorry the sets are decayed by their natural exhaustion, but the skin of one set with the Onwards top is sufficiently preserved to define for you without a doubt that it was a kidney [Yes], and I am equally certain that no Onwards Potato became mixed up with the seed. Mr. Worthington Smith's discovery anent the Potato disease is most felicitous. His scientific unfolding of the matter for us is really wonderful, and I am very glad to find that his labours have found the acknowledgment they deserve from the right quarter. Of course practical plodders like myself must be thankful for small mercies or no mercy at all; but I have a few sets of the American Potatos by me, and if they can by any means tend to further science I will gladly forward them to your office for Mr. Smith to experimentalise upon, as they might afford him some further clue to the home of the resting-spores, they having been kept by me in a perfectly dry state. By-the-bye, I would send you now, with the other examples, a shoot of Yorkshire Hero entire for comparison, only to do so it would require a 3-dozen hamper at least. The stools I do send are the smallest I could select. *Robert Fenn, Rectory, Woodstock, July* 23. [We regret that by the time we could inspect the specimens sent, the haulms were a putrid mass; for all that, we think Mr. Fenn has the best of the argument as to the possibility of grafting. EDS.]

Brugmansia sanguinea has proved hardy here in the open ground, and is shooting up strong; so have Amaryllis Ackermanni pulcherrima and Agapanthus umbellatus. The former plant has grown out-of-doors and flowered freely for the last two years at Calke Abbey, near Derby. The bulbs are simply protected with a little Fern and dead leaves. Agapanthus umbellatus is also hardy at Calke Abbey. Tritonia crocata is coming up very strong. It was not protected at all. I have generally lost it in former years. Exogonium Purga suffered severely, but is shooting up well. Habranthus pratensis stood the winter and was shooting up well, but the frosts in May killed it down to the root; the bulbs are alive and healthy. Tropæolum tuberosum, Phytolacca purpurea, Aplopappus laricifolius, and Fuchsia longiflora, conica, and fulgens were killed, so was Diplacus splendens. *H. Harpur-Crewe, Drayton-Beauchamp Rectory, Tring, July* 21.

Culture of Strawberries in Pots.—"Let each one praise the bridge that best bears him over the stream." Doubtless excellent Strawberries are grown by layering into small pots, as well as layering into fruiting pots, and it is no reason that either mode of propagation should be condemned because the other is successful. Propagation, although an important part, is only a small part of successful Strawberry culture. Any advantages either mode may possess may easily be lost in the after-treatment, as I learned to my annoyance last autumn, when a water-tank overflowed into a cold pit and submerged as fine a lot of Sir C. Napier and Dr. Hogg as I ever had, from the effects of which they never recovered. This teaches that Strawberries have a decided objection to being drowned in November. I have layered Strawberries for some years, both in large and small pots, but for the last sixteen years have preferred layering into fruiting pots, because, as I cannot easily plunge small pots beside the old plants a large pot suffers less from drought than a small one; and because a great proportion of the staff at my disposal is demanded by a large pleasure-ground. Small pots would be dried through much sooner than large ones. Probably all gardeners have to make some things give way to others at times, and it should be our endeavour to make these compromises with the least possible loss. *Benjamin Greaves, The Gardens, Broome Hall, Holmwood, Surrey, July* 20.

The Weather.—The cause of the recent heavy rains, with which the souls of gardeners and farmers have been so sorely vexed, is now apparent. The *Hampshire Independent* announces that the authorities of Winchester Cathedral propose to remove the marble slab dedicated to the patron of rain, St. Swithin. What wonder, then, if that injured saint, in his celestial sphere, should invoke the gods to send down such an aqueous outpouring as should punish presumptuous man? It is rather hard for some of us, who were ignorant even of the saint's burial-place, and would not for the world have disturbed his bones, to have had to suffer so severely. It is specially unkind of our clerical friends that they should be the instruments of all our trouble, as we naturally look to them for kinder usage; nevertheless, we cannot but sympathise with St. Swithin, and trust that the Winchester folks will determine to stay their hands. Should they, however, proceed in their work of sacrilege, we tremble for the result. If such a downpour as we have lately experienced alone suffices to cool the saint's anger at a proposal, surely nothing but a deluge will allay the irritation consequent upon its consummation. *D.*

Snowflake and Eureka Potato Sets.—I was surprised to see in the *Gardeners' Chronicle*, p. 43, that "J. C." thought it improbable that Mr. McKinlay got seventy sets from 1 lb. of Snowflake, but hardly know what he will think when I tell him that I got 125 sets from that variety, and not a bad Potato either, for there was, to the best of my recollection, only twenty-seven eyes in my pound; but I mounted my Potatos on sharp-pointed sticks, and they broke away so well that when the eyes were divided the above number was the result. One hundred and twenty-two came up, and are now about 3 feet 6 inches in diameter. Eureka received the same treatment, and when divided 215 sets were cut from the pound out of seventy eyes; 209 are growing well, but the disease has made its appearance in this garden, and I am afraid that I shall lose most of my crop. I have tried sulphur to prevent the disease from spreading, but without effect. I am one of the competitors for Hooper & Co.'s prizes, and if I had not complied with the rules, the gentleman sent down to witness the cutting up and planting of the Potatos would have interfered. With regard to its not being the usual practice, I beg to inform "J. C." that I have cut up scarce varieties in the same way long before I knew of Eureka or Snowflake. *J. S. Belliss, Sulhamstead, Reading, July* 21.

The New Pea, Dr. Maclean.—Could the members of the Fruit Committee of the Royal Horticultural Society, at their meeting on the 21st inst., but have seen this grand Pea as now growing in the Royal Nurseries, Slough, they would not have decided "to have it grown at Chiswick, before making any award on its merits." I feel certain that the sight, as there presented, would be sufficient to unanimously confer on it the highest award that could be given; should any one doubt my word, go, as I have done, and see. It is well worth a long journey to see the rows of this Pea alone, not to name the score or more of other varieties that are there on trial. Dr. Maclean is a seedling from Advancer, but is as great an advance on that variety as it is possible to conceive. It grows to a height of 3 feet, and fruits from the very bottom, the pods containing from nine to ten Peas each, and are of the finest possible quality. Its productiveness must be seen to be believed; in some instances the immense number of pods literally cover the haulm. In more senses than one it may be designated the coming Pea, and Mr. Turner may consider himself fortunate in being the raiser and distributor of it. *W. Wildsmith, Heckfield.* [No one will question your assertion; but, for all that, we think the resolution to have all novelties grown at Chiswick an excellent one. EDS.]

Culture of the Canon Hall Muscat.—Your correspondent and myself probably differ but little in the main under this head, and, had it not been for his naming such as second crops of Grapes, which seemed calculated to mislead, I would not have sent you my letter. In my few years' experience as a gardener I never saw a second crop of Grapes calculated upon. I have seen in a first-rate establishment a Barbarossa, from pruning, with only one bunch at the top, when every other Vine in the house (not far off fifty in number) was loaded. I have seen the Canon Hall, if I recollect aright, with a well-set bunch above the pipes, and another about the top of the rod when the other bunches about the middle of the house were but poorly set. In this case, as your correspondent will allow, it was not defect in root condition. I

have observed the nectar on the pistil, though not to drop off at the tapping of the rods. The Canon Hall is a fine Grape when seen in perfection, and if I am wrong in using the word delicate to it in a practical way the word will answer, although it is a vigorous grower. As a gardener, I would beg to inform your correspondent that, instead of risking a second crop of Muscats for early work, I would plant alternately with such as Hamburghs, to be more certain of a crop. This year I cut fine Muscats early in June, and from the same house the first Hamburghs were cut on May 1. I agree with what Mr. David Thomson said in an article on Vine growing some months since—that a great deal has yet to be learned on the cultivation of the Vine. Here Muscats do well with Hamburghs. I could show your correspondent fifty bunches of fair fruit (Muscats) just taking the golden tinge, where the Hamburghs are dead ripe—beginning to shrivel in the skin. Here also the Muscat is one of the best late Grapes; growing along with Hamburghs, which are ripe in August, they can be kept in fair condition on till March. If your correspondent thinks I wish to state any other than facts, he is not correctly informed. I do not see that the date of your correspondent's horizontal training has so much to favour it; it is the system that would occur to any observer of Nature with the object of fruit in view. The market gardeners around London are not so orderly or particular as they are in private gardens with their training and pinching, yet nowhere can be seen finer crops. *R. M.*

Science and Practice.—I am told that the Astronomer-Royal knows all about the nature of the sun and earth and clouds and rain; therefore let me ask (if he knows all this) why he did not stop the late unseasonable weather? We expect a good deal more from him, sir, than hard words and figures. The President of the Royal Geographical Society, too—he, I am told, knows all about the cause of earthquakes, floods, and inundations; then let me ask, sir, why it is (if he knows this) that he has knowingly allowed part of America to be swallowed up, and France and England inundated, without raising so much as a finger. Geographers say they have long known where the North Pole is situated, therefore (if they knew) why did they not go there long ago and settle about the passage to America. As for the insect men, they pretend to know all about the Phylloxera, the Colorado Beetle, and what not; but what I want to know is, why they do not kill all the set for us, including green-fly, red-spider, wireworms, slugs, rats, and similar insects! Doctors, too—they pretend to know how life is supported. If they do know this, why do they allow us to die? As for men of science of all sorts I am disgusted with them; they seem to reason about nothing but undeniable facts; they are every bit as bad as the astronomers, the geographers, and the doctors. Some of these fungus men, too—like Mr. Berkeley and Mr. Smith—ask us to believe in a sap-poisoning fungus found inside plants, and so small that we cannot see it without a glass. This is really almost as bad, sir, as those chemist fellows who ask us to believe in oxygen, hydrogen, and nitrogen—things we really cannot see at all. What is the good of a telescope if it won't make the sun shine I say, sir; or of a microscope if it won't cure as well as show the nature of the Potato disease; or of a stethoscope if it won't cure (as well as indicate the possession of) diseased lungs? That's the sort of man I am, sir, and I subscribe myself, *A. Greenhorn, jun., Turn'em Green.*

The Macartney Rose.—Like others of your readers, I was astonished at the statement that Rosa bracteata is dying out in the country. It is very little grown, but wherever it is grown it never fails to attract attention by its grand white flowers with their golden centres and dark green leaves. I believe the single sort to be hardier than the double one. I send you a small spray of mine (the single one) to show that buds for budding could be had. I have never looked for seeds, but I have found seedlings. It does not strike very readily from cuttings, but it can be propagated from layers or suckers. I should be glad to know whether R. Hardii is in cultivation in England. I have often inquired for it, but have never seen it. *Henry N. Ellacombe, Bitton Vicarage.*

Reports of Societies.

Woodbridge Horticultural: *July* 15.—This Society held its annual meeting in the Abbey grounds on Thursday the 15th. The show is generally the best the eastern counties can boast of, and this year was no exception. The Society has hitherto been most fortunate in the state of the weather, as during the last twenty-five years or more it has not had a single wet day, but on this occasion the rain descended most copiously. The Society is extremely fortunate in having a most indefatigable secretary, and in the number of special prizes offered by the leading noblemen and gentlemen connected with the town and neighbourhood, and for which there is generally a keen competition. The show of stove and greenhouse plants on this occasion was remarkably good, although many of the specimens did not possess that degree of freshness for which they were so much admired at the Ipswich show.

The 1st prize for the best six plants fell to Mr. E. Rose, gr. to E. Packard, Esq., of Birkfield Lodge, Ipswich, who showed a well-grown and highly coloured Bougainvillea glabra, Allamanda Hendersoni, a splendid plant of Clerodendron fallax, a good Rhynchospermum jasminoides, Dracophyllum gracile, and a nice fresh plant of Erica Parmentieriana. Messrs. Gilbert, of St. Margaret's Nursery, took 2d with a nice clean lot, containing a grand plant of the old Erythrina crista-galli. Mr. King, gr. to F. Fitzgerald, Esq., was 3d with a creditable lot, and the 4th fell to Mr. E. Gunn, gr. to E. Jones, Esq., of Woodbridge, who had a well flowered plant of Stephanotis. For the best specimen stove or greenhouse plant the Messrs. Gilbert were 1st with a nice fresh looking Cyathea medullaris, and Mr. E. Rose was a good 2d with a fine Allamanda Hendersoni. Mr. Gunn took 3d with Stephanotis floribunda. Orchids were but poorly represented—Messrs. Gilbert taking 1st for the best specimen, and Mr. Irving, gr. to the Duke of Hamilton, 2d. For the best six exotic Ferns, Mr. Mill, gr. to Lord Rendlesham, was 1st with a splendid half dozen. For the best specimen Fern Messrs. Gilbert were 1st with a nice young Alsophila australis, and also for the best Tree Fern with a clean Alsophila excelsa. In hardy Ferns Mr. G. Berry, of Ipswich, took 1st with a nice fresh dozen, the best of which were Athyrium Filix-fœmina plumosum, do. Moorei, Craigii, and Vernoni, Polystichum angulare cristatum. For the best six Mrs. Rose was 1st with a good lot, containing a well grown plant of the beautiful Adiantum pedatum. Quite a new feature was made by collections of plants in not larger than 8-inch pots, and the number of plants limited to twenty-four. These collections were greatly admired and appear a step in the right direction, now so much is being done in the way of furnishing. The Messrs. Gilbert, of Ipswich, took 1st honours in this class with twenty-four beautiful plants, consisting principally of Palms, Dracænas, and Crotons; Mr. Mill, gr. to Lord Rendlesham, took 2d, with twenty-four but little inferior. For six plants for table decoration Mr. E. Rose was 1st, with highly coloured plants of Croton interruptum, Dracæna Guilfoylei and Cooperi. Messrs. Gilbert were 2d, with six nice Palms and Dracænas, plants more suitable than any other for the above purpose. Fine-foliage plants were well represented. Mr. Mill, gr. to Lord Rendlesham, outdistanced all competitors with a splendid half dozen of the following kinds:—Alocasia metallica, A. Lowii, Maranta Veitchii. M. rosea, a Dracæna, and a variegated Pandanus. Messrs. Gilbert, of Ipswich, took 2d, with six nice clean plants. For six Gloxinias Mr. Steel was 1st, with some good seedling varieties having erect flowers. The same exhibitor took 1st for the best four single Petunias, and Mr. E. Gunn 1st for double, with three seedlings and a nicely marked variety named Marquis of Lorne. Achimenes were well done, some of the pans measuring 3 feet across. Mr. F. King was 1st, and Mr. R. Steel a good 2d, with four nice pans. Mr. E. Gunn took 3d, with a fair lot, amongst which Mauve Queen was very conspicuous. Two very fine Hydrangeas were shown by Mr. A. Spink, gr. to T. W. Grimwood, Esq., to which the 1st prize was awarded. These were dense plants 4 feet through, loaded with finely-coloured heads of bloom. Fuchsias, although not extraordinary for size, were wonderfully well grown, the plants being about 5 feet high and 3 feet through, perfect pyramids of bloom. Mr. R. Steel showed two sets of four. The 1st prize for the best single plant fell to the same exhibitor for a splendid specimen of Jules André. Pelargoniums were fairly good for this late season, Mr. F. King taking 1st prize for the best four and Mr. Steel 2d, and both stood in the same order for the best specimen. In fancies Mr. Steel was 1st for the best four and single ditto, and Mr. E. Gunn 2d. The Zonal class was well represented. The 1st prize for the best four fell to Mr. A. Catling, who had a splendidly bloomed plant of Violet Hill Nosegay. Mr. R. Steel took 2d with four large plants, but not so well bloomed. The 3d fell to Mr. Rose for four of smaller size, but in good condition. Tricolors appear going out of favour, as there were only two competitors in the class for twelve, and these not at all remarkable for growth or brilliancy of leaf colouring.

Some few years since Begonias of the Rex type were readily sold at a guinea a plant, and took a prominent position at all horticultural exhibitions, but fashion, like everything else, changes, and these appear to have had their day, and are fast going out of cultivation. On this occasion only four lots competed; the prizes falling to Mr. Irving, gr. to the Duke of Hamilton, Mr. Spink, and Mr. F. King, in the order named. The ends of the centre staging of the tents both here and at Ipswich are generally embellished by placing tastefully arranged baskets of pot plants, and in this department the Messrs. Gilbert always excel. Their basket or group to which the 1st prize was awarded showed great judgment in selecting the right kind of plants, and much good taste in arranging the same. Roses are seldom seen in such perfection as on this occasion. The flowers were unusually large for this late season of the year, and the colours of that exquisitely delicate tint for which some of the varieties are so much admired, and which they only assume under certain conditions such as the present season has afforded. It needs only to mention the names of Mr. Cant and Mr. Nichol as exhibitors to know that the show of these favourite flowers was a good one, as what they produce is sure to be of more than average merit. For the best twenty-four, Mr. Cant took the special prize with a stand of beautiful flowers. Mr. Nichol, gr. to Captain Powell, of Drinkstone, came 2d with a stand but little inferior to those of Mr. Cant. For six Teas, Mr. Cant was again 1st with splendid blooms. In the class for twelve, Mr. Nichol was a good 1st with large beautifully coloured flowers; Mr. Garnham, gr. to the Rev. J. B. Tweed, of Capel St. Mary, came 2d; and Mr. Southgate, gr. to R. J. Pettiward, Esq., 3d. Mr. Nichol was again 1st in the class for six, and Mr. Southgate 2d.

For herbaceous cut flowers the Messrs. Gilbert as usual took 1st honours for both twenty-four and twelve. Amongst these were several choice things, and a very beautiful variety of Alstrœmeria. In Pinks and Picotees Mr. J. Hines, of Ipswich, is always a formidable competitor, and as usual carried off the principal prizes.

For the best and most tastefully arranged stand of fruit and cut flowers for the centre of dinner-table Mr. Nichol came 1st, and Mr. Keen, gr. to J. G. Sheppard, Esq., 2d. In the opinion of many, fruit and flowers mixed up in this way is somewhat incongruous, and scarcely deserving of encouragement, as good fruit is huddled together and lost sight of. It is only fair to each exhibitor to say, that their stands were as well arranged as a mixture of that kind could be.

In the class for the best table decoration of cut flowers, to be competed for by ladies only, the competition was very strong, and most of the exhibits showed great taste in arrangement. The 1st prize went to Mrs. G. Gilbert of Ipswich, and the 2d to Miss H. Dove of Woodbridge. Much taste was likewise displayed in the arrangement of wild flowers for table decoration, and showed what may be done with such material. The judges awarded the 1st prize to Mrs. Wrinch of Woodbridge, Miss Marshall and Miss Haywood taking 2d and 3d. Miss Haywood contributed quite a novelty in the way of bouquets. This was shown under a glass cover filled with clear water, in which the flowers looked delightfully fresh and cool; but whether they would long maintain such a degree of freshness so immersed is very doubtful.

The show of fruit was particularly good, especially amongst Grapes, Peaches, and Strawberries, all of which were unusually fine. Mr. D. Irving, gr. to the Duke of Hamilton, took the special prize offered by Lord Rendlesham for the best collection of eight varieties. Mr. H. Fisher, gr. to Lord Waveney, was a good 2d, and Mr. Tebenham, gr. to Lady North, 3d. For six Peaches, Mr. J. Wallis, gr. to Colonel Tomline, was 1st with large Violet Hâtive, weighing at least 10 oz., Mr. Irving and Mr. Mill taking 2d and 3d. The prizes for Nectarines went to Mr. Tebenham, Mr. Irving, and Mr. Fisher, respectively. Mr. Mill, gr. to Lord Rendlesham, showed three well-finished bunches of Black Hamburgh, to which the 1st prize was justly awarded. Mr. Fisher showed three good bunches of the same variety, as did also Mr. Keen, of Campsey Ashe. In the class for white Mr. Tebenham was 1st, with three small highly-coloured Buckland Sweetwater. For the two heaviest bunches, Mr. Mill was again 1st with fine Black Hamburgh. For the best 4 bunches (two black and two white) Mr. Fisher and Mr. Tebenham were placed equal. Brown Turkey Figs were shown by Mr. Keen and Mr. P. Boreham, who took 1st and 2d prizes. Some fine-looking Melons were shown, but good looks and other qualities do not appear to go together, as the prizes went to inferior looking fruit. Cherries, both black and white, were very fine, Mr. Wallis taking 1st for black with Knight's Early, and Mr. Cooper 1st for white with highly-coloured Eltons. For Morellos, Mr. Irving was 1st, with a good dish of well-coloured fruit. Collections of Strawberries were shown by Mr. Ross, gr. to the Rev. E. Walford; and Mr. Irving, gr. to the Duke of Hamilton. For the heaviest thirty-six, Mr. Ross was 1st with huge Myatt's Surprise. In the class for flavour Mr. Wallis was 1st, with a splendid dish of Queens. Gooseberries, Raspberries, and Currants were shown in great quantities and of large size, the season evidently suiting for swelling them off.

The show of vegetables was in every respect a good one, each class being well represented.

The cottagers' productions would go far towards filling a large tent, and were here but little inferior to

those exhibited by gardeners. There are few places where so much encouragement is given to the labourer to compete as at Woodbridge, the prize list being most liberal, the principal prizes equalling in amount those offered to gardeners. (*From a Correspondent.*)

Royal Caledonian Horticultural.—The mid-summer show of this society was held in the Music Hall. The weather was particularly fine, and the brilliant sunshine of the last few weeks had evidently had the best effect upon bringing out the hues of colour of the flowers exhibited, so that with the usual splendour of Roses and Pelargoniums and other plants that strike the eye in a miscellaneous group, the effect was especially captivating. There were not the fine specimen plants usually seen in Glasgow, nor the richness we see in Orchids and some of what might be called the aristocracy of vegetation, but there was much for the promenaders to linger over and admire. The Ferns, always so graceful, were exhibited in rather superabundant numbers, the growing wish, although not hostile to Ferns and decorative plants, evidently leading in the direction of something that yields blossom, there being plenty of greenery in the open landscape. The fruit, as usual, looked luscious and tempting, and the quality was first-rate.

The Lawson Seed Company decorated the orchestra with Palms, Tree Ferns, and other giant plants, mixed up with such hardy plants as the Pyrethrums, Orchis foliosa, with its dense heads of empurpled flowers, the variegated Hemerocallis, the blue Delphinium—all of which looked well, although quite hardy border plants grown in pots. Messrs. Downie & Laird, Methven & Sons, Dickson & Co. (Edinburgh), Robertson & Galloway (Glasgow), Stewart & Sons (Dundee), Dickson (Belfast), Paul (Paisley), and several others had good exhibits in various classes. Chief among the attractions were the Roses from Mr. Dickson, Belmont, which were really first-rate. The bunches of flowers, of such sorts as Mdlle. Marie Rady, Marquis de Castellane, Etienne Levet, Countess of Oxford, Duke of Edinburgh, Alfred Colomb, and Beauty of Waltham, were so besieged with admirers all day that it was difficult to get a sight of them. Major Dennistoun, Roselea, had the best among amateurs, his blooms of Tea Roses being especially notable for their size and purity—Madame Villermoz, in particular, was purity itself. The Pelargoniums from Mr. John Macfie, Hope Terrace, and from Mr. D. Anderson, Moredun, were very good specimens. The Fuchsias were pillars of bloom, being superbly cultivated; the sorts called Marginata and Mrs. Marshall, with pink corollas and white segments, are well worthy of general cultivation. They came from the gardens of Miss Taylor, Gilmore Place, and from Miss Ivory, St. Rocks. The specimen plants, such as Heaths and the white-flowered Dracophyllum, from the gardens of Mr. Syme, Millbank, were well worthy of notice, as was also a fine campanulate roseate Heath from Mr. Paul, Gilmore Place. The Ferns were quite a show in themselves, the Maidenhair in lots of varieties, the Hare's-foot, the great Killarney Fern, the new drooping Adiantum caudatum (a unique little thing, suitable for growing in a basket), to say nothing of the host of native Ferns in a fine state of cultivation, met the eye upon several of the tables. The best came from Mr. P. N. Fraser, Cannonmills Lodge, and from Mr. Andrew Paul, Gilmore Place. The Grapes from the Earl of Strathmore, Glamis Castle, Forfarshire, were, as usual, of the highest quality, the Black Hamburgh bunches being perfect in form, very large in size of berry, and the bloom, which is eagerly sought for by connoisseurs, quite of high class, doing, as usual, credit to Mr. Johnstone, the gardener. Mr. Smollet, Cameron House, Dumbartonshire, followed, with excellent examples; and Mr. Tennant, of The Glen, Peebles-shire, had also excellent bunches. From Mr. Tennant's garden came a collection, comprising Banana, Pine-apple, Melon, Grapes, Plums, &c., which took 1st prize. The Peaches and Nectarines from Whitehill were excellently coloured, and of large size. The Strawberries, as was to be expected, were of the highest excellence; the sorts called Garibaldi and the Bishop being the largest and finest coloured of all exhibited. Vegetables were well exhibited, although in limited numbers. (*From a Correspondent.*)

Kendal Horticultural: *July* 22.—This Society held its annual summer exhibition on the above date, and was so far a success that the indefatigable committee have every reason to feel proud of the good results which have attended their efforts. The marked advance made of late years in the cultivation of plants generally throughout this part of the country owes not a little to the impulse given it by the exertions of those who labour so assiduously to make this one of the best shows held in the Lake district: which was evidenced by the many fine examples of flowering stove and greenhouse plants, as well as Ferns and fine-leaved subjects, that gave ample evidence of skilful management. The large groups exhibited by Mr. Chaplin, gr. to H. W. Schneider, Esq., Belsfield, Windermere; Mr. Sandford, gr. to the Earl of Bective, Underley Hall, and others, were such as would hold their own at many of the most important shows in the kingdom.

In the class for twelve miscellaneous stove and greenhouse plants, not less than half of which must be in flower, Mr. Chaplin was well to the fore with a remarkably large and finely grown group. His flowering plants were fresh and full of bloom; amongst them was a grand Phœnocoma prolifera, some 4½ feet through; Ixora javanica (still one of the best of this fine family), Erica obbata, and Kalosanthes coccinea: these were well supported by a pair of very large and densely clothed Croton angustifolium and variegatum, Maranta Veitchii, and Davallia Mooreana, 5 feet across. Mr. Sandford, who was 2d, had plants not so large as the preceding, his best being Anthurium Scherzerianum, carrying some twenty fresh flowers; Erica Aitoniana, and ventricosa magnifica, Pandanus Veitchii, Dasylirion glaucum, Areca lutescens, and Latania borbonica. Mr. Craig, gr. to the Hon. Mrs. Howard, Levens Hall, was 3d; in his collection was a finely flowered example of Hoya bella, a plant not nearly so generally grown at the present day as formerly, but when large and profusely bloomed, as was Mr. Craig's specimen, few things are more telling.

Three stove and greenhouse plants in flower: 1st, Mr. Sandford; 2d, Mr. Chaplin.

Three fine-foliage plants: Mr. Sandford was also 1st, his best being an intensely coloured Croton Weismanni, and Areca rubra; Mr. Chaplin 2d.

Six exotic Ferns: Mr. Sandford 1st, showing some moderate-sized Tree Ferns, a beautiful Todea pellucida and Davallia tenuifolia. Single Tree Ferns: Mr. Sandford was 1st, with a good example of the dwarf-growing Lomaria cycadæfolia; Mr. Chaplin 2d.

Single flowering plant: Mr. Chaplin 1st, Mr. Sandford 2d.

Hardy Ferns were produced in considerable quantities; Mr. Craig and Mr. Sandford were equal 1st in the class for twelve. For six, Mr. Wilkinson 1st, Mr. Gott 2d.

A very interesting feature always in this Society's show are the plants exhibited by amateurs who do not keep a gardener. For six stove and greenhouse plants in this division, 1st, the Rev. J. Gibson, who had nice small examples of Miltonia spectabilis, Oncidium flexuosum, Dendrobium chrysanthum, and others; Mr. Monkhouse 2d.

Two fine-foliage plants: 1st, Mr. Robinson; 2d, the Rev. J. Gibson. Two stove and greenhouse plants: 1st, the Rev. J. Gibson, who also received an extra prize for a group of miscellaneous flowering and fine-leaved subjects.

Fruit was shown in moderate quantities and generally good condition. In the class of nine varieties Mr. J. Morehouse, Dalton Hall, was 1st, showing a good collection, in which were Black Hamburgh and Buckland Sweetwater Grapes, Peaches, Nectarines, Cherries, and Strawberries. Mr. Sandford was a close 2d, having Muscat and Hamburgh Grapes, Peaches, Nectarines, and a Melon. Black Grapes: 1st, Mr. Sandwick, with moderate-sized, well-finished bunches. One Pine: 1st, Mr. Sandford. White Grapes: For these Mr. Monkhouse was 1st, with good Buckland Sweetwater. Dish of Peaches: 1st, Mr. Monkhouse. 2d, Mr. Sandford. One Melon: 1st, Mr. Monkhouse; 2d, Mr. Sandford. One bunch of any other variety of Grapes: 1st, Mr. Monkhouse; 2d, Mr. Craig.

Cut Roses—twenty-four: 1st, Mr. Sandford; 2d, Mr. Craig. Eighteen: 1st, Mr. Sandford; 2d, Mr. Craig. Twelve: 1st, Mr. Craig. Single Rose: 1st, Mr. Craig.

Vegetables were well shown in large quantities. For twelve varieties Mr. Sandford was 1st.

The classes for cottagers' vegetables and window plants were well filled, the productions without exception being highly creditable. (*From a Correspondent.*)

Didsbury Annual Flower Show: *July* 23 *and* 24.—Amid the half-dozen important and persevering floral societies which exist within 15 miles of the Manchester Exchange, there is not one that does its work better than the Association of Didsbury—a pleasant village on the borders of Cheshire, near the banks of the Mersey, access to which is obtained by an hour's omnibus ride. Lying to the south-east of the great manufacturing town, Didsbury is perfectly free from the deleterious influences of mill-chimney smoke and the pestilential vapours from chemical works and foundries. The soil is deep and rich, and local conditions in general are favourable to horticulture. Numbers of wealthy gentlemen have their residences hereabouts; the scenery in the neighbourhood, though the country is flat, is pretty and inviting; the trees are fine, and the wild flowers are abundant and diversified. A visit to Didsbury is always a source of enjoyment, and, with so many advantages, no wonder that the interesting old place—for in historical associations it likewise carries a certain prestige—is noted for its floral exhibitions. Shows were held here as far back as 1853, upon a green behind one of the principal inns. Five years ago the whole scheme of exhibiting was remodelled; the Society which started them was re-organised, and now the shows are held on some eligible bit of sward either in, or closely adjoining, the private grounds of one of the gentlemen of the neighbourhood. Upon three occasions, including the present, the tent has been erected upon land belonging to Mr. Thomas Ashton, the liberal proprietor of the beautiful and picturesque seat called Lord Bank, where, instead of being only 6 miles or so from the grime and turmoil of Manchester, a man might easily suppose himself to be sixty. Separated from the private gardens and plantations of Lord Bank by nothing more than a wire fence, the locality of the show when held beneath Mr. Ashton's grand old Elm trees, seems literally upon the lawn. It is very kind of a rich man like Mr. Ashton to give encouragement in this way to the promoters of this exhibition, many of whom are gardeners by profession. Without establishing too close a personal link, the sympathy is at once honourable to himself and conducive to the interests of the local floriculture. The proprietor of grounds like Lord Bank never puts them to better use than when his action serves to encourage the practical love of flowers, and practical emulation in improving the quality of the plants which best supply civilised wants, both of body and soul. A capital item in the arrangements of the show just held was the free admission, at stated times, of the children belonging to the village schools, not excepting those from a now somewhat noted Refuge or Home, some 2 miles distant, for poor lads picked out of the streets. It was no fault of theirs that they were ragged and ignorant. Many an unfortunate little street Arab no doubt has the germs in him of intellectual power, of profound appreciation of natural beauty, and of splendid industry in regard to what is noble. To take these poor waifs to a flower-show, just when their minds are opening to something like intelligent observation of the wonders and glories of God's world, is assuredly an act of true benevolence, and likely to do more for many of them than whole days of weary drilling at book lessons—a course which is quite as often repressive as developmental, or at all events fails to touch the chords that would make the music. A remarkable illustration of the value of flower shows and their addenda or auxiliaries, in bringing out the latent powers and aptitudes of young minds, such as probably would not have occurred under any other description of stimulus, came before us only a few weeks ago. Among the addenda at a certain little flower show in Manchester were two or three of those very pretty works of art which are composed half of water-colour drawing—the sky, the river, the rustic bridge, &c.—and half of specimens of frondose mosses, carefully selected, nicely dried, and arranged and cemented to the paper in such a way as to give an *alto relievo* of a woodland or distant forest, or of such trees as would stand umbrageously beside a waterfall and its rocky under-structure. Well, among the visitors taken to the show was a girl of thirteen, subsequently described as the "dunce of the school," one who not only did not learn, but (ah, me! how many more are there, who have got a good deal past thirteen) who did not want to learn. In a week or two, unprompted and unassisted, she had improvised just such a pretty moss-picture as that which attracted her attention at the flower show. The current has been turned. Very possibly her books received no fonder love, but she is now in training for a walk in life where constructive taste in matters of art has its opportunities of success; and what has happened so conspicuously in this particular instance, trifling as it may seem, is no doubt likely to happen in many another. Give only those poor little ones whom Nature has tossed out as if they were Dandelions and Groundsel, something of a kindly chance, by introducing their eyes and hearts, whenever practicable, to the sight of Palms, yea, and of Fuchsias, and of Alocasias that seem hung with crusaders' shields; to Orchids that woo us with the belief that even the wildest dream of the fancy is a reflex of some hidden secret of Nature; to Roses, yea even to Pansies, and the round and pencilled Sweet-williams of our own childhood.

But we must proceed to the show itself. The number of entries, about 430, was larger than ever before. The prize-money offered was about £70, and, best of all, it was obvious that had that sum been doubled or trebled the competition for honours would have been no keener. This was as it always and everywhere ought to be. Farewell to the *esprit* of a flower show, yea, to its very purpose and vitality, when the money to be got in the shape of prizes is the exhibitor's first thought, and the chief ground of the winner's gratification. The labourer is worthy of his hire. Every exhibitor of a meritorious plant or flower, good fruit or substantial vegetable, deserves that best of all forms of testified appreciation, a specimen miniature of our beloved Queen, done, if possible, on

a plate of Crocus-coloured metal; but the moment that regard for the truest and highest aims of floriculture becomes secondary, or subordinated to the simple desire of winning a money-prize, in that same moment the exhibitor dishonours his flag. When exhibitors can win only a shilling or two, even if lucky enough to beat their rivals, and nevertheless come trooping up to struggle for the honours, it is flower-worship of the right sort; and that floriculture, where they abide, will ever abate there need be no fear. Contrary to almost universal custom, the plants were upon this occasion put to stand upon the simple turf—a broad stage running all round the tent, for the fruit and vegetables, the bouquets, &c., being the only woodwork. In some respects this mode of exhibiting is advantageous. It is decidedly more agreeable to look upon the full rich upper surface of such plants as Ferns and Caladiums than upon the sides of red pots and an undergrowth of stalks and petioles. Few things are more displeasing than the full view of the bareness of a "leggy" plant. This, of course, is quite avoided by having the plants below the eye, instead of at the height of a yard or so above the ground. It seems also to comport better with Nature's own ways, for with the exception of trees, large shrubs, and climbers, which, of course, are scarcely admissible into the idea of a flower show, the great mass of the vegetation of our planet is of stature inferior to the human. Metaphorically, no man in his senses ever "looks down" upon a plant. If he desires to become wise and pious, he cannot afford to do so. In the literal sense of the words he nevertheless looks down upon plants much more than he looks up at them. Trees take our attention only at intervals, because intended to be objects, very specially, of wonder and reverence—dispositions of the mind which in the very nature of things cannot be constant. The vegetable forms which engage the eye persistently are of the classes which rarely exceed a few feet in height. Hence we cannot be very far wrong if, when marshalling Flora's gems after the manner which constitutes an exhibition, we abide by her own ancient and unimpeachable method. Many things, no doubt, need to be lifted to a height much more considerable than they attain of their own powers. Plants so diminutive, relatively, as the Sarracenia, cannot possibly be scrutinised with comfort unless placed on a table; but that the great mass of the ingredients of a flower show, when the specimens are of good average dimensions for their species, can be set out very effectively (and in many cases to their great advantage) by simple elevation upon inverted flower-pots, seems at all events to have been certified at the Didsbury show on the 23d. Very beautiful indeed, though no greater trouble or expense was involved in the setting out, were the Ericas, the Fuchsias, the Crotons, the Dracænas, the dwarf Palms, the Ferns, and nearly all the other plants exhibited. Even the Orchids were scarcely losers by it, and in several cases they were certainly the gainers. The amateur exhibitors were mostly gentlemen who have been accustomed to send their treasures to Old Trafford, Mr. Joseph Broome leading the way with his magnificent Palms and Tree Ferns, which formed an inner and semi-arborescent line along the centre; numerous grand specimens of miscellaneous stove and greenhouse plants from Messrs. Cole & Sons, the well-known nursery firm, constituting noble intermediate banks upon either side. In front were Calceolarias, Pelargoniums, Gloxinias, and similar flowering plants, in profusion.

Mr. Broome's Orchids included a remarkably fine Odontoglossum vexillarium, with seven fully opened large and pale rose-coloured flowers; Cattleya amethystoglossa; Cypripedium Veitchii, Epidendrum prismatocarpum, Dendrochilum filiforme, and several others, all of them in lovely bloom. The plants sent by Mr. Studd, from the Grange Nursery, were disposed as a group "for effect," aud did him great credit. Cut flowers were shown in plenty, Mr. Hugh Birley, M.P., competing in Roses. There were likewise some pretty collections of wild flowers—the specimens all, we were glad to observe, correctly named. It is no more than childish to exhibit collections of British wild flowers, as we have now and then seen done, without names. The object of an exhibition of British wild flowers is to illustrate the reality of the botanical research that has brought them together, and unless the names be attached, and with few or no errors, nothing is declared save that somebody has been 'cute enough to discriminate, say twenty or thirty species, a feat which may be achieved without an atom of exact knowledge.

One of the prettiest ingredients of the show consisted in the very elegant vases and bouquets of skeletonised leaves and capsules prepared by Mr. John Kaye, the celebrated artist in this department, whose residence is at Didsbury, so that he was enabled to exhibit his best. It may be well to observe that, after the leaves of the Ficus elastica and the Ficus religiosa, none appear to skeletonise better than those of the Anthurium Scherzerianum. Mr. Kaye is very successful also with the winged seed-vessels of the Ptelea trifoliata and the inflorescence of the Hydrangea. So exceedingly and delicately beautiful are these skeleton groups, especially when shaded behind with a slight black curtain, that the inventor of the art of preparing them certainly deserves people's warmest gratitude. Though old J. Pluvius had been very cross during the early part of the week, when the day for the show arrived he relented. Sunshine prevailed during the whole of the time it lasted, and the gardeners of Didsbury went home rejoicing once again. *Leo Grindon, Manchester.*

Helensburgh and West of Scotland Rosarians': *July 23 and 24.*—The first exhibition of the Helensburgh and West of Scotland Rosarians' Society took place in Westwood Park, West Prince's Street, Helensburgh. The Society, which owes its existence to the enterprise of a few enthusiastic florists, has only been recently founded, but the success which this show attained gives augury of a future at least as encouraging as its promoters anticipate. Although the word "Helensburgh" appears very prominently in the title of the Society, it is not intended that the meetings should always be held in that town, well-fitted though it be for the purpose, but that they should take place generally throughout the towns of the West of Scotland or wherever a sufficient sum is guaranteed to ensure success. In this manner it is expected to stimulate a greater degree of interest in the association, and that the object of the Society—the promotion of a taste for Rose-growing and the improvement of its cultivation—will be more effectually secured. Among the office-bearers are Mr. H. E. Crum-Ewing (Lord-Lieutenant of Dumbartonshire), Mr. John W. Burns (of Kilmahew), Major Dennistoun (Roselea), Mr. Thos. Watson (of Inschalloch), Provost Steven (Helensburgh), Bailie Stuart (Helensburgh), and others. Rain fell heavily during the opening day, at times in perfect torrents, and, as a consequence, visitors to Westwood Park were much fewer than they would have been had circumstances been otherwise. But a large number of ladies and gentlemen, despite the weather, graced the exhibition with their presence, admired the delightful displays of the various competitors, and evidently heartily enjoyed whatever came under their notice. Mr. H. E. Crum-Ewing opened the exhibition shortly after noon. He congratulated the Society on the show which they now saw before them, and said he would gladly do anything he could to further the interests of the Society, to the directors of which they were deeply indebted. Nothing could be better contrived to accomplish the end in view than such a show. The sight of so splendid a variety of Roses was, he thought, bound to excite the admiration of every one, and he did hope that the funds which were necessary to carry on the work would not be wanting. He would, therefore, entreat all present to give the Society the greatest encouragement. Mr. Ewing concluded by presenting the principal prizes to the successful competitors; and he was afterwards awarded a vote of thanks for having presided.

A spacious marque, 200 feet long, was erected for the occasion. Departing from the ordinary mode of showing Roses, the Society provide a table 180 feet long and 6 feet wide, the centre being filled with ornamental plants and bouquets, while the sloping sides were pierced and fitted with zinc tubes filled with water, in which the Roses were placed, the table being previously covered with moss. Entries were made for upwards of 2700 blooms, and the appearance of the long table seemed to be highly appreciated. Amongst the best blooms shown were Charles Lefebvre, La France, Baroness Rothschild, Marie Baumann, Thomas Mills, Reynolds Hole, Duchess of Edinburgh, Alfred Colomb, Countess of Oxford, Pauline Talabot (the premier flower of the show), Captain Christy, Madame Nachury, Alexander Dickson, August Rigotard, Annie Laxton, Madame Lacharme, Mdlle. Marie Cointet, Madame Marie Finger, and Dupuy Jamain.

The Dicksons, from Belfast, showed, as usual, some magnificent specimens. Alexander Dickson & Son obtained the Society's gold medal for forty-eight blooms, and Hugh Dickson a silver cup and silver medal—the one for thirty-six and the other for twenty-four blooms. Robertson & Galloway, Glasgow and Helensburgh, who are making rapid approaches to the Dicksons in the cultivation of the Rose, had also a fine display. In the gardeners' class, Wm. Parlane, gr. to Major Dennistoun, Roselea, gallantly maintained his "championship," carrying off the gold medal offered for the best thirty-six blooms. A silver medal presented by the gardeners of Helensburgh and Gareloch for a bouquet of Roses, went to Mr. W. B. M'Neill, Glasgow; while Mr. John Webster, Helensburgh, obtained the silver cup in the amateur section with twenty-four fine blooms. Messrs. Stewart, of Dundee; Critchton, gr. at Gourock House; Todd, gr. at Ascog Hall, Rothesay, &c., deserve notice for the excellence of their respective collections. Pot Roses were on the whole deficient, but one very superior plant—Baroness Rothschild—was exhibited by Mr. Chapman, Helensburgh. (*From a Correspondent.*)

The City Flower Show: *July 28.*—This interesting exhibition, the sixth since its establishment by the Rev. W. Rogers, the Rector of St. Botolph, Bishopsgate, in 1870, was held in the gardens of Finsbury Circus, and, as an exhibition of plants grown within the City, proved in the highest degree satisfactory. One large tent contained the exhibits comprehended in the schedule, and in addition Mr. William Paul, of Waltham Cross, sent a fine collection of cut Roses, an interesting group of Pelargoniums, and some capital examples of Lilium auratum. Messrs. Paul & Son sent several boxes of fine cut Roses, Messrs. Dick Radclyffe & Co. showed Fern cases, and J. T. Peacock, Esq., filled the centre of a smaller tent with a most interesting group of the rarer forms of Cacti, which proved a great attraction to the visitors.

Year after year a decidedly perceptible improvement may be seen in the character of the plants staged, and new additions to the exhibitors are attracted yearly. The leading prize-takers were Mr. H. Hammond, Sion College Gardens; Mr. George Lucas, Leadenhall Street; Mr. F. J. Jarvis, Guildhall; and Mr. F. Jacquiery, Pudding Lane. A leading feature was the so-called Nettle plant (Coleus fruticosum), two or three being of great size and fine development. Pelargoniums were largely represented, but it is a plant difficult to get a good head of bloom on within the City. Fuchsias were largely produced; one shown by Mr. Jarvis, of the Guildhall, to which the 1st prize was awarded, was nicely grown in the pyramidal style, and well-flowered. Something like thirty pots of Musk were staged; that from Mrs. Rosa Davies was remarkable for its vigorous growth and large size. Creeping Jennies are quite a City institution in the plant way, and are grown either in pots or boxes placed on window-sills, with the green trusses of branches hanging down over the front. That exhibited by Mr. George Lucas was finely grown, and of large size. They were more deficient in bloom than usual, owing to the recent heavy rains. Begonias (mainly × B. Weltoniensis) were very creditably done. Ferns were well shown, varying somewhat in type. Onion plants (Ornithogalum longebracteatum) were, as usual, a strong point, some of them of large size. Campanulas were represented by C. pyramidalis, the specimen staged by Mr. G. Lucas being most praiseworthy. Window boxes were a leading feature, that from Miss Good, of the Minories, being highly satisfactory. Fern cases were a most pleasing feature, and two staged by Miss Good were really remarkable examples of London cultivation. The best evergreen was a good specimen of Thuja aurea; and Aucubas, Euonymus, variegated Phillyreas, &c., constituted the remainder. In the miscellaneous class a great number of things were staged of a very varied character; but foremost was a fine example of Ficus elastica, shown by Mr. J. Moss, to which the silver medal of the Royal Horticultural Society was awarded as the best plant in the show. The three bronze medals, also kindly granted by the Society, were awarded to Miss Good for a Fern case, to Miss Denny for a case of Lycopodium, and Mr. W. Brooks for a Fern case. The two copies of *My Garden*, offered by Alfred Smee, Esq., F.R.S., were awarded to Mr. J. F. Jarvis for Thuja aurea; and to the Rev. F. Bishop for a nicely flowered example of Thunbergia aurantiaca, in excellent health. A volume of the *Garden*, given by Mr. William Robinson, was awarded to Mr. George Lucas for a remarkable pyramid of Mustard and Cress. A handsome rustic window-box, presented by Messrs. D. Radclyffe & Co. for examples of flower seeds, given by them to the school children, and shown in pots or boxes, was awarded to Fanny and Alice Croxton, rustic flower-pots given by the same being also awarded Mr. J. Wills, Onslow Crescent, South Kensington, gave some Palms, &c., as special prizes; and fifty succulents, given by Mr. Peacock, were awarded in the same way, Mr. Peacock also generously promising the sum of £5 to be given as prizes for the succulents presented by him at the exhibition in 1876.

A very large number of the working-classes attended between the hours of 6 and 8 o'clock in the evening, the sum of nearly £12 being taken in 1*d.* admissions. The exhibition was under the management of Mr. Richard Dean, Ealing, W., the prizes being awarded by him and Mr. A. F. Barron.

THE SEYCHELLES ISLANDS.

[FOR the subjoined remarks on the natural products, Palms, Orchids, Pandanads, &c., of these islands, including many species of special interest to gardeners, we are indebted to a report kindly forwarded by Mr. Horne.]

A similarity of soil, climate, and products prevailing throughout the group renders a particular description of any one of the islands unnecessary.

Situated as these islands are, almost under the equator, the climate, although warm, is healthy. Indeed,

no better station could be chosen for a sanatorium for the crews of naval vessels on the East Coast of Africa. In some localities of Mahé especially those of the Cascade valley, and at the top of the Barbaron Pass (about 6 miles from Port Victoria and in full view of its harbour), at an elevation of 1500 feet above the sea, the climate is delightful. The seasons are divided into two—the warm and wet one, during the north-west monsoon, which blows from October to April, and the comparatively cool and dry one, from April to October, during the south-east trade wind. The rainfall during the year is about 96 inches, the greater portion of which falls during the north-west monsoon. It is especially heavy when that wind comes in contact over the islands with the south-east trade-wind.

The islands of the group rise suddenly from the sea, and appear as if they were the mountain peaks of a submerged continent or large island. The highest is Mahé, and the next Silhouette. The mountains of the former rise to an elevation of 3000 feet above the sea, and those of the latter to 2500 feet. In the other islands no elevation exceeds 1500 feet.

The outline of each island may be said to be a range of hills in the centre, as in Mahé and Praslin, or one or more peaks, as in Curieuse and Silhouette, or a rock, as Isle aux Frégates and others, having many spurs and offsets and slopes extending to the sea. These spurs often terminate in precipices of several hundred feet in height, and are united by flat sandy beaches of from three-fourths of a mile to a few yards in width. The largest of these beaches are in La Digue, the north-east and south-west ends of Praslin, besides several in Mahé. Coral generally underlies the beaches.

There are sometimes lagoons between the base of the mountains and the beaches. They exist in all the islands, but the largest is in La Digue. Crocodiles once abounded in these lagoons. The last of them was killed within the recollection of a few of the oldest inhabitants.

The geological formation of these islands is granitic. Veins of trap are frequently met with, especially in Mahé and Silhouette. The granite of the latter island is of a finer grain than that of the other islands. In Curieuse it is much decomposed. Traces of iron, in some of its many forms, were frequently seen; especially in Silhouette. Isle aux Frégates contains a magnesian or bitter spring. Blocks of coral are found on this island at a considerable elevation above the sea.

Coral reefs abound, but they rarely extend far into the sea. Like the sandy beaches, they are most common in the bays between headlands. The largest reefs are those at Port Victoria, on the north-east of Mahé, and the north-east and south-west ends of Praslin.

The surface of these islands is mountainous and undulating, often abruptly so, presenting a pleasing variety of aspects of hill and dale, ravine and valley, rock and crag. It is strewn with granite boulders of all sizes and shapes. The surface of the boulders is often deeply grooved or striated, worn, or hollowed out, by water or the weather.

The boulders are to be found lying sometimes on their beds, sometimes tilted on their sharp edges, sides, or ends. Generally speaking there are cavities between them, in some cases 30 or more feet in depth, and several feet in width. The boulders, from their distorted positions, seem to have been rent asunder by volcanic action. They are most numerous near the mountain tops, and in the bottom of the ravines, across which they sometimes lie like moraines, and not unlikely the *débris* of landslips from the tops and sides of the mountains.

The soil in Praslin has been much disintegrated and washed away, since the destruction of the virgin forests. In both Praslin and Curieuse it is very poor. A small portion of Silhouette is a bare rock, but where soil exists in this island its quality is very good. Excepting about 70 acres, Isle aux Frégates is almost a naked rock. The soil of the 70 acres is most excellent. This is owing to the site having once been the bed of a lagoon, into which all the *débris* and vegetable matter from the higher parts of the island have been carried by heavy rains. Before Isle aux Frégates was inhabited, it was the home of innumerable sea birds, a circumstance which very probably may have added to the fertility of the *débris* carried into the lagoon.

However, speaking generally, the soil in the other islands, considering it is granitic, is rich, and capable of producing any kind of crop peculiar to the tropics. It is very rich in the ravines and in the forests, where it has not been washed away, and continues so to a considerable depth.

La Digue is the best cultivated of the islands, and, according to size or acreage, the most densely populated. Proportionally to size Praslin and Silhouette contain fewer inhabitants than any other of these islands. Praslin and Isle St. Anne are the worst cultivated. Félicité is a Government reserve.

In several of the islands there is still a great deal of uncultivated ground. Some of it is not worth cultivating, but by far the greater portion is good land lying waste, the properties of people who are either too lazy or too poor to cultivate it.

The chief produce of these islands is Cocoa-nut oil. The quantity is annually increasing, and it is of considerable value. The plantations of Cocoa-nut trees are increasing, and young plantations are annually reaching the period of age (ten or twelve years) when the trees begin to bear. The value of a plantation in full bearing is about 3*s*. each tree per annum, at which value the trees may be said to continue for a generation. The mill used for extracting the oil is the old primitive one, the same as the one which has been used in Ceylon and other countries for hundreds of years.

The fibre is now extracted by machinery from the husk of the nut, and will form a considerable item in the export of these islands. The husk is said to be nearly as valuable for its fibre as the nut is for oil. Formerly it was allowed to rot and waste on the ground, or to putrify the water in the lagoons.

The Cocoa-nut tree appears to thrive as well in Seychelles as in Ceylon, if not better. Generally the trees in Seychelles are more healthy than any I saw in Ceylon.

Seychelles Tobacco is of very fine quality. The plant grows freely, and is easily cultivated.

The Sugar-cane is cultivated to a small extent, chiefly for the manufacture of rum from its juice. The yield of sugar from the cane is said to be small and unremunerative, although the canes are magnificent.

Cotton grows remarkably well in Seychelles. According to local traditions, these islands were at one time famed for the quality and fineness of their cotton. Several samples shown me were said to be equal, if not superior, to the finest Sea Island cotton. Cotton cultivation seems to have gradually died out in these islands since the abolition of slavery. The quality, however, does not appear to have deteriorated, and the plant still grows vigorously. Probably the drawback is owing to the difficulty in bringing the produce to market, and the supply of labour during the picking season.

Theobroma Cacao, the Chocolate-tree, grows well. Several small plantations of it, in bearing condition, were seen in various parts of Mahé. Young plantations of it are being made. The plant is very common on waste lands; in fact, it may be said to be naturalised in many localities. As it thrives well and bears freely its culture deserves encouragement. From the plant having become almost naturalised it may be inferred that the climate and soil are favourable for it.

The climate of these islands is well adapted for Vanilla, and on my first visit in 1871 I was surprised it had been so little attended to. Since that time more attention has been paid to it, and several large plantations, lately made, will soon be in bearing.

Maize is cultivated, but not to the extent such a useful grain ought to be grown.

Mountain Rice is cultivated during the wet season, but not extensively. Swamp Rice might be more extensively cultivated than it is by terracing the slopes of the ravines or valleys, and by raising crops in the swamps and low-lying places. In such places two crops might be had each year. Occasional patches of Rice were noticed in Mahé, and in La Digue there were 10 to 12 acres in a very flourishing condition.

The climate and soil of Seychelles are highly favourable to the growth of the spice plants. Of these, Cloves and Cinnamon are abundant. Both may be said to be naturalised, being found in many localities. Doubtless they may have been introduced, but where planted they have taken possession of the ground to the exclusion of almost every other plant. In several localities the Clove tree has grown to the height of 40 to 50 feet, with a trunk from 18 to 24 inches in diameter. This tree, with its lively green foliage, is really beautiful. Although somewhat stately, its appearance is graceful. Its pyramidal-shaped head resembles the Lombardy Poplar in outline, and the fragrance of its flowers fills the air with perfume. The manner in which the islanders gather the Cloves is both reckless and wasteful. They cut off all the branches of the trees, although they are well aware that several years must elapse before the trees again reach the bearing stage, and, in fact, that many of them will die altogether. The Cloves could be easily gathered from the highest trees by means of a Bamboo ladder. The trees are frequently cut down for firewood. Apparently very little attention has been bestowed on the culture of the Clove tree for a long time, but on the occasion of my last visit several proprietors mentioned their intention of making large plantations. The tree requires little or no cultivation, and even thrives where Coffee and Cocoa would not grow.

Before 1871 there were neither Nutmegs nor Allspice trees in these islands. Some plants of these which were sent to Seychelles in that year have thriven well, so also have some plants of the Durian. I have no doubt that these, as well as the Mangosteen, would thrive well in Seychelles.

Pepper (Piper nigrum) might be profitably cultivated, the climate, &c., being well adapted to its growth. It would appear to have been cultivated at one time, or the plant is indigenous in these islands. It is found in great abundance in all the islands, climbing over the granite boulders like Ivy. A few Chinamen or Malays from Singapore would soon revive its culture.

There is a great scarcity of vegetables in these islands. This is owing either to the indolence or the indifference of the inhabitants. That certain kinds, cultivated with industry and care, would grow, I have not the least doubt. The introduction of a few Indian or Chinese market gardeners would be a boon: a grant of Government land, in suitable places for the purpose, might be conditionally made them.

Manioc and Sweet Potatos are abundant, and the quality of both is excellent. The raw roots of the former are greatly relished by the newly arrived African, and poisonous as they are said to be, when suboiled, he eats quantities of them with impunity.

It is surprising to find that the Yam (Dioscorea species) is very little cultivated in Seychelles. As a vegetable it is thought by many to be superior to the Sweet Potato (Ipomœa Batatas), and scarcely inferior to the Sweet Potato. Its culture in Seychelles well deserves attention.

Colocasia esculenta (Tara?) is much cultivated by the poorer inhabitants, and undoubtedly forms a great part of their sustenance.

Arrowroot, Ginger, Saffran (Turmeric) and Cardamons could be extensively cultivated. At present the three last are not noticed. The only patch of Arrowroot was seen in the vicinity of Government House.

The rearing of silkworms is an industry which ought to recommend itself to the habits of the Seychellois, especially as the Mulberry tree grows readily in these islands, but with the exception of a few kept as curiosities by children, I did not see any.

The culture of Coffee is also worthy of notice. Like Cotton, its cultivation has once been more extensive than it is at present. Marks of what had once been plantations were found in almost every ravine where the soil was suitable for the plant. These remanets of former plantations have long been left to themselves. The older plants have attained the size of small trees, 15 to 20 feet in height, having a proportional thickness of trunk. The ground underneath them is covered with young Coffee plants, in all stages of growth, forming almost impenetrable thickets,—a sure evidence that the berries have never or seldom been gathered since the plantations were abandoned.

The Pine-apple is by no means rare. It has probably been introduced. It is now naturalised, and is one of the commonest plants in all the islands—densely covering patches of several acres in extent in many localities. Although the fruit, both in size and quality, cannot be compared with many of the fine varieties cultivated in other countries, yet it is not to be despised.

Oranges are common, large, and their quality is excellent. They are abundant in all the islands, but more especially in Silhouette. The quality of the Oranges grown in that island is superior to those grown in any of the others. At Anse Mondon, in Silhouette, the ground was covered with fallen Oranges, Mandarins or the Tangierine Orange, and Fruit de Cythère (Spondias dulcis.) These were apparently so common that the pigs did not care for them. The Orange de Persé is the best variety.

Limes and Bigarades are not uncommon, and lime juice was formerly manufactured to some extent.

Besides the above there are the Sweet-sop, Sour-sop, the Bullock's-heart or Custard Apple (Anonas squamosa, muricata, and reticulata), the Avocado Pear (Persea gratissima), the Carambole and Bilimbee (Averrhoas Carambola and Bilimbi), which latter makes excellent tarts. The Bread-fruit, Jack, Mango, Tamarind, and Guavas of three sorts are common.

The number of plants collected during my two visits, making allowance for duplicates, amounts to about 400 species. Of that number about 200 species are what may be termed social weeds, occurring in all tropical countries. The greater portion of the other half will find congeners in Madagascar, Eastern Tropical Africa, Southern India, the Malay, Polynesian or Oceanic Islands.

The Seychelles flora has no affinities to that of Mauritius. The plants which are found in both are also common plants in some or another of the countries above named, and in some instances in all of them. When the flora of Madagascar becomes better known, I anticipate that the flora of Seychelles will be found to be more nearly allied to it than to any other. Relative distance between the places, similarity of geological formation and climate point to such a conclusion. So far as published information at my command goes, the Seychelles flora has more in common with that of Eastern Tropical Africa than with the flora of any other part of the world. The specimens have been sent to Kew, and will doubtlessly be described in the *Flora of Mauritius and Seychelles* which

is now in hand. Four hundred species is certainly a small number of plants for these islands, but it must be borne in mind that not one-hundredth part of the land enjoys the shade of the virgin forests. The axe and fires through heedless recklessness and inattention have wrought the mischief. Fires have again and again swept over nearly all the islands, and only the parts near the tops of the mountains, where showers are so frequent that the vegetation seldom dries, have escaped their fury. From the large quantity of dry Palm and Pandanus leaves which litter the ground and hang on the trees, fires, when once set going, must spread with great rapidity. From the above cause, and the rocky nature of the surface of the ground, they are not easily extinguished. The soil in the virgin forests is covered with a thick layer of half decomposed vegetable matter, into which the trees, shrubs, &c., root freely, and which, when dry, takes fire readily. Thus many species have been destroyed, and it is only a few of the hardiest kinds which recover the land. The fire-tracks are easily distinguished, by the absence of the vegetable mould, by the uniform size and apparent oneness of age of the trees, shrubs, &c., by the kinds being few, and the individual plants of each kind being numerous, by the dead trunks of the "Capucin" tree, whose timber is almost indestructible, and by the absence of very young plants.

The Seychelles flora is unique in its Palms, which have not been discovered in any other part of the world. These are the Coco de Mer, or double Cocoanut (Lodoicea sechellarum); an undescribed species of Areca, the Chou-Palmiste, *par excellence*, of Seychelles; the Latanier feuilles, Stevensonia grandifolia; the Latte, Verschaffeltia splendida; the Latanier Haubaum, and another undescribed species of palm. There are also Areca rubra (?), a branching species of Hyphaene and Latania rubra or borbonica, but I question if either of these is indigenous. It is remarkable that the native Palms of these islands all belong to different genera, and that, excepting the Coco de Mer, they are all covered with spines. In its younger stages of growth the Coco de Mer is grand beyond comparison with any other Palm. In its more advanced stages of growth it appears to be inferior to the Talipot Palm of Ceylon. In Praslin, where it abounds and can be seen in perfection, the average height of the highest trees in the ravine in which the most of them are growing is from 80 to 90 feet. A sight of that ravine vividly reminds one of the descriptions and pictures of vegetation in Louis Figuier's *World Before the Flood*. Its leaves are from 14 to 18 feet in width, and they are more in length. Their stalks, on young well grown plants, are about 12 to 14 feet in length, and proportionally thick and robust. I have seen them 20 to 25 feet long, but slender and weak, where there was a struggle to reach the light and air.

The age of the tree before it bears fruit has, I think, been exaggerated. The tree growing at Government House at Port Victoria, which is quite a representative one in all respects, flowered at about the thirty-fourth year of its age. It was fertilised in July last, and the ovules were considerably swollen in September. If successfully fertilised the time which the fruit requires to ripen will be easily ascertained. To those acquainted with the mode of germination; habit of growth, flowering, and manner of bearing flowers of that Mascarene genus of Palms called Latania, the Coco de Mer presents few peculiarities, with the exception of its size. The "bowl" is the base of the trunk, but much harder, and not so easily decomposed. It appears to be formed of the bases of the leaf-stalks which have grown and decayed before the trunk of the tree appeared above the ground.

Articles in almost infinite variety are made from the young leaves of the Coco de Mer—some of them useful as hats, &c., and others ornamental. The leaves of the Stevensonias, "Latanier feuille," are very useful for thatch. The outside slab of the trunk of the "Latte" (Verschaffeltia splendida), when split into pieces of 2 or 3 inches in breadth, and reduced to the thinness of half an inch, make excellent pallisades for house-building.

Ropes, for many local purposes, are made from the leaves of the "Coco marron" (Curculigo sechellarum), and the bark of the "Var" or "Vau" (Paritium tilaceum) yields a good strong fibre which is useful for cordage. Fishing lines are made of the fibre of the "Aloes vert" (Fourcroya gigantea), a plant which has lately been introduced.

Hymenæa verrucosa yields the gum-copal of Madagascar, but the tree is rare in Seychelles.

The "Bois de Fer" (Dipterocarpeæ species) yields an exceedingly flammable gum-resin, which was formerly used for incense.

Rubus rosæfolius (Frambrosier), which is very common in the woods, bears a good fruit, which is gathered by the poorer people and sold in Port Victoria. Guavas of three sorts, and Cashew nuts, are common everywhere in these islands. They are quite naturalised.

The useful timber trees are the Capucin, Sideroxylon species, Takamaka or Tacamahaca, Calophyllum Inophyllum; Bois de Fer, Dipterocarpeæ species; Guyac or Faux Guyac, Afzelia bijuga; Badamier, Terminalia Badamia; Bois de Natte, Imbricaria petiolaris; Bois de Marée, Gomphandra species; Bois Rouge, Wormia ferruginea; Bois de Table, Heritieria littoralis; Bois Sandal, Rubiaceæ species; Bois des Montagnes, Campanospermum zeylanicum; the Filao or Cèdre, Casuarina equisetifolia.

Among the poisonous plants of Seychelles may be mentioned the Tanghin (Tanghinia venenifera)—the Ordeal Bean or Poison Nut of Madagascar—a small tree attaining a height of about 20 feet, with dark green leaves not unlike those of the Nerium, and large clusters of pretty white flowers which are pink in the centre. The fruit is a fibrous drupe, which, when ripe, is like a beautiful Peach in colour, shape and size. It contains a hard nut, the kernel of which, although only a little bigger than an Almond, is sufficient to destroy twenty people.

"The "Calabassier" (Strychnos Vontac) is very common. Its names are very suspicious. The "Tanghin Rouge" (Euphorbia pyrifolia), and "Bois Jasmin," a small tree belonging to Euphorbiaceæ. Tales about this latter equal those about the Upas and Manchineel trees. It is as much dreaded in Seychelles, by the Creoles of African descent, as those trees are by the inhabitants of their respective countries.

The large roots of Colocasia macrorhiza are used, when boiled, to feed pigs. Unboiled all the parts of the plant are exceedingly deleterious.

Among the indigenous plants which may be called curious are the Pitcher Plant, a species of Pandanus, several species of Loranths or Mistletos and a luminous fungus, which with fire-flies, shine brightly in the forests at nights. The Pitcher Plants are found in great abundance on the tops of the mountains in Silhouette, and in three or four localities in Mahé, especially on the mountains between the Black Forest and the St. Louis River Valley.

The species of Pandanus alluded to is very common in the Seychelles Islands, and is a most singular tree. Its trunk is about 2 to 4 inches in diameter, often thicker at the top than at the base. The tree attains a height of 25 or 30 feet. It is thick and bushy, and pyramidal in outline. From the base to the top it sends out numerous and large roots. These strike into the ground at all distances from the tree up to 20 or 30 feet. One can walk among them, and the tree is steadied in its place by them and kept from being blown over, just as the masts of a ship are kept upright, and prevented from being carried away by stays, rigging, &c.

There are four or five species of Loranths indigenous in Seychelles. These parasitic plants grow there on almost every kind of tree or shrub, even the Tanghin and Strychnos trees are frequently covered with them. One of them, which grows on the Capucin, is without leaves, and another species, Loranthus indicus, I think, bears beautiful flowers.

Ferns may also be mentioned here. There are about seventy species indigenous in these islands. Individuals of the same species are very numerous. The Tree Fern, Cyathea sechellarum, a magnificent tree, is very abundant in the mountains, so also is Angiopteris evecta. Some of the species are very beautiful, especially Nephrodium Wardii, Pellæa Barkliæ, Lindsæa Kirkii, and a species of Lastræa. Lindsæa cultrata, which I found only in the Coco de Mer ravine, is the rarest and not the least beautiful. Some of the Lycopods are also very graceful.

The most beautiful flowering plants natives of Seychelles, are Angræcum eburneum; a species of Vanilla whose leaves are very small and deciduous—so much so, that they can only be seen for a few days on the points of the youngest shoots: its pods, although large, have no aroma; a species of Impatiens (Balsam), two species of Melastoma, a shrub belonging to Verbenaceæ, a species of Begonia, and two lovely Crinums. Ipomœas are numerous, and the flowers of some of the species are very pretty.

The two Orchids are very common, so also is the Begonia, which bears large flowers like Begonia lucida, but has metallically coloured leaves. The flowers of the two Orchids are pure white, and the Angræcum bears them in great profusion. The flowers of one of the Crinums are snowy white, with a strip of red along the centre of the petals. Those of the other are dark red striped with white. The flowers of both are large, and delightfully fragrant. They are borne in umbels on long pedunnles. There are about fifteen to twenty-five flowers in the umbel or truss.

Neither the Balsam nor the Verbenaceous shrub is abundant. They were twice found growing together, once in Mahé, and in Silhouette. They may be termed associates. The flowers of the Balsam are white, and are between 1½ and 2½ inches in diameter. The staminal column, in the centre of the flowers, is pink or purple. The shrub has white and red flowers, which are borne in great profusion on axillary spikes from 2 to 4 inches long. One or several spikes rise or spring from an axil, either among the leaves or below them. The two Melastomads are large growing shrubs, and both are exceedingly common. They flower freely, and their large purplish or whitish purple flowers are very pretty.

When or how the Cashew-nut tree (Anacardium occidentale) was introduced, it would be difficult to say. It is now the most common tree in the Seychelles Islands, growing almost everywhere, but most abundantly in poor dry soils, which have long lain waste. No use is made of its fruit, from which an excellent wine is said to be made in Brazil.

Bois noir (Albizzia Lebbeck) is very common. It grows in sites similar to what it does in Mauritius. Adenanthera pavonina, "Agati," an Indian tree, is by no means rare, and is spreading rapidly from several centres. It appears to have been planted for shade, near dwellings, in many localities, from which it is fast extending.

"Sang Dragon" (Pterocarpus Draco) is most common in the vicinity of Port Victoria, where it is planted to shade the roads and streets. It is now extending by seeds and branches (from which it grows readily) over all the islands.

From the proximity of these islands to Madagascar, and a similarity of soil, &c., I expected to find the Raffia Palm of Madagascar (Sagus Ruffia), and the Traveller's Tree (Urania or Ravenala madagascariensis), in great abundance. Two or three of the latter were seen in the vicinity of houses, and although the Raffia was frequently seen growing near marshes and the sides of streams, the situations were always such as to cause a doubt about the plant being indigenous.

Bamboos are very common, and were probably introduced and planted for their utility. Many large clumps of them were seen in the forests, far up the mountains, but they were said to have been planted there in order to mark the sites of boundary stones.

There is no doubt that these islands were once heavily wooded from the tops of the mountains to the water's edge. Useful timber was once so abundant in them, and so easily obtained, that several vessels of from 300 to 400 tons were built, besides schooners, &c. Good trees are now only found in the most inaccessible parts of the mountains. Even there the ruthless hands of the destroyer have overtaken them, and fine trees are being felled for trifling purposes. Very frequently the largest portion of the tree is allowed to rot on the ground, while useful timber has to be imported to supply the wants of the builder. Little respect is paid to either the mountain or river reserves.

Another subject which I would desire to bring under notice is the purchase of the Coco de Mer ravine, in Praslin, and its conservation and preservation by Government. Several plants of the Coco de Mer are to be found in various parts of Praslin and Curieuse, but I can conceive of no more antediluvian looking place existing in the world than that ravine. The destruction of the trees in it would be an outrage on science and a disgrace to civilisation.

Besides, its conservation would not be altogether valueless, for the nuts are worth each from 2*s*. to 4*s*. So great is the demand for them that they are broken from the trees and sold before they are ripe. Even as future articles of commerce the trees should be planted on all Government reserves in Mahé, Praslin, and Félicité. If the ravine could not be purchased, I would suggest its being exchanged for some other portion of Crown land. *J. Horne, Sub-Director.*

Law Notes.

A DISPUTE BETWEEN A GROWER AND A SALESMAN.—KNIPP *v.* PAINE.—This was an action brought by a gardener and grower at Wood Green to recover the price of a load of Potatos supplied to the defendant, a salesman in the Borough Market. The action was brought in the Clerkenwell County Court, before the presiding Judge, F. Whitbread, Esq. Mr. Ody, solicitor, appeared for the plaintiff, and Mr. Gull was retained as counsel for the defence. The plaintiff on being sworn said that the load in question was sent by his carman to the defendant's stand in the Borough Market so far back as 1873, and that when applied to for payment defendant stated that he had not received the goods from the plaintiff, but from a man named Goodman, who also went by the name of Allan, who had borrowed money, and that the goods were sent in payment thereof. The plaintiff called his carman, who proved the delivery of the Potatos to the defendant, who accepted the same at his stand in the Borough Market. This evidence was corroborated by that of one of the plaintiff's servants, and completed the plaintiff's case. The defendant said that he had been a salesman for twenty years. He had paid Goodman for the goods, which were had for advances made to him, and was surprised when he received a summons to this Court, as Goodman had already been paid for them. The learned Judge said it was always hard for a man to pay twice over, but as it was proved by the evidence

of his carman that the load was delivered to the plaintiff, and as there was no evidence before him that Goodman was entitled to receive the money, judgment must be in favour of the plaintiff for the full amount claimed, with costs of attorney, counsel, and witnesses.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JULY 28, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
July	In.	In.	°	°	°	°	°	°			In.
22	29.60	−0.18	68.6	53.8	14.8	58.1	− 4.2	55.0	89	WSW : W. : WNW	0.01
23	29.50	−0.28	68.0	54.0	14.0	58.0	− 4.2	55.2	90	W.	0.01
24	29.53	−0.24	68.0	55.6	12.4	58.8	− 3.4	55.9	90	S.W. : WSW	0.06
25	29.77	−0.00	69.5	50.2	19.3	58.2	− 4.0	45.7	63	S.W.	0.06
26	30.12	+0.36	71.3	46.7	24.6	58.0	− 4.2	44.4	60	W. : S.W.	0.00
27	30.18	+0.42	71.6	50.6	21.0	59.2	− 3.0	45.6	60	S.S.E. : E.N.E.	0.00
28	30.11	+0.35	77.0	51.0	26.0	62.9	+ 0.7	50.1	63	E.N.E. : N.E.	0.00
Mean	29.83	+0.06	70.6	51.7	18.9	59.0	− 3.2	50.3	74	W. : N.E.	sum 0.14

July 22.—Dull, with frequent rain. Fine at intervals.
— 23.—Fine day, though dull and cloudy. Shower of rain at 2 P.M.
— 24.—A fine day; partially cloudy. Occasional showers of rain.
— 25.—A very fine bright day. Showers of rain at 2 and 4 P.M.
— 26.—Fine, bright, clear and warm throughout.
— 27.—A very fine day; light clouds prevalent.
— 28.—A brilliantly fine warm day.

—— During the week ending Saturday, July 24 in the neighbourhood of London the reading of the barometer at the level of the sea decreased from 29.77 inches at the beginning of the week to 29.75 inches by mid-day on the 18th, increased to 29.97 inches by the evening of the 20th, decreased to 29.68 inches by about noon on the 23d, and increased to 29.81 inches by the end of the week. The mean reading for the week was 29.80 inches, being 0.07 inch lower than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground varied from 75° on the 18th to 63° on the 19th; the mean value for the week was 68°. The lowest temperatures of the air ranged between 58¼° on the 19th and 53¾° on the 22d, with a mean for the week of 56°. The mean daily range of temperature in the week was 12°, varying from 17¾° on the 18th to 4¾° on the 19th. The mean daily temperatures of the air, and the departures from their respective averages were as follows:—18th, 63°.9, + 1°.3; 19th, 59°.1, — 3°.4; 20th, 61°.3, — 1°.1; 21st, 58°.2, — 4°.1; 22d, 58°.1, — 4°.2; 23d, 58°,— 4°.2; 24th, 58°.8, — 3°.4. The mean temperature for the week was 59.°6, being 2°.7 below the average as deduced from sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 137° and 135¼° on the 18th and 24th; on the 19th 74° was the highest reading. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 49° and 47¼° on the 22d and 23d; on the 19th 56¾° was the lowest reading. The mean for the seven low readings was 52°.

The direction of the wind was mostly from W.S.W., and its strength gentle. The weather during the week was dull, cold, and the sky generally cloudy. Rain fell on five days; the amount collected was 0.60 inch.

In England the extreme high temperatures observed by day ranged from 79° at Leicester and Cambridge, to 66° at Newcastle-on-Tyne, the general average all over the country being 72½°. The extreme low temperatures observed by night ranged from 54° at Norwich and Leeds, to 45° at Newcastle-on-Tyne; with an average value of 51½°. The mean of the extreme ranges of temperature in the week was 21¼°, the greatest range being at Cambridge, 27°, and the least at Liverpool, 17¾°. The mean high day temperatures varied between 72° at Nottingham, and 63¼° at Newcastle-on-Tyne; the general average being 68°. The mean low night temperatures ranged from 58¼° at Leeds, to 49½° at Newcastle-on-Tyne; with a general average of 55¼°. The mean daily range of temperature in the week was 12¾°, varying from 16¼° at Nottingham to 9¼° at Liverpool. The mean temperature for the week was 59½°, being 2¼° lower than the value, for the corresponding week in 1874. The highest occurred at Nottingham, 62°, and the lowest at Newcastle-on-Tyne, 54½°. Rain fell on every day in the week at Birmingham, Nottingham, and Leeds, and on five and six days at most other stations; the falls were exceedingly large, except at southern stations, as will be seen by the following table:—

Table showing the Fall of Rain on every day in the week at several Stations.

Names of Stations.	Fall of Rain on every Day in the Week. Sunday, 18th.	Monday, 19th.	Tuesday, 20th.	Wednesday, 21st.	Thursday, 22d.	Friday, 23d.	Saturday, 24th.	Fall of Rain in the Week.
	In.	In.	In.	In.	In.	In.	In.	In.
Truro	0.14	0.06	..	0.02	..	0.09	0.04	0.35
Bristol	0.31	..	0.04	0.14	0.38	..	0.02	0.89
Blackheath ..	0.13	0.10	..	0.29	0.01	0.01	0.06	0.60
Leicester	0.16	0.62	2.22	0.41	..	0.02	0.03	3.46
Cambridge ..	0.01	0.72	0.04	1.78	0.16	..	0.09	2.80
Norwich	0.30	0.69	0.27	0.68	1.32	..	0.08	3.34
Birmingham ..	0.03	2.25	0.29	1.25	0.71	0.25	0.35	5.13
Wolverhampton ..	0.66	0.45	2.79	0.03	..	0.14	..	4.07
Nottingham ..	0.02	0.13	1.18	0.26	0.14	0.11	0.10	1.94
Sheffield	0.26	0.43	0.59	0.14	0.02	0.02	..	1.46
Liverpool	0.01	1.00	0.29	..	0.01	0.18	0.01	1.50
Manchester ..	0.26	1.06	0.73	0.05	0.02	0.11	..	2.23
Eccles	0.32	1.20	0.74	0.05	..	0.10	..	2.40
Hull	0.74	0.56	0.30	0.07	..	0.04	..	1.71
Bradford	..	..	0.74	0.31	0.42	0.08	..	1.55
Leeds	0.40	0.22	0.44	0.54	0.12	0.04	0.01	1.77
Sunderland ..	0.34	0.94	0.64	0.03	..	..	0.21	2.16
Newcastle-on-Tyne	1.52	1.52	0.96	..	..	..	0.98	3.46

It will be seen by the above table that the heaviest falls of rain were experienced in the eastern, northern, and midland counties. At southern stations, where the falls were excessive last week, scarcely any rain fell.

Great loss of life and property has resulted from the severe floods in Wales. At Sittingbourne tons upon tons of fruit have been reported as utterly destroyed by the heavy rains, in consequence of the owners being unable to gather fast enough.

The streets of Leicester were flooded to the depth of 2 to 3 feet, and even to 5 feet at Wolverhampton. Great difficulty has been experienced in railway travelling, especially in the midland districts, the lines at some places being a foot under water. At Swansea what were green meadows a week ago had the appearance of broad lakes.

Heavy thunderstorms prevailed in Gloucester, Wiltshire, and Somerset on the 22d inst. At Leicester 8½ inches of rain has fallen in twenty-five days, ending the 21st inst.

Rain fell very heavily at Birmingham. On Sunday, the 18th inst., the Aston Brook broke into the Birmingham Canal, and the water in the latter, being thus increased in volume, carried away a wall, and flooded the district for about a mile.

The weather during the week was dull, cloudy, very wet, and remarkable for the excessive rainfall.

Severe thunderstorms have been reported at Sunderland and Leicester during the week.

In Scotland, the highest temperatures ranged from 78° at Edinburgh and Dundee to 69° at Aberdeen. The lowest temperatures varied between 50° at Dundee, and 46° at Paisley and Perth, their respective averages being 74¾° and 47°. The mean range of temperature in the week was 27¾°. The mean temperature of the air for the week was 59¾°, being 1½° lower than the value for the corresponding week in 1874. The highest was at Greenock, 61¾°, and the lowest at Aberdeen and Leith, 58½°.

The amounts of rain measured at the several stations during the week varied from 2¼ inches at Greenock to half an inch at Aberdeen; the average fall over the country was 1 inch, being a quarter of an inch less than that of the corresponding week in 1874.

At Dublin, the highest temperature was 76°, the lowest 41½°, the mean 60°, and the fall of rain 1.59 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—It is now time to place out-of-doors all hard-wooded plants that require exposure to the open air at this season. These should include all that are in any way liable to the attacks of mildew, or that do not set their flowers freely if kept through the whole of the season indoors. The hardening process which the leaves and shoots thus undergo in the open air renders them less amenable to the attacks of parasitic fungi, it also in a great measure stops the growth or further extension of the summer wood, and causes at once the formation of bloom-buds.

The following plants are better for being put outside:—*Leschenaultia*, *Mirbelia*, *Nerium*, *Pimelea*, *Pleroma*, *Pultenæa*, *Tremandra*, *Eriostemon*, *Darwinia* (*Hedaroma*), *Correa*, *Acacia*, *Adenandra*, *Aphelexis*, *Boronia*, and *Desfontainea spinosa*. In placing these out, do not for a few days put them in a place where they will be fully exposed to the sun, especially during the middle of the day. At the expiration of a week they may be placed in the full sun, covering the pots on the side next it so as to shield them from its rays, which otherwise seriously injure the roots that lie in contact with the inner surface; when so affected they are not always absolutely killed, but the extension of the feeding points is stopped by being prematurely hardened much in the way that takes place with some things when their summer growth ceases. The season so far has been less favourable to the production of red-spider than usual, but before turning out look carefully over each plant to see that they are free from this pest, for in bright weather out-of-doors it spreads apace, and would soon irreparably injure the leaves. Where it exists, lay the plants on their sides and syringe with a weak solution of Gishurst; 2 ounces to the gallon is quite strong enough to kill spider, but the application must be thorough, by the whole surface under and over being wet with the solution; after allowing it to remain on for an hour wash with clean water. Any plant that has been so affected should, through the season, so long as there is warmth sufficient for the insect to live, be repeatedly examined, as a fresh brood may come to life before it is discovered, to do mischief that cannot afterwards be repaired. To keep out worms, see that the ground on which the plants are stood has spread over it a good bed of ashes, not less than 4 inches thick. Should the weather become very hot, damp the ashes betwixt the pots every evening; this will much benefit the plants during the brightest hours of the succeeding day; also syringe them well in the afternoon, getting the water to the under as well as the upper sides of the leaves. Be particular as to the state of the soil for moisture, examining every plant once a day at least whilst outside, as the combined drying influence of sun and wind are here much greater than under glass.

Acrophyllum venosum, *Dracophyllum gracile*, *Gompholobium*, *Hovea*, *Phœnocoma prolifera*, *Roella ciliata*, *Statice*, and *Witsenia corymbosa* do not require this open-air treatment, and are much better not subjected to it, especially the *Acrophyllum*, the leaves of which cannot bear exposure to the sun. This plant, as has been before pointed out, does best in a house that admits much less light in the summer time than is required for most things—a heavy roof with small old-fashioned squares, where it cannot have near so much sunlight as in a good modern structure, being most suitable for it. *Dracophyllum gracile* and the *Gompholobiums* are such delicate-rooted subjects that it is not safe to trust them outside. These and the other plants above-named all set their blossoms so freely when in a healthy condition, without being exposed to the open air, and also have such an immunity from mildew, that there is nothing gained by turning them out. The absence of so many of the usual occupants from the houses devoted to their growth gives an excellent opportunity for thoroughly cleaning and painting them where required. This latter work is often attempted in the spring, or late in the autumn, when the plants are inside, and entails much labour and inconvenience in moving them about, whereas if advantage is taken of the time they are outside, it can be done much more easily.

SOFT-WOODED GREENHOUSE PLANTS.—The early flowered *Pelargoniums* should now be cut down, letting the soil get quite dry before removing their heads; if this is not attended to, the roots are liable to perish—the fancy kinds especially suffering in this way. These latter do not require nor will they well bear cutting-in so close as do the large-flowered varieties. Place them in a pit or frame, and keep rather close until they have broken, damping them with the syringe in the evenings of bright days, being careful that the soil does not get much moistened until the young growth has broken. Plants that have been kept for later flowering should, as soon as their bloom is over, be placed out-of-doors in the full sun for a short time, to ripen their wood. Put in cuttings of *Kalosanthes*; these will strike freely in 4 or 6-inch pots in sandy loam, which is better suited for these most useful easily-grown subjects; they may be struck either singly or half-a-dozen together, if it is required to get up good-sized plants in little time; make the cuttings 6 inches long, stripping off the bottom leaves one-third their length; place them in a cold frame or pit, and do not cover with a bell or hand glass, as is necessary for most things, or they will very likely damp. *Frederick Desbois*, *Phœnix*, and *punicea* are very fine kinds—superior to the old more commonly-known varieties. *T. Baines.*

FRUIT HOUSES.

VINES.—If late Grapes are to keep well—*i.e.*, retain their flavour and not shrivel—it is quite indispensable that they be early and thoroughly ripened. The latest crops ought now to be colouring, and they may then be expected to be fully ripe by the

end of September; any that are not ripe by then will stand a poor chance of keeping well. The White and Black Lady Downes, Alicante, Barbarossa, Trebbiano and Gros Colman all require as high a temperature as the Muscat of Alexandria to finish them off; indeed they all deserve the same generous treatment as that variety, and if they had it they would not be so systematically condemned as they now are. To houses in which Lady Downe's are planted give abundance of air till the "scalding" period is past, and fire sufficiently at night to maintain a minimum temperature of 70°. If the borders are inside see that they do not lack water, and if at all dry thoroughly soak with weak guano-water; though the Grapes may be colouring no injury will accrue by doing this, only the watering should be done in the early part of the day, to allow the surplus air moisture to pass off before closing up. Do not allow the laterals to get crowded or matted together before pinching them. How often, as it were, we invite what we all so much dread, viz., "shanking," by irrational and unreasonable treatment, such as removing laterals by the barrow-load. My theory is (and to my own satisfaction I have found it true in practice) that a severe check of any kind will cause this worst of all evils connected with Vine culture. The late excessive rains will have a tendency to keep growing early Vines that are planted in outside borders, and to prevent this as much as possible persist in pinching off all lateral growths as produced, and if means are at command protect from further moisture to induce early maturation and rest. Young newly planted Vines should be kept in full growth for some time to come, by the maintenance of a humid atmosphere and a minimum night temperature of 70°. At closing time, if the thermometer runs up to 90° or 95° with sun-heat, they will appreciate it. *W. Wildsmith, Heckfield.*

PINES.—The present is the most suitable time for rectifying and cleansing the structures where these plants are cultivated; and as they become vacant it should be effected. In those houses where the bottom-heat is supplied through the medium of hot-water pipes, the materials which form the bed of compost, whether tan or leaves, should be removed entirely once in the year, in order to extirpate the countless numbers of certain kinds of insects, which rapidly increase in them, as woodlice, crickets, and sometimes mice—the latter very often producing a disfigurement in the fruit by nibbling off the decaying flowers and points of the pips from whence they issue. When other subjects, as Cucumbers, Melons, and French Beans are cultivated conjointly, it is even more essential, in order to preserve them from the pests which usually abound in such places. For this object apply a coating of hot lime with a brush over all available surfaces of brickwork, and clean or paint the wood and iron-work also. If the hot-water pipes pass through beds of rubble this should be turned over, and the small stuff taken away to allow the heat emanating from the pipes to penetrate the mass, and be diffused more regularly. This method of heating beds, is not, in my opinion, so effectual as having the pipes covered with slates or other such materials. As tan will be required for making up new beds it should be provided; if it is in a wet condition it should be turned over occasionally on fine sunny days. About 3 feet of the material is sufficient for all ordinary purposes where pipes are placed beneath. Whatever preparations may be necessary for the potting of those plants which were started in June, they should be effected, and the operation be proceeded with as soon as the plants are fit, which should be before the roots become too much matted together. Use 9 and 10-inch pots for Queens, 11-inch ones for others of stronger growth. Water the plants immediately after they are potted, and plunge them into a bed having a temperature of 90° or 95°. Reserve another batch of suckers on the stools for starting at about the commencement of September. Proper attention to ventilation, the state of the beds, and watering will now be the most essential points in management: these matters should be regularly attended to. *G. T. Miles, Wycombe Abbey.*

Answers to Correspondents.

ALTRINCHAM AND BOWDEN ROSE SHOW: *Messrs. Davison & Whittem*, White Cross Nurseries, Hereford, write to say that our correspondent, Mr. Grindon, was in error in stating, at p. 115, that Messrs. Cranston & Mayos and Mr. Prince divided between them the prizes for cut Roses, as they were the winners of three 1st prizes and one 2d.

ANTS: *Hill House.* Trap them with saucers of oil.

BOOKS: *A Beginner. McEwen on the Peach;* or the chapters on Peach trees in some standard work such as Thompson's *Gardeners' Assistant*, or McIntosh's *Book of the Garden.*

FUNGUS: *T. G.* A form of the common Mushroom,—not uncommon in such situations.

GRAPES SPOTTING: *Vinus.* We believe the spotting in your case is due to scalding, which is a very common occurrence. It is owing to the sun coming out suddenly, and raising the temperature before air is given, especially after some dull, cold weather.—*C. W. A.* The last half of the above reply will answer your enquiry.—*S. Halliday.* On careful examination of the berries sent, we believe a good deal of the injury has been caused by bruising or rough handling of the berries whilst the skin was young and tender. There is a little scalding as well.

INSECTS: *Messrs. O. & Sons.* The young Vine plant was free, both in the leaves and rootlets, from the Phylloxera. In the small bottle of soil accompanying the plant we found a number of small, active, pale-coloured mites (often found in damp vegetable mould), and some chrysalid skins of the little, brilliant green two-winged fly (Sargus sp.), common in gardens in the late spring and summer months. Neither of these kinds of insects would injure the Vine. The drooping of the leaves was probably due to atmospheric causes. *I. O. W.*

JUNIPERUS VIRGINIANA ELEGANS. In our report of the awards of the Floral Committee of the Royal Horticultural Society, on the 21st, we stated in error that a First-class Certificate was awarded Messrs. J. & C. Lee for Juniperus virginiana Triomphe d'Angers, which is an old variety. The certificate was awarded for J. v. elegans, a seedling of Messrs. Lee's, the entire stock of which they possess.

MANGLE: *Mr. Golding.* We cannot undertake to answer questions which have no relation whatever to horticulture.

NAMES OF PLANTS: *R. Buc.* Not Polystichum angulare grandidens, but P. a. proliferum.—*R. B.* Pteris hastata. *C. E. F.* Epipactis latifolia.—*John Godfrey.* 1, Prunella vulgaris, Self-heal; 2, Lotus corniculatus, Bird's-foot Trefoil; 3, Plantago lanceolata, Ribwort Plantain; 4, Arrhenatherum avenaceum, False Oat; 5, Dactylis glomerata, Cock's-foot; 6, Poa pratensis, Meadow Poa; 7, 8, specimens not good enough to name; 9, Achillea plarmica, Sneezewort; 10, Festuca pratensis, Meadow Fescue; 11, Matricaria chamomilla, Wild Camomile; 12, not good enough to name. Please be more moderate when you send again. We do not undertake to name more than six specimens at a time.—*T. K.* A Catasetum, but too imperfect to recognise further.—*G. N.* Brasavola grandiflora.—*A Constant Reader.* 1, Lonicera orientalis; 2, L. xylosteum; 3, Spiræa betulæfolia; 4, Polygonum Bistorta; 5, Plantago lanceolata; 6, Plantago sp.; 7, Geranium collinum.—*J. Smith.* 1, Triticum repens; 2, T. caninum; 3, Anthoxanthum odoratum; 4, Setaria viridis.—*P. H. G.* A small-pinnuled form of Adiantum cuneatum.—*W. A. C.* Hedychium Gardnerianum.

PINGUICULA LUSITANICA: *C. E. F.* The flower is correctly named. This plant has not been figured by us, but P. grandiflora, which you have no doubt seen. The reference in our last was an error.

PEACH TREES DYING: *D. Doig.* We can trace a quantity of fungus which is quietly working its way amongst the roots and killing the trees. The only remedy is to renew the border.

POTATO COMPETITION: *J. Browne.* We have forwarded your letter to Messrs. Hooper.

ST. JOHN'S WORT: *J. H., Blair Hill.* Apply to any of the larger nursery establishments. You may plant it at almost any time—during the autumn especially.

TACSONIA: *R. G. F.* The roots have most likely got beyond the allotted space, and require to be somewhat checked. If it grows too luxuriantly, the blossom-buds may fall from overcrowding of the shoots and want of light, in which case we should advise you to thin them out moderately, not severely.

THE POTATO COMPETITION: We consider it very desirable, under the peculiar conditions of the season, to have an earlier competition than was originally intended for our prizes; and if the competitors will concur in our opinion, and communicate with us, we hope to arrange to make the awards earlier. With regard to the adjudication itself, we cannot see our way to removing it from a central tribunal, such as has been already arranged for. *Hooper & Co.*

COMMUNICATIONS RECEIVED.—G. G. (many thanks).—C. T.—J. S.—F. W.—W. I.—D. M.—R. O.—J. McM. (with thanks).—R. A.—L. G.—Max Kolb (with thanks).—Klar & Thiele.—J. A.—W. C.—J. M.

Markets.

COVENT GARDEN, July 29.

Our supplies are still heavy, the present and past few days having largely contributed to the recovery of bush fruit, and enabled the growers to get a quantity of early Julian and Hawthornden Apples forwarded to market, with a few Jargonelles, and very common sorts of early Pears. Imported fruit is also coming to hand in large consignments, some of the dealers enumerating in their lists Peaches, Nectarines, Pears, Apples, Apricots, Plums, Green Gages, and Figs. In hothouse produce there is a large bulk of Grapes, most of which are inferior, as are also those coming from the Channel Islands. *Thos. Taylor, Wholesale Apple Market.*

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6	0–12 0	Hydrangeas, per doz.	9	0–24 0
Bouvardias, do.	9	0–18 0	Lilium lancif., p. doz.	12	0–60 0
Calceolarias, do.	6	0–18 0	Lobelia, do.	4	0– 9 0
Crassula, do.	12	0–30 0	Mignonette, do.	3	0– 6 0
Cyperus, do.	6	0–12 0	Myrtles do.	3	0– 9 0
Dracæna terminalis	30	0–60 0	Pelargoniums, dble., per doz.	4	0–12 0
— viridis, per doz.	12	0–24 0	— Scarlet, do.	3	0– 9 0
Ficus elastica	1	6– 7 6	Petunia, per doz.	6	0– 9 0
Fuchsia, per doz.	3	0–18 0	Rhodanthe, do.	6	0–12 0
Gardenias, do.	12	0–60 0	Roses, do.	12	0–60 0
Gladiolii, do.	9	0–18 0	Solanums, do.	6	0–18 0
Heaths, in var., doz.	12	0–30 0	Stock, do.	3	0– 6 0
Heliotrope, per doz.	6	0–12 0			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, 12 blooms	0 6–	2 0	Pelargoniums, 12 spr.	0 6–	1 6
— Clove, per doz.	0 3–	0 9	— Zonal, do.	0 3–	1 0
— mixed, 12 bun.	4 0–	12 0	Primula, dbl., p. bun.	0 9–	1 6
Cornflower, p. doz. bun.	3 0–	6 0	Roses, indoor, p. doz.	2 0–	6 0
Eschscholtzia, 12 bun.	3 0–	6 0	— outdoor, 12 bun.	4 0–	9 0
Eucharis, per doz.	6 0–	12 0	— Moss, 12 bun.	6 0–	12 0
Gardenia, per doz.	2 0–	6 0	Spiræa, 12 sprays	1 0–	3 0
Heliotropes, 12 spr.	0 6–	1 0	Stephanotis, 12 sprays	3 0–	6 0
Lilies, white, p. bun.	1 0–	2 6	Stocks, 12 bun.	3 0–	9 0
Mignonette, 12 bun.	4 0–	6 0	Sweet Peas, 12 bunch.	4 0–	9 0
Myosotis, per bunch	0 4–	0 9			

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0–	2 0	Lemons, per 100	8 0–	12 0
Apricots, per box	1 0–	3 0	Oranges, p. 100	10 0–	16 0
Cherries, per lb.	0 6–	1 6	Peaches, per doz.	6 0–	18 0
Currants, red, ½-sieve	2 6–	4 0	Pine-apples, p. lb.	2 0–	5 0
— black, p. ½-sieve	3 0–	5 0	Strawberries, per lb.	0 4–	1 6
Figs, per doz.	4 0–	8 0	Walnuts, p. bush.	16 0–	..
Grapes, per lb.	2 0–	5 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0–	..	Herbs, per bunch	0 2–	0 4
Aubergines, per doz.	4 0–	..	Horse Radish, p. bun.	3 0–	5 0
Beans, French, per bushel	6 0–	..	Leeks, per bunch	0 2–	0 4
— broad, per bushel	3 0–	..	Lettuces, per score	1 0–	..
— Scarlet Run., do.	5 0–	..	Mint, per bundle	0 4–	..
Beet, per doz.	1 0–	2 0	Mushrooms, per pott.	1 0–	2 0
Cabbages, per doz.	1 0–	2 0	Onions, young, bun.	0 4–	0 6
Carrots, do.	0 6–	..	Parsley, per bunch	0 4–	..
Cauliflowers, spring, per doz.	2 0–	..	Peas, per quart	1 6–	..
Celery, per bundle	1 6–	2 0	Radishes, per bunch.	0 2–	0 4
Cucumbers, each	1 0–	2 6	Shallots, per lb.	0 3–	..
Endive, per doz.	1 0–	2 0	Tomatos, per doz.	4 0–	..
			Turnips, per bundle.	0 8–	..
			Veg. Marrows, doz.	2 6–	..

Potatos—New: Kidneys, 5s. to 8s.; Rounds, 5s. to 7s. p. cwt.

SEEDS.

LONDON: *July* 29.—Owing to the improved weather there is now less excitement in the seed trade: all descriptions are, however, held with extreme firmness, and although the brisk speculative demand of last week has abated, there are no indications of values giving way. In Trifolium incarnatum there is a fair steady trade doing at full prices: of fine bright good conditioned seed the supply offering is small. In consequence of the unfavourable reports of the new crop a good deal of attention continues to be given to Trefoil seed. There is also some business passing in red and white Clover seed. Two or three samples of new English Rape seed of excellent quality have been shown on Mark Lane, but prices are not yet fixed. For white Mustard seed there is an improved inquiry. A few sales have been made of Italian Rye-grass: the rates demanded for new French seed show a considerable advance on those of last season. It is feared that the recent rains have injured the Pea crop.—*John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

Trade at Mark Lane on Monday was dull, and prices were hardly so firm. The supplies of English Wheat were short, but those of foreign were fair, and in neither description did the advance on the week exceed 2s. per quarter. Barley was without appreciable alteration in price from last Monday. Malt had a drooping tendency. Oats were slightly cheaper on the week. Maize was steady, but no higher. Beans and Peas were taken off quietly on former terms. For flour there was very little inquiry, and holders were rather disposed to yield slightly in some cases.—On Wednesday holders of Wheat seemed rather inclined to accept a little less money, the arrivals of foreign produce being somewhat considerable. Barley and malt were almost neglected, and the few transactions in Oats and other kinds of spring corn were on slightly reduced terms. Flour remained without material change.—Average prices of corn for the week ending July 24:—Wheat, 47s. 5d.; Barley, 35s.; Oats, 29s. For the corresponding week last year:—Wheat, 60s. 5d.; Barley, 40s. 1d.; Oats, 29s. 8d.

HAY.

Whitechapel reports straw as scarce and dear, while a fair demand prevailed for other kinds of fodder at extreme rates. Prime Clover made from 100s. to 160s; inferior, 85s. to 95s.; prime meadow, 90s. to 160s.; inferior, 55s. to 75s.; and straw, 35s. to 44s. per load.—Cumberland Market quotations: Superior old meadow hay, 158s. to 170s.; inferior, 110s. to 140s.; new hay, 90s. to 140s.; superior old Clover, 170s. to 180s.; inferior, 110s. to 130s.; new Clover, 110s. to 150s.; and straw, 45s. to 50s. per load.

POTATOS.

The Borough and Spitalfields markets reports state that trade was slow, owing to the bad state of the weather, and the dirty condition of the Potatos on offer, and that some reduction has occurred in prices:—English Shaws, 55s. to 70s.; ditto, Regents, 60s. to 85s.; kidneys, 90s. to 120s.; Jersey kidneys, 100s. to 120s.—The imports into London last week consisted of 319 tons and 2708 packages from Jersey; 73 tons, 245 boxes Barfleur; 14 tons St. Vaast; 270 boxes Cherbourg; 348 baskets Rotterdam; and 5 packages from Lisbon.

COALS.

The market was firm on Monday, at a rise of 6d. per ton in house coals; and on Wednesday there was a steady run of business, at previous prices.

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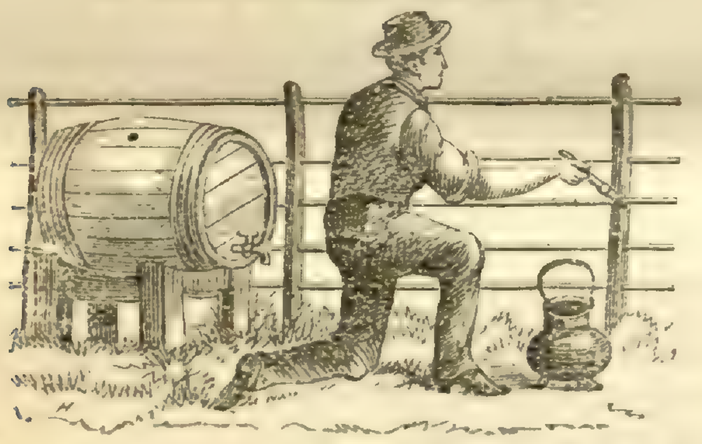

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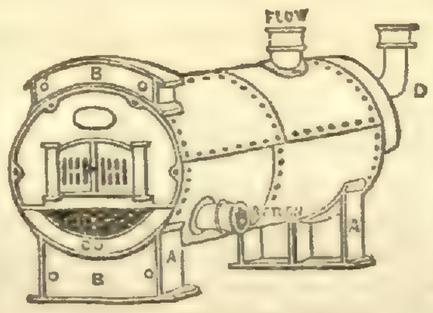

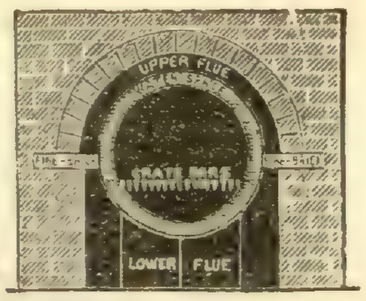

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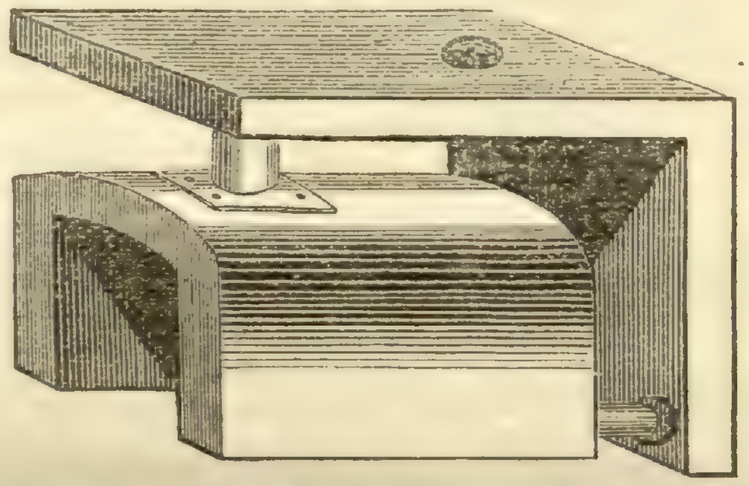

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High.	Wide.	Long.	Feet.	£ s. d.
20 in.	18 in.	18 in.	300	7 0 0
20 ,,	18 ,,	24 ,,	400	8 0 0
20 ,,	18 ,,	30 ,,	500	9 0 0
24 ,,	24 ,,	24 ,,	700	12 0 0
24 ,,	24 ,,	30 ,,	850	14 0 0
24 ,,	24 ,,	36 ,,	1,000	16 0 0
24 ,,	24 ,,	48 ,,	1,400	20 0 0
28 ,,	28 ,,	60 ,,	1,800	25 0 0

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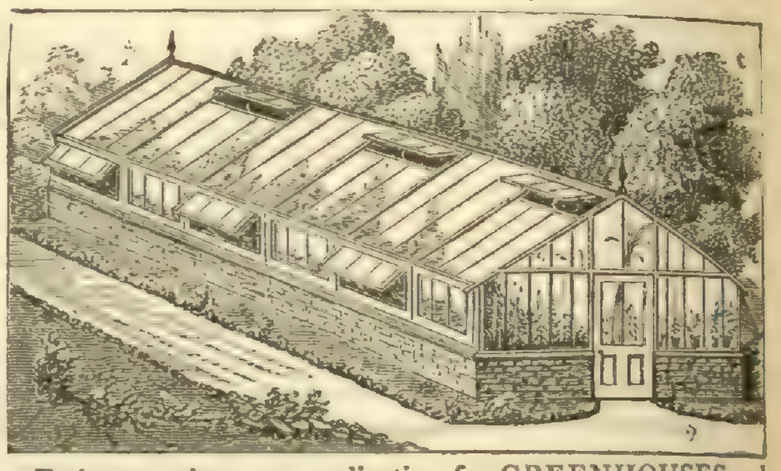

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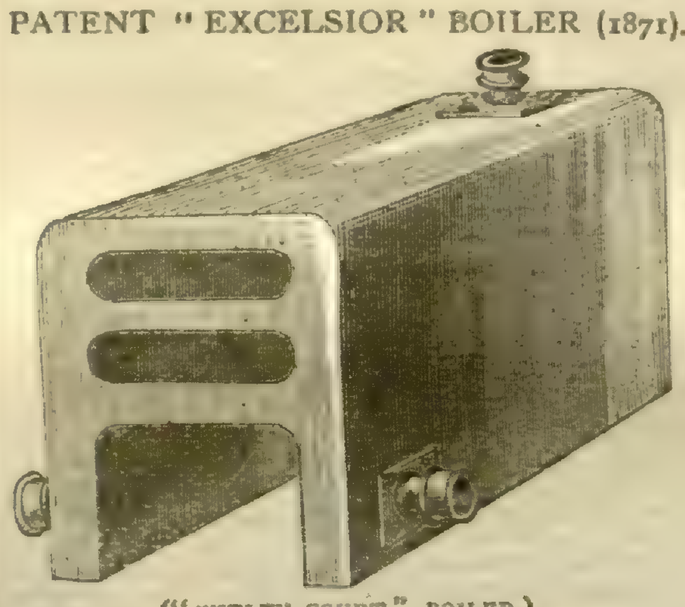

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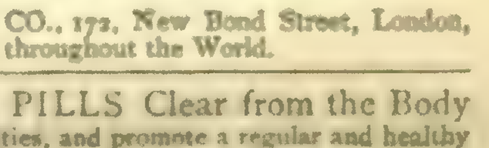

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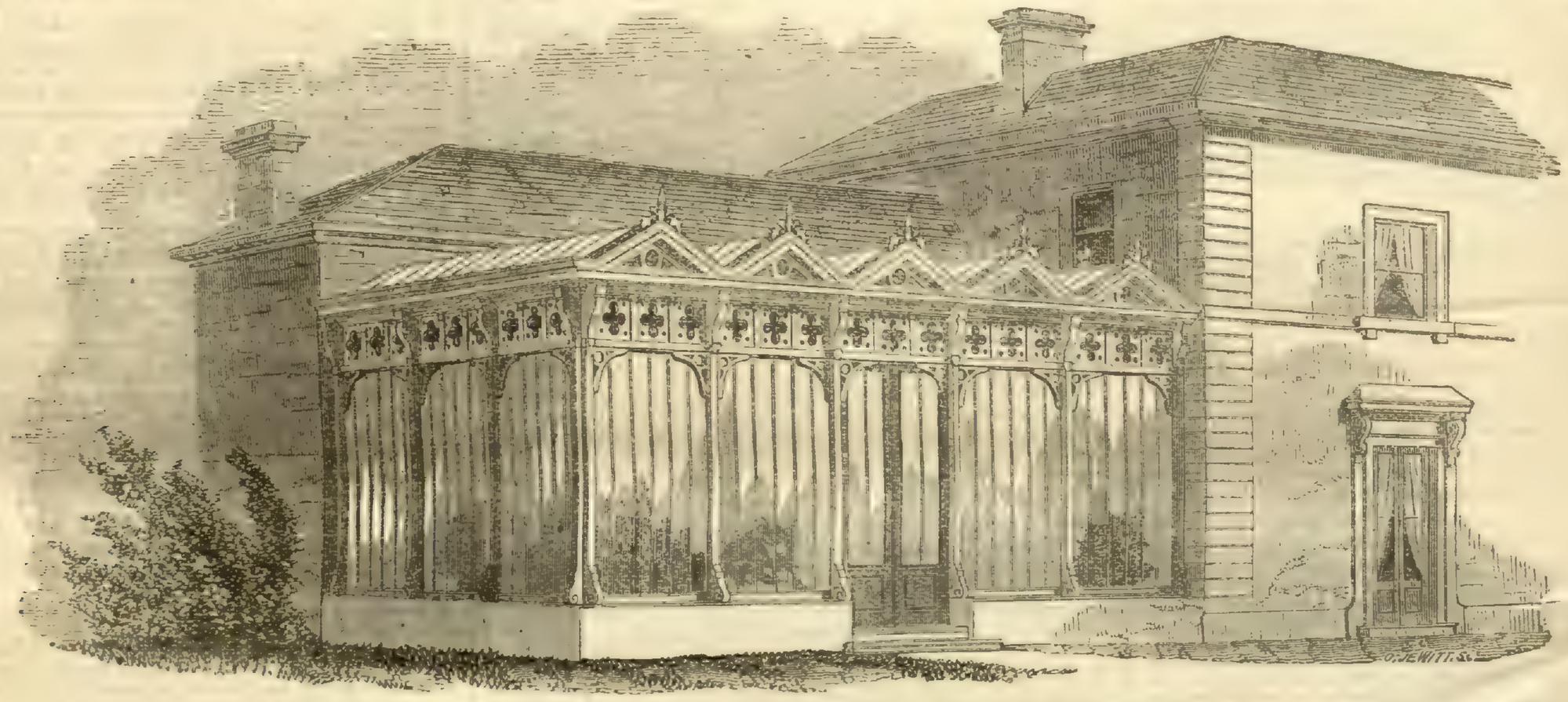

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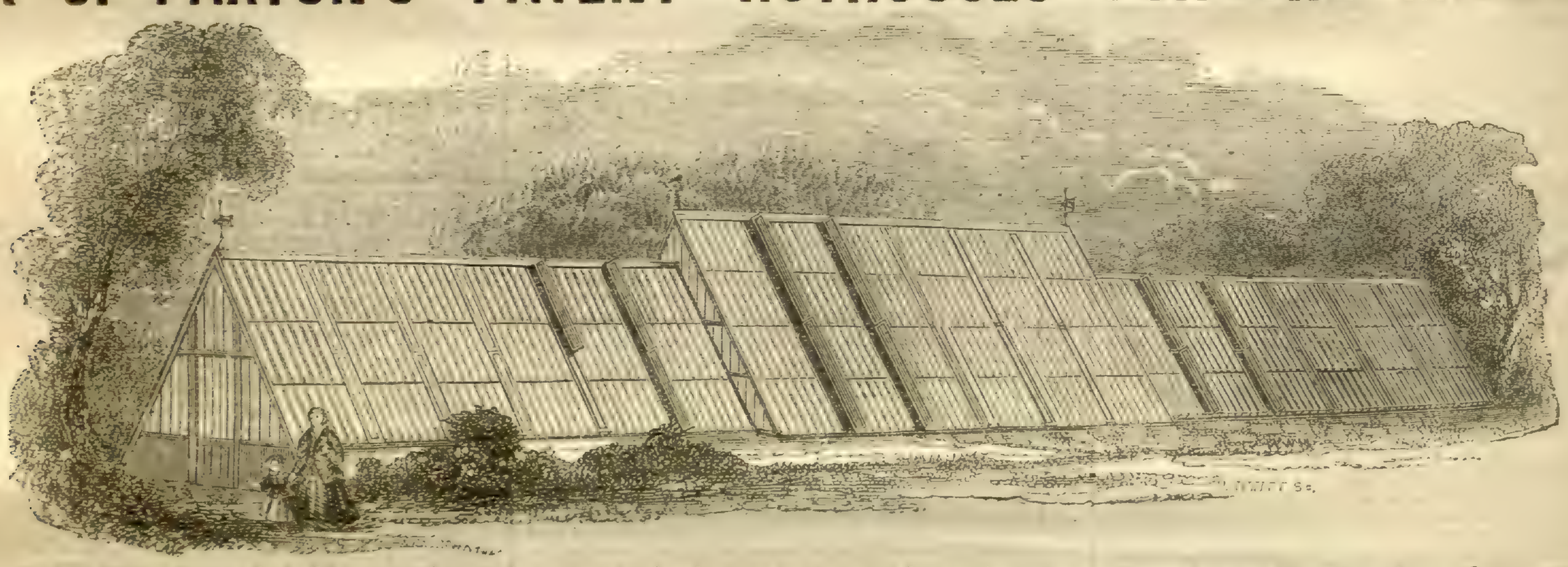

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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 84.—Vol. IV. {New Series.} SATURDAY, AUGUST 7, 1875. {Registered at the General Post Office as a Newspaper.} Price 5d. Post Free, 5½d.

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Condition of the Fruit Crops, 1875.

THE GARDENERS' CHRONICLE for SATURDAY NEXT, August 14, will contain a FULL *and* TABULAR STATEMENT *of the* CONDITION *of the* FRUIT CROPS *throughout the United Kingdom.*

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ROYAL BOTANIC SOCIETY, Regent's Park, N.W.

The Days selected for the EXHIBITIONS of PLANTS, FLOWERS and FRUIT, &c., NEXT YEAR (1876) are:—SPRING FLOWERS—Wednesdays, March 29, April 26; SUMMER EXHIBITION—Wednesdays, May 24, June 21; EVENING FETE—Wednesday, July 5.

By order of the Council. W. SOWERBY, Secretary.

INTERNATIONAL HORTICULTURAL EXHIBITION.—At a Meeting held in St. James' Hall on the 21st inst. it was resolved to hold the ADJOURNED MEETING on FRIDAY, August 20 next, at 6 o'clock, at the Criterion Hotel, Regent Circus, W., to make further arrangements for carrying out an International Horticultural Exhibition in England. Horticulturists are hereby invited to attend.

MAURICE YOUNG, Hon. Sec., *pro tem.*

Milford Nurseries, Godalming, July 29, 1875.

ALEXANDRA PALACE.—The GREAT INTERNATIONAL FRUIT SHOW will take place on THURSDAY, FRIDAY and SATURDAY, September 2, 3 and 4. LAST DAY of ENTRY, AUGUST 26. Schedules of Prizes and all particulars may be had on application to ALEX. McKENZIE.

Alexandra Palace, Muswell Hill, N.

GLAMORGANSHIRE HORTICULTURAL SOCIETY.—The THIRTEENTH ANNUAL SHOW will be held at Cardiff, on WEDNESDAY, August 25, when THREE HUNDRED POUNDS will be given in PRIZES. For Schedules and full particulars, apply to HENRY BOWEN, Hon. Sec., Cardiff.

WAKEFIELD HORTICULTURAL SHOW and FETE.—The SIXTH ANNUAL EXHIBITION will be held on SATURDAY, August 28. Prizes of upwards of £250 will be given for Plants, Flowers, Fruits, and Vegetables. Schedules may be had of

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N.B.—A large number of the Botanical and Royal Horticultural Societies' Prizes for Hyacinths, &c., were awarded to Bulbs sent out by A. E. B. & Co. during the past four years.

Best Seeds Only.

WM. CUTBUSH AND SON'S CATALOGUE of SEEDS, GLADIOLI, &c., should be had by all Gardeners and Amateurs purchasing really first-class goods at a moderate price. Post-free on application.

Highgate Nurseries, London, N.

HYACINTHS, TULIPS, CROCUS, GLADIOLI, LILIES, IRIS, NARCISSUS, COLCHICUMS, HELLEBORES, PÆONIES, &c.

Our English CATALOGUE of the above for 1875 is now ready, and will, as usual, be sent post-free to all applicants.

ANT. ROOZEN AND SON (late Ant. Roozen), Overveen, near Haarlem, Holland.

Dutch Bulbs.

SPLENDID LARGE ROOTS at WHOLESALE PRICES.

ALFRED LEGERTON begs to intimate to his numerous Patrons and the Trade generally, that his CATALOGUE will be published in a few days, and forwarded to all applicants, Post Free.

Seed Warehouses, 5, Aldgate, E.

SIR GARNET WOLSELEY.—The best new Rose of the season. See coloured plate in the *Floral Magazine* for April. Strong plants now being sent out, price 7*s.* 6*d.* each. The usual discount to the Trade.

CRANSTON AND MAYOS, Nurseries, King's Acre, near Hereford.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.

EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Notice.

ROSES, 30,000 Dwarf, on Manetti, at 40*s.* per 100, £16 10*s.* per 1000, for cash. Orders executed in autumn. Trade price on application.

Also 100,000 strong and extra strong SEAKALE for forcing.

RICHARD LOCKE, Alexandra Nurseries, Red Hill, Surrey.

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.

Carlton, Tasmania.

FOR SALE, by PRIVATE CONTRACT, a choice COLLECTION of ORCHIDS—upwards of 100. Some fine specimen plants. For particulars apply to Mr. ANDERSON, Gardener, Greenroyd, Halifax.

STOCKS (East Lothian Intermediate).—Genuine Seed of the above magnificent Stocks, for present sowing, in four varieties, White, Purple, Scarlet, and White Wall-leaved, in packets, 1*s.*, 2*s.* 6*d.* and 5*s.* each.

THOMAS METHVEN AND SONS, 15, Princes Street, Edinburgh.

Dr. Denny's Third Set of Zonal Pelargoniums.

JOHN COPELIN begs to inform the Trade that the above are now being supplied. CATALOGUES on application.

Tyssen Street Nurseries, Stoke Newington, N.

GERANIUM CUTTINGS.—Gardeners or others having the above to dispose of, in good varieties, including Tricolors, please state lowest cash price per 100 or 1000 to

WM. MILES, West Brighton Nursery, Brighton, Sussex.

Primula, Calceolaria and Cineraria.

VERY SUPERIOR STRAINS of these; also FLOWER SEEDS of all sorts of first quality, post free. PRICED LIST post free.

JAMES DICKSON & SONS, 108, Eastgate Street, Chester.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.

Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Notice.—To the Trade.

B. MALLER has to offer 2500 flowering ERICA HYEMALIS, and other sorts, also a large stock of Miscellaneous Plants.

B. M.'s Fifth Annual Sale of a portion of the above will take place in September, included in which will be [illegible] of Erica hyemalis, and others, in small and large 60-pots, all in fine condition. An inspection is solicited.

The Nurseries, Burnt Ash Lane, Lee, Kent.

Strawberries.

CHARLES TURNER can now supply good Plants from the select collection grown at Slough. Orders given at once will ensure a good crop of fruit next season. A DESCRIPTIVE LIST can be had on application.

The Royal Nurseries, Slough.

HARDY GREEN and ROSETTE COLEWORT PLANTS.—Save your Savoys and Brussels Sprouts, and plant the above for early use; the best Greens for Market or other purposes. Good strong plants of the above at 4*s.* per 1000, or 35*s.* per 10,000. Terms cash.

W. H. CUTTS, Seed Grower, Kelvedon, Essex.

200,000 Vegetable Plants, now Ready.

WHITE BROCCOLI, SAVOY, BRUSSELS SPROUTS, SCOTCH and other KALE, all of the best sorts, 3*s.* 6*d.* per 1000 for 5000; 5*s.* per 1000 for 1000, assorted. Carriage paid to London. Cash or reference.

H. J. HARDY, Stour Valley Seed Grounds, Bures, Essex.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with *Double* PRIMROSES of different colours; AURICULAS, both *Single* and *Double*; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

SUPERIOR SEEDS for AUTUMN SOWING (Carriage Free).—Turnip of all sorts, Rape, Scarlet, and all other Clovers; Italian and other Rye-grasses, Mustard, Permanent Pasture Mixtures, and all other Seeds for present sowing of very superior quality.

JAMES DICKSON AND SONS, Seed Growers, 108, Eastgate Street, Chester.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.

87, Bishopsgate Street Without, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens, sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

SPHAGNUM for ORCHIDS, 10*s.* per sack, of splendid quality and largely used.

JAMES ANDERSON, Nurseryman and Valuator, Meadowbank, Uddingston, Glasgow.

SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6*s.* Supplied to Seedsmen and Chemists.

Prepared by JOHN KILINER, Wortley, near Sheffield.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.

BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.

FRESH SPHAGNUM, 10*s.* 6*d.* per sack.

WALKER AND CO., Farnborough Station, Hants.

COCOA-NUT FIBRE REFUSE (H. Wright's Pure) for all seasons, as supplied to 1200 Nurserymen and Gardeners. Recent testimonial from Herr Schmidt, Nurseryman, Erfurt, Prussia, on application. Twenty bushels, 6*s.* 8*d.*; 50 for 12*s.* 6*d.*; 330 for 45*s.* Delivered free within six miles, or on rail.

HENRY WRIGHT, Fibre Manufacturer (Works, Heneage Street and Millwall)—Address, Warehouse, 81, Bishopsgate Street Without, London, E.C.

SALES BY AUCTION.

Orchids, Seeds, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on TUESDAY, August 10, at half-past 12 o'Clock precisely, IMPORTED and ESTABLISHED ORCHIDS, comprising many good sorts; Importation of CYCAS REVOLUTA, in fine condition; STOVE and GREENHOUSE PLANTS, 18 lb. of ARAUCARIA IMBRICATA SEED, &c.

On view the morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, August 10, at half-past 12 o'Clock precisely, several thousands of ODONTOGLOSSUMS and other ORCHIDS, including 1000 Odontoglossum crispum (Alexandræ) and 1000 Odontoglossums of various sorts unnamed, just received, in excellent condition, ex. "Nile," from the mountainous districts of New Granada; and an importation of Angræcum sesquipedale and A. superbum, from Madagascar; also an importation of Dendrobium speciosum Hillii, from Australia; a quantity of the rare and beautiful Odontoglossum luteo purpureum, the new Oncidium rostrans, Odontoglossum niveum, several Cattleyas (supposed to be new), also various other choice Orchids.

On view the morning of Sale, and Catalogues had.

Dutch Bulbs.

MR. J. C. STEVENS begs to announce that the SALES of BULBS from Holland will commence about the MIDDLE of AUGUST, and will be continued two and three days a week, as usual, during the season.

Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C. Established 1760.

Extensive Consignments of First-class Dutch Bulbs of SUPERIOR QUALITY, for UNRESERVED SALE, lotted to suit the Trade and Private Buyers.

MESSRS. PROTHEROE AND MORRIS beg to call special attention to their WEEKLY SALES of the above, which will take place at the Mart, Tokenhouse Yard, City, E.C., every MONDAY, commencing September 6 and continuing till the latter end of December.

Catalogues (when ready) may be had of the Actioneers, 98, Gracechurch Street, City, E.C.

N.B.—Messrs. P. & M. have personally visited the farms in Holland, and have arranged with the best growers to consign only the cream of their stock.

On Account of Expiration of Lease.

HIGHLY IMPORTANT SALE of ORNAMENTAL, STOVE, and GREENHOUSE PLANTS.

MR. PHILIP DE GROOT, NURSERYMAN, Steenbrugge, near Bruges, Belgium, will SELL by AUCTION, without reserve, on MONDAY, August 16, and following days, at 2 o'Clock precisely each day, the whole of his stock of STOVE and GREENHOUSE PLANTS, along with a great number of CONIFERS, forming one of the finest collections existing in Belgium; hardy Ghent Azaleas, Agaves, Dracænas, &c., and comprising amongst others:—4000 Palms, 9000 double and 2000 single Camellias, 4000 Azalea indica (grafted), 3500 Laurels, 1500 Laurustinus, 350 Phormiums (variegated), 450 Aucubas in sorts, 5000 Conifers, &c. All in baskets or pots.

On view on Saturday, August 14 next, and Catalogues had.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

SEWAGE FARM to LET.—The Town Council of the Borough of Kidderminster desire to receive Tenders for their Sewage Farm, with the Sewage arising in the Town of Kidderminster for a term to be agreed upon. The Farm comprises 172 acres of first-class Pasture, Turnip, and Barley Land, with a capital modern Family Residence, and extensive and convenient Homestead, and is about a quarter of a mile from the Stourport Railway Station. It is a very short distance from a canal wharf, and is most favourably situated for Market Gardening on a large scale. There is a large wholesale vegetable market in Kidderminster, where there is also a large Sale for Rye-grass and Roots.

To view, apply to Mr. JAMES ANSCOMBE, the Manager, Mitton, Stourport. Tenders, endorsed "Tender for Sewage Farm," are to be sent in to the undersigned (from whom further information can be obtained) not later than the 23d day of August next. JAMES MORTON, Town Clerk.

Kidderminster.—July 29, 1875.

TO BE LET, a FRUIT GARDEN of 16 acres. It is situate about 1 mile from Croydon, and is stocked with choice Trees coming into full bearing. For particulars apply to ROBERT W. FULLER AND MOON, Croydon and Reigate.

To Contractors, Landscape Gardeners, and Others.

BOROUGH of BIRMINGHAM.—The Baths and Parks Committee are prepared to receive TENDERS for the WORKS required to be performed in Forming and Draining the Walks and Laying-out and Planting Highgate Park.

Plans, Sections, and Specifications of the proposed Works may be seen at the undermentioned Offices on and after the 30th instant. The Tenders to be sent in on TUESDAY, August 17.

The Committee do not pledge themselves to accept the lowest or any Tender, and will require satisfactory security for the due performance of the Contract.

WILLIAM S. TILL, Borough Surveyor.

Borough Surveyor's Offices, Moor Street, July 23.

MESSRS. FRASER AND BENTON, HORTICULTURAL AND AGRICULTURAL AUCTIONEERS AND VALUERS, Romford and Grays, Essex.

C. VUYLSTEKE, NURSERYMAN, Loochristy, near Ghent, Belgium, begs to announce that he has upwards of 200,000 Plants now ready for sending out, consisting principally of Camellias, Azalea indica, Azalea mollis, Hardy Ghent Azaleas, Rhododendrons, and Kalmia latifolia.

Priced Descriptive CATALOGUE will be sent on application to him; or, to his London Agents, Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, E.C.

Australian Seeds and Plants.

SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.

SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

NEW CLEMATIS, now being sent out by JOHN STANDISH AND CO.:—

ASCOTIENSIS.—The flowers are considerably larger than Jackmanni, and are well shaped, containing six petals each; colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit. 10s. 6d. each.

MRS. QUILTER.—A magnificent white flower, containing eight petals; it is the largest, smoothest, and purest of all the whites, and a very free bloomer, with strong habit. 10s. 6d. each.

The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.

Royal Nurseries, Ascot, Berks.

THE LAWSON NURSERIES,

EDINBURGH.

Evergreen Shrubs for Present Planting.

Rhododendrons, Ivies in Pots, &c., &c.

Hothouse, Greenhouse, and Bedding-out Plants in great variety.

TODEA SUPERBA — several hundreds, among which some magnificent specimens, perhaps the finest ever imported.

CLEMATISES in POTS—a large Collection of all the leading varieties, including the splendid flowers raised by I. Anderson-Henry, Esq., viz.: Henryi, Lawsoniana, and Symeiana; 10s. 6d. the set of 3 plants.

CATALOGUES ON APPLICATION.

The Lawson Seed and Nursery Company (LIMITED),

106, SOUTHWARK STREET, LONDON, AND EDINBURGH.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEIR

ANNUAL CATALOGUE OF DUTCH FLOWER ROOTS,

Illustrated with upwards of 60 Woodcuts, and containing Descriptive LISTS of all the finest kinds of HYACINTHS, TULIPS, NARCISSI, LILIUMS, GLADIOLI, &c., including also a Select LIST of VEGETABLE and FLOWER SEEDS for Autumn Sowing,

Is now ready, and will be forwarded Post Free on application.

A Select LIST of STRAWBERRIES is also ready.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

NEW GIANT CYCLAMEN

CYCLAMEN PERSICUM GIGANTEUM.

B. S. W. has much pleasure in offering, for the first time, New Seed of this splendid novelty.

The variety now offered, "giganteum," is the commencement of a new and greatly improved type, having very broad, beautifully mottled coriaceous leaves, and stout flower-stalks, throwing the flowers well above the foliage, each flower measuring from 2 to 2½ inches in length, with broad petals of great substance, pure white, with a fine bold violet-purple eye.

Per Packet, 5s.

BENJAMIN S. WILLIAMS,

VICTORIA AND PARADISE NURSERIES,

UPPER HOLLOWAY, LONDON, N.

TREE FERNS.

THE LARGEST AND BEST STOCK IN EUROPE.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above; also of his

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

AUGUST, 1875.

JAMES VEITCH & SONS

ARE NOW SENDING OUT

THE UNDERMENTIONED SPLENDID NOVELTIES:—

ARALIA ELEGANTISSIMA.

A beautiful stove plant from the South Sea Islands, with a straight erect stem, furnished at short intervals with digitate leaves on long foot-stalks, mottled with white on a dark green ground; the leaflets, from seven to ten in number, are filiform, deeply and unequally serrated, and gracefully pendulous. The colour of the foliage is a deep green shaded with brown; the midrib of each leaflet is of greenish white, and very distinct. A foliage plant of the first order. We consider this splendid plant a decided improvement on the beautiful Aralia Veitchii sent out by us.

Large plants, seven to eight leaves, £5 5s. each; young plants, 63s. each.

DRACÆNA ANGUSTIFOLIA.

A plant of slender habit, pleasing outline, and one of the most distinct of the tribe. The leaves are narrow, tapering to a sharp point, the edges curved inwards, and all more or less revisted or undulated. The colour of the foliage is peculiar, a blackish green tinged with crimson, the distinctness of which varies according to the light to which it is exposed; the upper surface has a rich metallic lustre, adding greatly to the beauty of the plant.

Good young plants, 31s. 6d. each; extra size, 63s. to 105s. each.

ZAMIA WALLISII (HORT. VEITCH).

A remarkable Cycad from New Granada. The leaflets are the largest of any species yet discovered, being from 18 to 20 inches in length, with a width of 6 inches at the broadest part, very thick, and of great substance; the veins are prominent on the under side and furrowed above, slightly oblique from the base, and becoming parallel towards the middle of the leaflet, giving it a beautifully channelled surface; the leaf-stalk has numerous short spines irregularly scattered over the cuticle. A fine plant for warm conservatory and winter garden.

Strong imported stems, each having at present one frond —prices according to sizes of plants, 63s. to 210s.

ZAMIA MONTANA. (BRAUN.)

This species has round erect leaf-stalks, light green, with small spines scattered irregularly over its surface. The leaflets are produced near the extremities, where they assume a verticillate appearance, and spread out around the leaf-stalk with a gentle curve: they are ovate-lanceolate, very sharp pointed and deeply furrowed by the almost parallel veins throughout; about a foot in length, with a width of 2 inches at the broadest, and very beautiful in colour and form. Coming from a high situation this Zamia will probably require cool treatment.

Good imported stems, having at present one frond, 105s.

ZAMIA OBLIQUA. (BRAUN.)

This is a smaller species, of neat habit, producing its bright green leaflets (eight to twelve in number), towards the extremities of its slender glabrous leaf-stalks. The leaflets are from 6 to 8 inches long, rather thin, sharp pointed, entire from the base to the middle, thence irregularly serrated to the point.

Good imported stems, with three and four fronds, 63s. to 105s.

The above three Zamias were sent home to us by Mr. Wallis.

ARTOCARPUS LACINIATA.

An interesting and distinct stove plant from the South Sea Islands, received by us through our correspondent, Mr. J. Baptist, Nurseryman, Sydney, New South Wales. It is a plant of free growth, and is very distinct, both on account of its deeply lobed leaves and particularly bright glossy colouring. The size of the largest leaves is at present 13 inches in length and 9 inches in width, but they will probably become much larger as the plants attain strength. It is of excellent habit, and a valuable addition to our decorative foliage plants.

Nice young plants, 10s. 6d. each.

ARTOCARPUS LACINIATA METALLICA.

A very distinct form of the preceding, imported by us from the same source. It is of similar habit but with very differently coloured foliage. The leaves have a very glossy, bronzy lustre above, tinged with a deep red that imparts to it a deep colouring that will secure for the plant general favour. It will undoubtedly prove an equally fine addition to our decorative plants as the above.

Nice young plants, 10s. 6d. each.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

SPECIAL NOTICE.—NEW TYPE.

DOUBLE CLARKIA ELEGANS:

HARDY'S "PURPLE KING" and "SALMON QUEEN."

Two First-class Certificates were awarded by the Royal Horticultural Society, July 7, 1875, to

H. J. HARDY;

Who begs to announce that he is the raiser of the above Two Splendid New Double Clarkias, and has the entire stock in his hands.

COMMUNICATIONS CAN BE MADE TO

H. J. HARDY, STOUR VALLEY SEED GROUNDS, BURES, ESSEX.

IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, August 12, at half-past 2 o'Clock precisely, Several Thousands of ODONTOGLOSSUMS and OTHER ORCHIDS, including a thousand Odontoglossum crispum (Alexandræ), and a thousand Odontoglossums of various sorts, unnamed, just received in excellent condition ex "Nile," from the mountainous districts of New Granada; and an importation of Angræcum sesquipedale and Angræcum superbum, from Madagascar; also an importation of Dendrobium speciosum Hillii, from Australia; a quantity of the rare and beautiful Odontoglossum luteo purpureum, the new Oncidium rostrans, Odontoglossum nævium, several Cattleyas supposed to be new, also various other choice Orchids.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

SPECIAL OFFER to the TRADE

for Cash:—

10,000 SPIRÆA JAPONICA, 25s. per 100, £11 11s. per 1000.
10,000 DIELYTRA SPECTABILIS, 30s. per 100, £12 12s. per 1000.
5,000 AUCUBA JAPONICA, 1 to 1½ foot, bushy, 50s. p. 100.

The above, belonging to an amateur, will be disposed of for cash before delivery. Samples of twenty-five sent at prices as per 100. Address

H. HOBBS, Long Cross, Chertsey, Surrey.

Bedding Roses.

CRANSTON'S CRIMSON BEDDER: strong plants, in 5-inch pots, 30s. per dozen.

TEA-SCENTED, CHINA, NOISETTE, and HYBRID-PERPETUAL ROSES, in 4 and 5-inch pots, 9s. to 15s. per doz.

Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.

Address, CRANSTON AND MAYOS, King's Acre Nurseries, Hereford.

NEW PLANTS.

Amaryllis Hendersoni
" " coccinea
" Henry Little
Asplenium nobile
Armeria cephalotes alba
Blandfordia flammea elegans
Bouvardia bicolor (hybrid)
" multiflora (species)
Cantua corymbiflora
Cyclamen Peakeanum
Convolvulus mauritanicus atroccruleus
Crowea angustifolia
Dracæna Duffii
Epigynium acuminatum
Hæmanthus Rooperi
Ixora Fraserii
Nerine rosea
Plumeria bicolor
Sonerila Hendersoni
" " argentea
" " marmorata
Yucca stricta, &c.;

with other new Florist Flowers.

The above, first offered in Trade this season, are now ready for sending out. See full descriptions and prices in

E. G. HENDERSON AND SON'S

PLANT CATALOGUE for 1875,

which will be forwarded on application, and on request will be sent their

SEED CATALOGUE for 1875,

Containing the following Flowers for present sowing, of choice quality:—

CALCEOLARIA, mixed colours, 1s., 2s. 6d. and 5s. per pkt.
CINERARIA, mixed, or separate colours, 1s., 2s. 6d. and 5s.
PRIMULA SINENSIS FIMBRIATA, fine strain, colours separate or mixed, 2s. 6d. and 5s. per packet.
" RUBELLA, fl.-pl., double red, 2s. 6d. and 5s.
" NIVEA, fl.-pl., double white, 2s. 6d. and 5s.
" PRINCE ARTHUR, double red, 2s. 6d.
" PRINCESS ALICE, new, double blush-rose, 2s. 6d. and 5s.
CYCLAMEN PERSICUM, mixed colours, 1s. and 2s. 6d.
" Double-flowered, 2s. 6d. and 5s.
MYOSOTIS DISSITIFLORA, true variety, 6d. and 1s.
CINERARIA, double-flowered. The seed now offered is saved from fifty to sixty plants selected from a thousand (the remainder being destroyed), and these again divided into two sections. 1st section, 5s.; 2d section, 2s. 6d. packet.

The Wellington Nursery, St. John's Wood, London, N.W.

SUTTONS' CABBAGE SEED

FOR PRESENT SOWING,

FOR SPRING AND SUMMER USE.

The best Cabbage for Spring and Summer Use is

SUTTONS' IMPERIAL.

This popular Cabbage is the finest in cultivation, and the earliest for Autumn, Winter and Spring use. Good heads may also be cut from the stems during Summer. The heads are somewhat cone-shaped, remarkably large and firm, of mild flavour, and do not readily run to seed. Sow about the middle of July for Spring use. Price 1s. per oz.

Suttons' Imperial Cabbage.

The following Sorts are also suitable for present sowing:—

EARLY YORK.
NONPAREIL.
WHEELER'S IMPERIAL.
ENFIELD MARKET.
EARLY BATTERSEA.

Further particulars of Seeds for Summer and Autumn Sowing on application.

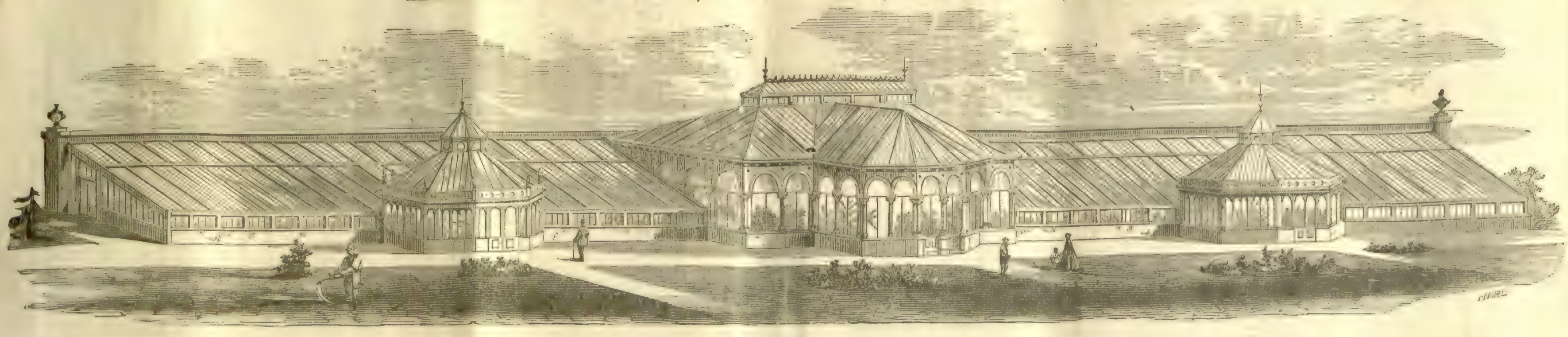
Suttons Sons

THE QUEEN'S SEEDSMEN, READING.

JOHN EDMONDS & CO.,

HORTICULTURAL BUILDERS AND HOT-WATER ENGINEERS,

LILLIE BRIDGE, FULHAM, LONDON, S.W.



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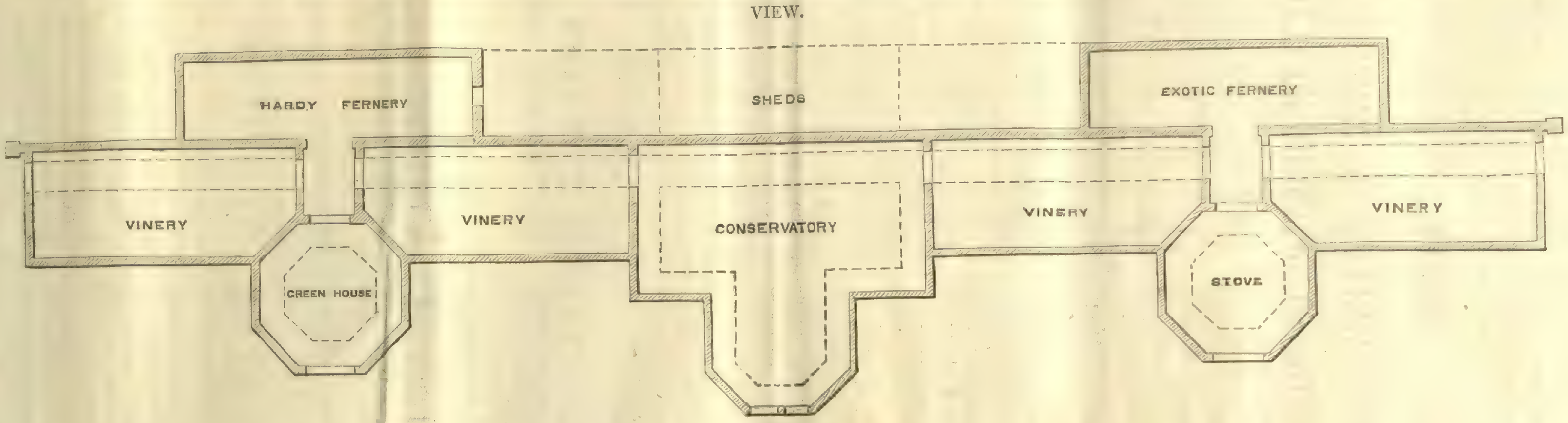

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SATURDAY, AUGUST 7, 1875.

YARROW.

NOT the "braes" of that name, or "Yarrow Revisited," although both are suggested by the title, are we about to consider in the present paper, but the common plant, with its corymbs of white flowers and its finely divided leaves, which is just now so conspicuous by roadsides and in meadow ground, and which figures not unfrequently in cheap bouquets at this season of the year. It is a handsome plant enough; but with plants, as with other things, "familiarity breeds contempt," and so its claims to be regarded as ornamental are disregarded.

It is especially to the folk-lore connected with the Yarrow that we wish to direct attention. In spite of many contributions to the subject, the folk-lore of our British plants has as yet found no historian, and our notes may serve as material for a chapter in the work upon this fascinating subject which, although as yet unwritten, is certain to appear sooner or later, and certain to contain a fund of information which will interest the general reader no less than the antiquarian and the ethnologist.

Beginning with the "vertues" of Yarrow, we shall find them not only numerous, but of ancient renown. In the Herbarium of Apuleius, printed by M. Cockayne in his *Saxon Leechdoms*, it is said:—"Of this Wort, which is named Millefolium, and in our language Yarrow, it is said that Achilles, the chieftain, found it, and he with this same Wort healed them who with iron were stricken and wounded. Also for that reason, it is named of some men Achillea. With this Wort it is said that he also healed a man whose name was Telephos." This extract will show that the reputation of the Yarrow as a wound-herb is of considerable antiquity; and indeed most of the recipes given in the above cited work are for the healing of wounds, although the plant is also prescribed for toothache and other matters. Drayton speaks of it as

> "The Yarrow wherewithal he stops the wound-made gore,"

and in Scotland it is called "Stanch-girds," or Staunch-grass, from this property. Another of its old names, Nose-bleed, seems to have arisen from two diametrically opposed beliefs connected with the plant. Gerarde says, "the leaves being put into the nose do cause it to bleed," upon which Parkinson comments, "assuredly it will stay the bleeding of it." But this name, Nose-bleed, has a very intimate connection with the folk-lore of the plant, as we shall see further on. Other old names of the Yarrow, all referring to its styptic qualities, are Bloodwort and Carpenter's-grass, both of which are given by Treveris in the *Grete Herball*. The name Yarrow is of obscure and uncertain origin. Dr. Prior gives various conjectures regarding it. Surflet, in his *Countrie Farme*, says that Yarrow "doth stay all manner of fluxes, especially that which cometh of a wound, the leaves [being] dried, made in powder, and drunke with the iuyce or water of Comfrey or Plantaine."

Milfoil, as the plant is also called, is simply an Anglicised form of the Latin Millefolium, and, like the common English names "Thousand-leaf" or "Hundred-leaved grass," refers to the much-divided leaves of the plant. It is sometimes called "Tansy," because its leaves somewhat resemble those of Tanacetum, and it was considered, like that plant, to ward off fascination and "the evil eye." In modern rustic practice, a "tea" made from Yarrow leaves is used in various disorders, not, it would appear, for any specific malady, but as being generally "good to take when you're ill." It is one of the plants collected by bargemen on their travels, and sold by them in the towns through which they pass.

The chief point of folk-lore regarding the Yarrow is connected with the curious custom of placing a leaf in the nose, with the intention of making it bleed; from the success or failure of this expedient a corresponding result in love concerns is expected! As is usual in such romantic affairs, certain rhymes have to be repeated during the process, which vary somewhat in different localities. Here are one or two. In Suffolk the formula is:—

> "Green 'arrow, green 'arrow, you bears a white blow,
> If my love love me my nose will bleed now;
> If my love don't love me, it 'ont bleed a drop;
> If my love do love me, 'twill bleed every drop."

In Devonshire the rhyme has somewhat of a religious character—the Yarrow must be plucked from a young man's grave, and placed under the pillow:—

> "Yarrow, sweet Yarrow, the first that I have found,
> And in the name of Jesus I pluck it from the ground.
> As Joseph loved sweet Mary, and took her for his dear,
> So in a dream this night I hope my true love will appear."

In Dublin, on May Day or the preceding night, women place a stocking, filled with Yarrow, under their pillow, reciting the following lines:—

> "Good-morrow, good Yarrow, good-morrow to thee;
> I hope by the morrow my lover to see,
> And that he may be married to me;
> The colour of his hair, and the clothes he does wear;
> And if he be for me may his face be turned to me,
> And if he be not, dark and surly he may be,
> And his back be turned to me."

Mr. Halliwell, in his *Popular Rhymes*, says:—"An ounce of Yarrow, sewed up in flannel, must be placed under your pillow when you go to bed, and having repeated the following words, the required dream [of a future husband] will be realised:—

> "Thou pretty herb of Venus' tree,
> Thy true name it is Yarrow;
> Now who my bosom friend must be,
> Pray tell thou me to-morrow."

The gathering of Yarrow with an incantation was one of the charges against one Elspeth Reoch on her trial for witchcraft in March, 1616. It was alleged that she had plucked "ane herb called Melefowr," in which name we see a modification of Milfoil—sitting on her right knee and pulling it "betwixt the midfinger and thombe, and saying of *In nomine Patris, Filii, et Spiritus Sancti.*" By the plant so gathered she was enabled to cure distempers and to impart the faculty of prediction. There is no doubt that the Yarrow was the plant referred to, as the Melefowr is said to be the herb "quhilk causis the nose bleed." In the time of Elizabeth the Yarrow was gathered with certain incantations before sunrise on Midsummer Day.

English and Scotch traditions have each contributed their quota to the popular history of the Yarrow, and we will conclude with an Irish incident recorded in *Notes and Queries* for July, 1872. The writer says he was engaged at Castle Blayney, in Ulster, in an important land case, when he "received in a very secret and mysterious manner a little packet from an old woman, with an assurance that if I would keep it it would assuredly bring me luck, and I should escape the wiles of my enemies." Success attended his efforts; and, on examining the packet, it was found to contain some dried Yarrow. The writer inquired of the old woman in what its virtue consisted, and "she whispered, after some hesitation, that it was the first herb our Saviour put in His hand when a child, and that, therefore, she added, to those who were by tradition acquainted with that fact it would certainly bring luck!" *B. M.*

New Garden Plants.

MEGACLINIUM MELANORRHACHIS, *n. sp.**

My first knowledge of this little botanic gem came from my excellent correspondent, Mr. Wilson Saunders, three years ago. The plant appeared at a London sale of Tropical Western African Orchids, I believe, from Sierra Leone. I obtained it recently from my oldest English correspondent, Mr. J. Day. Finally, it has now come to hand from Mr. Bull. I believe it was Mr. Bull who introduced the plant, and who arranged that sale. Our species is very near *Megaclinium velutinum*, Lindl., a very much larger plant, with an acuminate rachis, whose mid-rib is centric. The details of the flower are altogether different.

This little plant, scarcely 3 inches high, is very curious with its shining dark brownish black winged and crenate rachis of flowers. These are dark cinnamon-coloured, the base of superior sepal, column, and petals being yellowish. A powerful pocket lens is of great assistance to appreciate the charms of the lovely plant. *H. G. Rchb. f.*

* *Megaclinium melanorrhachis*, Rchb. f., n. sp.—Dense cæspitosum; pseudobulbis tetragonis diphyllis; foliis lanceolato-ligulatis minute bilobis; rhachis inflorescentiæ oblongo-ligulata crenulata pseudobulbo bis seu ter longiori, hinc scaberula; nervo mediano excentrico; bracteis minutis triangulis deflexis; sepalis ac ovario pedicellato scaberulis; sepalo summo lanceo acuminato superne intus utrinque oblongo incrassato pulvinato; sepalis lateralibus triangulis apice reflexis; tepalis falcatis seu linearibus acuminatis, labello oblongo acuto basi latiori, columna utrinque sub apice angulata.—*Bolbophyllum melanorrhachis.*

THE VERBENA: PAST AND PRESENT.

VERBENA is a name of profound antiquity, corresponding, in this respect, with Violet and Lily. The derivation is found in terms yet older, and which take us back to the religious ritual of the ancient Greeks, or to a period of not less than twenty-three centuries ago. Upon occasions of solemnities in the temples, or before the altars, the priests among that celebrated people were accustomed to employ the branches of various fragrant evergreen shrubs, choosing especially the Myrtle, the Rosemary, and the Bay, and adding sometimes others that were scentless, though evergreen, such as the Olive. The reason for this practice was twofold. Being odoriferous, the plants were accounted pleasing to the gods, to whom fragrant things have always been deemed acceptable, as illustrated, in all ages — Jewish, classical, and Christian—in the use of incense, the outward and physical sign of prayer and thanksgiving. Secondly, as these shrubs retain their verdant complexion throughout the year, with the ancient Greeks, as with ourselves, they were the symbols of endurance, constancy, truth, faithfulness, and everything else of the kind that pertains to the best relations which subsist between heaven and mankind, and which keep the religious sentiment alive, the centre and pivot of this last being a profound sense of security. Whatever the defects and errors of the old Greek theology, there was at all events a clear perception of the first principles of religious action, and of what constitutes proper adjustment of outward insignia to inward sentiment.

The last expression of this venerable usage, it is hardly needful to remark, is found in the practice of decking churches with Holly at Christmas tide, once a year serving to prevent the pious and significant old practice from being forgotten entirely, and preserving at the same time the distinction between Pagan and Christian forms. Very curious and interesting are these unsuspected relics of the methods and adjuncts of primæval worship. We little think, when engaged in them, how many of our ceremonies, not omitting some of the most hallowed, have floated down the great river of Time, past all the kings and revolutions, gifted with a kind of immortality, heirlooms of the first days of civilisation. Those who object to introduce Mistleto into Christian churches because it was used in the rites of the Druids, "pagans and heathen," scarcely remember, perhaps, that when they introduce evergreens of any kind whatever, as decorative materials, scented ones in particular, they are copying the custom of the ancient worshippers in the temples of Zeus and Apollo.

Scarcely needful is it to mention either how beautifully these consecrated plants of old preserve to our own day their meaning and traditions in many a pretty and graceful application, which, though not connected with the ceremonies of religion, involves the same ideas as those of pure and noble emotion, faithfulness, and life. The Bay goes with the highest conception of poetry; the Myrtle is bound up with the idea of love, which is nothing if it be not evergreen, with hidden store of sweetness; and Ophelia exclaims, "There's Rosemary, that's for remembrance!" Human feeling cannot be demonstrated except through the medium of some physical representative; nor can ritual worship be conducted without the employment of material symbols. Vegetation is the most suitable of natural objects for symbolic use, and serves its purpose in the greatest number of particulars. No wonder then that we find these fragrant evergreens in the sacred connection above spoken of, or that, because of their dedication to the gods, they received the name of ἱερα βοτανη (*hiera botanë*), literally the sacred or consecrated herbs.

The religious ceremonies in which they were employed in course of time came to be practised also in ancient Italy among the Romans, with whom *hiera botanë* was changed into *verbena*. The sounds belonging to human speech, and the alphabetic characters which are used to represent them, constantly alter in place and power when words pass from one language into another. They change just as the colours of certain flowers do when the root is transferred to another soil, only far more extensively and surprisingly. Hence the curious mutation of the *h* of *hiera* into the *v* of *verbena*, an exact counterpart of which is found in the conversion of the Greek Hesper, the evening-star, into the Latin vesper; also in the etymology of Vesta and Venetia, the original of the modern Venice. One of the earliest allusions in Roman literature to the sacred herbs occurs in Terence—*Ex ara verbenas hinc sume.** Terence derived a very considerable amount of what passes for his own from the sprightly and polished Athenian dramatist, Menander, the author quoted by St. Paul (most scholarly of the biblical penmen), in the celebrated passage in 1 Corinthians, xv. — "Evil communications corrupt good manners." In this particular instance the earlier poet simply says "Myrtles"; the idea conveyed is, nevertheless, identical, Myrtle being named as best and loveliest of the Verbenas, and standing for the entire company. In the Latin poets of the Augustan era the allusions become exceedingly beautiful. In the twelfth *Æneid* the white-veiled priests bind their temples with Verbena, woven into chaplets, when about to sacrifice on the morning of the terrible day which ends the story. And in the fourth *Georgic* the pious old Corycian sets Verbena in his garden, along with Lilies, Poppies, and Acanthus, so that he may always have a supply ready for times of devotion. In Horace, after the same manner, the altar, waiting for the sacrifice, is described as "bound with chaste Verbena,"† the epithet being intended to imply that no one can approach the gods consistently who does not abstain from all impurities of action, so hated of heaven, and thus come before them with clean hands.

Similar illustrations might be adduced from Cicero and other authors, including Plautus, who died about 184 B.C., and is probably the first who mentions the Verbena by name. The title of Verbenarius appears to have been given to the functionary whose duty it was to see that the sacred herbs were ready when wanted; and he who was crowned with them was said to be Verbenatus. The same epithet was applied to animals intended for sacrifice, and which had Verbena bound round their necks.

All that is good and pure in first intent becomes perverted. Art is crowded with the conventional; language becomes corrupted into slang; every great poet is parodied; the most glorious pictures are made subjects of caricature; religion lapses into superstition—the weak and foolish taking the place of the noble and sensible. No wonder, then, that the use of the sacred herbs became corrupted to the purposes of sorcery and witchcraft, which are the religious principles perverted and desecrated.

At a very early period we find the Verbena employed in working charms and incantations. Virgil, in the eighth pastoral, represents the shepherd as using it in conjunction with frankincense in a spell designed to win the love of Daphnis. In Ovid, when the famous enchantress, Medea, restores decrepit Æson to the vigour of youth, the altar is encompassed with the same, twined by her own hands.

Here we have the beginning of the reputation of the common Verbena officinalis as a plant suitable to the purposes of witchcraft—a reputation which clung to it throughout the middle ages, and was extant even so late as the eighteenth century. How this latter plant, the Vervain of modern botany, became possessed of the name is a question now impossible to settle positively. Pliny, when he describes the Verbena (under which name we naturally suppose he intends the *hiera botanë*, or sacred herbs), instead of dealing with the Bay and the Myrtle, appears, without question, to speak of the V. officinalis, especially in the phrase *flos glaucus.*‡ That a plant so weedy as the common Vervain—a plant without either scent or attractiveness—should ever have been placed abreast of Myrtle, Bay, and Rosemary, even by the ignorant, is inconceivable. The uses, also, were too frequently recurrent for service by a plant which dies down to the ground every autumn, and is in perfection for only ten or twelve weeks. Pretty, no doubt, in its way, to those who love the little things of Nature, Vervain is still, to the general observer, a poor, wiry, unpretentious roadside weed, unpossessed even of the unhappy energy of a deleterious plant, and the unlikeliest thing in the world to have been placed abreast of the evergreen and odoriferous shrubs, or to have been regarded as a legitimate and consistent substitute. These circumstances are likewise all opposed to the idea of the name having been designedly transferred. The only way open towards the solution of the difficulty is to assume some error on the part of Pliny, who probably, as in many another instance, either recited only half the tale, or confused different things. Every one knows that the vast encyclopædia produced by that learned man, wonderful for his time, is quite as remarkable for its errors and omissions as for its facts, and that it is often unintelligible. The book is a splendid monument of industry and of magnificent aims, but we cannot rely upon its statements. The authority of Pliny, however, like that of Aristotle in zoology, was for 1500 years supreme; and whatever Verbena may have denoted before he wrote, subsequently the appellation became identified purely and exclusively with the wayside weed. And wonderful was the fame which the latter acquired, all the virtues of the classical *hiera botanë*, in so far as they had degraded reference to witchcraft, spells, and incantations, being associated with it, and magic and superstition claiming the plant as their very own, thinking, in all likelihood, how well "Verbena" (alas, how different a thing!) had served the purpose of their great ancestress, the Medea of the *Metamorphoses*. The celebrity of the plant became diffused throughout western Europe; eventually it spread to England, and from the old French form of the word *verveine*, which is only another way of spelling Verbena, at last we derived our own term Vervain. The poets who came into existence with the aurora of modern verse, of course could not fail to take it up. Their chief work was to echo and reverberate, in metre and song, the myths, the legends, the folk-lore which filled the mental atmosphere of the times they lived in. Vervain, as a plant, they probably did not know. Like the Palm tree, the lion, and the dragon, it was cited when convenient. We make a great mistake if, when we come upon these botanical allusions in the old poets, we take them as indications of actual knowledge. We may accredit them nevertheless with sincerity, and with belief that when they talked of Vervain there may have been some sweet though dim idea of the true and genuine Verbena. In the *Confessio Amantis* of Gower, for example (temp. Henry IV. and Henry V.):—

> "Then toke the Feldwodde and Verveyne,
> Of herbès ben not better twayne."

So, later on, in that charming fairy ballad, the *Nymphidia* of Drayton (temp. James I.):—

> "She Nightshade strows, to work him ill,
> Therewith the Vervain and the Dill,
> That hindreth witches of their will,
> Of purpose to despight him."

Shakspeare makes no mention of either Vervain or Verbena, though the former name occurs in one or two of his immediate friends and contemporaries. Neither is it once alluded to by Milton. In the old *Herbals* and *Histories of Plants*, the V. officinalis is constantly described and figured as the genuine or potent Verbena; though Gerarde had sense enough to repudiate the fables. Ray followed still more emphatically, yet even so late as in the beginning of the reign of George III. a man named Morley proposed to cure scrofula by tying Vervain around the patient's neck.

Linnæus very naturally adopted the old classical name Verbena when constructing the *Genera Plantarum*. By that time several other species of the genus had been introduced from America, two or three of which were cultivated by Dillenius in his famous garden at Eltham; and now "Verbena" became a term of scientific botany, and the aroma of the Greek ritual of the days of the Parthenon was perceived no more. Like the officinalis, these new species were small, scentless, and pale-flowered herbaceous perennials.

About the time of the close of the life of Linnæus happened the very curious circumstance of the introduction to Europe of a plant that was at once a genuine Verbena botanically, and a fit associate for the *hiera botanë* itself. This was the delicious Lemon Verbena, indigenous to Chili and Peru, whence it was transmitted to Spain. The first to record and describe it was Casimir Ortega, Professor of Botany at Madrid. In compliment to Maria Louisa, mother of Ferdinand VII., who was just then in the meridian of her dark-hued beauty, he named it Aloysia citriodora. Shortly afterwards he sent a plant to Paris, to the distinguished and unfortunate Charles l'Heritier, who considered the generic distinction needless, and assigned the plant to the Linnæan genus, calling it Verbena triphylla. In 1784 there passed through Paris, on his way home, the celebrated Oxonian pro-

* *Andria*, iv. 3, B.C. 165. † *Odes*, book ii., 11.
‡ Lib. xxv., cap. 9.

fessor, Sibthorp, who had been exploring the botany of Greece, and collecting the materials published so magnificently after his death as the *Flora Græca*. By him the new plant was brought to England, and on April 1, 1797, it was figured in the *Botanical Magazine*. One of Sibthorp's intimate friends was the celebrated Dr. (afterwards Sir J. E.) Smith, founder of the Linnæan Society; and what more likely to go to him as a present than this delightful and fragrant shrub, from the land of the once glorious Incas? In that case, possibly enough, one of the first individuals that grew in England would be cherished by a lady still living, Lady Smith herself, a "perpetual Rose" indeed, who on May 12, 1875, attained her 102d year. That a plant so exquisitely fragrant should inherit the renowned name of Verbena, by a kind of mere botanical accident, is certainly a most curious and interesting coincidence. The mystic and sacred energy of the old *hiera botanë* seems to react upon itself. If in the ancient times Verbena covered the altars of the gods, to-day it is the cherished inmate of the conservatory and the boudoir. And not only does it live over again in the sweet Peruvian shrub. "Verbena" is on a thousand toilette-tables, stored in little scent-bottles. The perfumers' Verbena appears, however, to be an oil prepared from one of the fragrant East Indian Lemon-grasses, probably the Andropogon citratus.

The brilliant scarlet and purple Verbenas, now so largely employed in the "bedding-out" style of gardening (suggested, it always appears to me, by the painted visage of the clown in the pantomine), belong to the same genus as the two species above-mentioned. Unpossessed of any of the qualities of the *hiera botanë*, they do good service, nevertheless, in conferring upon the old name whatever recommendations may accrue from colour. Destiny seems to insist that all inheritors of the title shall, in one way or another, render themselves worthy of it. The first and most showy of the modern Verbenas, the V. chamædrifolia or Melindres, was introduced from Buenos Ayres in 1827, and great was the sensation produced by its splendid scarlet. Within a very few years there followed venosa, incisa, and Tweedieana, and now we have numbers of hybrids in addition. The grand appearance of the scarlet Verbenas upon the plains of their native countries is said to be unimaginable. There they are "bedded-out" by Nature, or after the same artless and unsophisticated way in which in old England she displays the Bluebell and the wood Anemone. The spectacle no doubt is delightful to one's ideas of taste, in which is always involved the quality of repose, as contrasted with what startles, but it is a very different thing to have flowers disposed after patterns that Nature never dreamed of, and would abolish in a twelvemonth were she emancipated. None of these extra-European Verbenas, of course, have any claim to the name of "Vervain;" that belongs exclusively to the realms of fable, and to the little wayside herb which in the mediæval times became accredited so widely with a reputation it never deserved. Though insignificant, it is not to be despised, for it serves at all events to link the present to the past, and make "former times shake hands with latter," always a very pleasing form of usefulness. Those who may happen to be unacquainted with the V. officinalis may learn its complexion from a capital life-size coloured drawing in Curtis' *Flora Londinensis*, vol. i., pl. 41. *Leo Grindon, Manchester.*

VENUS' FLY-TRAP.

By Thos. A. G. Balfour, M.D., F.R.S.E., F.R.C.P.E.

(Concluded from p. 138.)

I have been speaking of healthy plants, in which all the functions were normally discharged; but we have pathological as well as physiological conditions to consider, and unfortunately many of these conditions are induced by imperfect digestion, owing to artificial feeding, and hence dyspepsia in different forms is not uncommon. Some articles of diet are peculiarly difficult of digestion, and ought never to be indulged in by a Dionæa: such is cheese; hard boiled albumen they can digest pretty well, but this coagulated and compressed casein they cannot manage. Mr. Canby lost one of his patients among the Dionæas by ordering it a diet of cheese, and my own experience is equally painful.

On July 8, 1874, I had eleven patients under my care at one time, and to one of these a diet of cheese was prescribed. After Mr. Canby's experience I felt anxious about him, and watched him carefully.

On July 9 the entry in my note-book is "Leaf healthy and quite closed except at farthest point, where it is open about one-eighth of an inch, and lets out a clear acid fluid smelling of cheese." This vomiting evidently indicated considerable irritation, and the smell of cheese which attended the ejected fluid showed clearly that that substance had not yet been digested. However, as he had a healthy look and a firm grasp, I was not so alarmed.

My next note is a short one, on July 10, 12 noon:—"Leaf closed, not injured." The vomiting had apparently ceased, which, with the general appearance, was re-assuring.

July 11, 3 P.M.—Much the same as yesterday.

At 4 P.M., on July 13, he was still quite healthy and firmly closed.

July 14.—Much as previously.

On July 15 I had so little time that I scarcely saw my patient.

July 16 contains notes of the other patients, but his case is omitted, probably from being much *in statu quo*.

On July 18, 4.15 P.M., the short notice is, "Cheese closed," which means that he had still considerable muscular power remaining.

July 20, 3.30 P.M.—Same note.

But on July 21 my alarm was excited, for though the muscular power was good, yet biliary disturbance was indicated, for the note is to the following effect: "Still closed, but yellowish on blades, and two lashes of a dark colour." These symptoms were unmistakably serious, and, as I suppose I had formed the worst prognosis of the case, I had prudently withdrawn. I find no further attendance marked. This was on the thirteenth day.

Nothing is more injurious than overloading the stomach, and hence the common advice is "Not to cram like John Bull." I had generally been very particular in the amount which I had prescribed, but on one occasion after I had left, Mr. Lindsay had, in defiance of all proper dietetic rules, gorged four fine healthy Dionæa leaves to such an extent that on the following day, July 6, I was horrified at finding some of the beef still sticking out of the mouths of three of them. In the case of one of these I promptly applied a remedy by pulling the meat out of its throat by my fingers, and thus saving it from threatened suffocation—the mouth immediately closed, and all danger was at an end, as I find on July 13 the note—"Leaf still closed by the lashes crossing, but the blades are slightly separated."

On that date, however, a nasty jaundiced appearance manifested itself in the other three patients, who had been left to retain the excessive amount of beef. Digestion in their cases was very seriously impaired, as offensive eructations testified.

I shall give the notes. July 13.—The three surfeited ones are quite closed (this is now the ninth day after the gorging), but have a dingy yellow and unhealthy look, which applies also to the upper part of the petiole. On opening one of them the meat is about one-eighth of an inch from the edges, and fluid abounds which has now only a faint acid re-action; but there is a slightly tainted smell about the meat, which seems to be considerably digested."

On opening another leaf, the meat seemed less digested, but it was lower down, and there was scarcely any perceptible smell. Fluid here was also faintly acid. On the blades of these two leaves there are slight darkish brown discolorations on the outsides.

On opening the third leaf a part of the meat was dark and projecting between the margins. Here there was a more putrid smell. The fluid was faintly acid. This leaf has a shrivelled look outside, and also a slight discoloration here and there on the blade.

I have continuous notes to July 28, which I need not give *in extenso*; suffice it to say that one of them was in a pitiable condition and was executed on the 24th. One of the remaining two had by that date recovered wonderfully, the whole meat having been dissolved, and his breath being quite sweet; while the other had only partially recovered, there being still a faint smell like that of old meat perceptible in his breath.

July 28 has the note "As before."

The capacity of their stomachs is not large, two flies being apparently sufficient to satisfy them, if given in succession; but a surfeit is extremely dangerous, for, though they may sometimes escape a fatal issue, they may suffer long and severely from stomach complaint.

All their diseases, however, are not owing to improper diet, but when the general health is impaired the secretion is not poured out in sufficient amount to digest the food, as the following example will show:—A yellowish looking leaf, which, if we had been living in the days when the doctrine of signatures was prevalent, would certainly have been prescribed as an infallible cure to any one suffering from hepatic derangement; this leaf, I say, was selected, and a small beetle enclosed within it. On opening it afterwards the leaf was found dry, and so was the beetle, but on pressing the beetle slightly a good deal of fluid was forced out of it, indicating that in consequence of the ill-health of the leaf there had been no power of secreting fluid, and hence the contents of the beetle had not been removed.

Amount capable of being digested.—As I have already said, two good flies or two spiders seem to be all that the Dionæa leaf can digest with comfort, to itself at least, for some time. Now, if we multiply these by the number of the leaves, we shall find the amount of food which, by its foliar stomach at least, a plant of Dionæa can digest. The leaves are, on an average, about six to each plant, so that if all the leaves were equally successful in their capture we should have a dozen of flies as the amount of food devoured by the leaves.

I shall give an example of how much one leaf digested. On June 30, 1874, a Dionæa with four or five leaves, within one of which, at least, a fly had previously been enclosed, was chosen, and on a fresh leaf a spider of good size was made to crawl and was immediately entrapped. On July 13 the remains of the spider were removed, and seemed to be a mere shell. On placing these under the microscope the legs seemed nearly transparent; there was one portion opaque and dark, but on pressing it firmly nothing came out. On this, the thirteenth day, another spider was placed on the same leaf, and was somewhat languidly entrapped. On August 1 the leaf was almost open (*i.e.*, on the nineteenth day), and the remains of this spider, which were of small amount, were removed, and now it was found that the leaf would not close on irritation by another spider, or by the blade of a knife, or by touching it with the finger.

5. *Absorption, including Assimilation.*—Duchartre objected to this idea of absorption on the ground that it was not in accordance with our knowledge of the functions of leaves, and to the whole course of the nutrition of vegetables, and therefore was not to be seriously entertained. This argument reminds one of the miserably fallacious arguments against miracles by Hume. It is in both cases a mere *petitio principii*. All plants are not constituted like the Dionæa, and if it has such a peculiarity in structure why should it not have a similar one in function?

Other objectors may say, True, the insect is digested and reduced to a semi-fluid pulp, but this is simply for the purpose of allowing it to run down the channelled petiole, and so of reaching the absorbent roots of the plant. Mr. Canby at one time thought that such was the case, but he afterwards discovered his mistake.

Two answers may be given to the above objection.

1. In a healthy Dionæa, where the natural food of the plant has been taken and in the normal amount, no fluid does run down the petiole. Three flies were placed on three leaves of Dionæa, and pieces of litmus were attached to the petioles on Sept. 26, and on Sept. 28, at 4 P.M., the litmus was not in the least degree reddened. On Sept. 29 the same, and so on Oct. 1 and Oct. 3, and yet on this latter date one of the leaves was opened and a considerable quantity of fluid of an acid nature was found. This was on the seventh day.

The second is that the leaf is found quite dry on the surface, with only the slightest indication, if even that, of remains, and if we open the leaf from time to time we can see the process of change going on, and the gradual diminution of the amount.

Example, piece of raw meat on leaf of Dionæa on July 1. On July 18 there seemed very little difference on the external appearance from what had been noticed on the 4th, when it was pale, like veal, and partially digested; but on the 23d the beef was found in a soft thin pulp and in small bulk. On the 24th almost all gone, and on the 25th small thin dry flakes are all that remain.

In this case the whole process of digestion and absorption took twenty-four days, but the absorption seemed to go on at a much more rapid rate towards the end.

The first answer proves that there was no escape from the leaf, and the second declares that after a certain time nothing, or next to nothing, was found in the leaf; and if these considerations do not shut us up to the conclusion that absorption had taken place, I fear we must have an equally great difficulty in establishing the fact of absorption by the roots of plants, or by the lacteals and lymphatics of animals.

I understand that some one has asserted that the disappearance of the food is not owing to absorption, but to its being devoured by Bacteria and Vibrios. Well, if these be, as Professor Lister supposes, vegetable and not animal bodies, we may as well believe in the digestion and absorption by the larger plants as by the smaller ones; but we must remember that these minute bodies are now generally regarded as the cause of decomposition, with its attendant noxious gases, but, as we have seen in a normal case of digestion in the Dionæa, we have none of these present.

How is absorption effected? I cannot as yet say. I tried the following experiment to discover it, but I failed, in consequence of the vital elective power of the absorbent cells or vessels. On July 16, 1874, I put insects and beef, which I had stained red or blue by steeping them in a solution of cochineal or in one

of sulphate of indigo, and I hoped that by the colours in the cells I might be able to trace the course of the absorbed material; but these colours were pressed out from between the leaves, and entirely disappointed my expectations. On examining the surface of the leaf of a Dionæa you find two sets of stomata, the one set presenting the usual appearance, with two or four cells surrounding the opening. These are found on both sides of the leaf, though, as is usually the case, much more abundantly on the lower side than on the upper. The other set are of a brownish colour, and are peculiar, inasmuch as, in addition to the central cells, there are from five to eight peristomatic cells, which are of such delicate structure that they fold upon themselves with the utmost ease. These seem confined to the lower side of the leaf. Bearing in mind, then, these two kinds of stomata, let us next direct our attention again to the beautiful red glands to which we referred in speaking of secretion, and if we examine them very carefully by the microscope we occasionally see in the centre of the cells, and apparently connected with them, bodies presenting an appearance not unlike stomata, and it has struck me that probably these are the mouths of absorbent ducts. When we consider the double supply of stomata which this plant possesses we can hardly doubt that all the ordinary functions of such organs are well discharged by them, and is it not reasonable to suppose that these other bodies placed in the immediate vicinity of the pulp, formed by the contents of the secreting cells, are intended for absorbing that substance and so rendering it available for the nutrition of the plant?

BERKFIELD LODGE, SUFFOLK,

THE RESIDENCE OF E. PACKARD, ESQ.

THIS place is situate about a mile and a half south of the important town of Ipswich, at an elevation of some 300 feet above the level of the beautiful River Orwell. The house is built with the famous Woolpit brick, and is a very neat and elegant structure. The front has a light open verandah that adds much to the beauty and comfort of the building, and from which a magnificent view, extending some 10 miles down the Orwell, is obtained. This view embraces the whole of the highly picturesque banks of this beautiful river, including portions of the well-wooded parks forming part of the estates of Wherstead, Woolverstone, and Nacton. The grounds surrounding the house are very park-like and well-wooded, shutting out from view the near-lying town of Ipswich.

The conservatory is a neat, light iron structure adjoining the house, from which it is entered by passing through the billiard-room. Tacsonias, Cobæas, and other creepers are trained loosely over the roof, from which they are allowed to festoon in a natural way. The centre of the house is formed into a single bed, edged with stone, round which a pathway is carried. A neat staging is carried round the other side of the walk, over the pipes, on which Caladiums, Dracænas, Achimenes, and such-like plants are arranged, and where they show to great advantage. The main group in the middle of the house is tastefully arranged by placing three thriving young Tree Ferns equidistant down the centre of the bed, and the remaining space is filled in with handsome specimens of Allamandas, Bougainvillea glabra, Crotons, Ericas, Dracophyllums, Caladiums, and other choice plants that have graced the exhibition tents of several of the local shows. Among the above, fine specimens of greenhouse and hardy Ferns are interspersed, together with a few Palms, giving the whole an imposing and pleasing effect.

The plant-houses, vineries, &c., form a compact range along one side of the kitchen garden, and have been recently erected, together with the conservatory, by Mr. Dennis of Chelmsford. Like many of the more modern houses for plant and fruit growing these appear to have too much glass and too little framework, thereby letting in an excessive flood of light and sunshine, that soon sends up the heat of the houses to a very high pitch unless shading is used to counteract it. It becomes a serious question therefore whether hothouse builders are not carrying this sort of thing too far, and whether it would not be better either to use heavier framework with sash-bars closer together, or, in case of metallic roofs, only such glass as Hartley's rough plate, or some other answering the same purposes. The centre house of this range is raised considerably above the others, and is used for plant growing for exhibition purposes, and to supply the conservatory. This house contains a lot of choice useful things, which under the care of Mr. Rose are fast making valuable plants. The selection appears to have been made with much care, and contains among others such things as Cocos Weddelliana—a perfect gem among Palms, Hyophorbe Verschaffeltii, Areca sapida, Latania rubra, Euterpe edulis, Dracæna Shepherdi and Guilfoylei, two very beautiful varieties that contrast well with their red-leaved congeners. Among Caladiums Prince Albert Edward was most conspicuous. This is one of the handsomest of Caladiums, having richly marked leaves in the way of Meyerbeer or Belleymei, but with leaf-stalks stout and stiff, more resembling an Alocasia. All who grow Caladiums should have a plant of Prince Albert Edward. Young plants of the beautiful Davallia Mooreana were also in thriving condition. This, too, when of large size, is a grand thing for exhibition purposes, Some well-grown plants of Croton interruptum, pictum, and angustifolium having richly-coloured leaves were very effective. Plenty of light, without actual sunshine, on both these and Dracænas appears what is most requisite to bring out their lovely rich leaf-markings to perfection. The vineries are arranged on each side of the centre or plant-house, and the Cucumber and Melon houses are at the extreme end of these. The Vines are making good strong rods, although the foliage shows signs of suffering somewhat from excess of light and heat. Zonal Pelargoniums and sappy plants of that class are just at home in such structures, as those here abundantly testify, the whole of them looking remarkably healthy, and exceedingly floriferous. The Cucumber-house was filled with Telegraph and Douglas' "Tender and True," the latter evidently an improved variety of the former.

Suffolk is noted for its Cucumbers, many of the old standard varieties having originated in the county, but out of about thirty odd brace at the Ipswich show "Tender and True," grown by Mr. Rose in this house, carried off the prize. Those who wish to grow handsome Cucumbers of good quality should not lose sight of the above. The back wall of this Cucumber-house is being covered with plants of Echites splendens and Stephanotis floribunda, that will soon afford a good supply of bloom for cutting.

Melons are covering an immense surface of trellis, and with such ample foliage and full exposure cannot fail to produce fruit of superior quality.

Behind this range is a nice useful house, having a north aspect, for standing plants when in bloom or for retarding the same; and houses so situate are perhaps the most useful of all a gardener can have.

Mr. Packard, the spirited proprietor, appears to take great interest in gardening, and it is encouraging to those connected with horticulture to find that as old exhibitors drop off others step in and take their places; and thus may it always be to the end. *J. S.*

FRUITS OF ALGERIA.

(*Concluded from* p. 136.)

THE limits of the Tell and Sahara are determined by their produce. There are, however, transitional regions, where the Date and the ear of Wheat equally ripen; there are others which produce neither, and these being unenclosed and unfit for culture, belong to the Sahara. The natives distinguish the zones in their characteristic manner: the country where corn is the rule they call the Tell, the country where corn is the exception the Sahara. Upon the limits of the Sahara there are doubtful districts where the valleys produce in their lower parts Dates, Capsicums, Chilies, and grains, and places where pasture is intermixed, or others where there are immense ungrateful steppes. The vegetation in the northern part is nearly the same as in the south of Spain, Provence, and Italy, and most of the fruits common in Europe are to be found in Algeria. The Apple, Plum, Apricot, and Cherry stock the orchards and gardens as they do in England. The Vine is cultivated to advantage, the stems are very large, and the bunches of Grapes enormous; these ripen at the end of July, and are eaten fresh and dry by the natives, who seldom make wine, although this process will most likely be attempted with success by such admirable Vine growers as the French.

The Fig, which forms a considerable part of the food of the Arab, possesses an historic interest. The finest in the North of Africa come from Scherschell, whence they are sent to Algiers, Constantine, Tunis, &c. In the province of Oran there is one part of the Atlas Mountains famous for the quantity and delicacy of its Figs, resembling those that the elder Cato praised when he threw them down in the Senate, saying, "The country where this fine fruit grows is only three days' voyage from Rome," and then he uttered the doom of Carthage in that well-known phrase, "Mihi quoque videtur Carthaginem delendam esse." On the northern slopes of the Atlas, at an elevation of 2000 feet, Oranges grow mixed with the Aloe and Cactus. Both the Citron and Orange trees are remarkably fine, and their fruit is considered as good as those of Portugal, Malta, and Candia. Near Blidah there were some beautiful groves which have been cut down and burnt since the arrival of the French, to strike terror into the natives, and thus to insure the new reign of order.

The wild Pomegranates grow in such profusion that their fruit, when perfectly ripe, is sold at six for a halfpenny, and all descriptions of fruit are cheap, although prices have doubled since the foreign occupation. Gardens, fields, and houses near the metropolis are fenced in with hedges of Cactus and Agaves, The Cactus produces the Barbary Fig, which is eaten by the Arabs during six months in the year. The stems, stript of their numerous thorns, and cut into pieces, are eaten by the poor when vegetables are scarce. The shoots, when planted, will sometimes take root. Of the leaf of the Agave they make a kind of paper, and the fibres are used as a thread for weaving into cords. The Palma christi, which yields castor-oil, the sugar-cane, Cotton-tree, Cactus without thorns, Madder, Flax and Alhenna grow wild. The latter is a beautiful odoriferous plant, 10 or 12 feet high, bears small flower with a pleasant smell like camphor. The leaves of this plant, dried and powdered, are used by all African women as a cosmetic, being preferable to the bullock's dung with which the Gallas smear and adorn themselves in Abyssinia. The Palma-christi reaches its full height of 16 or 20 feet in one year.

The inhabitants are found to differ in character with the varying features of the country—there are the sun-burnt plains where the Palm tree flourishes, and the traveller makes his way painfully ankle-deep in the sands, under the scorching sun, or again amongst the airy heights of the Atlas, where the vultures and eagles soar and scream around him by hundreds. The Saharian is strong, active, and clever, a believer in labour, whilst the Tellian is lazy and awkward. The knowledge of the solar months, though necessary in agriculture, is less spread in the Tell than in the Sahara. In the Tell the Marabouts give the signal for tilling and harvest. In the Sahara, where the labour is more individual, each proprietor regulates himself the order of his work. The Sahara contains a great many towns and villages, whose construction does not imply any great skill, but much more than a tent, the usual dwelling of the Tellians, excepting the mountaineers of Kabylia who live in houses. The Tellian only knows his neighbour, the Saharian is a great traveller. The Kabyles inhabit a wild kind of Switzerland, and carry on a deadly feud with the Arabs, who have been their conquerors, and against whom they have a hereditary hatred. The Arab is hospitable, but with ostentation; whilst amongst the Kabyles the stranger is always well-treated, whatever may be his origin. They have a generous custom, that when the fruits, such as Figs, Grapes, &c., begin to ripen, the chiefs publish a decree that no one, during fourteen or fifteen days, under pain of a penalty, shall touch any of the fruit on the trees. At the expiration of the time fixed the proprietors assemble in the mosque, and swear on the holy books that the command has not been violated. He who cannot take the oath pays the fine. The poor of the tribe are then consulted; they make out a list, and each proprietor by turn feeds them till the fruit season is passed. The same thing takes place during the Bean season, this plant being much cultivated by the Kabyles. At these periods every stranger may enter the gardens and eat as much as will satisfy him; but he must not take away anything with him, for a theft is doubly culpable on these occasions, and might cost him his life.

The markets, where fruits and produce are disposed of, have been described by Marshal Castellane in a manner that furnishes us with an insight into Arab life. In Africa markets are not only places of sale but bazaars of news, and the whole population, Arab and Kabyle, frequent them. On market days, breaking their repose and silence, multitudes of Kabyles and Arabs were seen trooping in from all sides to the little magazine-port of Khamis, built like many other such belonging to the French in Algeria. They came from the mountains and the valleys, from every path, some driving sheep, others horned cattle, many carrying loads of corn, Beans, fruits, wool, or manufactured stuffs, but all armed, and many with their muskets only, or that knotty stick, one blow of which can break the hardest heads. Jews, with dirty turbans, drive in their half-starved mules, displaying their goods at the spot pointed out by the Caid and police, and erecting a little tent of bad cotton to guard them from pillage. The first hours were usually devoted to business. The butchers skinned the sheep they had killed, uttering *bis-millahs*, and suspended the flesh to little Fir trees, whose branches served as skewers; cattle dealers were standing near their beasts, awaiting purchasers; the corn and Bean merchants were shouting and quarrelling about a half-penny; but the noisiest of all was the Jew. The first hours and business over, the hum of men increases. The groups thicken, the state of affairs is canvassed—sometimes general politics, at others disputes between tribes. Envoys of the Emir gliding in among these groups used to fan the flame of rebellion at the market of Khamis, and the religious fraternities of the *zaouias* exchanged the messages confided to their fanaticism. *E. T. B.*

A NEW BRITISH SPHINCTRINA.

I SEEK to make known, through your columns, what I take to be a new species of Sphinctrina. It was given to me by my friend, Mr. Griffith Morris, of Hereford, during the Fungus Meeting of the Woolhope Field Club at Hereford last autumn. I have no desire needlessly to multiply species, and if you give insertion to this communication I shall be in the best possible position for correction, if I am describing a species already known to science. Under a pocket lense this plant may be taken for a cæspitose, large Stilbum or Calicium, but on submitting it to a more careful examination its structure very closely resembles Sphinctrina tigillaris, B. and Br.—a fact pointed out to me by Mr. Broome, and confirmed by my own examination of an authentic specimen of that species kindly lent me by him for the purpose; it differs, however, so much from that species, as well as from all the other members of the genus which I have hitherto been able to find described, that I propose to name and describe it thus :—

Sphinctrina cæspitosa, n. sp.—Apothecia globose, subglobose, or deformed, stipitate, densely cæspitose; stipes (from ¼ to 1½ line long) horny, often branched; sporidia oblong, rounded at the ends, uniseptate, fuscous, .0005 × .00015 in.

On decayed fungus, probably Polyporus, Hereford, Mr. Griffith Morris.

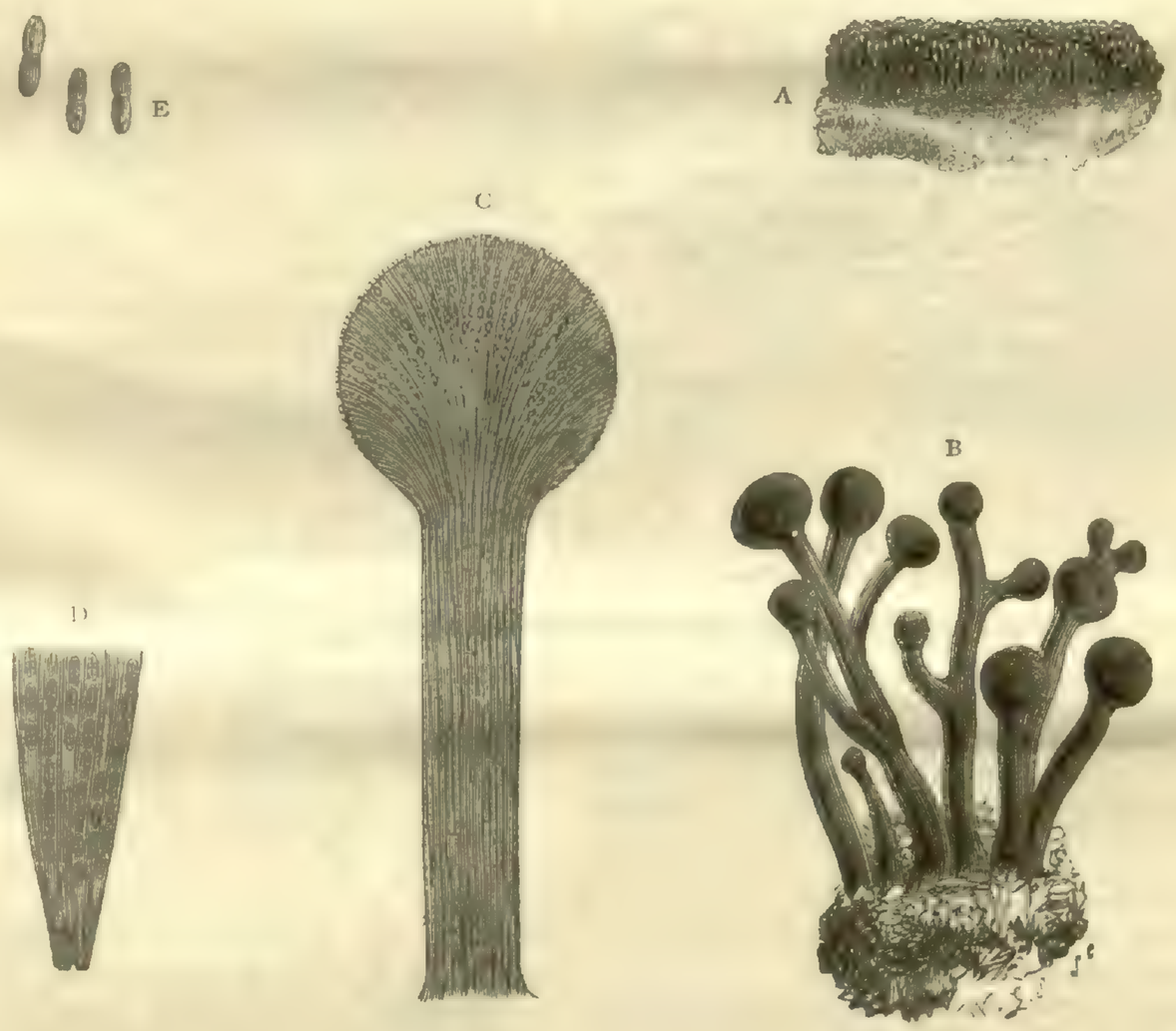

FIG. 32.—SPHINCTRINA CÆSPITOSA.

It forms a dense layer covering several inches; the stem is black, shining, and of a horny texture, frequently branched; the head in aged specimens becomes dusty from the breaking up of the hymenium. I have not been able to see the asci, but from the arrangement of the sporidia, as seen in a thin section, under the microscope, no doubt can remain in the mind that they exist.

Explanation of Fig. 32.—A, natural size of plant. B, a group of specimens magnified. C, a section of an entire plant, seen by transmitted light, more highly magnified. D, section of the apothecium, still more highly magnified. E, sporidia very highly magnified.

William Phillips.

MR. BULL'S NURSERY.

IF proof were wanting of the widely extended interest taken in horticulture at the present day, it would be only necessary to point to the wonderful enterprise displayed by numbers of the leading nurserymen in the country, to keep pace with the demand for new plants of all descriptions, hardy and exotic. Every country is being eagerly explored, in both the eastern and western hemispheres, that is likely to produce plants of use or ornament, or both combined, but more especially for such as are remarkable for the beauty of their flowers and leaves, or for singularity in form. The foot of the collector is not now confined to the sea-board, nor does he follow the beaten track of civilization, but he penetrates far into the interior, traverses the deep jungle of the eastern hemisphere, subject to alternate downpour and parching drought, while the high mountain plateau almost continuously enveloped in an atmosphere approaching saturation, the malaria laden-swamps and cooler high lands of the New World are alike made to contribute their floral treasures as a reward to the continuously further pushed researches of men who dare the often fatal effects of exposure inseparable from such pursuits in these region. Until of comparatively late years, with some exceptions, the different public botanical and horticultural societies at home and in other countries were the principal channels through which the greater part of the new plants found their way into Europe; but now this is all changed, private enterprise having supplanted the action of public bodies in the work. Amongst the foremost and most persevering in this stands Mr. Bull, who has made new and rare plants a principal feature in his business, and in whose establishment may always be found large numbers of plants new to the country, many of which are not yet out.

On entering the winter garden (an illustration of which appeared in the *Gardeners' Chronicle*, p. 981, 1873) the visitor cannot fail to be struck by the rich tropical effect produced by the quantities of fine plants grouped together, a feeling that is in no way impaired by a further and critical inspection of the occupants individually. Near the principal entrance, standing boldly above many things, are quantities of Cycadeous plants. The sight of a single specimen or two as generally met with conveys a very imperfect idea of the effect produced when a considerable number of these majestic plants are seen together, and which, when they become better known, cannot fail to form quite a new feature in cool conservatory decoration. The first of these to claim attention at the time of my visit, standing on the side of the central path, was a grand specimen of the extremely rare Encephalartos Jamesonii; it is 7 feet in height, and 10 feet across the spread of its leaves (this plant is sold to cross the Atlantic). On the opposite side stands a fine match plant of E. villosus, a beautiful form of this species, in which there is great difference in the individual appearance. Near it is an equally fine specimen of E. villosus ampliatus; it has a strong cylindrical stem, from which proceeds a fine head of arched leaves 8 to 9 feet in length; the leaflets are lanceolate and serrated on the edge. These Encephalartos are all natives of Africa, and although the leaves of many of them are 7 feet in length, yet the plants do not occupy more than a 12-inch pot. E. Ghellinckii is a most distinct and desirable plant. E. horridus, is not misnamed from the strength of its spines. Here likewise was E. brachypteris, very distinct and beautiful, as also the variety E. Altensteinii, quite different in habit from the others. E. Lehmanni, a handsome plant, more upright in growth, and E. cycadifolius, of quite lilliputian habit, compared with others of this genus; it is suitable for a small house, or standing in a situation where the larger growers would be out of place. In the midst of these is a remarkable specimen of Cycas revoluta; the stem is over 3 feet in circumference, 5½ feet from the base to the first leaves, and as straight as a gun-barrel. Finer plants for a conservatory cannot exist than these standard Cycads, forming suitable companions for Tree Ferns, with the advantage of not over-crowding the situation in which they are placed, as the Tree Ferns are apt to do. Of Macrozamias there are several hundreds; these natives of New South Wales are also most desirable cool decorative plants, that do not require near so much room as the Encephalartos. A few of the best and most distinct that I noticed were M. spiralis, one of these little larger than scores besides; it measured 4 feet in circumference of its ball-like stem. M. spiralis eburnea: this plant has, like the others of the family, a globose trunk; M. corallipes, distinct from the former; M. corallipes gyrata, differing considerably from the last; M. plumosa, a much smaller variety than the preceding; M. cylindrica. These stately plants are stood out from and above a carpet formed of low-growing things of different kinds, and so arranged have a fine appearance.

There were also at this end of the house quantities of Phormium Colensoi variegatum and P. tenax variegatum, distinct from each other when both fully developed. Associated with these are a number of Cordylines, well furnished down to the pots, near which were a splendid matched pair of Fourcroya Bedinghausii, 3 feet in height. Towards the centre of the house stand a fine pair of Palms—Seaforthia elegans; here we come upon more new plants, amongst which are the remarkable new Tree Ferns, Cyathea Dregei and C. Burkei, both natives of South Africa, very distinct and graceful in habit, and deserving a place in the most select collections. Opposite these is the Abyssinian Banana, Musa Ensete; this is the only known Banana that will stand a cool house all the year round. No conservatory should be without this regal plant, its magnificent dark green entire leaves 8 or 10 feet in length, with a red midrib running their whole length; it will also in summer bear the open air in a sheltered situation. Likewise suitable for a cool house are the following Palms, which here may be seen in their fully developed state, and in splendid condition:—Corypha australis, Chamærops Fortunei, C. humilis, Phœnix reclinata, Latania borbonica, Areca Baueri, A. sapida, Phœnix sylvestris, Kentia australis, K. Forsteriana, K. Belmoreana. The comparatively small plants of these varieties of Palms usually met with, although handsome, but feebly represent their appearance when seen in the size the specimens in this house have acquired. Interspersed amongst them are a grand lot of Tree Ferns, many of which have trunks from 8 to 10 feet in height, proportionate in thickness, perfectly straight, and with splendid heads; they consist of Cyathea dealbata, one of the best Tree Ferns grown, very distinct, with the silvery undersurface of its leaves; C. medullaris, the largest growing of all Tree Ferns, but quite manageable in size if confined in a small pot; C. Smithii; Dicksonia antarctica; D. squarrosa, one of the handsomest and of much smaller growth than the others, and consequently suitable for a small house. Here also were some dozens of Cycas media, with stems from 3 to 12 feet in height, and girthing from 2 to 3 feet, breaking into growth. At this the bottom end of the house is a fine example of Araucaria Bidwillii and A. excelsa, the latter one of the most beautiful of all large conservatory plants, only subject to outgrow its limits, but managed as it is here may be kept a long time within bounds; before it got too high the top had been repeatedly taken out. So treated, when not allowed to get too large before the operation is performed, it quickly makes a fresh leader, scarcely showing where it has been cut back: this also has the effect of causing it to retain its bottom branches. On the east side of the house, amongst quantities of Cycads and quite a grove of Tree Ferns, was the rare Dicksonia Leichardtiana; here also was a fine example of Dasylirion longifolium, and not far from it an equally fine plant of D. serratifolium glaucum, some very large specimens of Lapageria rosea, good Camellias, large and medium sized; a long frame filled with Todea superba and T. pellucida, Trichomanes radicans, and Adiantum reniforme: amongst these were a number of good specimens that evidently enjoy the cool temperature and shade they receive here. Near these stood a new Lomaria, recently imported, very distinct in appearance, the variety not yet determinable. Near the bottom of the house I noticed a good collection of Agaves; and on the outer walls are hanging some thousands of imported Orchids that require cool treatment, such as Cattleya Trianæ, Epidendrum vitellinum majus, Odontoglossums, &c. From this we come to several houses exclusively filled with Mr. Bull's particular specialities, all new plants, either such as have been very recently let out or not yet offered to the public. A few jottings may not be out of place of several of the most remarkable that have been a short time offered, but are not yet sufficiently known. Here was the individual seedling plant of Dipladenia Brearleyana, in my estimation not only far the best of all the Dipladenias, but also the best garden raised seedling of a hothouse plant of any description that has ever appeared; it possesses a vigorous constitution, is remarkably free in flowering, splendid form, with substance and colour combined, such as not found

in any flower I recollect. If I were confined to two stove plants, this Dipladenia and Ixora coccinea would be the two I should select. Plectocomia Andersoni, a stove Palm from India, of stout, bold habit, that has every appearance of being a desirable addition to this class of Palms. Tillandsia musaica, a stove epiphyte from Colombia, with broad leaves a foot in length, ground colour pale green, blotched and veined on the upper surface with dark green; the backs of the leaves are of a rich dull red colour: a handsome plant, very suitable in places where there is not room to grow larger things. Dracæna albo-rosea: this is a compact habited plant, with leaves half-a-yard in length, which in a mature state are deep bronzy green, edged with rose; whilst young they are suffused with white, and as they get older assume the darker garb. Medinilla amabilis, a plant with the habit of the well known M. magnifica, but instead of the flowers being pendent, as in that variety, they grow upright; this is a fine addition to stove flowering plants. Croton majesticum: this is perhaps the best variety in cultivation of this deservedly popular group; it it a free grower, dense in habit, the ground colour deep olive-green. Down the centre of the leaf, which is 18 inches in length, covering fully one half the surface, runs a deep yellow band whilst in a young state, which, when fully matured, changes to deep crimson: it is really a fine plant. Anthurium Scherzerianum album, a white-flowered form of the well-known A. Scherzerianum, that promises, when fully developed, to be a good companion to the justly esteemed red variety. There would appear to be different forms of this plant, some whiter than others in the flower. Croton spiralis: the leaves, which are a foot in length by 1 inch in breadth, deep olive-green, with a yellow band up the mibrib, are, as its name implies, twisted corkscrew-like, which gives the plant an interesting and singular appearance. Croton volutus: this is a very distinct plant, which might be described as a small, highly coloured form of C. variegatus, with the leaves rolled up as if they had been put in this position artificially, which gives it a most singular appearance. Spathiphyllum pictum, a plant with large stout green leaves, mottled with a paler shade, not unlike a Dieffenbachia. We now come to plants not, or only lately, sent out, many of which are not yet named. Standing on the centre stage is one of the very finest fine-leaved plants ever introduced into Europe—Pritchardia grandis, a dwarf, compact-growing Palm, which, when first seen, took every one's attention, but gave a very imperfect idea of what it would be when, as now, further developed; it retains its deep green, most remarkable leaves for years, and is so moderate in size that it will not overgrow the limits of a small house. When sufficiently plentiful, it will be a fine contrasting plant to the elegant Cocos Weddelliana. Here we find one of the most singular plants that has ever yet been introduced; it is a Croton, whose leaves each constantly assume two totally distinct forms. Imagine a plant of C. variegatus, with leaves 2 inches wide by 3 inches in length, beyond which the thread-like midrib extends some 3 inches longer, from the extremity of which grows another long, narrow, lanceolate leaf, very like such as borne by C. majesticus. Here we have a plant each leaf of which contains two distinct forms in one. Standing near this is another Croton, very distinct; the leaves, which are slightly spiral, have a yellow band and midrib whilst young, as they get matured they assume a most glowing crimson. Another of the same genus has quite one half of the leaf—that portion next the stalk—all yellow, the extremities green. Yet another most singular in form: this has a few of its leaves narrow and lanceolate, but the greater portion are thick, broad, blunt, and of great substance; yellow in the midrib whilst young, red as they get older; a peculiarity in this plant is that the midrib does not extend within an inch of the extremity of the leaf, but at that distance separates from it, standing upright from the upper surface in the form of a strong spine about an inch in length. Truly these Crotons are the most singular leaved plants in existence. One more, and the last of these Crotons, and in all probability the finest of the whole family: the leaves are about 1½ inch broad, 3 to 3½ feet in length, with more than half the surface white, in a continuous broad band down the centre.

There is a splendid lot of new Dracænas in this house; the first I noticed has the whole leaf blackish purple, some 2½ feet in length by 2 inches in breadth—a most elegant and distinct plant, forming a perfect contrast to another standing near it, which has its leaves blunt and rounded at the point, 18 inches by 6, deep green, the midrib red. Here also was one—Dracæna Rex—a decided improvement on D. Moorei in colour and substance, similar in habit. Again quite different is one with leaves 7 inches in breadth and not more than a foot in length, very much recurved at the points, colour bronzy green slightly edged with pink. Then comes the beautiful—and so distinct that at first sight it would scarce be taken for one of the genus—D. Goldieana, which is now beginning to develope its fine proportions and colour, and which is undoubtedly one of the best ornamental-foliaged plants: the leaves, which are ovate-lanceolate, are now 12 inches by 7, the surface composed of deep green and white, in equal proportions. There is also one much stronger and in every way finer than the well-known D. Cooperi, to which it is similar in habit; the leaves are 2½ feet in length and 5 inches broad, three-fourths of the surface intensely coloured. There are several exquisite miniature Dracænas, that will form splendid plants for table decoration. No. 1: the leaves are not more than 9 inches by 2½, beautifully coloured from the pot to the top. No. 2 is similar to the last in size and general habit with three-fourths of each leaf covered with white: these are a beautiful pair of miniature plants. No. 3 is a little shorter in the leaf, and a little broader, evenly edged with carmine. No. 4 of these charming small growing Dracænas is somewhat larger, different portions of each leaf alternating from deep bronze to the palest shade of green, with pink beading on the edge. There is another elegant variety here, with leaves full 3 feet in length, and not more than 2 inches broad. In this house also was the new Curmeria Roezlii, figured in the *Gardeners' Chronicle*, p. 805, 1874, and a new Maranta, of elegant slender habit, the leaves deeply corrugated.

In another house are several plants to be sent out in the coming spring—Dæmonorops ornatus, a Palm from Java, which in its present imperfectly developed state promises to be a fine thing; Desmoncus granatensis, a novel and distinct looking Palm from New Granada. There is also a set of four Eranthemums, introduced through the Royal Gardens, Kew, and very distinct in appearance. E. atropurpureum: the whole plant, stems and leaves, is a deep livid purple; E. Moorei, oblong-ovate acuminate leaves, mottled green in the centre, and margined with yellow; E. reticulatum is very pretty, its ovate-lanceolate acuminate leaves have a ground colour of pale green, closely veined over the entire surface with golden-yellow, not unlike the variegated Honeysuckle Lonicera aureo-reticulata. E. versicolor, a stronger grower than the last, has the leaves mottled with different shades of green. Astrocaryum argenteum is a fine silver-leaved Palm from Colombia. Astrocaryum filare is a distinct and elegant Palm, also from Colombia. Here, likewise, is Bertolonia superbissima, one of the most exquisite low-spreading plants in existence, with leaves from 5 to 6 inches in length; the ground colour is a deep olive-green covered with three rows of charming rose-coloured spots one-eighth of an inch in diameter; the intervening surface is thickly dotted over with smaller spots of the same colour. This is a most beautiful plant, which no description can do justice to. Laportea Schomburgkii versicolor, from the South Sea Islands, has stout fleshy stems and large dark green leaves, covered with a greyish white mottling. Martinezia leucophæus is a handsome and small-sized Palm from New Granada, Panax obtusum is a neat habited stove plant from India, and Paullinia oceanica a most elegant-leaved plant from the South Sea Islands, which cannot fail to be a general favourite.

In another house were all the known species of Dracænas, with some hundreds of Dipladenia Brearleyana, already alluded to; a fine plant of Nepenthes Dominiana, and the very rare Zamia Roezlii. Here also were thousands of Palms just coming up from seed, Aphelandra fascinator, and the elegant Geonoma gracilis. The adjoining houses are filled with the best varieties of foliage plants—Phyllotænium Lindeni, the beautiful Terminalia elegans, Anthurium crystallinum, the best of the fine-leaved Anthuriums; Calamus ciliaris, Cocos Weddelliana in considerable numbers and different sizes; the elegant Curculigo recurvata variegata; Welfia regia, the young leaves of which are a fine red colour; Thrinax elegantissima, a splendid medium-sized Fan Palm; Aralia Guilfoylei, &c.

We now come to a large house at the west of the winter garden, in which are some thousands of the best Palms, such as Dæmonorops palembanicus, D. periacanthus, Martinezia erosa, a very distinct Palm, the spines, with which the upper surface of the leaves are studded, giving it a singular appearance; Latania aurea, Geonoma Seemanni, one of the very best and most distinct dwarf Palms in existence—it ought to be in every collection of fine-leaved plants; Cycas imperialis, of which, as is supposed, there are not more than one or two plants in the kingdom; Vriezia reticulata, a large remarkable Bromeliad from Rio Grande do Sul; Livistonia rotundifolia, one of the very finest Fan Palms, with the advantage of not being liable to outgrow even a moderate-sized house; Tillandsia tessellata, Erythrina Parcelii, the strange-looking Amorphophallus of various sorts, the roots in a dormant state. Here also were quantities of the elegant and fragrant Pancratium notatum. On the eastern side of the winter garden is a similar house to the last; here were large numbers of that excellent Palm, Latania aurea; on the centre stage were a quantity of fine specimens of Anthurium Scherzerianum, Encholirion corallinum, a fine Brazilian Bromeliad, Billbergia Saundersii, another interesting epiphytal plant from Bahia; Cycas Armstrongii, rare and fine; and C. Riuminiana. Here also is an importation of Tree Ferns, in several species, totally distinct from anything in their way yet seen.

Next is the blooming Orchid-house, where in flower at the time of my visit were Sophronites grandiflora, Odontoglossum Insleayi, O. carinaferum, O. bictoniense roseum, Calanthes of different sorts, Saccolabium giganteum, Dendrobium aggregatum, &c. In an adjoining house were a good collection of Aerides, Saccolabiums, Vandas, Phalænopsis grandiflora, P. amabilis, and P. Schilleriana, amongst which were a number of newly-imported plants of the latter variety, as fresh and healthy as if they had been grown in the country, some of the leaves being 18 inches in length; there was also here a fine lot of the beautiful Cypripedium niveum.

From this we come to a house partially used for propagating stove plants, in which numbers of the new plants were being increased as fast as possible; here I noticed a very distinct Lomaria.

Near are a number of heated pits, in which the Palms and similar plants are raised in quantities from seed. Adjoining are the Pelargonium-houses, of which in new kinds Mr. Bull does a large trade, especially the varieties that have been raised by crossing the French spotted kinds, that may be said to have originated with Odier, and the English show sorts, from which have sprung so many fine decorative varieties; also some good Zonals and Nosegays. The new Fuchsias here for the present season have a very high character. There was also in these houses an importation of Phormium tenax variegatum, in which are said to be several distinct forms, variegated with distinct colours, but which, from the effects of the journey, do not yet show their true character.

In the cool Orchid-house were quantities of Odontoglossums, Masdevallias, and others that do not require much heat.

In an adjoining house, principally filled with Pelargoniums, were Lilies by the hundred-weight, of most of the leading kinds, amongst which were some thousands of the double Lilium tigrinum, which was first introduced by Mr. Bull, as was the fine Californian, L. Pardalinum, and this year, for the first time, L. Bloomerianum oscellatum.

In another house was a nice lot of healthy plants of the new Boronia megastigma, also the magnificent Doryanthes Palmeri from the hill regions of Queensland, and a new Blandfordia not yet named. There is also a very complete collection of medicinal and officinal plants, which are particularly interesting; many of them can be grown in a warm house without occupying much room: here likewise is a fine collection of the new tuberous-rooted Begonias. These form bulbs similar to a Gloxinia, and are dried off in the winter like them, do not require above a greenhouse temperature, even doing well out-of-doors in the summer. They are continuous bloomers, the flowers very large and splendidly coloured, and are especially deserving of cultivation by every one who has the convenience of a greenhouse. There is now in this nursery coming up from seed a plant that is likely to prove a valuable addition to outdoor decorative subjects—Rheum nobile. Dr. Hooker discovered the plant in Sikkim, and it is figured in his splendid illustrated book of Himalayan plants, and described by him, the following extract from which will convey some idea of the appearance of the plant. Dr. Hooker says:—"I first saw it from a distance of fully a mile, dotting the black clifts of the Lachen Valley, at 14,000 feet elevation, in inaccessible situations, and was quite at a loss to conceive what it could be; nor was it till I had turned back the curious bracteal leaves and examined the flowers that I was persuaded of its being a true Rhubarb. The individual plants are upwards of a yard high, and form conical towers of the most delicate straw-coloured, shining, semi-transparent, concave, imbricating bracts, the upper of which have pink edges; the large, bright, glossy, shining green radical leaves, with red petioles and nerves, forming a broad base to the whole. . . ." What a noble plant this would be for a shrubbery border, or in any situation where it would have a good background. Mr. Bull and others have been long endeavouring to get this plant, and have at last succeeded.

The numbers of fine new plants that have been introduced and sent out from this nursery by Mr. Bull have added materially to the embellishment of our gardens at the present day, especially in the department under glass. He offers every inducement to secure his new plants being grown and placed before the public in the best possible manner, and alike creditable to the grower and introducer, by his liberality in offering prizes for them at the London and principal provincial exhibitions, which he has already done, and is doing up to the value of £1000.

Mr. Bull also does a large export trade, and has patented an improved case for the conveyance of plants to distant countries, and which has afforded ample evidence of its efficiency in preserving plants in a healthy state through the lengthened time inseparable from their conveyance to the most distant parts of the world. In addition to the plants, there is here a large seed business, both wholesale and retail, especially in the choicest descriptions of flower seeds. *T. Baines.*

HYBRID TACSONIA.

MR. ANDERSON, of the Gardens, Sowerby House, Hull, to whom we owe our first knowledge of the beautiful Tacsonia insignis, has been hybridising that species with T. Van Volxemii, the latter being the pollen-parent. On this point we subjoin Mr. Anderson's remarks :—

"Tacsonia insignis never seeds with me unless it be artificially impregnated, and then not freely with its own pollen, but more so with that of Van Volxemii. The colour is intermediate between the two parents, more a scarlet than either; the size from 5 to 6 inches in diameter. The internal formation of all the flowers is the same as in the one I sent. Out of about forty plants raised from two seed-pods, all, with one exception, have the divided leaf of the male parent, while one seems in every respect a true insignis. Only one plant has flowered thus far. I have insignis growing freely on a south wall out-of-doors, Should it prove hardy, I will let you know."

Mr. Anderson's note is interesting, as confirming the fact that Passifloras often set better with foreign pollen than with their own. The internal conformation of the hybrid flower is very curious, and affords the first stage towards a double flower. The calyx, corolla, and corona are all normal, but the stamens, instead of bearing anthers, are surrounded by petals, as shown in the illustration (fig. 33). Beneath, the filaments, previous to their separation one from another, form a tube, from whose edge springs an additional corona, just as the corona springs from the flower-tube at the base of the petals in ordinary cases. We have here, then, not only a very interesting malformation, but the germ of a double Tacsonia. [We suggest that Mr. Anderson's name be attached to this hybrid, thus × Tacsonia Andersoni. EDS.]

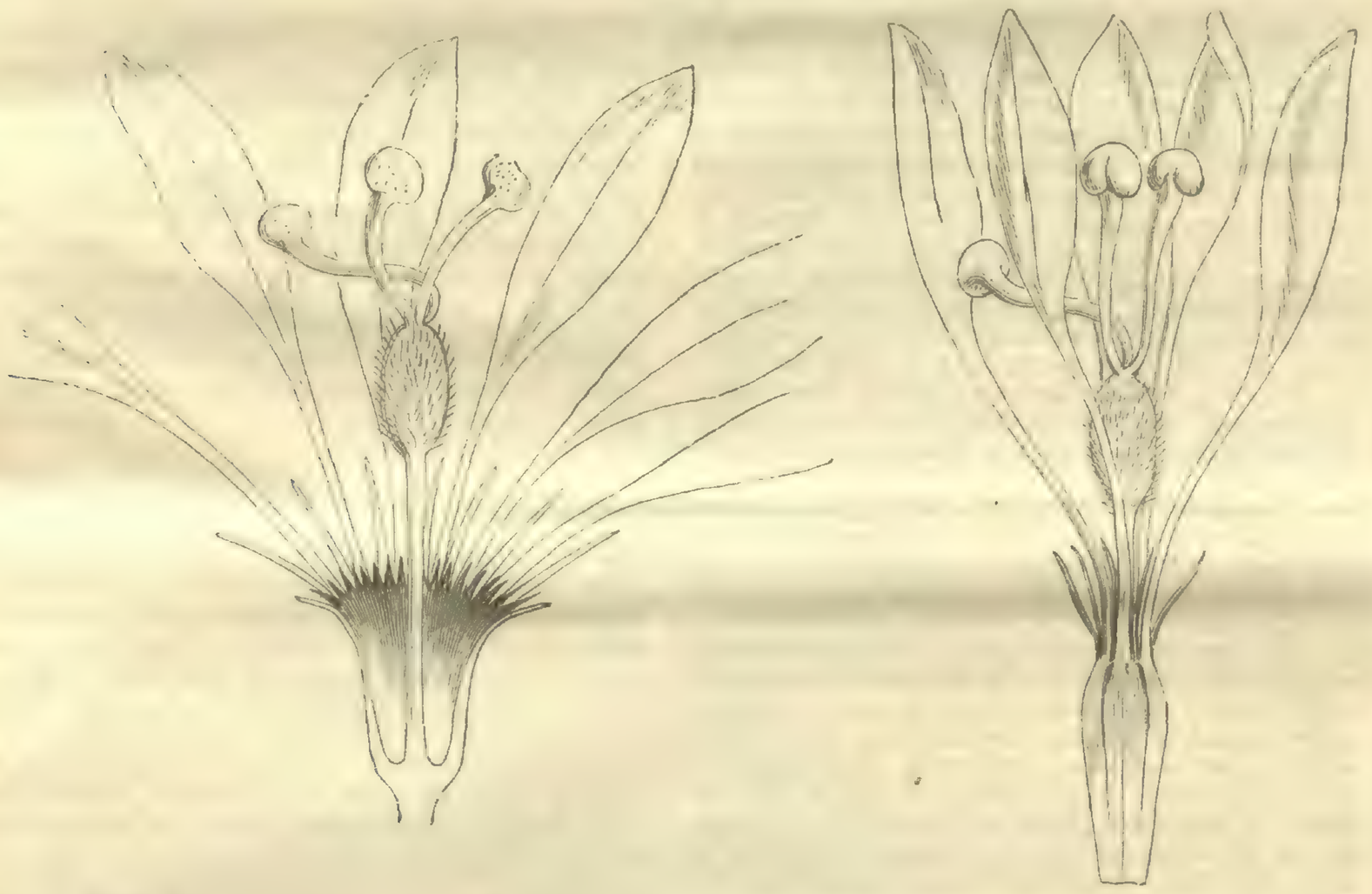

FIG. 33.—PETALOID STAMENS, ETC, OF TACSONIA (THE SEPALS AND PETALS REMOVED).

BURMESE PALMS.

THE second part of the forty-third volume of the *Journal of the Asiatic Society of Bengal* contains a descriptive enumeration of all the Palms known, in 1873, to occur in Burmah and the Andaman Islands. The enumeration comprises forty-seven species, six of which are doubtful; and there are nineteen uncoloured plates to illustrate the new species, which, although only of octavo size, will be of great service in determining them. In some remarks on the variation of Palms which precede the descriptive matter, the author says that size is a very inconstant character, inasmuch as Phœnix paludosa has a stem which varies in height from only 2 or 3 feet up to 15 to 25 feet. The production of offsets he does not consider of sufficient value upon which to establish a variety, because, although this character has become general and constant in many species, atavisms are not unfrequent. In support of this statement he says we know, for example, cases in which the common Betel-nut Palm has made as many as seven shoots, and similar instances are not wanting (especially in Phœnix, Cocos, Arenga, and Euterpe). Areca triandra has simple and soboliferous trunks with all intermediate states, and therefore he has unhesitatingly connected with it A. laxa, a species that differs in no structural points. Caryota sobolifera is another example wherein simple-stemmed and soboliferous plants may occasionally be found in the Burmese jungles not a dozen yards from each other. Again, the armature in Calamus is often very different according to the age of the Rattan itself, or accordingly as the sheaths come from the lower or upper parts of the plants. On the other hand, the Calami, including Dæmonorops, offer so many valuable characters in their spathes and spathules, nature of seeds, loræ and flagellæ, and, finally, in the scales and stamens, that Mr. Kurz thinks we may confidently look forward to a sound and natural classification of the Rattans so soon as the numerous book species, often based upon incomplete specimens only, shall have been got rid of. The indumentum of the inflorescences and their spathes seems to afford valuable characters; its colour, however, varies greatly in the same species. Thus, in C. gracilis the spadix in different individuals is yellowish white, scarlet, and greenish purple. The Rattans have a very restricted area of distribution, and Mr. Kurz has been unable, after taking great pains, to identify several of his species with any of the hundred species or thereabouts already published. The new species are: Areca hexasticha, a slender-stemmed gregarious Palm, 20—30 feet high and 3—4 inches in girth, with pinnate leaves 3—5 feet long; Livistona speciosa, a lofty species from 50—70 feet high, with a stout trunk and flabellate leaves 6—7 feet across—a very handsome Palm; Corypha macropoda, a gigantic stemless Palm 30—40 feet high, leaves palmately flabellate, 12—20 feet across, petiole 18—25 feet long: this must be an exceedingly imposing plant with its enormous leaves rising to a height of 40 feet! All the remaining new species belong to the Calameæ. They are Plectocomia macrostachya, a lofty glabrous climber, with pinnate spiny leaves; Dæmonorops hypoleucus, a slender scandent Rattan; Korthalsia scaphigera, and four species of Calamus andamanicus, tigrinus, Helferianus, and paradoxus, of which the two former represent a new type, characterised by having the scales of their fruits furnished with fringed appendages as long as, or longer than, the scale itself.

This enumeration will be found very useful; there is a reprint of it for private circulation.

CURIOSITIES IN THE NAMES OF PLACES.—I.

AS INDICATING THE GEOGRAPHICAL DISTRIBUTION OF TIMBER.

NAMES of places are often significant of facts connected with them beyond those which the casual reader or hearer perceives in them at first. The grand physical features of a country impress the mind, and the names to which they give rise remain attached to them even when change has swept over them, or the memory of the word has faded out of the minds of the inhabitants of the district. The secrets of the past are not unfrequently hidden in words, so that by the bringing out of the meaning of them "more knowledge of more value may be conveyed by the history of a word than by the history of a campaign." A popular author of our day has somewhere characterised language as "fossil poetry," and in this regard Archbishop Trench says, "Language may be, and indeed is, this fossil poetry; but it may be affirmed of it with exactly the same truth that it is fossil ethics, or fossil history." Not only may we affirm, however, that "language is the amber in which a thousand precious and subtle thoughts have been safely embedded and preserved; it has arrested ten thousand lightning flashes of genius, which, unless thus fixed and arrested, might have been as bright, but would have also been as quickly passing and perishing as the lightning." We may also assert of it that it registers bygone facts, and often preserves the record of the past in a recallable and interpretative form. The intent of the observations on "Names of Places" which are to follow is to show the wide prevalence of timber trees in this country in the olden times, and to note the facts language has preserved of the geographical distribution of wood in the land.

We may notice first that at a very early period the British islands were pretty well wooded, with a good stock of aboriginal or very anciently planted tree timber. We argue this from the fact that our early Saxon forefathers have supplied us with many of the names now familiarly used for the trees of our woodlands. Take, for instance, these monosyllabic Saxon terms—Ash, Asp, Beech, Birch, Box, Elm, Fir, Holm, Lime, Oak, Pine, Plane, and Yew; and these dissyllables—Alder, Maple, and Willow, as well as Woodbine, properly "wood bine" as it was anciently written, as binding the tree about which it creeps. These words show that if our Saxon ancestors were not *silvicultrices* (wood-trainers), they were certainly *nemorivagi* (wanderers through groves), to use the phrase of Catullus regarding the time—

"When wild in woods the noble savage ran."

Afterwards, when villages began to be founded and towns arose in the cleared lands, wood often became the building material, or some indication was given that timber had grown there, or still flourished near. It would be impossible in the limits of such a paper as this to note all the places in England which give evidence in their names of the prevalence of wood in old times; but we may quote a few here and there in several counties, just as they rise to one's memory in running over a few geographical names. In Norfolk we have Woodbastwick, Wood Dalling, Wood Rising, and Woodton; in Suffolk, Woodbridge; in Essex, Wood Norton, Woodford, and Woodham Ferris, Woodham Mortimer, Woodham Walter; in Kent, Woodchurch and Woodnesbury; in Sussex, Woodmancote; in Surrey, Woodmansterne; in Hampshire, Woodcott, Woodhay, and Woodmancot; in Wiltshire, Woodborough and Woodford; in Dorset, Woodlands and Woodsford; in Somerset, Woodkey; in Devon, Woodbury and Woodleigh. That pretty well speaks for the geographical distribution of timber in the south-eastern counties. We dare say the other districts could give quite as good an account of themselves. In Berks there is Woodhay West, in reference to Woodhay East in Hants; in Oxford, Wood Eaton and Woodstock; in Gloucester, Woodchester; in Chester, Smallwood and another Woodchurch, the one in the opposite corner to that in Kent; in Northampton, Woodford, and Wood Newton; in Huntingdon, Woodhurst, and Woodstone; in Cambridge, Wood Dilton; in Lincoln, Wood Enderby and Woodhall; in Nottingham a Woodborough as well as in Wilts; and in Northumberland there is Woodhorn.

The foregoing paragraph affords proof of the extensively wooded country England was in ancient times; but we have instances too of the habitats, as it were, of specific trees in special districts. We have for example, Ash near Sandwich, and Ash next Ridley, in Kent; Ash in Surrey, and Ash (Borking) in Suffolk. Then there are Ashampstead in Berks, Ashborne in Derby, Ashbrittle in Somerset, Ashburnham in Sussex, Ashburton in Devon, and an Ashbury both in Devon and Berks. There are two Ashbys in Norfolk, and there is one in Suffolk. There are at least fourteen other Ashbys; Canons Ashby, Castle Ashby, Cold Ashby, Ashby Mears, and Ashby St. Legers, in Northampton. Ashby-with-Fenby, Ashby-de-la-Lannale, Ashby-by-Partney, Ashby-Puerorum, and Ashby West in Lincoln; Ashby Folville, Ashby Magna, Ashby Parva, and Ashby-de-la-Zouch, in Leicester. There is an Ashchurch in Gloucester, an Ashcombe in Devon, an Ashcott in Somerset, and an Ashdon in Essex. Ashe is the name of a parish in Hampshire, Asheldam is in Essex, and Ashelworth in Gloucester; Ashen is in Essex, and Ashendon in Buckingham. Suffolk possesses not only Ashfield but Great Ashfield. There is an Ashford in each of the following counties—Middlesex, Devon, Derby, and Kent. Shropshire rejoices in Bowdler Ashford and Carbonell Ashford, and Leicester in Ashfordby. There is an Ashill in Norfolk and in Somerset, an Ashingdon in Essex, and an Ashington in Somerset. Ashel-

worth is in Gloucester, and there is an Ashley in Huntingdon, Northampton, Stafford, and Wilts, and an Ashley-cum-Silversby, in Cambridge; Bracon Ash and Ashmanhaugh in Norfolk, and Ashmanworth is in Hants. Dorset presents us with Ashmore, Somerset with Asholt, Derby with Ashover, and Warwick with Ashow. Besides all these, Devon can name among its places Ashsprington, Ashreigney, and Ashwater; Hereford has Ashperton, and Hertford Ashwell. Ashwell is a village in Rutland, and Thorpe Ashwell a parish in Norfolk. Somerset has not only Ash Priors and Long Ashton, but Ashwick. There are several Ashtons, one in Northampton and another in Devonshire, Cold Ashton in Gloucester, Keynes Ashton and Steeple Ashton in Wilts; Ashton-under-Lyne and Ashton-in-Mackerfield in Lancaster, and Ashton-upon-Mersey in Chester. There is one Ashurst in Kent and another in Sussex; an Ashwater in Devon, and an Ashwicker in Norfolk. These references are sufficient proof of the very wide diffusion in England of the Fraxinus excelsior, which Spenser, looking to its practical uses, characterises as "the Ash, for nought unfit."

Aspall in Suffolk, Aspedin in Hertfordshire, and Aspley Guise, give hints that Gay's lines are not applicable in these parts, and that we cannot say—

"No gale disturbs the trees,
Nor aspen leaves confess the gentlest breeze."

Beechamwell in Norfolk, and Beechingstoke in Wiltshire; Great Birch in Essex, as well as Much Birch and Little Birch in Hereford; Birchfield in Warwickshire and the three parishes of Great Bircham, Newton Bircham, and Tofts Bircham in Norfolk, as well as Birchanger in Essex, Birchill in Derbyshire, Birchington and Bircholt in Kent, suggest that in the former places—

"Black was the forest, thick with Beech it stood,"

and that in the green country lanes of the latter—

"The Weeping Birch tree streamed
Its branches, like a fountain shower."

We can only quote as samples, Boxgrove in Sussex [Box Hill in Surrey], Boxley in Kent, one Boxted in Essex and another in Suffolk, Boxwell in Gloucester, and Boxworth in Cambridge, of the proof which names afford of the widely diffused growth of this favourite timber of wood engravers. A parish called Elm is found in Cambridge and another in Somerset, Warwick rivals Essex in the possession of an Elmdon, Norfolk has only one Elmham, but Suffolk has seven, Kent and Essex can each produce an Elmstead; Kent and Gloucester each an Elmstone; Suffolk has both an Elmsett and an Elmswell.

In Lincoln there is not only a Firsby but an East Firsby, and in Yorkshire there is a Firbeck. "The Firs" is a very common designation for gentlemen's estates in many counties. There are places named Holme in Westmoreland and Nottingham, and in the latter county we have besides Pierrepont Holme. Norfolk has Hale, Holme, Holme-next-Runcton, and Holme-near-the-Sea. York gives us Holme-on-the-Wolds and Holme-upon-Spalding-Moor. In Dorset there is East Holme, in Lincoln Northolme, and in Cumberland Cultram Holme. In York we have Holmpton, and in Hereford Holmer. Holmsdale in the counties of Surrey and Kent is so inaccessible that the rhyme goes :—

"This is Holmsdale,
Never won nor ne'er shall."

In Limehouse, Middlesex, and Limington, Somerset, we have examples of names of places where—

"The piercing Lime
With the deep orange glowing through the green
Their lighter glories blend."

As memorials of the Oak, take Oake in Somerset, Oakford in Devonshire, Oakham in Rutlandshire, and Oakhampton in Devon, as well as Oakington in Cambridge, Oakmer in Stafford, and Oaksey in Wilts. In addition to this, Oakley is a place-name in Bedford, Buckingham, and Suffolk; Great Oakley and Little Oakley are found both in Essex and Northampton, and Church Oakley appears in Hampshire. But the Oak is an ancient and marked timber tree in all lands, and its name goes into so many varieties—for example, Acton in Middlesex, and Auckland Bishops in Durham, Eckford in Roxburghshire, and Eckington in Derby; Durgle in Wicklow, and Durragh in Limerick; Chesney in France, and Chence in Belgium; respectively derived from the Saxon *Ac*, the Erse *Durach*, and the French *Chane*—that we must adjourn the farther consideration of this and other evidences of extensive timber distribution contained in the names of places for a future occasion. In the meanwhile we may here re-echo the lines of Alexander Pope :—

"Let India boast her plants, nor envy we
The weeping Amber and the balmy tree,
While by our Oaks the precious loads are borne,
And realms commanded which these trees adorn."

Timber Trades Journal.

TRENT PARK,

THE SEAT OF R. C. L. BEVAN, ESQ.

THIS fine place is situated on the northern extremity of the county of Middlesex, on the undulating Enfield Chase; it is some ten miles distant from London, and is approached from the main road leading from Southgate to Potter's Bar. At about two miles from the former village stands the principal entrance lodge, once inside the gates of which the visitor gets a glimpse of the beautiful scenery in which the place abounds, and which is not surpassed by anything in its way in this part of the country. The whole surface of the land is a succession of hill and dale, wood and water. Following the windings of the well-kept carriage-drive, in an easterly direction, through a large tract of highly cultivated meadow land, the attention is arrested by a treble avenue of thriving Limes, planted some thirty years, very even in growth, clean in the trunks, and symmetrical in the heads, which have room sufficient to show the natural habit of the trees. Although no admirer of avenues as generally seen, for they are too often unmeaning and inconsistently out of place, especially if the grounds are not sufficiently extensive, yet here the effect produced is good, without anything objectionable. Traversing this avenue, which is of considerable length, we come to a second gate, enclosing a portion of the dressed ground dotted over with some splendid timber, amongst which Oak, Beech and Hornbeam, stand conspicuous, by the large size and undoubted great age of some. Hollies also grow here splendidly, attaining a size such as rarely met with, the soil, a strong flinty loam on a loamy gravel subsoil, evidently being such as well suited to the growth of slow-growing trees. Especially noticeable amongst a number of fine Hollies is one—the subject of our engraving (fig. 36, p. 173). This tree, although quite alive and sound, has very few branches, scarcely any that show through its mantle of Ivy towards the top, which is quite covered, and is one of the most perfect examples of an Ivy-clad tree to be met with. Sixty-one feet in height, and girthing 10 feet at 4 feet from the ground, it is a most interesting illustration of the tenacity of plant life under the lingering, but, no doubt, ultimately fatal grip of its destroyer. Ivy-clad Hollies are not very common, yet they appear to be able to bear up against its influence longer than most trees, for this was a favourite resort for the owl thirty years ago. Amongst numbers of fine old Hornbeam, Beech, and other trees, is a very old Oak, some 21 feet in diameter 6 feet from the ground. This stands near the south, or principal entrance to the mansion, which is a large, imposing building, with a massive tower at the eastern end. It faces northwards, overlooking a lovely valley, in the bottom of which is a fine piece of water, some 6 acres in extent. On the opposite bank of this the broad expanse of grassland stretches east and west, northwards rising gradually to a considerable height, where it adjoins a large extent of woodland (some 240 acres), the irregular margin of which—in places standing out boldly, in others receding—altogether forms a most beautiful landscape.

Descending this valley from the mansion, keeping to the right, we come to the head of the ornamental water, in which is a small island, like to such often met with in similar situations, but in this case particularly noticeable for the effect it has been made to play on the surrounding landscape. The margin is planted with low-growing shrubs, the centre occupied by a number of tall Poplars; these produce the best possible effect: standing as they do in the bottom of the valley, whichever point they are seen from, they have a background, near or distant, of trees with broad spreading habit, to which they form an admirable contrast—they are, in fact, the one touch which completes the picture. Going round by the eastern end of the lake, on the opposite bank of which are some fine examples of Pampas-grass, which are appropriate and effective, we ascend the rising ground until we arrive at the commencement of the wood-clothed height already alluded to; it consists principally of Oak, Beech, and Hornbeam, with grand examples of Holly and Thorn, amongst which are some splendid trees, particularly Beech, which here do remarkably well. There is one in particular that deserves especial notice; its girth at 4 feet from the ground is 16 feet, height 100 feet; its branches droop almost to the ground; it is perfectly symmetrical, and in every way a magnificent tree. Slightly larger examples of Beech may exist, in such of more apparent age, but I much doubt if there are any that promise to ultimately assume the dimensions which this has the appearance of attaining, as it is evidently as full of growth and vigour as if it had not been planted more than a score of years. Numbers of other fine trees are to be found here, but none quite so large and handsome as the above. Adjoining this, at a short distance westwards, may be seen that which few places in the kingdom afford—a portion, about 60 acres remaining, of primeval forest, that has not been planted by the hand of man; it consists principally of Oak, Beech, Holly, and Thorn, the undergrowth very thick and close, with the common Brake (Fern) in a few open places. On the summit of the hill stands the Camlet Moat, about the origin of which there have been several opinions—some attributing its construction to the Mandevilles, previous to the twelfth century. A good deal of the works may yet be traced, although almost covered with a thicket of undergrowth; this is pointed out as one of the hiding places of the notorious highwayman Turpin, whose grandfather kept a publichouse not far distant—at all events it is a place well calculated for concealment at a time when the country was thinly populated. The wood is intersected by many miles of beautiful drives, that in the summer season are especially enjoyable, affording at every turn a glimpse of fine and varied scenery stretching far in the distance over the adjoining counties of Essex and Hertfordshire. Leaving this interesting spot from its western extremity, we descend through a fine open glade to the bottom of the valley, crossing which near the top of the lake we enter the pleasure grounds, which are intersected with well kept walks, shady and agreeable. This part of the grounds is principally planted thinly with deciduous trees, standing not so close as to interfere with the undergrowth of Laurel and Yew which are planted sufficiently near to each other to form large beds, and kept cut so as not to grow too high for the eye to reach over them: in this way they look well and make a novel feature. There is here a hardy fernery made by Mr. Sibins, who was originally with the late Donald Beaton, at Shrubland, and who has been gardener here for some twenty-five years, and whose care and cultural abilities are everywhere apparent. This fernery has been very tastefully arranged, but the plants do not succeed so well as they ought, being too much overhung by trees; hardy Ferns like shade but do not well bear being too much darkened, and under drip. Rhododendrons, of which there are some fine examples, do well here. Approaching the mansion are some remarkably good Golden Hollies, Irish Yews, Deodars, and Araucarias, which latter seems to grow here as freely as the Cedar of Lebanon, of which there are some beautiful examples standing westwards from this point, not trees of remarkable age, but full of health and vigour, perfectly symmetrical and about 80 feet in height. Fronting the mansion is a terrace 20 feet in width, in gravel, bounded by a low wall covered with Ivy, with Cotoneaster and Virginian Creeper alternately at 4 feet intervals. These are kept in shape, and stand considerably above the Ivy. The Virginian Creeper I have never seen managed more effectively than in the above manner; at the time of my visit it was in its full autumn colour, which was well brought out by the deep glossy green of the Ivy. The Cotoneaster was equally telling, clothed with its finely coloured berries. With taste and forethought numbers of our fine old plants can be thus simply but effectively ranged in combination so as to produce the most telling effects, the principal thing in their management being to prevent each unduly encroaching upon its neighbour. At the extreme end, the low palisading surmounting this wall was nicely covered with Clematis of different colours, conspicuous amongst which was fine C. Jackmanni, still one of the most effective. Adjoining the mansion at this eastern end is a moderate-sized conservatory, the plants arranged in the natural style, the principal centre subjects consisting of Tree Ferns, Palms, and a grand old Orange tree in fine condition. The back wall of the conservatory, some 14 feet in height, is completely covered with a plant of Cassia corymbosa; it is planted out in a narrow border, and is one of the very best things for such a situation that can be used. It is more or less in bloom nearly all the year, its bright yellow flowers contrasting well with its glossy green leaves. It is also a plant that will do better than most where there is an insufficiency of light, looking healthy and fresh where many plants would have a very so-so appearance. The roof is nicely clothed with Passifloras and the Jasmine-leaved Bignonia (Bignonia jasminifolia). These plants are not allowed to form a complete thicket so as to unduly exclude the light from the other occupants, as is too often the case, but are kept in bounds, hanging thinly in festoons. The wall outside, some 2 feet in height, is densely covered all round with Cotoneaster microphylla. This looks well, and has a better effect than the most highly-finished masonry. Conservatories are too often made as if the object was a display of the most elaborate work in costly materials, and the unfortunate plants that are employed within them are simply used as an embellishment to the building. Where such exist they are costly in the first instance, costly in keeping up, for the plants are killed as fast as they are put in them, and the collective effect produced is never equal to where the building in itself is made a matter of secondary consideration to the health of the plants that it is intended to contain.

The kitchen garden with the fruit and plant houses lies at some distance from this in a southern direction. The ground betwixt is occupied by a good

selection of ornamental trees and shrubs, many being deciduous, and which at the present day do not receive the attention from planters they deserve, often giving place to things that are inferior and doubtful in being hardy. Here were several examples of the old white Mespilus, the autumn colouring of whose leaves is amongst the finest we possess, associated with the Mountain Ash, the branches of which were loaded with its red fruit; these produced quite a glow of colour, backed up by trees with ample foliage, such as the Spanish Chestnut and Ailantus glandulosa, one of the best ornamental trees we have: numerous others of similar character are intermixed with these.

The kitchen garden, moderate in size, 3 acres inside the walls, is thoroughly well managed. On the inside wall, facing south, some 130 yards are devoted to Peaches and Nectarines. The wall coping and curtains used for protecting the trees when in bloom are not of the ordinary kind, and deserve notice, more especially the coping, which is specially adapted for localities where stone is scarce. This coping is made of cement and sand in equal proportions; in making the coping the cement is laid down 1½ inch in thickness, into it is bedded a quantity of broken pieces of thin roofing tiles, to give strength, on the top of this is spread as much more of the cement as will bring the whole up to about 2½ inches in thickness, bevelled off at the edges in the usual way. This answers every purpose, and appears as if it would last for an indefinite time; it is made to project several inches from the wall over the trees, and close under it runs a stout wire 3-16ths of an inch in thickness, drawn quite tight and secured with strong iron holdfasts driven into the wall at intervals of 8 yards: on this wire are a number of rings into which the hooks which are attached to the curtains hook; a similar wire, with rings, runs a few inches above the ground, into which the curtain is attached by another lot of hooks similar to those at the top. This bottom wire is placed at a distance sufficiently far from the wall to prevent the wind flapping the curtain against the trees. To keep the weight of the curtains from dipping the top wire, and consequently exposing the trees, hooks are driven into the wall at intervals so as to carry the wires; and to allow of the rings running upon which, as will be understood, it is necessary to lift the wire off these supporting hooks when the curtains are drawn and undrawn. This is done as quickly as a man can walk, by the use of a thin pole with a hook inserted in the head, similar in shape to the hooks in the wall, the wire afterwards being as quickly replaced, when the curtains are drawn or undrawn, as required. This is much quicker, and there is less strain upon the canvas, consequently it will last longer than when it is fixed to the top of the wall, and has to be drawn up and down. The inside west wall is covered with Apricots and Figs. In the open quarters Apples, Cherries, and Plums succeed better than Pears. Strawberries, as all through the neighbourhood, do remarkably well, the strong heavy soil suiting them. At the head of the central divisional walk is a beautiful pair of Pampas-grass, male and female, standing one on either side. It seems strange that both are not more generally grown together than we often see, being so distinct in habit. Culinary vegetables are here made an especial consideration, and are thoroughly well done, both early and late. The garden slopes gradually to the north, consequently is not so early as if more favourably placed for catching the spring sun; but it has one advantage in this part of the kingdom, where usually the summer rainfall is light—that crops of all kinds do not suffer from drought nearly so much as on a southern slope. In an enclosed piece of ground outside this garden I noticed a quantity of cordon Apples on the margin of the walks, which form an interesting feature, the moisture from the ground in its near proximity to the fruit having the effect of causing it to swell above the size it has on large trees higher up from the surface. At the bottom of the kitchen garden stand an early and a late vinery, with a house in the centre devoted to a mixed collection of greenhouse plants. This is a very substantial range, well-built and well-ventilated. Round the margin of the border in which these Vines are planted is a beautiful dwarf hedge of Fuchsia corallina, that has stood here for twenty-three years, defying the severe frost that has been experienced since. As soon as the leaves are off in the autumn, a good mulching of coal ashes is placed round the collar of the plants, which are not pruned until the spring. This in all probability has something to do with the ability to live through a severe winter. On the inside of the western wall, with an eastern aspect, is a range of houses, the first of which, 52 feet in length, is devoted to Peaches and Nectarines. As might be supposed, it is found necessary to use fire-heat in the houses on this aspect. Next is a Fig-house, 30 feet in length, the trees in very good condition. In a continuation of this range are two Strawberry-houses, span-roofed, filled through the autumn with Pelargoniums, Cinerarias, Primulas, and similar plants for conservatory decoration. Adjoining is another span-roofed house, in use for growing general greenhouse plants. There are also near these two narrow vineries, one filled with Black Hamburghs.

The inside department, represented by the different houses devoted to plant and fruit culture, alike with the rest of the garden, reflects creditably on Mr. Sibins' general abilities, and is in keeping with the rest of the estate, which, together with the woods and extensive home farm, are under the able management of Mr. Booth, who previous to his appointment as steward was equally successful as a gardener, and who yet in his leisure moments evinces his love for the pursuit by the care he bestows on his own well-kept garden. *T. Baines.*

Fig. 34.—Specimen plant of Phalænopsis Schilleriana.

PHALÆNOPSIS SCHILLERIANA.

The annexed illustration (fig. 34) is of the plant sold at Stevens' Rooms on July 28, to Sir Trevor Lawrence for 67*l*. It was in bloom at Melchet Court in April last, and from the bottom of the pot to the top flowers it was a little short of 7 feet, and a little more than 5 feet through. There were three panicles bearing respectively 96, 108, and 174 flowers, total 378. The pot measured 20 inches in diameter, and so did its thick network of roots. So much for liberal potting and a large pot, and much more light than is usually allowed by most growers. The roof was merely dressed over with flour and water, so that the plants got the greatest amount of light, with the greatest natural heat, at mid-day, which cannot be the case where thick canvas blinds are used.

The first flower opened on January 14, and the plant was in perfection on April 1. The central spike grew away very rapidly, and it promised 300 or 400 flowers, but the plant was too much exhausted to form so many flowers and could only perfect its present number; this accounts for the thinness of flowers at the top.

VARIETIES OF PERFUME IN THE ROSE.

SWEET-SCENTED Roses we must all take an interest in, and I am sure none do so more than our lady gardeners, whose delicacy of discrimination in all matters of perfume will be of the greatest assistance to us in discussing our subject—varieties of perfume in the Rose. Amongst the whole world of floral productions surely there is no one flower so acceptable to mankind as the Rose; and this, not so much for beauty of form, colour, and the exquisite infolding grace of its petals, as for its proverbial sweetness.

The well-known perfumes of flowers, such as Mignonette, Musk, Heliotrope, Verbena, Violet, Orange blossom, and the like, all elaborated from the same elements by the great Creator, are to my mind very wonderful. They, however, keep their own peculiar scents all the world over; but the Rose, queen of all, is unsurpassed in the variety of its perfumes.

Having during many years given much attention to this subject, I would endeavour to make a classification of distinct types of Rose scent, asking your kind readers to bear with me in this first attempt at classification, yet feeling sure, to a highly cultivated olfactory taste, it is not overdone—that the the families of Tea and hybrid perpetuals might still further be subdivided in an interesting manner.

I would here enumerate some seventeen varieties, beginning with the well-known Sweet Briar:—

1. Sweet Briar.—The garden variety.
2. Moss Rose-bud scent.—Common Moss and family.
3. Austrian Briar scent.—Copper Austrian and family.
4. Musk Rose scent.—Narcissus, old Musk and family.
5. Myrrh scented.—Ayrshire splendens.
6. China Rose scent.—An astringent, refreshing scent; old monthly China and many others.
7. Damask perpetual scent.—Rose du Roi, &c.
8. Scotch Rose scent.—The early double Scotch.
9. Violet scented.—White Banksia.
10. Old Cabbage scent.—The well-known double Provence.
11. Otto perpetual scent.—Charles Lefebvre, Madame Knorr, &c.
12. True perpetual scent.—Chabrilland, Pierre Notting, &c.
13. Old Tea scent.—The old yellow Tea or Magnolia Rose, and others almost unpleasantly strong for some tastes.
14. Sweet Tea scent.—Goubault, Maréchal Niel, &c.
15. Hybrid Tea scent.—La France; Bessie Johnson is closely allied to this.
16. Nectarine, or fruit scent.—Socrates, Jaune Desprez, Aline Sisley, &c., and a new variety which I would name
17. The Verdier scent.—Represented more or less by all the Victor Verdier hybrids, such as Eugenie Verdier, Castellane, Countess of Oxford, Marie Finger, and very many others of recent introduction.

Some compare this slight but peculiar perfume to that of Apples. I think it might be described as a delicate Rose scent, with a suspicion of turpentine about it, not unpleasantly blended.

The petals of the highly-scented varieties have on their inner surface minute perfume glands or vesicles, containing the highly volatile essence, under the microscope distinctly visible. Those on the foliage of Sweet Briar and Moss are almost visible to the naked eye; so that with the microscope and with good olfactory organs, the interesting question, Which are the sweetest Roses? may be readily settled. To my taste, and by the same rule, the following are the most deliciously and powerfully scented:—La France, Goubault, Devoniensis, Maréchal Niel, Bessie Johnson, Madame Knorr, Pierre Notting, and Charles Lefebvre. As a rule nearly all the dark Roses are sweet scented.

To unstop Nature's finest bottle of Rose remove the cap in hot weather from a "pasted" full-blown bud of La France, or even old Cabbage; the flower will instantly expand, throwing out a surprising volume of fragrance.

Roses, after they have been gathered a short time, appear to give off more perfume. Again, Roses blooming under glass usually give off more scent than those of the same kinds blooming in the open air. *Henry Curtis, Torquay, August 2.*

Natural History.

THE WATER SHREW (*Sorex fodiens*).—Somehow very little appears to be known about this interesting British animal. It seems to be so shy and timid in its habits, that really very few country people whose eyes and ears are ever open, know much about it. I have searched in vain for it, until I had come to the conclusion that it must be a nocturnal animal, therefore not visible at all by daylight. I am glad, however, that in this I am mistaken: it is not exclusively a nocturnal feeder. The small field shrew is very common, so common, in fact, that although we do not often see it in our rambles, yet we hear its peculiar shrill cry as it gambols full of life and merriment amongst the dry leaves. So also the water shrew is equally full of life and fun, only it does not feel so much at home as its sister on dry land. Rambling one day last summer until I was weary of gathering plants, as well as weary of walking, at length I seated myself beneath a spreading Beech, whose long boughs sheltered a pond, determined to have a short rest. Musing upon various things natural and otherwise, I began to notice the many paths intersecting each other, which ran along the banks of the pond, one corner of which was filled with the flag (Iris), but the greater part of the pond itself was covered with Pondweed (Potamogeton natans), and Duckweed (Lemna minor.)

For some time I wondered what these small pathways were intended for; certain I was some aquatic animal was in the habit of using them, but I could not be positive whether they were made by the water rat or some other creature. The best plan, if you wish to learn much about outdoor or field natural history, especially the home and free life of birds and animals, is to remain quiet. Seated as I was on this occasion by a tree stem, the most timid will come close beside you. I had not long to wait before this pathway mystery was cleared most satisfactorily. In a few minutes I saw moving beneath the water first one, then quickly joined by another, until a small and happy family were seen sporting about—of what I judged to be water rats, although their bodies were covered with minute air bubbles, imparting quite a silvery appearance to the animal. Presently one was seen rapidly running over the Potamogeton, picking up here and there some insect; then I was satisfied, and it was no longer a mystery, it was a family of water shrews. Coming to a part of the pond where the surface was not covered with any plants, it swam to the side, and I had then an opportunity of judging of their swimming powers, and I must confess I never saw any animal swim with the ease and freedom of the shrew. Judging from a distance, the skin on the side of the body appears to be expanded, so as to buoy up the body on the surface (in a dead specimen since examined the skin betwixt the legs seems very loose), so as to look as if it were walking, the tail is extended along the surface of the pond as a kind of paddle. The motion is very graceful, it glides along without much effort.

Are water-shrews vegetable feeders, like the water rat, or do they live upon insects and worms? I believe they live though not exclusively upon worms and insects, for I was amused, until I could with difficulty refrain from bursting out into a hearty laugh at the way my new friends searched for worms on the margin of the pond. Of course, from the formation of the snout, it is evidently made for rooting about in search of food in the mud. Those I so attentively watched were not long in coming to the muddy side, and commenced, somewhat like swine when engaged in the autumn turning over the grass sods in pastures, to turn up the mud in search of worms and insects. They utter a peculiar shrill scream, if terrified, or when they meet each other. I also observed two retire to a dead branch near their burrows, to eat the insects, &c., they had captured in the water.

The most curious part of their economy is the silky fur, which is of velvety smooth texture, dark brown above and of a silvery white beneath. Immediately the shrew comes from beneath the water the skin appears to be perfectly dry, it seems to tremble or rather to shake itself when stepping on *terra firma*, although I could not be positive on this point, but if it has this habit it may thus shake itself dry. It can dive with ease; I observed one dive after a stickleback, but it did not succeed in capturing its prey in this instance.

I visited my newly made acquaintances on another occasion, about 7 o'clock in the evening, to learn something more about their habits. Unfortunately a shower of rain commenced to fall soon after my arrival, which, although it did not deter the colony from gambolling about in the pond, yet it prevented me from noticing any peculiarity with clearness. It appears, they often watch at the mouth of their burrows for any stray meal, but they are unable to discern anything at a couple of yards distance. The common field shrew cannot detect an object at more than 2 feet, but this is compensated in some measure by its acute sense of hearing. They can swim on the surface far more rapidly than the water rat; if a bird flies overhead they in a moment dive to the bottom: probably they number amongst their enemies the vigilant hawk.

The following graphic description of this interesting and little known animal, by Mr. Dovaston, is worth reading. "On a delicious evening," he says, "in April, a little before sunset, strolling in my orchard beside a pool, and looking into the clear water for insects I expected about that time to come out, I was surprised by seeing what I momentarily imagined to be a Dytiscus, or some very large beetle, dart with rapid motion and suddenly disappear. Laying myself down cautiously and motionless on the grass, I soon, to my delight and wonder, observed it was a mouse. I repeatedly marked it glide from the bank, under water, and bury itself in the mass of leaves at the bottom—I mean the leaves that had fallen off the trees in autumn, and which lay very thick over the mud. It very shortly returned, and entered the bank, occasionally putting its long sharp nose out of the water, and paddling close to the edge. This it repeated at very frequent intervals, from place to place, seldom going more than 2 yards from the side, and always returning in about half a minute. I presume it obtained some insect or food from the rubbish and leaves, and retired to consume it. Sometimes it would run a little on the surface, and sometimes come timidly and hastily to shore, but with the greatest caution, and hastily plunge in again. During the whole sweet spring of that fine year, I constantly visited my new acquaintance. When under water he looks gray, on account of the pearly cluster of minute air-bubbles that adhere to his fur, and bespangle him all over. He swims very rapidly; and though he appears to dart, his very minute wriggle is clearly discernible." *R.*

Notices of Books.

THE numbers of the *Illustration Horticole* (English edition) for May and June, which have only just reached us, contain coloured plates of Araucaria Rulei, Pitcairnia staminea (a handsome scarlet-flowered kind, with linear grass-like leaves, introduced fifty years ago, but lately re-introduced by M. Roezl), Dicksonia chrysotricha (a handsome Tree Fern from New Caledonia, with gold-coloured scales investing the trunk), Dendrobium thyrsiflorum, Camellia Albino Botti (a fine flower with regularly imbricated petals, of a rosy pink colour, margined with white), and, lastly, Rheum nobile.

—— The *London Programme* (29, Wellington Street) is a newly-issued periodical, addressed to visitors to London and sightseers generally. It gives an account of the principal sights and places of interest in and about London, and indicates the best modes of getting about.

—— The *Bulletin d'Arboriculture* for July contains an interesting report of the discussion held at Audenarde by the Society on various practical matters, such as the care requisite to be given to newly planted trees. Whitewashing the trunks, as a preventive of the ill-effects of drought, was recommended. The pruning of Peach trees and other subjects were discussed. A report is given of M. M. Baltet's famous nursery at Troyes, and a *resumé* of the cultural procedures recommended by Mr. Rivers.

—— The *Journal of Botany* contains an article on some new Chinese plants by Mr. Le Marchant Moore, one on a new species of Sedum discovered by the late John Stuart Mill in Asia Minor, and various articles of botanical interest.

—— The coloured plates in the *Florist and Pomologist* of the present month are devoted to Genista virgata and Dr. Hogg Peach. The former is a hardy shrub, with persistent greyish green leaves, and most abundant brilliant yellow flowers. The latter is a handsome highly-coloured fruit, ripening early, and of full flavour. It is stated to bear carriage well. It is one of Mr. Rivers' seedlings.

—— The *Gardener* for the current month opens with a sensible article on flower shows, advocating in

particular cottagers' shows as a means of ameliorating the condition of the poor both in regard to the amenities and necessaries of life. The Squire's Gardener discourses on Apricot culture, and recommends the transplanting of large trees in very early autumn even before the leaves have fallen. *Apropos* of the Squire's Gardener, an interesting description is given of the Squire's garden, from which it is clear that the Squire's Gardener's good qualities are not limited to penmanship.

—— We have received the first number of an official publication published under the auspices of the central committee of wine-growers of Italy, and of the Minister of Agriculture, and entitled *Bullettino Ampelografico*. As its title implies, it contains full descriptions of the principal varieties of Vines grown throughout Italy. Elaborate schedules are inserted, the blanks of which are to be filled up by growers in the various districts. Such a publication is likely to be of very great value in Italy.

—— Mr. R. Maitland sends us a pamphlet advocating the formation of colonies for younger sons of upper-class Englishmen in California, or in any of the English colonies. The author's suggestion is, that noblemen, country gentlemen, and capitalists, should form associations for the purchase and improvement of land in California or elsewhere. These lands should be open to settlement by families, or any member of a family known to, or connected with, the association.

—— The *Villa Gardener* for August contains among other articles one on Pears in pots, another on plants for covering dead walls, wherein it is advised that the said dead walls be made alive with Scarlet Runners, Tomatos, Vegetable Marrows, &c. But what about the winter time?

Home Correspondence.

The Potato Disease.—In this district (in North Notts) we have now had a week's fine dry breezy weather, with the wind generally from the north-east, and with rather a low temperature in the night. In consequence of this the Potato disease has been considerably arrested, even in cottagers' gardens where it first appeared so virulently after the continued rains set in on July 15. All the earliest ripening varieties, such as the Hammersmith Kidney, Mona's Pride, Rivers' Ashleaf, Veitch's Ashleaf, Dixon's Early Kidney, and Fenn's Early Market, have been lifted in the gardens here, and I never had a better or sounder crop. The soil of the kitchen garden here being of a very stiff and adhesive nature, I manured it with old tan mixed with a little soot for planting the above kinds of early Potatos in, and they have been lifted with very clear skins, and their size and quality is good. It will all depend now on the weather as regards the safety of the late crops of Potatos, for should August be a dry and fine month, I believe that, in the midland counties at least, the loss from the disease will not be so great as was at one time expected. Should it come to the worst, the advice of your correspondent Mr. Fenn (p. 144) is sound, namely, that cottagers and others should boil down their diseased Potatos as soon as lifted, to feed the pigs with. *William Tillery, August 2.*

Wireworms and Vines.—Some time ago, in combating the opinion of Mr. Pearson, of Chilwell, that the wireworm would not attack the Vine—an opinion based upon the extended observation of himself and his men, I was accused by him of not adding anything to our knowledge of Vine growing. It would appear, however, that I did render some little service, in so far as I uttered a caution against accepting an opinion which more careful observation would probably prove to be erroneous. If your readers who are interested in the matter will refer to the *Gardener* for August, they will find there two cases cited to prove that the wireworm does attack the Vine in a destructive manner. In one of the cases the evidence is of the very strongest presumptive kind, and in the other it is positive: it being stated that Mr. Hunter, of Lambton, found the "wireworms burrowed quite out of sight into the roots" of his Vines. *J. S. W.*

Thladiantha dubia.—In a late number you speak of Thladiantha dubia as still rare. I have had it for three or four years, and find it perfectly hardy, but the tubers do not seem to increase. I must say I am disappointed with the flowers, and would not recommend it to any one who has not both a large space available for climbers and is also seeking for variety. I think Tropæolum aduncum (the Canary Creeper as it it is called) far more effective as a yellow climber. *William Wickham, Binsted Wycke, Alton, Hants.*

Duke of Buccleuch Grape.—My experience of this Grape leads me to think it is the finest of all the Grapes introduced of late years. It finished with me this season in splendid condition, and owing to its grand appearance it at once attracted the notice of all visitors; and all who grew Grapes and had it not, expressed their intention of procuring it. Its splendid appearance, as to both size of berry and colour, makes it a very suitable Grape for the London season. With me this season I cut it 2½ lb., and the average diameter of the berries 1¼ inch, and of a clear amber colour. At Burghley, under the able management of Mr. Gilbert, I saw it with eighteen bunches of medium size on two rods from the same Vine; Mr. G. had it also fine on a pot Vine earlier in the season. When better known this Grape will be the universal companion of the Black Hamburgh on every dinner-table from April till December. *Isaac Dell, Stoke Rochford, August 2.*

Gall on Elm Leaf.—The leaves of the common Elm are often disfigured by a large warty excrescence upon their surface, which is, in fact, a gall, caused by the attacks of a kind of aphis, and not by one of the true gall-flies, which are four-winged insects belonging to the order Hymenoptera (fig. 35). The puncture of the Elm leaf by the insect causes a morbid action to take place, which results in the development of a mass of vegetable matter, which in the case of the Elm-leaf aphis gradually envelopes the parent insect, which then begins to deposit eggs, which rapidly hatch, and on opening the gall the observer is surprised to find a large batch of young aphides, together with their mother, covered with a white powdery secretion. When left to itself the gall, after it has supplied nourishment to the enclosed family, gradually hardens, and at last cracks and lets the prisoners loose. Such is also the case with the Phylloxera of the Vine leaves. These gall-forming aphides differ from the more ordinary ones, such as the green-fly of the Rose,

Fig. 35.—Gall on Elm Leaf.

in the veining of their wings, and have been formed into a different genus named Eriosoma. The Elm species is known under the scientific name of Eriosoma Gallarum Ulmi. *I. O. W.*

Judging Collections of Fruit.—Can you kindly inform me what is the usual rule observed in judging collections of fruit at the chief metropolitan shows, when "varieties," not "kinds (distinct)," are specified in the prize schedule; or would you say what ought to be the rule in such a case? I ask the question with a view to clear up a matter upon which a great difference of opinion exists, and I think some ignorance on the part of many who have to officiate as judges. For instance, an exhibitor competes for a collection of, say, eight or ten "varieties," and thinks proper to eke out his number with, perhaps, three varieties of Grapes, or two varieties of Pines, &c., but finds that, though his collection may be the best, it is disqualified because the judges interpret "varieties" in the schedule as meaning "distinct kinds," or species—an erroneous view of the matter, as I imagine, but one commonly entertained and acted upon. If the secretary of the show is appealed to, he generally disclaims any knowledge on the subject; and honestly enough too, for he is seldom a gardener by profession, and the judges' veto is adhered to. I have argued this matter more than once at the exhibition table, when acting as judge, and have been overruled by two to one—my coadjutors not interpreting the schedule as they found it, but according to their own ideas, and doing very great injustice to the exhibitors, who have been guided solely by its wording and nothing more. On one occasion, at an important show, to which some exhibitors had come down 50 miles, this question arose, and one of the judges stated that interpreting "varieties" in its strictly proper sense would be adhering to the "words" but "breaking the spirit" of the schedule! Surely the safest and easiest plan is to adhere to the words of the schedule, accepting such terms as "varieties," "distinct kinds," &c., in their usually understood and proper sense, and leave the promoters of the show to explain their meaning more clearly on a future occasion. As many shows will be held during this month and the next, I think a semi-authoritative expression of opinion would do good. *Provincial.* [Distinct kinds should be read to mean distinct fruits, as Grapes, Melons, Peaches, &c.; different varieties, on the other hand, are distinct sorts of one fruit, as Noblesse and Royal George Peaches, Muscat and Hamburgh Grapes, &c. Eds.].

Heath Propagation.—In relating the system practised at the Comely Bank Nursery, near Edinburgh, by the late Mr. Cunningham, I write entirely from memory, dating so far back as 1835, but the date is immaterial as facts remain the same. Mr. Cunningham's process was to bring together the required number of common garden frames and place them in a dry, airy situation, giving sufficient altitude to carry off drip. The interior soil was removed to a depth of rather more than 2 feet, and the space subsequently filled with Flax refuse, or what is commonly called in Scotland "pob," having been previously well soaked in water and trodden firmly into a compact solid mass. It is surprising the length of time this inert looking material will keep up a gentle bottom-heat; and this was in a great measure the real cause of Mr. Cunningham's success. The surface of the bed was covered 2 inches deep with finely sifted peat soil, and ultimately a covering of clean, sharp river or pit sand. Mr. Cunningham was by no means particular as to the time of inserting the cuttings—just when the wood was properly matured, not later, however, than the end of August, so that they may have formed callosities—which they soon do when subjected to a little bottom-heat—by the beginning of winter. To carry on Heath propagation on so extensive a scale, Mr. Cunningham had ample resources, as he grew a very extensive collection of both species and varieties. During winter, whatever its severities, no protection was given beyond a single mat and a covering of straw, which frequently remained undisturbed for a month or six weeks. I did not observe that any bad effects followed from this close confinement. So soon as growth began, increased ventilation was afforded, and towards the beginning of July the sashes were removed entirely, except during heavy rain. The young plants were all allowed to remain here a second winter and spring, subject to the same ordeal. Peat soil beds in the open air had been previously prepared, to which the plants were removed as soon as the weather was favourable, and it is astonishing the progress they made by the end of the season, particularly the free-growing kinds, such as Willmoreana and hyemalis. When the plants had fairly taken to the soil the points of the shoots were pinched off, which gave them a bushy habit. By the end of August all where transferred to pots, according to the size of the ball, and again wintered in cold frames. This plan may be considered a rather rough-and-ready way of treating what is usually considered a somewhat difficult class of plants to manage; still, year by year, with proper care, the treatment proved completely successful, and that, too, without much labour, when the large amount of produce and the quick return is considered, as the majority were ready for market in the course of little more than two years. *Alexander Cramb, Tortworth.*

The Alimentation of Plants.—I think if "D.," who writes on this subject in last week's *Gardeners' Chronicle*, had told us a little more about the effects of granite dust upon Vines, instead of drawing a whole string of conclusions from the meagre information as yet afforded on the subject, he would have done better service. With your permission I would ask him, or any one who may be disposed to afford the information, What are the good results of its (the granite's) application to Vine borders? Does it increase the size of the bunches or the berries, improve their colour or flavour, or keeping qualities, or does it prevent shanking, &c.? "D." has a fling at what he calls the "routineers," "old ploughshare men," &c., or words to that effect, and says, in an offhand way, that "manure is all very well," but it seems to be too palpable stuff for one who is hankering after subtilties in the alimentary line. I think myself that manure, especially cow manure, is a very good thing indeed for Vines, applied judiciously, and I am under the impression that its application is based upon a perfectly intelligible perception of the "alimentation of plants." I am not, however, so clear about the granite dust, and after reading "D.'s" long paper through, I confess to being quite as much in the dark as ever, and do not see that he "explains" the action of the granite on the Vines at Belvoir in the least. I do know that first-class Grapes in every respect have been produced without its aid for a long series of years, and I also know of granite formations, in different parts of the country, where Grapes are grown that are not remarkable in any way for their excellence. *J. S. W.*

HORTICULTURAL EXHIBITIONS, 1875.

AUGUST.

17.—Coventry and Warwickshire Horticultural Society's Show at Combe Abbey. Sec., Thomas Wigston, 3, Portland Terrace, Coventry.
18.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
24 and 25.—Metropolitan Floral Society's Exhibition at the Alexandra Palace.
25.—Isle of Thanet Floral and Horticultural Association's Annual Exhibition. Hon. Sec., C. D. Smith, Esq., 8, Marine Terrace, Margate.
26.—Royal Horticultural Society of Ireland. Autumn Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
26.—Wantage Horticultural Society's Annual Show. Sec., C. Stroud, Alpha Cottage, Wantage.
26, 27, and 28.—Dundee Horticultural Society's Grand Floral Fête. Sec., Wm. R. M'Kelvie, 51, Reform Street.
27. — Bishop Auckland Floral and Horticultural Society's Annual Exhibition. Sec., J. C. Hendy.
28.—Wakefield Horticultural Society's Annual Exhibition. Sec., A. Holmes.

SEPTEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
2, 3, and 4.—Manchester Botanical and Horticultural Society. Exhibition of Fruits, Vegetables, and Autumn Flowers. Manager, Bruce Findlay.
2, 3, and 4.—Great Fruit Show at the Alexandra Palace. Manager, Mr. A. McKenzie.
7.—Crystal Palace. Autumn Exhibition of Fruit and Flowers.
7.—Littleover Horticultural Society's Exhibition. Sec., Mr. B. Toft.
8.—Glasgow and West of Scotland Horticultural Society. Autumn Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.

THE
Gardeners' Chronicle.
SATURDAY, AUGUST 7, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	Aug. 10	Clay Cross Horticultural Society's Show. Sale of Imported Orchids and Greenhouse Plants, at Stevens' Rooms.
THURSDAY,	Aug. 12	Canterbury Horticultural Society's Exhibition. Sale of Odontoglossums, &c., at Stevens' Rooms.
FRIDAY,	Aug. 13	Carnation Show at the Botanical Gardens, Old Trafford, Manchester (two days).

THE report on the condition and prospect of the POTATO CROP, which, by the courtesy of our correspondents, we are enabled to lay before our readers, will be read with interest. It is of a nature to re-assure those who dreaded the worst, though it must dash the hopes of those who hoped for the best. Fairer promise, indeed, was never seen, and to a large extent, and in certain favoured districts, the promise bids fair to be realised. The crop is almost everywhere abundant, but in many places it is seriously diseased. Local conditions of climate, soil, drainage, mode of culture, &c., vary so much that it is unsafe to lay down a general rule which shall apply to all cases. Nevertheless, an inspection of our reports from the various counties of Great Britain and Ireland will show that up to this time Scotland, from north to south and east to west, has been almost entirely free from the disease, and large crops both of early and late varieties will be gathered in.

Ireland, happily, is scarcely less fortunate in this respect, although from Wicklow and Tyrone the reports are not favourable. Taking now the English counties, we find the southern, western, midland, and eastern counties all furnishing bad reports. It is only from some of the northern counties that favourable returns have been received. The dependence of the disease on the condition of the weather was perhaps never better illustrated than it has been this year. The early varieties did well, and the late ones also until the prodigious rainfall lately experienced in certain districts. Then the disease spread rapidly. Now, while the south, midland, and western counties were deluged with rain, the northern counties, and Scotland in particular, were free from it. Contrast, for instance, the statement of a Scotch correspondent, who says that the season in his county has been one of the driest on record, with that of another correspondent in Rutlandshire, who states that the rainfall during the half year, January to July, was almost 20 inches, very little less than the average fall for the whole year. From July 14 to July 25, the same correspondent informs us he measured nearly 9 inches of rain. The rain, it rained every day—to paraphrase AUTOLYCUS' dictum—with only one exception, in the interval just mentioned. Now, these are the conditions under which, in consonance with all former experience, the Potato disease specially manifests itself. Under such circumstances the spawn grows rapidly; it throws up its branches into the air; these, with their twofold bud-spores multiply the plant to an almost unlimited extent. Of these bud-spores too, one form is specially provided with minute locomotive organs, adapted to swim about in water, and these, in such weather as we have had, have doubtless been specially active. Quite recently, as our readers are aware, Mr. WORTHINGTON SMITH has been so fortunate as to detect and demonstrate the seed-spore, as we may fittingly term it, and the organ by which that seed-spore is fertilised and rendered capable of germinating. What the precise conditions are under which these resting-spores, which are the true analogues of seeds, are produced, it would be premature to say. We know that they have hitherto been looked for in vain, and therefore the presumption is that they are, under ordinary circumstances, to say the least, not common.

We know, too, the conditions under which these seed-spores were found in the Chiswick specimens, and the particular form of the disease which was observed in connection with them in certain varieties of Potato. But we do not think we are justified, at present, in stating absolutely that that particular form of disease, be it the old "curl" or something different, is necessarily associated with the existence of resting-spores. Further experience is required before coming to a verdict on this head.

Any plan that protects the haulm from the invasion of the bud-spores is likely to be useful in mitigating, if not entirely preventing, the disease. The good effects of cutting off the haulm, laying it, earthing it up nearly to the top, covering it, all depend on the principles we have just alluded to. They cannot be thoroughly effectual because the spawn and perhaps the seed-spore are within the tissues of the haulm, leaf, or tuber, or of all three at once, and from this coign of vantage they cannot be dislodged. Now that the life history of the pest is so much better known, we know what plans of prevention or of cure are certain to be futile, and that, if only a negative benefit, is one not to be lightly esteemed. It is something to be able to know what we can and what we cannot do towards a remedy. We need not grope about at random now. We have certain guiding principles to go upon which will spare much labour in the wrong direction, and it is not unreasonable to hope that they will furnish the clue to a more efficient method of treatment than any yet adopted. Meantime, we can only reiterate what experience has proved to be good practice—to trust as far as may be to the early kinds, and to lift early.

—— IN our article last week, at p. 140, on the INFLUENCE OF INLAND WATER ON THE VEGETATION OF THE SHORE LANDS, there are some important errors in the figures, the printer having omitted the minus sign in several of the temperatures given. The part referred to should read thus:—According to LADAME the upper stratum of the water of the Lake of Neuchâtel has a mean temperature 10°.2 C. (about 50° Fahr.), whilst the mean annual temperature of the air is 8°.4 C. (about 47° Fahr.). The actual lowest temperature observed at Neuchâtel was 5°.0 Fahr., against −10°.75 Fahr. (or below zero) at Paris, and −7°.6 at Lyons. Taking the Lake of Geneva we have, for Geneva, south side, a minimum of −13° Fahr. against 3°.65 at Lausanne, and 9°.5 at Montreux, on the north side.

—— Among effective HARDY PLANTS WITH FINE FOLIAGE we have seen no novelties equal to several species of Eryngium, just coming into flower at Kew, near the new Victoria-house, and where also are some stately Yuccas in their full glory. Almost all the species of Eryngium are ornamental; we need only mention the not too commonly cultivated E. alpinum and amethystinum. But this genus presents a greater variety of foliage than any other genus of Umbelliferæ, a family so rich in plants with elegant foliage. The South American species especially are noble herbaceous plants. The species we have in view are, we believe, E. serra, pandanifolium, and paniculatum. They all have tall candelabrum-like inflorescences. E. pandanifolium has narrow, prickly-toothed leaves, 5 feet or more in length, resembling those of some large Bromeliaceous plant, and flowing over like the Pampas-grass, and its inflorescence rises to a height of 7 or 8 feet. Judging from the plants in question, we should consider them a great acquisition in the subtropical garden. We intend shortly to give a descriptive enumeration of perfectly hardy plants with fine foliage that we have noted as thriving well and producing effects equal to the finest displays of tender subjects.

—— One result of the CITY FLOWER SHOW will be the establishment in the City of a Society for the promotion of window gardening. Hitherto all the responsibility attaching to such an exhibition, which increases the outlay of some £70 or £80, has been borne by a few gentlemen whose only available assets has been the money taken for the sale of tickets and admission at the gates. This year, owing to the unavoidable postponement, the expenses were increased, and a deficit results, which falls on the promoters. It is hoped that the Lord MAYOR for the time being will be the President, and the chairmanship of the committee will be continued in the person of the Rev. W. ROGERS, Rector of St. Botolph, Bishopsgate, the founder of the City Flower Shows. A great many of the exhibitors have already promised to become members. The minimum annual subscription will be fixed at a low sum, in order to enable all classes to become members.

—— Dr. H. BAILLON has been making some fresh experiments on the ABSORPTION by the ROOTS of plants of the juice of Phytolacca decandra, the results of which are published in the *Bulletin of the Linnean Society of Paris*. We may note that this juice is of a deep purplish-red colour, and previous observers have disagreed as to the facts of the case. Experimenting with white Hyacinths, Dr. BAILLON found that if the roots only, and not the top of the bulb, were allowed to come in contact with the juice, not the slightest particle of the coloured matter was absorbed, or, at any rate, not manifested in the flowers, which opened perfectly white. Cut flowers, however, or indeed any severed portion or decaying surfaces may absorb the colouring matter, but this is not always the case. As the roots of the Hyacinths absorbed the water necessary for the evolution of its leaves and flowers from the juice, the tint of the latter increased in intensity; and Dr. BAILLON thinks we may deduce from this that roots not only perform the function of absorbing water and whatever suitable substances it holds in solution, but they also have the power of separating and rejecting inimical substances held in solution by the water.

—— We have received a schedule of prizes, amounting to about £500, for a GREAT FRUIT SHOW, to be held AT THE ALEXANDRA PALACE, on September 2, 3, and 4, the entries for which close on August 26. The prizes are arranged in eleven divisions, and being on a liberal scale, a good show should result.

—— From the *Revue Horticole* of the 1st inst. we learn that M. ANDRÉ LEROY, the famous pomologist of Angers, died in that city on July 23. M. LEROY was probably the first pomologist in Europe, and his contributions to horticultural science and literature are numerous and weighty. His personal character endeared him to his friends, and his extensive knowledge was ever at the service of those who consulted him.

—— An interesting paper in explanation of the WEATHER CHARTS given in the *Times* and in the *Agricultural Gazette* was lately read before the Society of Arts by Mr. R. H. SCOTT, the Director of the Meteorological Office. After explaining that the wind flows from a place where the pressure is high to one where it is low, the lecturer observed that on the mutual action of the areas of the "cyclonic," or low-pressure regions, and the "anticyclonic," or high-pressure regions, depend the changes of the weather. The wind moving from one area to another takes not a straight but a curved course, sweeping round a central region which is relatively calm. The direction of the wind then leads to the discovery of the situation of the area of low pressure, and hence affords valuable indications of the quarters whence storms may be expected. The rule is concisely expressed, thus:—"Stand your back to the wind, and the barometer will be lower on your left than on your right hand." Thus if the wind

FIG. 36.—HOLLY TREE COVERED WITH IVY AT TRENT PARK.

be south in the West of Ireland we know that there must be an area of low pressure to the west in the Atlantic, and so on." Mr. SCOTT is careful not to lay too much stress on the storm warnings issued by his office, but he shows conclusively that did funds allow of more frequent reports being received from the various stations, and of a more rapid publication, the warnings would be far more trustworthy.

—— Recently the Rev. H. R. HAWEIS, M.A., preached a sermon with reference to the proposed PURCHASE OF HAMPSTEAD FIELDS for the use of the people. When CHRIST, he said, had been in the waste three days with the multitude he began to have compassion upon them, because they were hungry. We, however, who had the people always with us, had not begun to take compassion. One of the unwisest of all possible things was to go tinkering at the consequences of a disease whilst neglecting its cause. No good could result from dosing the people with tracts which they had neither leisure nor education to read, nor from enforcing upon them a religion for which they were not prepared. The first act of Christian sympathy was for the sympathiser to put himself in the place of those with whom he sympathised. What, he asked, would any member of his congregation do if he found himself cooped up all day in a foul close atmosphere in the midst of influences as foul as the air, and if at night he were compelled to return to a comfortless home, to squalid children, a slatternly wife, and general discomfort and uncleanness? Was it to be wondered at that amidst such surroundings, and oppressed by the complete absence of all healthful recreation, the people of this overcrowded city found relief in drink and in degrading pastimes? No greater or fairer gift could easily be found for the people and such a population than green and open spaces in which to breathe pure air and think quiet thoughts. He would if he could have all the rank and frowsy graveyards of London made into places of quiet and beautiful greenery where such as chose might breathe a somewhat clearer air, and at least see grass and flowers. Would it hurt the holy dead if their place of rest were beautified, or did they to whom he spoke desire that their own bodies when they had done with them should stand sentinel, as it were, over a perpetual dinginess and scare back the poor from an innocent enjoyment? At present there were graveyards in London which gave him the blues to look at. He entered a plea for the poor of Marylebone who were so terribly overcrowded—packed together like herrings in a cask—and he called upon his hearers to do what lay in them to secure for the people that open space at Hampstead which it was feared would otherwise shortly be enclosed and built upon. The influences of open spaces and pure air on body and soul were not to be overestimated, and there was a wonderful meaning in the prophetic saying of the Psalmist that the mountains

should bring peace to the people, and the little hills righteousness.

—— We are informed that at a meeting of the committee of the HORTICULTURAL CLUB, held at the Club House, Adelphi Terrace, on Wednesday last, George Deal, Esq., was elected a member of the committee, in lieu of the late Mr. Standish, and that the following gentlemen were elected members:—The Rev. E. Norman, Edgware; C. B. Stewart, Esq., Glasgow; H. C. Wilkins, Esq., Chipping Norton; W. B. Lewis, Esq., Weybridge; the Rev. E. C. Ellison, Branbridge Vicarage, Lincoln; Captain Christy, Sevenoaks; and Henry Porteus Oaks, Esq., Newton Park, Bury St. Edmunds.

—— Dr. REGEL publishes two new species of Gagea and three of Tulipa in the third *fasciculus* of *Descriptiones plantarum novarum et minus cognitarum*; they are all natives of Turkestan. Gagea minutiflora has greenish yellow flowers, little more than a quarter of an inch in diameter; and G. Olgæ has yellow flowers about half-an-inch in diameter. Tulipa tetraphylla and turkestainica belong to the sylvestris section; they are both yellow within, and reddish violet without. T. Korolkowi has purple perianth segments with a small nearly black spot on the base of each. It is allied to T. Eichleri of REGEL, from which it is easily distinguished by its dwarfish stature, glabrous stem leaves and peduncles, and the shape of the petals. Among new garden plants he has Calochortus glaucus, received from Mr. ELWES as Cyclanthera cœrulea; Rubus Roezlii from North-west America, allied to R. nutkanus; Thibaudia Hendersoni, the T. acuminata of Hort. HENDERS., but not of HOOKER. He also makes a new genus of Lisianthus princeps, calling it Schlimia princeps.

—— It is pleasant to note what successful efforts are put forth in the way of the FLORAL DECORATION of some of our LONDON RAILWAY STATIONS. Especially does this hold good of some of the stations of the North London Railway; one in particular—that at Canonbury—can boast quite a charming parterre at its west end. There is a brick wall at the back planted with Ivy, and in front of this a somewhat long and white border edged with Box, in front of which is the cleanly-kept asphalte floorway of the station. This border is planted mainly with showy annuals, and the effect is very pleasing. At the Caledonian Road Station similar attempts are put forth; and, in fact, it may be generally observed that the railway officials seize on any spare piece of land near a railway station and convert it into a vegetable garden. Canonbury Station, with its pretty flower garden, has its vegetable garden also. In carrying out the work of widening the Great Western Railway a great deal of land had to be disturbed, but as soon as a heap of soil was got together, likely to remain undisturbed for a time, it was levelled and planted with Potatos and some other garden crops. It would come within the purely legitimate work of horticultural societies to encourage gardening at the railway stations in the districts covered by their operations. A tastefully kept station garden is always an interesting sight to the passengers, and it is soon noticed, and its beauties expatiated on. The Slough Station of the Great Western Railway can now boast an exceedingly tasteful flower-garden in spring and summer both, which is laid out on the vacant space between the up and down stations, and immediately in front of the British Orphan Asylum. It is the one redeeming feature about a station remarkable for its ugliness and the utter absence of architectural pretensions.

—— The magnificent examples of LILIUM AURATUM to which we referred last year as growing in the garden of JAMES MCINTOSH, Esq., of Duneeden, Oatlands Park, Surrey (see *Gardeners' Chronicle*, 1874, ii. 329), are, if possible, excelled by the productions of the present season. The garden, or rather pleasure-ground, is very prettily laid out on a steep slope, the Lilies being planted around beds of American plants on the less sloping parts, and the deep green foliage throws up their flowers admirably. The finer and more established plants produce stems which are 3 to 4 inches in diameter, and average 6 to 9 feet high, in one case reaching as much as 11 feet high, with great bluntly conical heads fully a foot broad and more than a foot deep, composed of twenty, thirty, forty, fifty, or even sixty flowers. One three-stemmed plant produced 120 flowers. The large number of these Lilies grown by Mr. MCINTOSH must have yielded him many thousands of flowers, and the atmosphere of the whole garden is pervaded by the perfume. As might be expected among so many plants, there are numerous varieties as regards the size, form, and marking of the flowers, the largest of which measured a foot across. There are also some which bloom early—being now past, and others late—being only now showing bloom-buds.

—— A correspondent has kindly forwarded to us two blooms of the beautiful TROPÆOLUM SPECIOSUM in which the pistil was replaced by a shoot bearing leaves and flowers (median prolification), a condition which has been observed in other species of the same genus. By the way, how is it that this beautiful species, so common in Scotland, is hardly ever seen in England?

—— We are requested to state that the autumn show of the METROPOLITAN FLORAL SOCIETY will be held at the Alexandra Palace, on the 24th and 25th inst. A schedule of prizes has been issued, and intending exhibitors must certify their intention on or before the 16th inst. to the Honorary Secretary, the Rev. H. HONYWOOD DOMBRAIN, Westwell Vicarage, Ashford, Kent.

—— The *Bulletin du Conseil Supérieur d'Agriculture* for 1873, of which the second part has recently been issued, gives some particulars respecting the poisoning of cattle by garden plants, including the effects of Andromeda on cows, Rhododendrons on goats, and Mercurialis annua on horses. Happily the ill-effects of these plants were successfully overcome by judicious treatment. But some horses died very shortly after eating a small quantity of the foliage of the Yew, and, strange to relate, although the mucous membrane of the intestines exhibited no trace of inflammation, the lungs were strongly congested.

—— In our next issue we propose to publish a detailed report of the condition and prospects of the several FRUIT CROPS in the various counties of Great Britain and Ireland.

—— Some ENGLISH SEEDLING ROSES of considerable promise have been submitted to us by Mr. LAXTON, Stamford. The best of them is one he has named Mrs. Laxton, a beautiful bright carmine-rose Hybrid Perpetual, which is not only large and full, but of remarkable depth; the outer petals are smooth and prettily recurved, displaying the compact, full, close-set centre, and it has the advantage of being remarkably sweet-scented. This variety has already gained certificates at the Crystal Palace and Alexandra Park Rose Shows. Lady Isabel Cecil is a small neat citron-tinted Tea Rose, becoming almost white—a pretty flower, and nicely scented, and one which may some day, when better established, prove useful. Charles Darwin is a deep crimson Hybrid Perpetual, with cup-shaped but rather shallow flowers, having fine large outer petals, and loosely and rather thinly filled in the centre. Emily Laxton is a more promising, large-flowered Hybrid Perpetual, of a deep rosy pink colour, but with the petals somewhat unequal, the outer ones being large and the inner short and irregular, nevertheless a flower which may turn out to be an acquisition when better known. Empress of India, a deep velvety maroon-crimson, in very excellent condition, accompanied them. This latter is a seedling of last year, when it was certificated.

—— A correspondent sends us from Scotland a variety of ÆTHUSA CYNAPIUM, in which all the bracts of the involucel are directed upwards instead of downwards, as usual.

—— The MUSK has long been a favourite window plant, and in the window of a dairyman's shop at Acton, in one of the narrowest parts of the main road running through that village, can now be seen several plants growing luxuriantly, and carrying many flowers. Being on the shady side of the street no doubt helps their well-being, and they seem perfectly at home in their somewhat close quarters.

—— In the *Chronique de la Société d'Acclimatation* it is stated the Society has received a quantity of seeds of Teosinté, REANA LUXURIANS, DURIEU DE MAISONNEUVE, a grass from Guatemala, said to be of great value as a forage plant. According to M. DURIEU DE MAISONNEUVE, a single tuft will go far towards supplying an ox with food for a day. M. ROSSIGNON, of Guatemala, writes that, in its native country, it is a perennial plant, forming enormous tufts. The leaves resemble those of Indian Corn, but are much broader. It is regularly cut, and cattle fed upon it rapidly fatten.

—— PAVIA MACROSTACHYA, a shrubby species of great beauty, is now flowering most freely in the Victoria Park. The plant is remarkable for its long slender racemes of yellowish white flowers, and flowering so late in the summer is doubly valuable for the shrubbery border. The bedding-out, too, at Victoria Park is just now getting into fine condition.

—— According to a recent report from Jamaica it seems that the COCOA-NUT PALM is being largely cultivated in that island; 10,000 plants were planted out in 1874, and 5000 in the previous year, and about 4000 more are to be so planted during the ensuing autumn. With regard to the generally accepted opinion that the Cocoa-nut flourishes only in the neighbourhood of the sea, and in such situation often on arid sandy shores, Mr. THOMSON, director of the gardens at Castleton, says:—"There can be no doubt that trees grow with far greater luxuriance under favourable conditions of abundant moisture and rich soil. The extremely arid condition of the Palisadoes and the neighbourhood of Kingston, probably the driest spot in the West Indies, has been brought about by the wholesale destruction of the primeval forest over hills and plains to the extent, including the continuation of the plain to the west, of from four to five hundred square miles along the line of the shore. The Palm luxuriates throughout the district, but on receding to the distance of half a mile it ceases to present a flourishing aspect until we reach the hills or the plain beyond the arid region, where it again acquires the necessary condition—moisture." It seems that about 2,000,000 nuts, of the value of about £5000, are annually exported from Jamaica, but this number and consequent value might easily be very largely increased. Amongst the natives they are of course a very valuable article of food, and are used to a very large extent, the husk, however, is not applied to any useful purpose. With this source of revenue spontaneously produced in abundance nearly all round the seaboard of the island, it is, as Mr. THOMSON says, a pity that such valuable products "are not turned to better account; and it would be a great boon to the colony if private enterprise would initiate a system of manufacturing oil for island consumption and coir for exportation, as the nuts could be obtained in quantities to meet any demand."

—— Specimens of some very PRIMITIVE LUCIFER MATCHES, which are still in use in some parts of France and Belgium, have recently been placed in the Kew Museum. They consist of pieces of Hemp stalk about 6 or 8 inches long, tipped at each end with sulphur, which is lighted by means of a flint and steel. Splinters of Pine are sometimes substituted for Hemp stalks. These are done up into little bundles, which are sold at the rate of eight for a sou; of these little bundles a large circular bundle is formed, which is hung up for sale at the cottage doors. The specimens at Kew were brought from Eu, in Normandy.

THE POTATO CROP.

ENGLAND.

BEDS.—The incessant rain that fell throughout July has done immense damage to the Potato crops in this locality, some of the early kinds are so badly affected with disease that they are hardly worth the trouble of digging. It is now spreading with fearful rapidity amongst the late kinds, and should the thunderstorm which has prevailed here the last few days continue, we may expect to lose the greater portion of the late crops. The "curl," too, was so bad amongst one or two early sorts as almost to impede their growth. *R. Budd, Luton Hoo Park, August* 4.

—— The Potatos in this district are very much diseased. *A. McKay, Woburn Abbey Gardens, August* 4.

—— A very large crop, but the disease is spreading rapidly. *G. Ford, Wrest Park, August* 4.

BERKS.—Potatos in this neighbourhood are very much diseased, the crops are heavy, but quite half are affected; it was first noticed on Bresee's Peerless, but all sorts have now got it more or less: the rough and curled-leaves sorts were the last to get it; those now least touched are Model, Brownell's Beauty, Red-skinned Flourball, Red Fluke, Excelsior, and Wood's Scarlet Prolific. The haulm of above thirty other sorts is almost gone; some Early Rose that were sound when lifted three weeks ago are now rotting fast. All other sorts of vegetables are plentiful and excellent in quality. *Charles Ross, Welford Park, Newbury, August* 4.

—— The Potato crop in this neighbourhood is more or less a sad failure. In some cases the ruin is complete. *Alexander Galt, Aldermaston Court, Reading, August* 4.

—— The disease has made rapid progress during the last ten days. The haulms have been very badly affected, and now the tubers are showing it. *Thomas Jones, Royal Gardens, Frogmore, July* 31.

BUCKS.—For the purpose of ascertaining accurately the present condition of the crop of Potatos, I had one root of each kind which we are growing here (namely, thirty-two varieties) lifted. Amongst these were both kidney and round roots; with but few exceptions all have suffered more or less by disease—in a few cases all are bad. The average of those taken up would be nearly 50 per cent. bad. The American sorts, comprising the following kinds:—Snowflake, Breadfruit, Extra Early Vermont, Dymmick, Bresee's Peerless, and Early Goderich—are less diseased at the present time than the others. These remarks refer to Potatos which are cultivated in soil which is highly enriched, and the best attention in cultivation bestowed upon them. The place where the late sorts for winter use are grown is situated on elevated ground where only a slight depth of soil exists, which rests on a chalk substratum. At this place the tuber does not appear to be so badly diseased, although the haulm indicates its presence. *Geo. Thos. Miles.*

—— The Potato is much diseased everywhere in

this neighbourhood: in fact, worse than I have ever seen them. The haulm is dead in most places, and the tubers are going fast. *P. Frost, Dropmore, August* 2.

Cheshire.—Potatos here were never known to be finer, and in very few spots has the disease made its appearance. *W. Muir, Oulton Park, July* 31.

—— The Potato disease, I regret to say, has appeared amongst the early and second early kinds here, and in this neighbourhood in gardens, but at present I have not been able to hear of its appearance in the open fields amongst the late kinds. I first noticed the brown spots on the leaves during the late heavy rains, when the tubers were approaching maturity, which seems to be the time the plants are most subject to be attacked by the disease, and as it generally accompanies or follows wet and cloudy weather we may expect, if the present dry weather continues, the greater portion of the main crops will escape. I find the proportion of diseased to sound tubers varies very much with the different kinds, one called Rough Jacket having as many diseased as sound; Bryanston Kidney, a very good kind, having about one diseased to five sound; and Model, a very good kind, having scarcely any diseased, although all are grown in the same place. *W. Whitaker, Crewe Hall.*

—— The prospect of the Potato crop is good; what can be at once observed is the difference between the result of the new and old seed. The ground planted with the old is very patchy. There is little or no sign of disease as yet, and the crop is over average. The earliest were not cut down by the late frosts, so the season promises to be a good one. *Robert McKellar, Abney Hall, Cheadle, August* 2.

—— The Potatos look very healthy, and the early varieties are yielding very well. There is no appearance of the disease as yet. *Thomas Selwood, Eaton Hall Gardens, Chester, August* 2.

Cornwall.—A very few words will explain the prospects of the Potato crop. The disease spoiled one-third of the early kinds, and it is now rampant in the late sorts, and promises to do as much, if not more, damage to them than to the earlier varieties. The appearance of the crop was splendid before the disease took them. Abundant evidence has been given that the Fungus attacks the Potato plant at a certain age of its growth. One patch, for instance, put in late I saw to-day had only a few spots here and there, while those close by were black and offensive. *Henry Mills, Enys, Penrhyn, July* 31.

—— The disease is everywhere most destructive, even early kinds, such as Ashleaf and Early Rose, are badly affected. I fear the late sorts will be barely worth the trouble of lifting. *J. S. Tyerman, Tregoney, August* 3.

Devon.—The Potato disease is very general, and early sorts are hardly affected. Amongst the late varieties the disease is partially arrested by the fine weather of the last ten days. *John Garland, Killerton, Exeter.*

Dorset. — Potatos here are very little hurt, and are ripe. There is a fine crop. The Peronospora affects the leaves only, and not the stalk. I cut off the haulm from the Potatos, whose skins adhered firmly, and a wonderful lot of moisture came out by the sun and moistened the ground all around. Here is anasarca or dropsy to be dreaded, as well as Peronospora. The main crop of mine were planted in November. I planted five plots between May 1 and 20, and I do not think they are materially injured. *W. F. Radclyffe, Okeford Fitzpaine, Blandford, July* 29.

—— In the early part of the season the Potatos in this neighbourhood looked remarkably well, but during the last fortnight the fungus has made its appearance in an unusually virulent character, and many of the patches of Potatos in fields present a brown and dying appearance. The tubers in many cases are already gone, and from what I see and glean, there is every prospect of a very short Potato harvest. Now that Mr. W. G. Smith has discovered the origin and seat of the resting-spore, it is to be hoped that some earnest worker in horticulture may discover some remedy to arrest the spread of the disease. During this month rain has fallen in unusually large quantities—more has fallen than I ever remember. In twenty-four hours not less than 2.79 inches fell—namely, on the morning of the 13th, 0.23 inch, and on the 14th 2.72 inches, together in twenty-four hours 2.79 inches. *Henry Munro, Clevelands, Lyme Regis, July* 29.

Durham.—The Potato crop promises well. I never saw them looking better, and there are no signs of the disease as yet. *R. Draper, Seaham, July* 29.

—— The earliest kinds of Potatos are good, and I have heard of, but have not seen, any symptoms of the old disease. Lapstones, which are the first to show its symptoms, are as yet quite free. They are a good deal curled in the tops, which I have observed ever since they came through the ground, but never saw it on any variety before this year. I find the tubers are healthy, but unusually small in size and number, and the flowers all drop off without developing—which, to my mind, is pretty clear that something radically wrong is the matter. *R. Westcott, Raby Gardens, Darlington, July* 31.

Essex.—The Potato crop up to this date (July 30) looks exceedingly promising, although at the base of the haulm many of the leaves show unmistakable symptoms of disease. It is a fact worthy of note that some Potatos which the Editors favoured me with for trial, and which they received direct from America, showed the aggravated form of the disease at an early period, but one set of the Regent which I had planted in one of the rows has shown no symptom of it. The fine weather we now experience will do much to dispel the general symptoms of disease, and by robbing the haulm of its excessive succulency perhaps give us heavy and good crops. *William Earley, Valentines, July* 30.

—— I much regret to say that the disease is making sad havoc amongst all the earlies. Many of my own are not worth lifting. Many of the late kinds, however, are more promising, and I am hopeful that the present hot summer weather set in just in the nick of time to save a goodly portion of them. Some of the cultivators are pulling up the haulm, others are cutting it off close to the ground. For my own part, I have little faith in either remedy after the disease has once severely smitten the haulm. *T. Simpson, Mildmay Road, Chelmsford, August* 3.

Hants.—Potatos very bad in haulm in the early sorts and second early, but the tuber not much affected as yet. Scotch Rocks not harmed as yet; if dry weather continues it might stay the disease. Peas I never saw finer than this year. All other vegetables are good. Little rot in Onions. *George Harnett, The Gardens, Cadlands, July* 31.

—— Potatos up to the present time are but little blighted, but the haulm is dying off wholesale, and the old Potato murrain seems to have attacked them with unusual virulence. I quite expect that two-thirds of the crop will be destroyed. All other vegetable crops are very fine. *W. Wildsmith, Heckfield, August* 2.

—— A heavy crop, but very much diseased. They are the least diseased on poor soils. *G. Jones, Mottisfont Abbey, August* 4.

Hereford.—The Potato disease appeared much earlier than usual; already the tops have perished, and a large percentage of the tubers are affected. We are now lifting the early kinds—a heavy crop, of which one-fourth are bad. *William Coleman, Eastnor Castle, August* 5.

Herts. — After an inspection of about 400 allotments, made to-day, extending over some miles, I find the disease prevalent in all. In the gardens here the Potatos are very badly diseased. Dwarf Beans are attacked with a disease very similar. Carrots are much infested with wireworm. *George Sage, Ashbridge Park Gardens, Berkhampstead, August* 3.

—— The early Potatos are good and abundant. The haulm of the late sorts has become a good deal spotted within the last three or four days, which may be the precursor of disease, but I can find no positive traces of it as yet, and as some are already ripening hope for the best. *William Paul, Waltham Cross, August* 4.

—— The Potato crop is good and heavy, but, I am sorry to say, the disease has taken them badly; the cottagers here have been complaining for a long time. On the farm they are going off fast: my garden crops are rotting, and nearly half are already spoiled. *A. Parsons, Danesbury.*

Kent.—I am sorry to say that, since the late heavy rains, there is every indication of a severe visitation of the Potato disease. I observe to-day large patches of haulm are fast becoming putrid, some of the early sorts with weak haulm are completely dried up, and in all such cases the tubers are very small. *John Cox, Redleaf, Penshurst, August* 2.

—— I can only tell you that in this part they are good, but in lower parts near here, such as Wingham Well and Wingham, they have the blight very bad, and in some parts of Ash, near Wingham, we have been getting up the Early Rose. They are good and large, and so are all the other early sorts, but the late sorts we have not got up yet. *W. Folwell, Bramling House, Wingham, August* 3.

—— The Potato disease has this season shown itself earlier than usual. The late kinds were the first attacked, and the tubers are now going bad. Myatt's Prolific and the second early kinds have hardly a diseased tuber amongst them, although their tops within the last few days have quite died off, attributable, no doubt, to the crop being ripe. Tomatos here are affected in the same way as was the case last year. *D. Cole, Chevening, Sevenoaks.*

—— There is a good crop of early sorts, but they are much diseased. The late sorts look well, and the late rains seem to have made them stronger and healthier. I think we shall have a heavy crop. *F. Deuxberry, Cobham Hall Gardens, Gravesend, Aug.* 2.

Lancashire.—Potatos are looking well, but have rather more haulm than usual. A few diseased ones have been found among the early kidneys, and the American sorts are showing the disease that has recently attracted so much attention. Of all the sorts the Extra Early Vermont is the most affected, some of the plants dying when only a few inches high. On the whole, however, we are looking forward to having a good yield. *F. Harrison, Knowsley, Prescot, July* 28.

—— The Potato crop this season is heavy, fine tubers, good shape, and free from disease up to the present date. Myatt's Prolific especially suits this locality. Being ripe early, it is, as a rule, ready to harvest before the heavy rains set in, and yields well. I have tried several varieties, but find Rivers' Royal Ashleaf and Veitch's Improved do the best for early crop, and Myatt's for second early, being also in good condition for use till the end of November. *Henry Lindsay, Huntroyde, Padiham, August* 2.

—— The Potato crop is excellent, far exceeding the average. The early varieties are very fine and clean. During the past week complaints have been heard that the disease is making its appearance, but not so as to cause alarm. I have myself not seen any: this morning I examined several lots brought to market, of which we had an unusual large quantity offered for sale at low prices, and all in fine clean condition. The late varieties look exceedingly well, and judging from appearance the prospect is very good. *E. Green, Bank Park, Warrington, August* 4.

—— Early sorts produced a very good crop. Late varieties look very promising, and at present are free from disease. *Andrew Jamieson, Haigh Hall Gardens, Wigan, August* 4.

Leicestershire. — The Potato crop here has assumed a serious aspect, more especially the early varieties, such as Ashleaf, Mona's Pride, an excellent variety, Myatt's Prolific, Fenn's Early Market, and a variety here called Early Radford. Second early sorts, as Milky White, Lapstone, &c., have already suffered much, and quite half of the crop will be destroyed. The late kinds are also much affected in the haulm, and unless we have a continuance of hot dry weather, the only thing in my opinion that can possibly check the disease, I fear that a great diminution in the crop will result. I am growing all the varieties of American origin, and I find them equally affected with our own kinds. They appear very heavy croppers, but I think the quality has yet to be proved before we discard many of our standard varieties. Here with me Lee's Hammersmith Kidney is the best early variety, and one to be highly recommended for earliness, quality, and productiveness. *John Brown, Gopsall Hall, August* 4.

—— Instances of the new form of disease—rottenness of the seed tuber—in the Early Goderich, but with this exception Potatos have grown vigorously, and the crops of the early kinds are very good. Heavy rain following a dry time caused renewed growth in the Ashleaf and Myatt's Prolific, and damaged the quality. Potatos are from this cause hollow, and darkly stained in the centre. *William Ingram, Belvoir Castle Gardens, July* 29.

—— I am sorry to say the prospects of the Potato crop in this neighbourhood are very bad indeed, many of the largest tubers are already quite spoiled by the disease. Whole quarters of some sorts have stopped growth, and the foliage has turned quite yellow, while in others it is dark brown with the disease, and dropping off. *M. Henderson, Cole Orton Hall, July* 30.

Lincolnshire.—Potatos are abundant, but the disease has made its appearance amongst all varieties within the last week, after three weeks heavy and continuous rain. Very few of the tubers are as yet affected, but the haulm shows it severely, more particularly on heavy soil and strong growing varieties. *D. Lumsden, Bloxholm Hall, Sleaford, July* 31.

—— The early varieties produced an abundant crop, without a trace of the disease. Late sorts promise well; I never saw them look better, and that is the general opinion in this neighbourhood. *William Hurst, Somerby Park Gardens, Gainsborough, August* 2.

Middlesex.—The crop of early Potatos has been very good and heavy, but since the continued rains the disease has attacked some fields, and the tubers are affected. Of second early and late kinds the crop is heavy, and in the majority of fields the disease has considerably affected the haulm, and the odour even from a distance is very offensive. It is too early to judge of the probable effect on the tubers, which, by a continuation of fine weather, may escape destruction. A field of Dalmahoys at Isleworth is quite free from disease both in haulm and tuber. A field of Paterson's Victoria here, planted on fresh land of a light loamy nature, well limed but not manured, is as yet quite unaffected. *Charles Lee, Hounslow, July* 31.

—— Good crops of Potatos, without disease. *Robert Henderson, Fulham Palace, July* 30.

—— Potatos seem to be a heavy crop, but the disease is among them rankly. *Richard D. Blackmore, Teddington, July* 29.

Norfolk.—The Potato blight is showing both on early and late kinds, doubtless hastened by extreme hot and followed by cold, wet weather—in fact similar

weather as when the disease first appeared. What some consider to be a new disease appeared in the first part of the season, especially among the American Rose, but I suspect it is only the curl, which used to be common some years back near Edinburgh. Remedy: change of seed Potatos from moorland districts, repeated at least every second season. *J. Wighton, Cossey Park.*

—— Potatos began to show the disease heavily about the 20th of last month—amongst Snowflake, Extra Early Vermont, and Robson's Challenge the most. The beautiful weather we are now getting has up to this time stayed its progress very much. *Charles Penny, The Gardens, Sandringham, August* 3.

NORTHAMPTONSHIRE.—Early Potatos are really good, both in quantity and quality, and very little disease at present. Late Potatos look well, with every prospect of good crops: dry weather set in just in time. *John Smith, Althorp Gardens, August* 3.

NORTHUMBERLAND.—I never saw the Potato crops looking better than they are at present. With us the tubers are large and clean, and, as yet, not the least appearance of disease. *A. Ingram, Alnwick Castle Gardens, August* 3.

NOTTS.—Respecting the Potato crop we cannot say much at present as we have only dug up two or three sorts here, principally Myatt's Prolific, which are a good average crop, good sized tubers with clear skins and free from disease, and Crystal Palace Kidney, about which we may say the same. As a rule in this district there is a good average crop, and very little disease. *S. A. Woods, Berry Hill Gardens.*

—— Potatos never looked better, and there is a very fine crop. Unfortunately, in many places I can see every symptom of Potato disease, and have found a few bad tubers. From the excessive rainfall I am very much afraid that the crop will be a failure. I have seen two or three instances not recorded where the American Potatos have come up badly, especially Snowflake. Rainfall for July 7.33 inches. *William Cruickshank, Kingston Hall, July* 28.

OXFORD.—The crop in this neighbourhood is anything but satisfactory, as everywhere the haulm of the late ones shows unmistakable signs of the disease. I lifted here and there some of all my late ones, but found no diseased tubers; and on the early sorts that were lifted a fortnight since not a diseased patch was to be seen, but in looking over them since we found many. *John Greenshields, Sarsden House, Chipping Norton, August* 4.

RUTLAND.—The rainfall, as observed here from January to the end of July, was 19.90 inches, the amount measured in July was 8.48 inches. This alarming rain, which commenced on the 14th and continued until the 25th, with the exception of one day—viz., the 17th—made work with the hanging fruit crops that were ripe at the time, and up to that date there were no symptoms of the appearance of the Potato disease. At present it is very bad amongst the first and second early kinds; but the later varieties are looking well, the haulm being quite green, with no appearnce of disease, and such as have been used proved of good quality. *Frederick Clarke, The Gardens, Barleythorpe.*

SHROPSHIRE.—The Potato disease has set in with all its virulence both on the heavy land and light heath soil. On the former it is astonishing how quickly it is doing its work of destruction. On Tuesday last I had 12 bushels dug and found about a peck of diseased tubers, and this day (Thursday) in digging the same quantity I have as many as 4 pecks. I fear the losses will be heavy. *Daniel Judd, Hawkstone, July* 29.

—— The Potatos in this locality are looking remarkably well, and should favourable weather follow the late heavy rainfall (5½ inches here during July), no doubt the result will be heavy crops. Of course, this applies to late kinds. Early and second earlies are good fair samples, so far free from disease; the tops are turning yellow, and we shall lift them very soon. Myatt's Prolific is generally liked hereabouts. We grow it as a second, but many cottagers grow it as the first crop. White Rocks and Red Steeles are chiefly grown by the farmer. York Regents are the favourite late Potatos here. Haughton is 330 feet above sea level. We escaped spring frosts this season. *A. S. Kemp, Houghton Hall, Shifnall, July* 28.

—— The Potato crop with me is a very good one, and of excellent quality. The disease has appeared on some sorts, but not to any great extent. There are great complaints in the neighbourhood, but late sorts are looking remarkably well, and promise a good yield. *W. H. Welch, Willey Gardens, Brosely, August* 4.

SOMERSET.—As regards the Potato crops, until the recent heavy rains nothing could have been more promising. The disease has now made its appearance and is progressing very rapidly, the dry weather we are having does not appear to materially check its progress. The early kinds have been good yields, and sound. One of the best new varieties I have grown this season is Giant King, a good cropper, handsome, and of excellent quality. Among other kinds growing in the park on newly trenched ground, Sutton's Red-skinned Flourball and Hundredfold tubers withstand the disease better than any other kinds. *John Austen, Ashton Court Gardens, August* 3.

STAFFORDSHIRE—Potatos are an excellent crop, and they never looked better. There is no disease. All vegetable crops are first-rate. *Thos. Rabone, Alton Towers, July* 28.

—— Early crops were very fine, and but few diseased. The late varieties are very promising. *Thomas Bannerman, Blithfield, Rugeley, August* 2.

SUFFOLK.—Early kinds of Potatos have been unusually good; such as Myatt's Fortyfold, Early Rose, and such-like kinds have afforded very heavy crops of sound tubers. Till recently the late kinds promised to be equally abundant, but the disease has since made its appearance, and is spreading with great rapidity. If this is not arrested by the present fine weather it is much to be feared that the late crop will be a good deal injured. *J. Sheppard, Woolverstone, July* 29.

—— Potatos are a good crop, but I regret to say are badly diseased, in some instances more than half are tainted. There were reports of a new disease some time since; I have not seen any bad effects from it, but the old disease in its worst form is making rapid progress. *Thomas Blair, Shrubland Park, Needham Market, August* 3.

—— There can be no question that the disease is general. On first appearance we lifted all ours, and they are keeping well as yet, and of good quality. The whole of the Potato ground is already cropped with Broccoli, Savoys, Turnips, &c. The disease has made very rapid progress, and is affecting the tubers in all directions in gardens. This week's fair weather does not seem to have stopped it, and we fear, from the excessive length of top, that it will prove worse than usual this season. The very late Potatos are not yet hurt, in accordance with the usual law of a certain state of maturity being necessary to its development. *D. T. Fish, Hardwicke.*

SURREY.—Our Potato crop is very good, but the disease is spreading very fast. The first attacked was the Early Oxford, but it is spreading all round now. *John Burnett, The Deepdene, Dorking, July* 30.

SUSSEX.—Potatos are very bad here—in fact I have not known the disease to be so general for many years. In every cottage garden it is as bad as it well can be, amongst both early and late sorts. *S. Ford, Leonardslee, Horsham, August* 4.

WARWICK.—We have splendid crops, and the quality is fine. The disease is, however, making its appearance in most of the early sorts and some of the late ones. *J. G. Temple, Packington Gardens, Coventry.*

WESTMORELAND.—Potatos very good crop, and of excellent quality, but disease rather prevalent here and around the neighbourhood, which appeared much earlier than usual this year—no doubt owing to the heavy rains in the early part of July. *William Shand, Lowther, August* 2.

WORCESTERSHIRE.—The early varieties of Potatos have been very good, and have cropped well, having escaped the frosts which so much injured the crop last year. Since the change in the weather the tops of the second early varieties are dying off, and I know that we must expect the disease to follow and find a few bad ones. The later kinds look well, and have every appearance of a full crop. *John Wyke, Kyre House, Tenbury. August* 3.

—— The prospect of the Potato crop up to the last fortnight was most promising. The plant was healthy and vigorous, without a sign of disease; now the whole of the early varieties are much affected, and so rapidly does the disease manifest itself that the most verdant haulms in the course of a day or two become entirely blackened, and I have no hesitation in saying, that so alarmingly is the disease spreading, that at the present time upwards of one half of the very best tubers are affected; and I much fear that, with the almost total absence of sunshine throughout July, and the excessive moisture which the ground now contains, that at least our early crops will prove almost a failure. In the majority of seasons the earliest sorts are now ripe and harvested; but with the tubers now in an unripe state and the disease so thoroughly established, it is doubtful, whether, if lifted at once, its virulence would be mitigated. In the present state of the disease it would be useless to specify individual varieties which are least subject to attack, as all sorts seem alike to suffer at the present time; and it is to be hoped that the fine drying weather we are at last experiencing may continue, so that the soil may become dry before the late crops arrive at that particular stage of growth when they are most liable to become attacked. *G. Westland, Witley Court.*

—— Consequent upon a continuation of rain during nearly the whole of the past month, the Potato crops are seriously affected by disease. This is more especially the case with early kinds, later varieties having, to a great extent, so far escaped with little injury. The present fine settled weather is in favour of these reaching maturity with little loss, except in low or wet grounds. *W. Cox, Madresfield Court, August* 2.

WILTSHIRE.—I am sorry my report on the Potato crop for this locality must be very unfavourable. I do not remember ever seeing the disease so bad. It made its appearance here about June 25; in a few days the haulms of most of the earlies were quite black, and have now been for some weeks quite decayed: the consequence is that even our early varieties have this year fallen victims to the disease, which has not been the case generally. We ourselves are taking all our early ones up, and I am very sorry to state we shall not get one-sixth part of a crop such as we had last year. I yesterday examined our late varieties: in some instances I found all the tubers diseased, and those not diseased were very small. We are living in a Potato-growing district, and have made every inquiry, and all tends to lead us to think there will not be more than one-sixth part of an average crop. *A. Johnson, Savernake, August* 4.

YORKSHIRE.—Potato crop, not so good as usual. *J. Simpson, Wortley Hall Gardens.*

IRELAND.

ANTRIM.—The prospects of the Potato crop in this locality are very good; so far they are better than they have been for many seasons back, and they are quite free from disease as yet. I am digging Rintoul's White Don in the garden, and I might safely say they have not been so good for the last five years. *D. Taylor, Glenarm Castle, August* 3.

ARMAGH.—Potato crops are very promising in all parts of the country, early sorts yielding heavy crops with but little sign of disease. *W. A., Brownlow Gardens, Lurgan, August* 2.

CAVAN.—The Potato crop has not looked so well for years past. The crop is very heavy, and what has already been dug is of first-rate quality. The disease appeared about ten days ago, but is of a very mild type, and is not spreading much—confined chiefly to the early sorts. Early sorts of first-rate quality are selling at from 4*d.* to 5*d.* per stone of 14 lb. *M. I., August* 3.

DERRY.—The prospects of the Potato crop in this district are remarkably good. The principal varieties that do well here are the Royal Ashleaf Kidney for earliest variety, the Fortyfold and Brown and White Cluster for second early, and the Brown and White Rock and Skerry Blue for main crop. I tried Paterson's Victoria this season for a second early, and I think very highly of it; it is by far a better cropper than any of the varieties of Cluster, and comes in for use rather earlier; I think its qualities are everything that could be desired in a Potato. *William Heming, Palace Gardens, July* 29.

DONEGAL.—Potato crops in this district promise to be the best we have had for many years, and there is scarcely a trace of disease yet. *Armstrong Hanlon, Drumboe Castle, July* 30.

DUBLIN.—Potatos are a good crop, and, as far as my observation goes, are wonderfully free from disease. Notwithstanding the late drenching rains and dark cloudy weather the Ashleaf section is showing a little disease; stalks here and there are getting discoloured, and the fatal spot showing upon an odd tuber. This invariably happens with these varieties at this season of the year, but on the present occasion to a less extent than usual. The general crop looks vigorous, and in many cases shows a large amount of bloom, which reminds one of the crops before the advent of the disease. *G. Smith, Vice-Regal Gardens, July* 31.

GALWAY.—The Potato crop has seldom presented a healthier appearance at this period than at present. The fields are perfectly green and healthy—free from all signs of disease. Several of the earlier garden varieties are harvested, and have yielded most abundantly, and almost all sound, and are now keeping well on shelves. Myatt's Ashleaf, Lee's Hammersmith Kidney, American Early Rose, and Taylor's Fortyfold, have been all that could be desired. Rector of Woodstock and American Late Rose are affected, the former more than the latter. The two new sorts sent out by Messrs. Hooper—Eureka and Snowflake—do not show the least sign of disease. I may mention that, for fields, the sorts most planted are Paterson's Victoria and Scotch Downs. *Edward George, Garbally, Ballinasloe, August* 4.

KILDARE.—The Potato prospect up to the 29th ult. was very good, but since then some spots have appeared on the haulm. *William Emery, Kilkea Castle, August* 2.

—— The Potato crop generally is remarkably good and fine in quality. There is no appearance of the disease as yet. *D. James, Carton Gardens, August* 2.

KILKENNY.—The crop of Potatos never looked better in the south of Ireland until July 14, when we had a very heavy and general rain, for two days, after which the disease began to make its appearance very steadily until the 25th, when we had a violent hail-storm; from that until the 28th it took a more rapid and severe form, until the morning of the 29th, when whole plots had the appearance of Dahlias after a slight frost. Since then the weather has taken up, and we begin to breathe more freely,

and hope that we may from an extraordinary abundance save at least an average quantity of sound tubers. We grow here about twenty varieties of Potatos, and notes are taken of each. Should you think well I may give you the results on some future occasion. [Please do so.] *George Dodd, Woodstock Park, Aug.* 2.

MEATH.—There is a fine crop of Potatos, but the disease is making its appearance. The tubers are dry and clean, and there is every prospect of their being cleaner than last year. *John Clews, Headfort House, Kells, July* 31.

TYRONE.—Sorry to say the Potato disease has made its appearance, but yet to no great extent; they are in general here a full crop, fully an average. *D. Anderson, Baron's Court, July* 31.

WATERFORD.—All early Potatos have taken up well; a fine crop, and large tubers. The field crops look very fine and healthy, with no appearance of blight as yet, although it is reported to have made its appearance at Carrick-on-Suir. *George Fairbairn, The Gardens, Curraghmore, Portlaw, August* 3.

WEXFORD.—The Potato crop in this neighbourhood promises to be very good; as yet there is very little disease. *P. Braund, Courtown House, Gorey, August* 3.

WICKLOW.—I am sorry to inform you that the Potato disease is spreading most rapidly; Dalmahoy and Kemp at present appear to be the worst affected, Regents, too, look very bad. I will forward you a report at taking-up time, and also let you know the effect of heavy lime dressing. Last year it answered well. *Thos. P. Turner, Killruddery, Bray.*

SCOTLAND.

ABERDEEN.—Potatos in gardens are good crops; in the fields they look very fair for the season. Disease is showing in a few places, but is not as yet general nor so prevalent as I have seen it. *R. Farquhar, Fyvie Castle Gardens, August* 2.

ARGYLESHIRE.—In our low-lying districts I never saw the Potatos looking more promising than they do at present, for the plant appears to be perfectly developed in every part root, stem and flower alike vigorous, and it could scarcely be otherwise, as the season favoured the planting of the sets, being very dry and warm—the rainfall in April, 1 inch, and that of May, 4 inches. It is true June came in rather cold and wet, with little sunlight, and continued so to the end, but notwithstanding this the Potato continued growing, although somewhat enfeebled from the absence of sunlight; but still there are no indications of fungus or disease, though rain fell during the month to the amount of 5 inches. July came in with a clear atmosphere and south wind, with warm genial showers, and though the sun-heat was intense, the wind shifted to the north every now and then, which produced a cooling breeze, very conducive to the health of the Potato. The rainfall for the month is 1½ inch, and if the weather continues as it has been during the past month, the yield from Potatos of all kinds, in this locality, will be large. Let us hope that this may be so, and that neither resting-spores, nor any of those diseases affecting the leaf of the Potato may trouble us. *John Caie, Inverary Castle Gardens.*

AYRSHIRE.—The Potato crop in Ayrshire is the finest that has been for many years, both as regards quantity and quality. Some districts along the coast are famed for producing for the early market. I am led to believe that the yield this season has been good. Inland the soil varies very much, there being light and heavy loams, clayey loams, and some mossy soils; but on the whole the crop in general at this date is looking remarkably healthy and strong. I might here state that this has been the driest season experienced in this county for many years, which I consider has much to do with the fine appearance of the Potato crop in general, and more especially on the heavy lands. I have not seen any diseased tubers or heard of any, but there have been many signs of disease in the haulms, especially amongst the Goderich, which this season has been grown extensively amongst the growers for the early market. My opinion is that this is a bad variety both as regards constitution and quality, and I expect to see it less grown next year. In our own garden here, which lies low, with a bad drainage, and soil rather heavy, we have had a beautiful crop. The varieties of kidneys we grow have been numerous, but we principally depend upon the true old Ash-leaved Kidney for early work, Myatt's for seconds, and for a round white I prefer Red Bog—a good cropper and of good quality. Rintoul's Pink-eyed Don I grew this season, but won't grow again, as I consider it only second in quality, and it seems very subject to haulm disease. I add below the weight per acre of some varieties grown in the garden here this season:—Old Ash-leaved Kidney, 12 tons; Veitch's Improved ditto, 16½ tons; Smith's Early Round, 15 tons; Myatt's Prolific Kidney, 17½ tons. I am a firm believer in early lifting of the crop, and, acting on this principle, seldom lose any by disease. *John Gray, Eglinton Castle, August* 2.

BANFF.—The crops are very promising at present; no signs of the disease. *John Webster, Gordon Castle, July* 29.

BERWICK.—Potatos come away very indifferently, but they are healthy and have no appearance of disease up to the present time. *Peter Loney, Marchmont House, Dunse, July* 28.

CLACKMANNAN.—Potatos an average fair crop, and no disease so far as is known. *Thomas Ormiston, Alloa Park, Alloa, August* 2.

CROMARTY.—The Potato crops throughout this district look remarkably well, strong and vigorous in the haulm, and not affected with the disease. Other field crops are all abundant. *L. T., July* 30.

DUMBARTON.—Potatos in this district are a good and heavy crop, and the tubers are of fine quality. There is no appearance of the disease as yet. *J. Mitchell, Camis Estean, July* 29.

DUMFRIES.—The Potato crop is looking remarkably well, and late sorts are blooming abundantly. I have not noticed any disease except in the case of the American Early Rose, a very few of which have what is termed the new disease. *David Thomson, Drumlanrig, Gardens, Thornhill, July* 29.

EAST LOTHIAN.—Both farm and garden crops are looking remarkably strong and healthy in all parts of East Lothian. On the sea coast farmers are already lifting, and some fields are quite cleared. *Alexander Shearer, Yester Gardens, August* 2.

FIFE.—There is an abundant crop of Potatos, and no signs of the disease as yet. *Robert Adamson, Balcarres, July* 30.

FORFAR.—The Potato crops were never finer than they are here this season; both garden and field crops are prolific and excellent. Among a great many kidneys and rounds grown here, of the former the true old Ashleaf is our favourite, both for earliness and quality; and of rounds, Rintoul's White Don is our best, being a splendid second early. There are no signs of disease here, nor in the neighbourhood, so far as I can learn. The season has been favourable—above average—for crops in general. *George Johnston, Glamis Castle, Forfar.*

LANARKSHIRE.—The Potato crop is a good one, and in both gardens and fields the tubers are still free from disease. But if wet weather should set in, the disease will soon make its appearance, as there are clear indications of it on stems and leaves. *Andrew Turnbull, Bothwell Castle, August* 2.

MID-LOTHIAN.—Potatos look uncommonly well. Early sorts are a fine crop, late ones promise to be so, and up to this are quite free from disease. Some fields are rather blank, owing to the sets not starting during the dry weather in April and May, or being attacked with curl in May and June. Since the rains came, in the latter half of June, the curl has quite abated; American varieties suffered most from it, but Regents, Dons, Dalmahoys, &c., were also attacked by it to a less extent. *Malcolm Dunn, Dalkeith Gardens, July* 29.

RENFREW.—The Potato crop both in fields and gardens never promised better, being both abundant and fine in quality. No signs of the disease yet. *John Methven, Blythswood Gardens, August* 2.

ROXBURGH.—Up till now the Potato beds seem free from the disease. All the early kinds, both kidneys and rounds, are ripe, and are very excellent in quality. I hear of no disease as yet in any quarter, and we are in hopes of a good Potato harvest. The home varieties hereabout seem to be preferred to the American ones. We have such excellent varieties of hardy prolific kinds of home raising, that it seems superfluous to attempt foreigners; and, in reality, after trying many of those upstarts, we are glad to make acquaintance with our old friends again. What I take in hand, and hold up as first-class Potatos for this quarter, are the old Ashleaf, Smith's Early Gloucestershire Kidney, Flourball, Ashtop Fluke, Regents, and Paterson's Victoria. Every one upholds their own particular kinds, and those that do well one has no desire to discard for newer kinds; at least, this should be the general rule, but I fear it is the exception, and hence the frequent disappointments. *H. Knight, Floors, Kelso, August* 3.

STIRLING.—Potatos have turned out well as yet, no sign of disease having made its appearance. *M. Fitzgerald, Dunmore Gardens, August* 2.

WIGTOWN.—I did not observe the Potato disease till the 21st ult., about three weeks earlier than last year. The humid, and occasionally hot, close, if not wet weather, we have experienced in the south-west of Scotland, during the month of June and the early part of July may have had to do with the earlier appearance of the disease. At the corresponding period last year dry and scorching weather prevailed. Since the appearance of the disease we have had little rain, the weather, on the whole, bearing to the dry side, consequently the disease is making little progress, being as yet, so far as I can discover, confined to gardens. Potatos, although generally, are not extensively grown in Wigtownshire as a field crop; up to this period they look well, and if the weather keeps moderately dry for the next two months, above an average crop may be gathered. *A. Fowler, Castle Kennedy, July* 28.

WALES.

ANGLESEA.—Kidney Potatos good and free from disease, late varieties show signs of disease. *Robert Webster, Glyn Garth, August* 3.

CARDIGAN.—The Potato crops are extra good this season all round this quarter, but the disease made very rapid progress for a few days during the last heavy rains about a fortnight ago, but since the fine weather set in it has been checked, and the tubers do not seem to get any worse than they were a week ago. *John Hutchinson, Abermaide House, Aberystwith, August* 2.

CARMARTHEN.—The Potato disease made its appearance here in the early part of July, and made rapid progress while the wet weather lasted; scarcely a garden is to be seen free from it. The haulm in many places suffered severely, and in damp ground the tubers also. The fine weather we have had during the last ten days has to some extent arrested its progress, and from present appearances there is every prospect of a good crop. Gryffe Castle and the Lapstone have suffered the most. Flourball, Hundredfold, and Rivers' Ashleaf are the best. *J. Ticehurst, Dynevor Castle, Llandilo, August* 4.

MERIONETH.—Potatos are very good in garden and field. I found some Potatos (Myatt's Ashleaf) in a cottager's garden slightly diseased. Early Rose is a splendid crop, but it is not relished here. Rivers' Royal Ashleaf, Mona's Pride, Lapstone, Paterson's Victoria, and White Rocks are our favourites. *James Bennett, Rhug Gardens, Corwen, August* 3.

MONTGOMERY.—Potatos are very much diseased in some places about here; my own are only just spotted with the disease, and I am taking up the early sorts as fast as I can. The tubers are all sound at this time. *T. Dutton, Leighton Hall Gardens, Welchpool, August* 4.

CHANNEL ISLANDS.

GUERNSEY.—Much disease has made its appearance amongst the Potato crops lately. *T. C. Brthaut, Richmond House, July* 28.

JERSEY.—The Potato has been cultivated to a greater extent this year than ever known before. Early crops on sloping and light ground rather small, but on good level ground a good crop, on an average 12 tons, and in some instances 20 tons to the acre. *William Melville, Tyneville Vineries, July* 30.

ELEMENTARY LESSONS IN BOTANICAL GEOGRAPHY.

XI.—ON THE INFLUENCE OF THE DISTRIBUTION OF SEA AND LAND AND CLIMATE IN PAST TIMES ON PLANT GEOGRAPHY.

Specific Centres.—We have seen that to a very large extent plants are influenced in their distribution by the conditions of heat and moisture that prevail in the world at the present time. If we look at the flora of a limited tract of country, like Britain, the effect of these influences seems very striking. The differences between the floras of Sussex and Argyleshire, for instance, seem to be accounted for to a large extent by the differences between the present climate of the two counties; but if we make the comparison between far distant tracts of country—say between Yorkshire and one of the New England States, or between Mauritius and Juan Fernandez—we find that there are often very slight differences between their climates and very great differences between their floras. It seems quite clear that types that have the same climatic constitution have originated in different parts of the world, and thus that the flora of any given tract depends largely upon its geographical position.

It is commonly taken for granted that each species has originated from a single centre. The principal fact that supports this idea is that we do not find plants scattered about indiscriminately, but that each, as a rule, occupies a definite geographical area within the bounds of its climatic capabilities. If we know that a plant grows both in Britain and in the Himalayas, we expect to find it spread through the intervening countries, and this is so continually the case in actual fact that the few apparent exceptions cannot be regarded as invalidating the general rule, and the conclusion that each species has originated from a single centre is therefore universally accepted. The same plan of distribution often also holds good with genera, tribes, and natural orders, and this is one of the strongest arguments in favour of the idea that these have also descended from one common ancestor.

Representative Species.—When two types with close structural affinity grow in different climates or different geographical areas, we often speak of them as "representing" one another. It often happens that two plants of different climates stand in such a relation to one another that one school of botanists calls them varieties of a single species, and another school calls them distinct species. We have a good instance of

this in our common wild English evergreens. Ilex Aquifolium, the Holly of Central Europe, is in this way represented in the Mediterranean region by Ilex balearica; Buxus sempervirens, the common Box, by Buxus balearica; Hedera Helix, by Hedera canariensis; and the Box and Ivy again in the Himalayas by a third variety or closely allied species. Or to compare the Ferns of Central Europe with those of the Canaries and Madeira, Polypodium vulgare shows itself in these subtropical islands in the form of Polypodium australe, Ceterach officinarum as C. aureum, Asplenium Trichomanes as A. anceps, and A. Adiantum nigrum as A. Virgilii, all of which have been regarded by writers of good repute as distinct species. In the same way Armeria alpina of the arctic-alpine zone represents Armeria maritima of cool temperate shores, and Cochlearia grœnlandica represents Cochlearia officinalis, and Plantago subulata represents Plantago maritima under the same contrast of conditions. Hardly any one now-a-days would doubt that all these pairs of plants have descended from one common ancestor at a comparatively recent date, and acquired the characters that distinguish them through living in different climates through a succession of generations. There is another kind of "representative" species, where one plant answers to another very near it in character, placed under a similar climate but in a different geographical area. The three Raspberries, Rubus Idæus, biflorus and strigosus, in this way represent one another in Europe, the Himalayas and North America; Cercis Siliquastrum, chinensis and canadensis, answer to one another in South Europe, China and the United States; the Old World Pyrus Aucuparia answers to the New World P. americana; the Old World Prunus Padus to the New World P. virginiana and serotina; and Apium graveolens and Lomaria Spicant of the northern hemisphere answer to Apium australe and Lomaria alpina of the southern hemisphere. It would be easy to adduce striking cases of both these kinds of representative allied forms in structure placed under different climates and under different geographical areas, in genera, tribes, and orders, as well as species, and they furnish another strong argument in favour of the theory of evolution.

Insular Floras.—When we study the flora of Britain and compare the plants of our own island, and their distribution with those of the Continent, the conclusion appears irresistible, that the plants of Britain were spread abroad over its surface whilst island and continent were still united, The only wild species out of the 1300 that exist in Britain proper which are not also continental are Eriocaulon septangulare, a plant of Ireland and North America, and a few critical types, such as Rosa Borreri, Rubus Lindleianus, R. pyramidalis and Hieracium Gibsoni, that cannot be safely relied upon. For Ireland also the same conclusion may be stated, because not only are the plants the same, but the minutiæ of their distribution entirely supports the idea that when they were dispersed the islands formed part of the continent. The species that have a northern tendency with us have the same northern tendency on the continent. The characteristic arctic-alpines of our hill summits grow upon the continent in the same way, and our cold-fearing hygrophilous types of the south-west creep up to us from West France and the Spanish peninsula. The entire absence of peculiar, or, as they are called, endemic types, is the most remarkable character of the British flora, and, considering how many thousand years Britain has been separated from the continent by the German Ocean, it is a strong argument against the idea of a rapid spontaneous differentiation of specific types in plants; and the study of the details of the distribution of our flora is calculated to impress strongly upon the mind the conclusion that the present distribution of plants in these latitudes was, broadly speaking, a fully accomplished fact before land and sea acquired their present bounds.

We do not find that this entire absence of endemic types holds good for other islands, but we find that their botany usually lends strong support to the idea that the plants were settled down before the islands were insulated. Mr. Watson has lately summed up the flora of the Azores, and, out of 480 Azorean species, finds that forty are endemic; about 400 European, 320 North African, and that 340 occur in Madeira and the Canaries taken together; so that the flora of all these islands substantially forms part of that of the Mediterranean basin. Out of 130 Thalamifloræ in Mauritius and the Seychelles I find that upwards of thirty are endemic species. One of the most distinct of all the known insular floras is that of New Zealand, where, out of 935 flowering plants, 677 species, or more than two-thirds, are endemic. St. Helena, with fifty-three endemic flowering plants and Ferns out of sixty-eight, is an extreme case on the side of individuality.

Geological Evidence.—If we consult geological evidence as bearing upon the question of the origin of the present flora of the world, we find that the greater portion of the palæozoic fossils are arborescent Acrogens, including various giant Lycopodiaceæ and Equisetaceæ, lost long ago. The fossils of the earlier strata of the secondary series are almost exclusively Cycads and Coniferæ, but it seems now a conclusion fully established, that a great many of the present generic types were in existence before the close of the Cretaceous epoch. Amongst the fossils of the chalk Heer enumerates genera of all the main groups of plants as we have them at present, such as Trichomanes, Asplenium, Gleichenia, Sequoia, Pinus, Torreya, Salisburia, Sparganium, Populus, Ficus, Myrica, Sassafras, Andromeda, Diospyros, Panax, Rhus, Sapindus, and Magnolia. Since then the whole tertiary period has intervened, leaving deposits spread over the lower levels of all the great continents. We have them in Chili at a height of 1500 feet, in the South of Europe up to 2000 feet, and in the Niti Pass in Tibet they reach an elevation of 17,000 feet above the present sea-level. In Britain the tertiary series is represented very imperfectly, but we have beds of the eocene alone 600—700 feet thick in the London clay, and 1200—1300 feet thick in the Bagshot sands. During the early part of the tertiary period it seems that for a long time a torrid climate prevailed in Europe, as the predominant fossils of our latitudes, both vegetable and animal, are Macrotherm types—Palms, Pandani, Bamboos, Lauraceæ, Mimoseæ, Dalbergia, Cassia, Cæsalpinia, Combretaceæ, Tree Ferns, Cinnamons, Figs, elephants, hippopotami, and rhinoceroses. In our own latitudes there is every reason to believe that late in the tertiary period the sea reached up to a height of 1500 feet in the North of England, when the present hills existed only as peaks and ridges with an arctic climate, and that there was a period of cold when such plants as Salix polaris and Betula nana came down in the South of England to the present sea-level, and that at a comparatively late date the sea was not high enough to separate Great Britain and Ireland from the Continent and each other. It would, I believe, be generally accepted as probable by those best qualified to judge, that all these changes of climate and level which I have just briefly indicated, have occurred since a large proportion of the genera, as we now have them, have been in existence.

Geographical Range of Plants within the Bounds of their Climatic Range.—Under this head I will only attempt to indicate in a very cursory way to what extent the botanical types are now restricted to particular geographical areas within, and subordinate to, the restriction which they have through climatic limitation.

Geographical Range of the Macrotherms.—The equatorial or torrid zone is more consolidated geographically than any of the other three, as it consists mainly of three continuous areas. The number of characteristically Macrotherm species of the higher orders, which are common to all the three continents, is not less than 300 or 400, and the geographical range of many of them is thoroughly cosmopolitan, as the following examples will indicate.

Waltheria americana, Linn. (= indica, L.), a Malvaceous under-shrub.—Tropical America from Cuba, Florida, and the Bahamas, to Rio Janeiro and Peru, ascending to 3000 feet in the Andes; Fernando Noronha, Sandwich Islands, Viti, Isle of Pines, and other groups in Polynesia, North Australia, Malay Isles, South China, Philippines, India from Ceylon to the Himalayas, ascending to 4000 feet in Kumaon, Madagascar, Bourbon, Mauritius, Comoros; continental Africa from Kaffraria to Nubia, Angola, and Senegal.

Ximenia americana, Linn. (= elliptica, Forst.).—A spiny shore shrub, 15—20 feet high, with a fruit like a Plum.—Florida and West Indies to Buenos Ayres, Columbia, and Peru; Society and Fiji Isles, Samoa, New Caledonia, North Australia, Timor, Malay Isles, Penang, Tavoy, Ceylon, and Peninsular India; Seychelles, Nubia to Zambesi Land, Senegal, Guinea, and Angola.

Tephrosia purpurea, Pers. (= T. piscatoria, Pers., and T. leptostachya, D.C.).—A perennial Pea-like herb, with wiry slender stems and pinnate coriaceous leaves.—North Mexico and West Indies to South Brazil, ascending to 6000—7000 feet in the Andes; common in Polynesia and through North Australia to New South Wales, Formosa, Philippines, Pescadores, Timor, South China, Malay Isles, Ceylon, and through India, ascending to 5000 feet in the Central Himalayas; Seychelles, Mauritius, Bourbon, Madagascar, Kaffraria, Natal, and Orange Free State to Nubia, Angola, and Senegal.

Trichomanes rigidum, Sw.—Cuba and Mexico to Peru and Rio Janeiro, ascending to 7000—8000 feet in the Andes; Samoa, New Hebrides, Viti and other Polynesian islands, Queensland, New Zealand, Philippines, Borneo, Java, South Japan, Malay Peninsula, Tavoy, Ceylon, Neilgherries; Seychelles, Madagascar, Mauritius, Bourbon, Comoros, Natal, Graham's Town, Angola, Guinea, Fernando Po.

Lycopodium cernuum.—West Indies and Mexico to South Brazil and Peru, ascending to 5000—6000 feet in the Andes; Galapagos Isles, Fiji, Tahiti, and other Polynesian isles, St. Paul's Island (near hot springs), New Zealand, Australia, Malay Isles, Formosa, Philippines, South China, Nagasake, Ceylon, East Himalayas; Seychelles, Mauritius, Madagascar, Comoros, Cape Colony, Guinea, Angola, Azores, St. Helena, Ascension.

Many of these cosmopolitan Macrotherms, for want of proper comparison, have been described in local catalogues under a great number of different specific names. The Tephrosia above-mentioned has not less than thirty, and the Trichomanes above twenty. The orders principally represented amongst them are Malvaceæ, Leguminosæ, Convolvulaceæ, Cyperaceæ, Gramineæ, and Ferns. Of Ferns alone there are sixty-four cosmopolitan Macrotherm species. There are a great many species common to Asia and Africa which do not reach America, and a considerable number, such as Ecastophyllum Brownei and monetaria, Paullinia pinnata, Hydrocotyle bonariensis, Sparganophorus Vaillantii, Davallia concinna, Adiantum tetraphyllum and Hymenophyllum lineare, which are American and African, but not Asian.

Of genera there are a very large number that extend into all the three continents, and out of the large number of characteristically Macrotherm orders very few that are not common to the three. The only large natural orders restricted to the New and Old World are Bromeliaceæ and Gesneraceæ to America, and Dipterocarpeæ to Asia and Africa. Of small orders or tribes the following are endemic:—Vochysiaceæ, Humiriaceæ, Mayaceæ and Lacistemaceæ in America; and Balsaminaceæ, Chlænaceæ, Apostasiaceæ, Aquilariaceæ, Nepenthaceæ and Taccaceæ in the Old World. Of the large orders Malpighiaceæ, Melastomaceæ, and Passifloreæ only occur in the Old World to a small extent.

Geographical Range of the Mesotherms.—The warm temperate zone is more broken up in its principal geographical areas than any of the other three, and is the one in which there is the greatest amount of geographical localisation of types of all grades. Of the very few cosmopolitan Mesotherm species we have examples in Lythrum hyssopifolium and Parietaria debilis.

Lythrum hyssopifolium.—Missisippi States, Mexico, Chili, Juan Fernandez, South Brazil, Monte Video, Sandwich Isles, New Zealand, Van Diemen's Land, Temperate Australia, Cape Colony, North China, Afghanistan, Orient, South Europe to Central Russia, Belgium, Alsace and England, Barbary States, Canaries, Azores.

Parietaria debilis.—Southern United States, Mexico, Andes of New Granada, Bolivia and Peru, Chili, Uruguay, Mendoza, Buenos Ayres, Norfolk Island, New Zealand, Tasmania, Temperate Australia, Comores, mountains of Fernando Po, Guinea and Abyssinia, Madeira and Canaries, through the Mediterranean region to Asia Minor, Central Siberia, Afghanistan, and the East Himalayas, where it ascends to 12,000—14,000 feet.

There are a great many types of different grades that connect together the south hemisphere floras of this zone, distant though Cape Colony, Australia, and extra-tropical South America now are from one another. Of this kind in species are Apium australe, Triglochin triandrum, Adiantum æthiopicum, Lomaria attenuata, and Aspidium coriaceum, all of which are abundant in each of three areas; in genera Acæna, Gunnera, Scævola, and Uncinia; and in orders Restiaceæ, and Proteaceæ, which are two considerable orders nearly restricted to these three south temperate floras, the latter containing forty genera, and upwards of six hundred species, all bushes and trees of very peculiar characteristic habit and structure. Over and above this, the alliance of the Cape with extra-tropical South America and Australia is but slight, but the links between extra-tropical South America, on the one hand, and on the other New Zealand and Australia, are considerable. Of species 111 are common to New Zealand and America, out of which seventy-seven are also Australian. Of well-known characteristic South American generic types that re-appear in New Zealand we have instances in Fuchsia, Passiflora, Calceolaria, Ourisia, and Pernettya, and of species Oxalis magellanica, Nertera depressa, Lomaria alpina, and Polypodium australe.

There are several characteristically Mesotherm genera divided between North and South America, as Œnothera, Gilia, Collomia, Mentzelia, and Gayophytum, and in the same way between the Mediterranean basin and the Cape. Of these some are most abundantly developed at the Cape, as Erica, Wahlenbergia, Kleinia, Mesembryanthemum, and Stapelia; and some, like Dianthus, Matthiola, Ballota, and Echium, in the northern area.

There are several curious cases in which tribes and genera are represented in the different geographical areas of this zone by different genera or subgenera. In Cotyledon we have Cotyledon proper at the Cape, Umbilicus in Asia and the southern half of Europe, and Echeveria in America. In Rutaceæ we have the tribe Ruteæ, with six genera and forty-nine species in the northern hemisphere; the tribe Diosmeæ with eleven genera and 180 species at the Cape; and the tribe Boronieæ with eighteen genera and 173 species in Australia. In the tribe Podalyrieæ of Leguminosæ

we have five genêra with thirty species in the northern hemisphere, two genera with twenty-six species at the Cape, and nineteen genera with 365 species in Australia.

Of the characteristic orders of the warm temperate zone the following are the principal that are nearly or quite endemic :—In South America Nolanaceæ, Francoaceæ, Gilliesiaceæ, Philesiaceæ, Calycereæ, and Tropæolaceæ, all small ; in America, taken as a whole, Hydrophyllaceæ, Loasaceæ, and Sarraceniaceæ ; in North America and East Asia, taken together, Magnoliaceæ, Calycanthaceæ, Polemoniaceæ, and Hydrangeæ ; in the Mediterranean basin Cistaceæ and Resedaceæ ; in Australia Tremandraceæ, Stackhousiaceæ, Epacridaceæ, Stylidiaceæ, Goodeniaceæ, Casuarinaceæ, and Desvauxiaceæ ; and at the Cape Bruniaceæ, Stilbaceæ, Penæaceæ, and Selaginaceæ.

Geographical Range of the Meiotherms.—In the cool temperate zone, types of all the three grades are very widely diffused geographically. Out of the 1425 British species none are endemic, only 316 exclusively European, about 250 reach the Himalayas, 450 reach America, and nearly 100 the southern hemisphere. According to Dr. Asa Gray's summary of the geography of the flowering plants of the Northern United States, out of 2091 species only seventy-one are endemic, 416 extend westward to the Pacific coast, or near it, 308 are Asiatic, and 321 European. The following will give an idea of the range of some of these widely spread Meiotherm species.

Taraxacum officinale (the common Dandelion).—All through Europe and Siberia from arctic latitudes, ascending into all the six zones in Britain, to Algeria and Sikkim, where it inhabits a belt reaching from 11,000 to 18,000 feet ; Formosa, Hong Kong, and Japan, North America from Greenland down to New Mexico and the Andes of Southern Mexico, Canaries, Azores, Temperate Australia, New Zealand, Chatham Island, Straits of Magellan, Andes of Mendoza, and Chili.

Cerastium triviale.—Universal in north temperate hemisphere from Lapland, Iceland, and Britain, to Greenland and United States ; Azores, Canaries, Barbary, St. Helena, Cape Colony, Camaroons, Abyssinia, through the Himalayas, ascending to 1200 feet in Sikkim, Neilgherries, Sandwich Islands, Australia, New Zealand, Andes of Mexico, Uruguay, Chili, Patagonia, Falklands, Tristan d'Acunha.

Montia fontana.—All through Europe, from Britain and Lapland to Greece, Spain, and Corsica ; Algeria, West Himalayas, Russian America, Greenland, California, Rocky Mountains (not Eastern States), Andes of Mexico, Bolivia, and Peru (9000—12,000 feet), Chili, Uruguay, Kerguelen's Land, Falkland Isles, Cape Horn, Auckland Isles, Campbell Isles, New Zealand, Tasmania.

Lythrum Salicaria.—Through Europe, from Britain to Siberia and Japan, Barbary, West Himalayas, and Afghanistan ; Australia, Tasmania, New Zealand, United States (rare).

Asplenium Trichomanes.—Temperate regions of Old World, from Britain, the Azores, and Madeira to Japan and the Himalayas, where it ascends to 8000 feet ; Algeria, Cape Colony, Temperate Australia, Tasmania, New Zealand, Sandwich Isles, Temperate North America, Andes of Mexico, New Granada, Bolivia and Peru, Organ Mountains.

Lycopodium clavatum.—All through the north temperate zone, from Lapland, Archangel, and Britain, to Canada and the United States ; Natal, Cape Colony, all through the Himalayas, hills of Java, Malay Peninsula, Neilgherries, Ceylon, Andes of Mexico, Columbia and Peru, ascending to 11,000 feet ; Organ Mountains and hills of West Indies and Central Brazil, Fuegia, Staten Land, Kerguelen's Land, Tristan d'Acunha, Falkland Isles, Sandwich Isles, Auckland and Campbell Isles, New Zealand, Tasmania (common at 4000 feet and upwards).

To illustrate the way in which the Meiotherm species reach the proper zones of elevated mountains that rise in warm latitudes, I give a list of twenty-one British plants that were gathered by Mann upon the Camaroons, an isolated range near the Gulf of Guinea, close upon the equator, at an altitude of from 7000—12,000 feet :—Cardamine hirsuta, Cerastium triviale, Radiola Millegrana, Oxalis corniculata, Cotyledon Umbilicus, Sanicula europæa, Galium Aparine, Scabiosa succisa, Limosella aquatica, Sibthorpia europæa, Solanum nigrum, Trichonema Bulbocodium, Juncus capitatus, Luzula campestris, Aira cæspitosa and caryophyllea, Poa nemoralis, Kœleria cristata, Festuca bromoides and gigantea, Brachypodium sylvaticum.

How close the alliance often is between the herbaceous plants of Europe and America is well shown by the natural order Ranunculaceæ, in which the geography of the thirty-one genera or large subgenera of the northern hemisphere is as follows :—

Represented by the Same Species in Europe and America.—Euanemone, Hepatica, Batrachium, Ranunculus, Coptis, Myosurus, Caltha, Actæa.

Represented by Different Species in Europe and America.—Atragene, Clematis, Pulsatilla, Thalictrum, Trollius, Pæonia, Isopyrum, Aguilegia, Delphinium, Aconitum, Cimicifuga.

Confined to the Old World.—Adonis, Callianthemum, Oxygraphis, Calathodes, Glaucidium, Helleborus, Eranthis, Nigella, Anemiopsis.

Asian and American, not European.—Trautvetteria.

American alone.—Hydrastis, Xanthorhiza.

The following is a list of the arborescent and fruticose genera, which, taking them throughout, are far more restricted in their range than the herbaceous types, which are represented by identical and by distinct species in Europe and the United States.

By the Same Species. — Viburnum, Loiseleuria, Empetrum, Ribes, Humulus, Castanea, Myrica, Betula, Alnus, Salix, Sedum, Phyllodoce, Juniperus, Taxus, Spiræa, Rubus, Vaccinium, Arctostaphylos, Andromeda, Cassiope, Cassandra.

Genus the Same, but all the Species Distinct.—Tilia, Rhus, Rhamnus, Euonymus, Acer, Rosa, Cratægus, Cercis, Prunus, Pyrus, Amelanchier, Sambucus, Rhododendron, Ilex, Ulmus, Planera, Celtis, Morus, Platanus, Juglans, Quercus, Fagus, Corylus, Carpinus, Populus, Pinus, Berberis, Vitis, Celastrus, Staphylea.

Geographical Range of the Microtherms.—Probably not less than 500 species are scattered over the mountain ridges and peaks of the arctic-alpine zone of the Northern hemisphere, in a way which the following instances will indicate :—

Thalictrum alpinum.—Arctic zone of New and Old World, Iceland, Feroe, Norway, Sweden, Scotland, England, Iceland, Wales, Alps, Pyrenees, Carpathians, Tyrol, Transylvania, Caucasus, Altai, Baikal, Songaria, East and West Himalayas (in Sikkim at 11,000—15,000 feet), Behring Straits, Newfoundland, Rocky Mountains.

Silene acaulis.—Arctic America, Greenland, Lapland, Spitzbergen, Iceland, Feroe, Shetlands, Scotland, England, Wales, Norway, Sweden, Alps, Pyrenees, Apennines, Tyrol, Bavaria, Carinthia, Rocky Mountains.

Lychnis alpina.—Greenland, Lapland, Dovrefeld, Braemar, Cumberland, Iceland, Swiss Alps, Dauphiné, Pyrenees, Tyrol, Bosnia, Ural, Davuria, Labrador, Rocky Mountains.

Dryas octopetala.—Common all round the arctic zone, Dovrefeld, Iceland, Feroe, Scotland, Teesdale, Ireland, Swiss Alps, Jura, Pyrenees, Apennines, Dauphiné, Tyrol, Bavaria, Carinthia, Scardus, Altai, Davuria, Rocky Mountains (in latitude 49° at 7000—8000 feet).

We cannot explain the present wide-spread distribution of these ever-distant ridges and peaks in any other way than by supposing that at some former period of cold they have been spread over what is now the cool temperate zone through the northern hemisphere, and that when a warmer climate has come they have retreated to the heights and there maintained their stand.

Very few of these arctic alpines of the northern hemisphere extend to the tropics or the southern hemisphere. The most widely-diffused species characteristic of this zone are the following, all of which extend from the zone arctic by latitude to the mountains of the south temperate zone, mainly in America, by way of the Andes, which are the only range of high hills that bridge over from the north to south the zone of which is tropical by latitude :—Vesicaria arctica, Draba incana, Lychnis apetala, Sagina Linnæi, Epilobium alpinum, Saxifraga cæspitosa, Erigeron alpinus, Empetrum nigrum, Carex magellanica (irrigua), Alopecurus alpinus, Phleum alpinum, Trisetum subspicatum, and Lycopodium Selago.

Upon review of the whole series of facts that relate to the geographical as subordinate to the climatic distribution of plants, at the present time, the most striking point to notice seems to be how independent species often are, genera more frequently, and orders still more frequently, of present geographical limitations ; and if the origin of species from a single centre be admitted this is a strong proof of the ancientness of specific types, as compared with the present distribution of sea and land, and their durability through a long series of changing circumstances.

Summary.—The following, therefore, are the principal conclusions with regard to the influence exercised upon plant distribution by causes over and above present climate, which known facts seem to support :—

1st. That each species has originated from a single centre.

2d. That species have originated in different parts of the world, and that the flora of any given tract depends largely upon its geograpical position.

3d. That a large proportion of the present genera (or types which agree in structure down to minute detail) were in existence before the end of the secondary period, and have passed through the very great changes in climate and the relative positions of sea and land which have occurred during the tertiary period.

4th. That species (or types which agree, not only in structure, but also in vegetative characters, such as shape of leaves and arrangement of flowers) were dispersed in broad outline, as at present, before present islands were insulated, and the present general distribution of sea and land was worked out. *J. G. B.*

Reports of Societies.

Royal Horticultural : *August* 4.—The Hon. and Rev. J. T. Boscawen in the chair.—The Rev. M. J. Berkeley, after reading the awards made by the committees, and commenting upon several subjects brought before the meeting, called attention to a series of photographs of the Oogonia and Antheridia of the Potato fungus—Peronospora infestans—as seen within the tuber of the Potato itself, and cleverly taken direct from the microscope by Mr. Worthington Smith's son ; also a photograph of the Artotrogus of Montagne, completely affirming the identity of this with the resting-spores. Mr. Berkeley also stated that Mr. Smith having discovered some Potato Apples attacked by the Peronospora, had put one in water, and it threw out a mass of mycelium, the vesicles of which produced the zoospores, and he had successfully repeated the same experiment himself. It remained to be seen what the resting-spores will produce after a time. Attention was then called to a golden-leaved form of Cytisus Laburnum, shown by Mr. Smith, nurseryman, Worcester, and it was remarked, as a curious physiological fact, that when a bud of this variety was put on the ordinary green-leaved form used as a stock, the golden shoots were thrown out on the stem below the seat of the bud or scion, and even the suckers had come of the same rich golden tint.

Mr. David Wooster, alluding to the production of variegated shoots in trees, instanced a curious case which happened about thirty years ago in the garden of the late Mr. J. C. Loudon. A plant of the common Jasmine grew against the verandah attached to Mr. Loudon's house, which was budded with a golden sport found on Jasminum officinale, in a cottager's garden. The bud inserted did not grow, but the bark grew over it, and, strange as it may seem, golden shoots broke out all over the tree, and it was still of a perfect golden colour. Mr. Wooster further remarked that it was within the legitimate province of the Society that its officers should put themselves in communication with committees or other bodies having charge of the formation of new public parks and gardens, with a view to getting more of the extremely beautiful flowering shrubs planted for the public good. It was a lamentable fact that though they had amongst the introductions of Douglas, the brothers Lobb, Fortune, and others, a great number of the most beautiful of deciduous flowering shrubs, such things were seldom or never thought of when the planting of public gardens was in hand, and consequently the public had no means of enjoying their great beauties.

Floral Committee.—Mr. C. Noble in the chair. Although there was not a very great variety of subjects to-day, still, thanks to Messrs. Veitch, Williams, Bull, and others, the Council-room presented a very attractive appearance, and it was evident on all sides that increased confidence is being shown in the new managers, and that these popular meetings will hark back to the time when such displays as we had to-day were the rule and not exceptional, as has latterly been the case. First-class Certificates were awarded to Messrs. James Veitch & Sons for Adiantum princeps, a remarkably handsome strong-growing Fern, which we shall shortly figure and describe ; for Alsophila philippinense (hort. Veitch), a handsome new Fern, with regularly crimped pinnæ, from the Philippine Islands ; for × Dracæna Taylori, a hybrid between D. magnifica and D. Mooreana, with apparently a very free-growing habit ; its leaves are very large and broad, somewhat bluntly rounded at their points, and of a dull bronzy colour, the leaf-stalks being rich crimson ; for Asplenium ferrulaceum, a very finely-cut form, much resembling Fennel, and coming from Colombia ; for Platycerium Willinckii (see p. 303, vol. iii.) ; for Dracæna elegantissima, one of the narrow, almost straight-leaved forms, of pleasing colour, but distinct from the D. elegantissima previously shown by Mr. Bull ; and for × Rhododendron Prince Leopold, a pretty novelty—buff shaded with salmon. The same firm also received a Second-class Certificate for × Rhododendron Duchess of Teck, fawn yellow, faintly shaded with a buff tint. Both are hybrids between R. Lobbii and × Princess Royal ; the latter being between R. jasminiflorum and R. javanicum. To Mr. Bull First-class Certificates were voted for Cibotium Menziesii, a distinct species with thick glossy fronds, and bluntly rounded pinnæ, glaucous beneath ; and for Dracæna Rex, a bold handsome variety with leaves of a bronzy reddish crimson hue, and reddish crimson leaf-stalks. To Mr. B. S. Williams, for Alsophila australis var. Williamsii (see p. 725, vol. i., 1874), and for Woowardia radicans var. cristata, a very distinct crested form of rare interest. To Messrs. Froebel & Co., Newmunster, Zurich, for Begonia Froebeli, a tuberous rooted species from Eucador, with intense crimson-

scarlet flowers, of nice form, but not so showy as several of the newer varieties previously shown here; it was described by Prof. De Candolle at p. 552, vol. i., 1874. To Mr. Smith, nurseryman, Worcester, for Cytisus Laburnum aureum, a pure rich golden-leaved form, which originated as a sport from the common English Laburnum. Unlike most golden-leaved plants, it flowers freely; and as a remarkable instance of the power of the scion over the stock, it may be mentioned that when budded on the common Laburnum golden shoots are thrown out below the bud or scion, and even golden suckers not unfrequently spring from the root. It stands the sun well, and must be regarded as a valuable pictorial tree. A similar award was also made to ×Streptocarpus Greenii, a hybrid between S. Saundersii and S. Rexi, partaking of the character of the first-named in foliage, and of the latter in flowers, which are, however, produced more freely, and are of a pale blueish lilac colour, with purple striped throat—a very pretty acquisition; a Botanical Certificate was also voted to Mr. Green for Saxifraga cæsia major. G. F. Wilson, Esq., showed very strong examples of Hyacinthus candicans (see p. 1099, 1872), and received a Cultural Commendation. From Mr. Chater, Saffron Walden, came a set of Hollyhocks, to one of which, named La Grande, salmon-red, large and full, but without guard petals, a First-class Certificate was awarded. Certificates of the second class were also voted to Hollyhock Ianthe, deep rosy crimson, and Beauty of Walden, rosy pink, tinted with rose.

In addition to the plants above mentioned, Messrs. Veitch & Sons also sent several others of great interest; and in a very effective group from Mr. B. S. Williams, which included various handsome young Palms and other fine-foliage plants, we noticed the curious Hæmanthus tenuiflorus, H. puniceus, a fine scarlet; several Ixoras and Dipladenias, and very fine plants of the superbly coloured Bertolonia Van Houttei. Mr. William Paul contributed eight boxes of fine cut Roses, and cut sprays, bearing flowers, of the old single Macartney Rose, came from Mr. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall.

The following resolution was proposed, seconded, and carried unanimously, and a copy ordered to be forwarded to Mrs. Standish:—

"At a meeting of the Floral Committee held this day—Mr. Charles Noble in the chair—it was unanimously resolved that the sympathies and condolences of the members be conveyed to the widow of Mr. John Standish. The committee have lost in him a highly valued coadjutor, and the members feel that they have individually lost a kind-hearted and genuine friend."

FRUIT COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair. Mr. Miles, gr. to Lord Carrington, Wycombe Abbey, showed specimens of two distinct varieties of Pines sold by the trade as Charlotte Rothschild, one of which, believed to be true, was a cylindrical and broad-shouldered fruit with large flat pips; and the other bore a close resemblance to the Moscow Queen, which it probably is. A fine Little Heath Melon came from Mr. White, gr. to Lord Listowel, Convamore, Ireland; and a small smooth, green-fleshed seedling variety came from Mr. Whittaker, gr. to Lord Crewe, Crewe Hall, Cheshire. Stevens' Wray Park Gem Melon, a large oval, scarlet-fleshed variety, was shown by Mr. T. Stevens, gr. to G. Simpson, Esq., Wray Park, Reigate; and Improved Victory of Bath by Mr. Perkins, gr. to Lord Henniker, Thornham Hall, Suffolk. Mr. William Paul, Waltham Cross, contributed a dish of Citron des Carmes Pear, and from the Society's Garden, Chiswick, came examples of the St. Etienne Plum, a medium-sized yellow early variety, of no particular flavour.

Preston Horticultural: *July* 28 *and* 29.—This Society may justly take credit for having done much to promote and foster the pursuit of horticulture throughout the wide district represented on the occasion of its annual exhibition. Those who have had an opportunity of seeing and knowing what was done in times past by the plant growers of this part of the country cannot fail to note the great advance that has taken place in the different departments of gardening; as also the increased and still increasing numbers of those who grow plants in a way calculated to exemplify what can be accomplished by skilful practice based upon a knowledge of the nature and individual requirements of the great number of subjects grown at the present day—so different from the condition of a mere nominal existence, which with many things was often the rule rather than the exception. Many of the plants here exhibited were perfect examples of their kind, and such that it would be difficult to surpass in any part of the country, taking the time of the year into account, as we look upon the latter part of July as less favourable to the production of many flowering things than even later on. The Society have hitherto held their shows in the area of the Corn Exchange and the galleries and rooms adjoining—a spacious building, much better adapted for the purpose than any existing in most towns; yet the best of buildings are in many ways far behind good tents for the exhibition of horticultural productions. In a room plants and flowers are never seen to such advantage as when shown under canvas with a close carpet of grass to tread upon, the surroundings composed of healthy trees and shrubs. The more pleasing the situation, garden-like, and in good keeping the grounds where these shows are held the more are they likely to take with the public, who individually are not intimately acquainted with the greater part of the things brought before them. This is a subject deserving the consideration of those who take part in the promotion of these exhibitions. On the present occasion the show was held in Miller Park, which is adjoining, and in reality forms a part of, Avenham Park, simply retaining its name in memory of the late Thomas Miller (of the old firm of Horrocks & Miller), who bequeathed the ground to be converted into a place of recreation for the people; the whole is some 50 acres in extent. A more naturally beautiful situation it would be difficult to imagine; it lies on the south side of, and close to, the town, with the open country before it, from which it is separated by the River Ribble—here a goodly stream, winding its way to the sea, which it joins some miles lower down. The greater portion of the park, excepting some moderate undulations, which add much to its general appearance, is composed of level ground, well above the highest tides, which here rise to a considerable height. On the north and east the high surrounding land slopes precipitously, forming a crescent, on the top of which are scattered numerous villas of the well-to-do inhabitants. The planting of these slopes has been well managed, as has the general arrangement of the whole. The designs were furnished by Mr. Milner, and are fully worthy of his high reputation as a landscape gardener. The work was carried out under the superintendence of the present able curator, Mr. Rowbotham, and reflects the greatest credit upon all concerned, for it is undoubtedly one of the most beautiful parks of moderate extent in the kingdom. The principal centre portion consists of a broad expanse of the finest possible turf, not disfigured by too much of the dotting, cemetery-like sort of planting too often met with, and which is generally as devoid of meaning as good taste. It frequently happens that in the obtaining and construction of public parks adjacent to our large towns, it appears as if the whole means at command were exhausted in the first effort, and little left for after keeping; hence the starved, untidy appearance they wear. But this has by no means been the case at Preston; here the whole trees, shrubs, grass walks, herbaceous and bedding plants, would bear comparison with the best kept private places. Such, then, was the place chosen for this year's show: that the committee were right in their selection was proved by the large attendance. The Preston people are well off for breathing room; on the opposite side of the town is the Moor Park, over 100 acres, also under the superintendence of Mr. Rowbotham.

In the open class for five flowering and five foliage plants, Mr. Thornber, gr. to T. M. Shuttleworth, Esq., Howick House, Preston, was 1st with a group, large, finely-grown, and well matched. His best blooming subjects consisted of Allamanda Chelsoni, remarkably well flowered; a fresh Stephanotis floribunda, and Anthurium Scherzerianum, bearing some thirty finely-coloured spathes. In foliage he had Cycas circinalis, Gleichenias Mendelii and speluncæ, Phormium Colensoi variegatum. Mr. George Smith, gr. to T. Wilkinson, Esq., was 2d, with a smaller but meritorious collection, in which was Dipladenia amabilis, Allamanda Schottii, Erica tricolor Barnesii, well flowered and fresh; Croton Veitchii, Pandanus Veitchii, and a good Gleichenia speluncæ. Six ornamental plants: Mr. Thornber was here also successful, showing a couple of immense Gleichenias (rupestris and speluncæ) each 9 feet through, a fine Croton undulatus, and Encephalartos villosus; 2d, Mr. Holah, gr. to Miss Ffarington, who in a nice half dozen had a beautiful example of variegated Pine-apple; 3d, Mr. Huddart, nurseryman, Preston.

For twelve miscellaneous plants Mr. Thornber and Mr. G. Smith were respectively 1st and 2d, both showing nice groups of moderate-sized plants. The former had a couple of well-flowered Allamandas nobilis and Hendersoni, Erica Parmentieriana and its rose-coloured variety. Mr. Smith had Allamanda grandiflora, still one of the best, and Swainsonia galegifolia, large and profusely flowered—a plant seldom seen, but in the condition here produced very effective, its numerous racemes of deep pink, pea-shaped blossoms contrasting well with the other things associated with it.

Eight exotic Ferns.—Mr. Thornber took 1st here with, as might be expected from the rich collection at Howick House, a faultless lot; his most remarkable plants were Davallia elegans, 6 feet across, fresh and as green as possible; Leucostegia immersa, equally fine; Lomaria zamiæfolia, and others well matched. Mr. Huddart, who was 2d, had fine examples of the gold and silver Ferns, Gymnogramma chrysophylla and tartarea.

Twelve British Ferns.—Mr. Thornber took 1st honours, with a well-grown dozen, containing more variety than sometimes shown, many exhibitors of these plants confining themselves too much to Scolopendriums, Polystichums, and Athyriums.

Four plants suitable for the decoration of a hall or staircase.—1st, Mr. Thornber, with a couple of Palms, a good Dracæna, and Cordyline australis; 2d, Mr. Smith.

Six stove and greenhouse plants, three in flower and three foliage.—1st, Mr. Payne, gr. to J. Forshaw, Esq., who had in his group Dalechampia Roezliana, a good Maranta Veitchii, and Croton pictus, finely coloured, and still one of the best, not subject to the fault that many of the newer varieties have in carrying an insufficiency of leaves to cover the wood. Mr. Holah was 2d, his best being Franciscea calycina, and the old but, when well done, not-to-be-despised Pentas carnea.

Three stove and greenhouse plants in flower.—Here Mr. Payne was 1st with a large and densely-flowered Clerodendron Balfourianum, as fresh as if it had been produced in May (showing the adaptability of the plant for decorative purposes, as at this advanced time in the season it can be kept long without injury in a cool house); an equally good Allamanda Hendersoni and Erica Jacksoni. Mr. Walbank, gr. to J. Brown, Esq., was 2d.

Three ornamental-foliage plants.—Mr. Payne was 1st, with Maranta Veitchii, Gymnostachyum Pearcei, and Fittonia argyroneura, grown on pyramidal wire trellises some 3½ feet high by 2½ feet through; these beautiful leaved but common plants so treated had a very nice effect.

Three Adiantums.—1st, Mr. Thornber, with matchless plants some 4½ feet through of A. excisum multifidum, A. tenerum, and A. concinnum latum; Mr. Payne 2d, Mr. G. Smith 3d. Specimen stove plant: 1st, Mr. Thornber, who staged an Ixora amboinensis, some 4½ inches in diameter, covered with its orange-yellow bunches of flower; Mr. Payne 2d; Mr. J. Newton, gr. to W. Birley, Esq., 3d. Six dinner-table plants: 1st, Mr. G. Smith; 2d, Mr. Thornber; 3d, Mr. Holah. Three Coxcombs: 1st, Mr. Newton; 2d, Colonel Cross; 3d, Mr. Caldwell, gr. to T. H. Miller, Esq.

Six British Ferns.—1st, W. Bolton, Esq.; 2d, Mr. Payne; 3d, Mr. Gould.

Mr. Thornber's Gleichenia Mendelii was awarded the silver medal, as the most meritorious plant in the exhibition; Mr. G. Smith taking the bronze one for a good Gleichenia speluncæ.

Roses, for so far in the season, were shown in good condition. Messrs Cranston & Mayos, Hereford, were 1st for twenty-four with large well developed flowers; Mr. Sandford, gr. to Earl Bective, Underley Hall, 2d, whose exhibit was highly creditable for this part of the kingdom, which is not nearly so favourable for the growth of Roses as further south; 3d, Mr. Halstead, nurseryman, Lancaster. Eighteen: 1st, Mr. Sandford; 2d, Mr. Smith; 3d, W. W. Cottam, Esq. Twelve: 1st, Mr. Smith; 2d, W. W. Cottam, Esq. Six: 1st, Mr. Knight, gr. to T. Dodd, Esq.; 2d, Mr. Marsden, gr. to H. Hawkins, Esq. Basket of Roses: 1st, Mr. Thornber; 2d, Mr. Smith; 3d, Mr. Piper, gr. to R. J. Flowerdew, Esq. Bouquet of Roses: 1st, Mr. Thornber; 2d, Mr. Knight; 3d, Mr. Smith. Single Rose: 1st, Mr. Smith. Bride's Bouquet: 1st, Alderman Carr; 2d, Mr. Gould; 3d, Mr. Holah. Hand Bouquet: 1st, Alderman Carr; 2d, Mr. Thornber; 3d, Mr. Gould. Bouquet of wild flowers: 1st, Mrs. J. Newton.

Fruit was exhibited good in quality, but not in such quantity as last year. For six dishes: 1st, Mr. Read, with a nice Queen Pine, Black Hamburgh Grapes, Grosse Mignonne Peaches, Pitmaston Orange Nectarines, Brown Turkey Figs, and a Melon. Mr. Upjohn, gr. to the Earl of Ellesmere, Worsley, 2d, having a Pine, Black Prince Grapes, Noblesse Peaches, Pitmaston Orange Nectarines, May Duke Cherries, and a Melon. Mr. Walmsley, gr. to H. Rawcliffe, Esq., 3d. Black Grapes: 1st, Mr. Upjohn, showing moderate-sized bunches, well finished; 2d, Mr. Peal, gr. to J. Hawkins, Esq. White Grapes: 1st, Mr. Gould, with Muscats deficient in colour. Two bunches, one white and one black: 1st, Mr. Upjohn; 2d, Mr. Walmsley. One Pine: 1st, Mr. Smith, gr. to P. Martin, Esq.; 2d, Mr. Adams; 3d, Mr. Sandford. Six Peaches: 1st, Mr. Peal; 2d, Mr. Walband; 3d, Mr. Gould. Melon, green-fleshed: 1st, Mr. Walmsley; 2d, Mr. Myerscough, gr. to C. Oliverson, Esq.; 3d, Mr. Newton. Melon, scarlet-fleshed: 1st, Mr. Myerscough; 2d, Mr. Read; 3d, Mr. Newton. Six Nectarines: 1st, Mr. Read; 2d, Mr. Walbank.

Vegetables are always here an especial feature, and as usual were produced in large quantities and unexceptionable condition. For six dishes, Mr. Sandford was 1st, Mr. Myerscough 2d, and Mr. Tittering-ton 3d.

Collection of Potatos: twelve varieties.—1st, Mr. J. Rigby; 2d, Mr. T. Birkett; 3d, Mr. J. S. Baron. (*From a Correspondent.*)

The Villa Garden.

SURFACE-STIRRING.—If ever the Villa Garden needed to have its surface stirred, it is now, after the heavy rains we have had. All soils that are at all close and moist have become very heavy, and are beaten down hard almost like a barn-floor, and now the hot sun and drying winds are baking them, and this hard incrustation affects the well-being of many plants that spread out their roots just beneath the surface of the soil. While the rain lasted they were green and healthy-looking, because the constant fall of moisture kept the soil somewhat open, but as soon as it ceased, and the sun came out brilliantly, the surface hardened, and speedy decay ensued. We are losing Pansies, Violas, pretty dwarf annuals, and many other things from this cause, and the danger is aggravated by the fact that our soil is clayey, and, consequently, sticky and binding.

It is worth while remarking how the clay will assert itself if you have it as a subsoil. It does appear as if it were governed by an irresistible impulse to come upwards. One of our beds of succulents—a pretty and unique little arrangement, in which we took much pride—was planted in a nice loose, generous soil, composed to a great extent of leaf-mould, and the surface was quite loose and yielding when the planting was finished. But with the rain came a multitude of worms, bringing up the yellow clay in the form of worm-casts, which were scattered by the heavy rain till the surface of the bed was quite of a yellow tinge, and hard. We have stirred it to the depth of an inch or so, breaking up the caked crust as finely as possible, and now the plants appear as if they will grow kindly and well, though the cold nights are scarcely in harmony with the laws of growth at this season of the year.

This stirring process should be applied to all flower-beds that are similarly affected. On the ground of vegetable physiology, it must be of the first importance that the soil be loosened about such plants as that the air can penetrate it and reach the roots. Then, if the surface be allowed to remain dry and baked, when rain falls again it will run off instead of carrying its refreshing message from Nature to the roots. We have gone a step farther, and top-dressed our beds with some fine soil sifted from the refuse under the potting-bench, or the rubbish-heap, which serves instead. When the beds have all been carefully gone over, and decayed flowers removed, dying leaves picked off, and all traces of injury removed, a smiling freshness and newness of floral beauty is rewarding our pains. We only want genial summer weather. We have the season, but it is not a bit better than a prolonged late spring. And summer must soon come if we are to have it at all, and be able to enjoy it, for are we not already in the opening days of August, and the shadows of night beginning to steal over us soon after 8 o'clock in the evening?

HOEING.—In like manner we are busy in the kitchen garden obliterating any baleful effects from the recent rains. The hoe needs now to be the constant companion to the Villa gardener amid all growing crops, such as Cabbage, Winter Greens, Cauliflower, and Broccoli, Celery, &c. We have used the hoe deeply, breaking up the hardened soil, so that the life-inspiring winds of heaven may play on it. When the ordinary broad hoe cannot be used, as among our pet bed of Onions, our Carrots, Parsnips, &c., we have a narrow one, about 2 inches in width, a most handy and useful garden instrument, which is also of excellent service in rooting out weeds among thick growing crops. Weeds are springing up thickly on all hands, and they must be kept under. It is one of the unfortunate results flowing from a wet time that weeds put in an appearance with great vigour and rapidity, and a tidy gardener must give them no quarter.

EARTHING-UP CELERY.—The plants are now fast making their way upwards, and we have already began to earth up. Previous to doing so, the plants are thoroughly soaked with some manure-water made by placing some fresh cow-dung in a large tub, and pouring water over it, and keeping it stirred occasionally till dissolved. Then it was used at the rate of one half of manure-water with one half of water from an open tank exposed to the sun, and a good soaking given. Then a piece of tissue paper was wound round each plant, and the soil drawn up to it till the trench was quite filled, and so the first earthing-up was done. We have the Incomparable Dwarf White and Williams' Matchless Red, the latter growing very strong, as the rainy weather appears to suit it well. The tissue paper is employed to keep any soil from finding its way into the hearts of the plants; and the slight wrapping of paper soon rots away after the leaf stems have closed firmly round the heart, without doing them any injury.

CARNATIONS, CLOVES, &C.—Owing to the backward season, these are very late in flowering this year, but they are now in the full flush of their beauty. Some large clumps of the fine old dark scented Clove are really grand, crowned with full flowers and in rich profusion. Scarcely anything can be better for cutting from at this season of the year. A carmine-rose coloured Clove is also fine; one that came to us from Russia, with a vigorous growth and great freedom of bloom. It is quite free from that tendency to split in the pod so common to many of the Cloves and Carnations.

LAYERING.—This should be done without delay, and it is a process so simple that it can be accomplished by any one who will be careful. Let the operator take the shoot to be layered, and by first gently pressing it down and laying it along on the soil he will see what particular joint can be best buried in the soil. Previously, however, he should have provided himself with some fine sandy soil, some pegs, made from Fern stalks, disused Pea-sticks or any such material; or failing these, bits of stoutish flexible wire 6 or 8 inches in length, or hair pins, which are are not very expensive, and a knife with a short, sharp, narrow blade. To these should be added a mat to kneel on, for it is in this posture the operator can best get at his work.

Thus equipped, the next process is to loosen the soil about the plants the shoots of which are to be layered, and remove it to the depth of 2 inches or so, putting in its place some of the soil previously prepared. Anything fine and sandy will do for the purpose, even if it be the siftings of soil from the balls of decaying plants that have been turned out of their pots. As soon as a bed of this soil is laid down in the place of that removed, then the work of layering can be commenced. First cut away the leaves up to a joint or two above that where the cut is to be made, then make a cut straight into the centre of the stem an eighth of an inch below the joint, drawing the knife skilfully upwards just through the joint, and bring the layer down into the soil, so that the partially severed point comes into contact with the soil; then press it gently into it, fastening it securely with a peg inserted just behind the cut, and pile some soil about it; and so go on till quite a circle of layers is formed round each parent plant. Eventually the cut parts become callused, and in course of time they throw out roots. The soil about them must be kept moist in dry weather, sprinkling the layers overhead through a fine-rose watering pot.

Carnations and Cloves are excellent things in a Villa Garden, as they will grow in somewhat confined positions and in almost any soils, a good yellow loam suiting them best. They are too frequently allowed to get straggling and confused instead of being kept neatly tied up to stakes. Plants that have been established for two or three years throw up several flower-stems, and a plant will flourish for a long time without removal. In the fall of the year some assistance ought to be given them. We encourage our plants by carefully lifting the branches, stirring the soil beneath them and around the stem, and top-dress them with manure. Then the branches are laid down on the top-dressing, and some good soil piled up among them till quite a mound of earth is formed about them. This kind of dressing is of the greatest value to the plants.

If any one wants to make large clumps of single plants of any one variety—and what can be more showy or useful in the mixed border?—let all the stems they make the first year be regularly layered round the main stem, and the same process be repeated the second year. Some top-dressing should be applied each autumn, to strengthen the plants, and in this way they speedily attain a great size, yielding a truly valuable harvest of flowers in due season.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

PLANT STOVE.—See that plants of *Æschynanthus* suspended in pots do not want for water; they look best grown in shallow pots, plunged in baskets lined with moss. So treated they are amongst the best flowering subjects grown for hanging up in conservatories or similar places, but in such positions they are sometimes liable to suffer for want of water, which causes them to throw their flowers; or an excess of moisture at the root will have the same effect. The natural drooping habit of these plants makes them well adapted for basket-work. They are easily grown during the winter, hanging up over the paths in the stove or similar situations, where room is not taken up that would be occupied by anything else. Flowering as they do for weeks in the advanced summer and autumn, when blooming things are scarce, it seems strange they are not more generally used. A few of these introduced amongst baskets of *Achimenes* and drooping *Fuchsias* are a nice contrast, and produce a good effect. The lovely *Hoya bella*, than which there are few more chaste flowers existing, is one of the best plants for suspending we possess; but from its natural habit, and the way in which the heads of blossoms are produced, they cannot be seen to advantage unless the plant is hung up, without resorting to tying up the shoots. When thus treated it does not look so well as when allowed to assume their natural position. As a bouquet flower, when mounted, it is most useful as well as beautiful. A 12-inch pot is large enough to grow a fine specimen, as it does not require, nor is benefited by, a deal of root-room. It does the best in sandy peat.

The earliest flowered *Gloxinias* will now be getting shabby; gradually dry them off, but not in the way this is sometimes done—by withholding water altogether and leaving them on shelves, where the tops die off at once, instead of a more gradual process. The roots of plants so treated can scarcely be expected to keep well. *Gesneras* of the *Cooperii* and *Donkelaari* section will, if well attended to, throw up a second lot of flowering shoots, and bloom well if encouraged with manure-water and kept in a good light situation. The winter-flowering *G. exoniensis* should also have attention, but must not be placed under the shade of other plants, where it will get drawn up weakly; stout, short growth is essential in these things, without which they cannot flower satisfactorily, and their handsome leaves never can have their wonted colour.

Franciscea confertiflora.—The earliest flowered plants of this *Franciscea* that have been put into the stove to make growth after blooming should not be allowed to stay too long in heat after their buds are formed, as there is danger of their falling off from the check they receive when removed.

Allamandas that have been for some time flowering must be regularly supplied with manure-water; this applies both to such as are planted out and that are grown in pots, but the latter, from the limited space their roots are confined in, will require it the oftenest. Every other time they want water will not be too much; they will also bear it stronger than many things. Vigorous growing plants like these, when their roots are so restricted as to space as they must necessarily be in a pot, do not receive sufficient sustenance to enable them to keep on blooming so freely or so long as they would if well fed. It is much better to give it them in this way than by adding large quantities of solid manure to the soil at the time of potting, as by the former means it is given when most wanted. The same applies to other subjects of similar habit, and that make a deal of growth in the course of the season.

Stove plants possessing an agreeable perfume are somewhat scarce. The S. African *Toxicophlæa Thunbergii* is deserving of cultivation for its odour, if it possessed no other recommendation; but it is a very distinct plant, of good compact habit, not unlike a Gardenia in its growth. The flowers are white, and produced freely in corymbs like a small Ixora; it blooms both from the points of the shoots and the axis of the leaves. It is neary allied to T. spectabile, which is very similar in habit, and also a desirable plant; a few flowers of either will scent a house. They do not require a great deal of pot-room, blooming freely in a small state; sandy peat answers the best for them. *Gardenias* that have been struck during the spring for winter flowering should be well attended to, not allowing them to get root-bound by moving them at once into their flowering pots, so as to get them well established before the short days come on. Give them from 8 to 12-inch pots, according to the size of the plants. Few things are more deserving or more easy of cultivation when not infested with that most troublesome pest, mealy-bug; but where this insect exists on Gardenias, there is no recourse but going over them when needful, not allowing them to get badly affected before means are taken for its removal. As a small decorative flowering plant nothing is more telling than the intense blue-flowered Bromeliad *Tillandsia Lindeni*; it looks the best grown in small plants, with single crowns, a few of which, dotted about the side tables of the stove, are very effective. After flowering it throws out suckers, these, when large enough, should be taken off, a few of their leaves removed and placed singly in small pots, and not overwatered until they have made roots, when they may be encouraged to grow by giving them more root-room. It succeeds in sandy peat, well drained, and allowed a moderate amount of light. After the first lot of suckers have been removed the stools will throw out again, and the suckers, when large enough, can be similarly treated. *T. Baines.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—The almost incessant rains during the greater part of July have been anything but favourable for the production of bloom on bedding plants, excepting for such things as Violas, Verbenas, and plants of that class. Pelargoniums, unless in very poor soils, will be found running a good deal to leaf, and if at all thick they will become drawn, in which state they produce but little bloom. To check any undue tendency to over-luxuriance, a good many of the old leaves should be picked off so as to let in plenty of light and air among the branches to assist in consolidating the growth, as it is only on such wood that flowers are produced in any quantity. If the beds have become too thick and drawn, the more sappy branches may with advantage be thinned out in addition to removing a portion of the leaves as above. Such sappy growth is not at all desirable for propagating purposes, but if the stock is likely to be at all short, such cuttings may be rooted successfully if placed in a border or similar position fully exposed to the sun and air. Although the season so far has been adverse for the flowering kinds of Pelargoniums, those grown principally for the beauty of their leaves, such as *Crystal Palace Gem*, *Mrs. Pollock*, *Gold Chain*, and others of that class, were never perhaps seen in better condition, as the moist atmosphere and absence of strong sunshine has just suited them. Cuttings of these should at once be taken, for if deferred till late in the season failure will be inevitable, on account of the sappy state of the growth. This applies also to the green varieties, and the propagation of these should be commenced the moment the variegated sorts are in. Our practice here is to put three cuttings in a 60-sized pot, and stand the whole where they can be protected in case of heavy rain, but otherwise fully exposed to the sun and air. One hardly likes to be cutting the beds about directly they begin to fill and look well, and if not done carefully gaps are made, and an unnecessary quantity of bloom removed. A reserve garden is therefore a valuable adjunct to any place where numbers of bedding plants are required, and it is worth an effort to have an increased number at the bedding season, that a few of each variety may be placed out for propagating purposes.

If stock plants of such things as *Coleus*, *Iresine*, *Alternanthera*, &c., were not kept for propagating, cuttings of all these should be got in at once, so as to get good strong established plants by the autumn, as only such will be found to winter in a satisfactory manner. Flower gardens are now expected to be at their best, and every care should be taken to have all the surroundings in the best possible order. The heavy rains we have had are sure to bring a prolific crop of weeds in walks, beds, and borders, and these should at once be eradicated while in the seedling state, as nothing tends so much to disfigure a place as weedy walks or beds. Ragged edgings are equally objectionable, and now that grass is growing rapidly these should be frequently gone over with the edging-shears, and the margins of the beds or borders inside neatly raked. Continue to tie and support the various border flowers as they advance in growth and require that attention, and remove dead flowers and seed-pods from such as are going out of bloom. Pipings of *Pinks* may still be put in, and any that are rooted should now be planted out where they are intended to bloom. *Carnations*, *Picotees*, &c., if not yet layered, should at once be proceeded with, and seed of the same sown in pans as soon as ripe. Subtropical plants are now growing rapidly, and require constant watchfulness to prevent the wind from breaking them down. Stiff neat stakes and good ties will keep all secure, and with dry weather abundant supplies of manure must be given to these—*Hollyhocks*, *Dahlias*, and such-like gross-feeding plants. The summer bloom of *Roses* is now nearly over, and all straggling shoots should at once be cut in, and every encouragement given the plants to make young wood for autumn blooming. The present season has been exceedingly favourable for budding, and those inserted early should now be sufficiently forward to have the trees loosened or entirely removed. I find the climbing Devoniensis a first-class stock for such varieties as Maréchal Niel, and it may be worth propagating to work the above and some of the Tea Roses on. Cuttings put in now will root freely, and form fine plants to bud next season. *J. Sheppard, Woolverstone Park.*

HARDY FRUIT GARDEN.

The more genial weather of the last fortnight has had great influence on the earlier ripening fruits, such as *Apricots*, *Plums*, &c., which are now fast approaching maturity. The cold and continuous rains of nearly the whole of the month of July, had, however, its advantages in destroying, to a great extent, the large quantity of wasps we were likely to have, had bright, fine weather prevailed during that period. As it is, we have scarcely observed one of late, and as the season is so far advanced, it is not probable these pests will be very troublesome this season. This is an advantage which only those who grow fruit largely in rural districts can duly appreciate. During the last season only, in defiance of the large number of nests taken, and the quantity trapped or destroyed during the earlier summer months, considerable injury was done to the finer kinds of wall fruits, and nothing short of a canvas or glass frame seemed to be any check to the ravages committed. Next to destroying as many of the queens as possible during May and the early part of June, the best method we have found is to procure a number of wide-necked bottles, such as are used for pickles, &c.; these, half filled with any liquid matter, as beer, cider, or even water well sweetened with coarse sugar, has a strong attraction for them. These are hung at intervals along the walls. If the wasps are numerous, the bottles should be cleared out every morning or every alternate morning, by pouring the contents through a fine sieve into a large basin or pan—the wasps being buried by taking out a spadeful of soil in the adjacent ground—and the liquid restored to the bottles. Little requires at present to be added to the matter contained in last Calendar. *Strawberries* now established in fruiting pots should be placed in an open situation where the greatest advantage may be obtained from sun and air; it is also a consideration to have them as near the water supply as possible. Grafts which were put on at the usual season will now require attention; where the scions are growing freely the clay or other composition used will require to be taken off, and the ligatures removed: if the junction is perfected these will not require renewal, but if not a fresh band of matting should be tied round somewhat more loosely, so as to allow of the rapid expansion of wood, and either a stake or strap of wood should be applied to prevent the scion being blown out in high winds—this often taking place when timely attention is not given to this matter. *W. Cox.*

FRUIT HOUSES.

FIGS.—The second crop of Figs on early forced trees will now be ripening fast, and too much watering at the roots must be guarded against on purpose that the fruit may not be deteriorated in flavour. Syringing the foliage should now be given over unless the red-spider has gained a footing, and requires to be checked. As soon as the fruit is all gathered, a free circulation of dry warm air should be maintained in the house until the foliage begins to fall off naturally. The latest forced trees which ripened their first crop in June will now be swelling a second crop, and they must be liberally supplied with manure-water at the roots or clear water as required, and daily syringing on the foliage. The earliest forced Figs in pots, if not placed out-of-doors, should now be set out, as they will be much benefited by exposure to the atmosphere to harden and ripen the wood. The proper maturation of the wood is of the greatest importance to all early forced fruit trees in pots, and more especially to the soft spongy wood of Figs. The young Fig trees in pots which were struck from cuttings in the spring, and are intended for forcing in the second or third year of their growth, must still be attended to in pinching off the tops of all the rampant shoots, to form the beginning of a symmetrical head in their first year's training. *William Tillery, Welbeck.*

CUCUMBERS.—The progress of Cucumbers during the past ten days has been quite wonderful both in growth and fructification, and we are now able to cut by the score where for the past month we have been unable to cut by the ten: this is consequent on the fine summer weather we are now enjoying. Fire-heat may now be safely dispensed with. Let the work of cutting over the plants every week be regularly attended to, removing the exhausted growths, to make way for the young bearing wood. Strive to maintain a healthy root-action, and in no case allow the roots to become dry this weather. Syringe fairly as early in the afternoon as the brightness of the sun will permit, at the same time close the ventilators for a couple of hours, and afterwards reopen them for a short time to permit the escape of rank steam and moisture; the foliage should be fairly dry by sunset, especially when fires are dispensed with. The necessity for over-much shading will be lessened by the absence of fire-heat. In private gardens the autumn fruiters should now be got out, after observing the conditions laid down in the last Calendar. Plant moderately firm, on raised hillocks. Now that ridge Cucumbers are coming in in large quantities, the demand for indoor fruits is somewhat lessened, and this indicates to the market grower that he may shortly commence to clear out his houses one by one, previous to a fresh start in the end of September. Moreover, those plants which have been in bearing from Christmas are becoming exhausted. Gather a sufficient quantity of Gherkins for pickling as soon as opportunity offers. For pits and frames consult previous Calendars, and let the finger and thumb be active removing old and over-crowded foliage, and nipping out the growing points, above the fruits, at every watering. *Thomas Simpson, Chelmsford, Aug. 3.*

KITCHEN GARDEN.

The luxuriant appearance of the crops in this department is considerably marred this year by the sad plight which the haulm of the Potato presents from the effects of disease, which is likewise present in the tubers to an alarming extent; and doubtless if another heavy rainfall speedily ensues, the hopes which now may be entertained of obtaining even half a crop will be rendered most uncertain. As to the best course to pursue with reference to this crop under such circumstances divers opinions exist. We have hitherto, under the same conditions, and still in the absence of practical facts to the contrary, deferred the lifting of this crop, excepting of course for current requirements, until the tubers are moderately well ripened, much time is thereby economised in sorting and separating the bad from the good, and generally those which are sound at that period remain so afterwards.

The sowing of *Tripoli Onions* should now be completed with dispatch, and likewise those of *Winter* or *Prickly Spinach*. Give this estimable winter vegetable at least 18 inches between the rows, so that it can properly develope its growth and be cleaned and attended without being injured. Where *Winter Carrots* are grown outside, now is the time to sow them, the *Horn* or *Intermediate* section being the best suited for the purpose; sow in drills about 10 inches apart in a somewhat sheltered position, where the soil is of a friable nature and free from wireworms—the pest is most destructive to these when sown at this season. Sow *Cabbage* seed for the main crop about the 8th; see that the earlier sown beds of these plants do not lack the necessary attention, and prick them out as soon as they are fit. The advantage resulting from this process of treatment to those subjects to which it can be applied, amply compensates for the time which is occupied in its performance. As ground falls vacant replant it with whatever may be most required, at the same time taking into consideration the rotation of crops which is most suitable. *Broccoli* may still be planted for spring use in well enriched soil, and those intended for autumn use as the plants become fit. Nice compact heads of that useful variety, *Veitch's Autumn Giant Broccoli*, are now plentiful on early spring-sown plants; this variety is preferable for cultivation to *Cauliflowers* to come into use at the present season, because it is more to be depended on. Another good breadth of *Turnips* should be got in, choosing an exposed situation for these. Take advantage of suitable weather for soiling up early planted *Celery*, and supply later crops liberally with water. Should dry weather prevail, continue to plant out later plants, and prick out into rows 9 inches apart late plants which are intended for seeding purposes or for use in soups, &c., when the blanched supply is exhausted. At this season garbage will accumulate rapidly at the rubbish-heap. This important point should not lack attention when other operations are impeded by unfavourable weather. Give regular attention to stopping and thinning out *Gherkins* and *Ridge Cucumbers*, and cut and tie up *Basil* and *Knotted Marjoram* when it is in flower. *Geo. Thos. Miles, Wycombe Abbey.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, AUGUST 4, 1875.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rain.
July	In.	In.	°	°	°	°	°	°			In
29	30.13	+0.37	78.6	53.0	25.6	64.0	+ 1.7	52.5	66	S.S.E.: S.: S.S.W.	0.00
30	29.96	+0.21	74.4	55.4	19.0	64.9	+ 1.7	50.5	61	W.N.W.: N.W.	0.00
31	29.93	+0.18	68.4	53.4	15.0	58.9	— 3.4	46.6	65	N.: N.E.	0.00
Aug. 1	29.99	+0.24	68.4	50.7	17.7	57.3	— 5.0	48.5	72	N.: N.N.E.	0.00
2	30.05	+0.30	70.2	44.3	25.9	55.2	— 7.1	47.8	76	N.E.	0.00
3	29.92	+0.18	70.8	51.6	19.2	59.5	— 2.7	49.5	70	S.E.: E.	0.00
4	29.90	+0.15	66.7	50.9	15.8	57.0	— 5.2	47.4	70	NNE: N.	0.00
Mean	29.98	+0.23	71.1	51.3	19.8	59.4	— 2.9	49.0	69	N.E.: N.	sum 0.00

July 29.—A very fine day, nearly cloudless throughout.
— 30.—Fine, partially cloudy. Somewhat dull after 11 A.M.
— 31.—A fine day. Cloudy
Aug. 1.—Overcast, dull till 11 A.M.; fine and bright afterwards
— 2.—A fine day; dull at intervals.
— 3.—A fine day, though partially cloudy. Lightning seen at night.
— 4.—A fine day, though dull, and very cloudy at times.

—— DURING the week ending Saturday, July 31, in the neighbourhood of London the reading of the barometer at the level of the sea increased from 29.81 inches at the beginning of the week to 30 39 inches by the morning of the 27th, decreased to 30.28 inches by the afternoon of the 28th, increased to 30.34 inches by the morning of the 29th, decreased to 30.15 inches by about mid-day on the 30th, increased to 30.20 inches by the evening of the same day, decreased to 30.10 inches by the afternoon of the 31st, and was 30.12 inches at the end of the week. The mean reading for the week was 30.23 inches, being 0.43 inch higher than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged between 78½° on the 29th, and 68½° on the 31st, the mean for the week being 73°. The lowest temperatures of the air varied from 46¾° on the 26th to 55½° on the 30th, with a mean for the week of 51½°. The mean daily range of temperature in the week was 21½°, varying from 26° on the 28th to 15° on the 31st. The mean daily temperatures of the air and the departures from their respective averages were as follows:—25th, 58°.2, — 4°; 26th, 58°, — 4°.2; 27th, 59°.2, — 3°; 28th, 62°.2, +0°.7; 29th, 64°, +1°.7; 30th, 64°, +1°.7, and 31st, 58°.9, — 3°.4. The mean temperature for the week was 60°.6, being 1°.5 below the average as deduced from observations extending over a period of sixty years. The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays were 149½°, and 143¾° on the 25th and 26th; on the 30th, 124¾° was the highest reading. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 43° and 45° on the 26th and 27th, on the 30th, 51¼° was the lowest reading; the mean for the several low readings was 45¼°.

The direction of the wind was variable, and its strength gentle.

The weather during the week was fine and bright Showers of rain fell on the afternoon of the 25th.

Rain fell on one day, the amount collected was 0 06 inch.

In England, the extreme high day temperatures ranged from 84° at Nottingham to 69° at Hull and Newcastle-on-Tyne; the general average over the country was 77°. The extreme low night temperatures varied between 50° at Newcastle-on-Tyne and 40½° at Eccles, with a general average of 44½°. The mean of the extreme ranges of temperature in the week was 32½°, the greatest range being 41°, at Nottingham, and the least being 19°, at Newcastle-on-Tyne. The mean high temperatures observed by day ranged between 73½° at Cambridge and 66° at Hull and Newcastle-on-Tyne, the general average being 70°. The mean low temperatures observed by night varied from 52° at Liverpool and Newcastle-on-Tyne to 45¾° at Eccles, with an average value of 48¾°. The mean daily range of temperature in the week was 21¼°, varying from 26½° at Bristol and Cambridge to 14° at Newcastle-on-Tyne.

The mean temperature for the week was 57½°, being 2¼° lower than the value for the corresponding week in 1874. The highest was at Blackheath, 60½°, and the lowest was at Hull, 54½°. Rain fell on one or two days in the week at all stations, except at Bristol and Cambridge, where no rain fell. The amounts measured everywhere were small, and varied from two-tenths of an inch at Wolverhampton to one-hundredth of an inch at Leeds. The average fall over the country was one-tenth of an inch nearly.

The weather during the week was fine and bright, though the sky was cloudy at times, and showers of rain fell generally on Sunday, July 25.

In Scotland, the hightest temperatures ranged from 77° at Dundee to 67¾° at Aberdeen. The lowest temperatures varied from 44¾° at Leith to 40° at Dundee, their respective averages being 73½° and 43°. The mean range of temperature in the week was 30½°. The mean temperature of the air for the week was 57¼°, being 1¼° lower than the value for the corresponding week in 1874. The highest occurred at Dundee and Greenock, both 58½°, and the lowest at Aberdeen, 56°. The amounts of rain measured at the several stations during the week varied from 1 inch at Aberdeen, to a quarter of an inch nearly at Leith; the average fall over the country was half an inch.

At Dublin, the highest temperature was 77¼°, the loweat 39¼°, the mean 56¾, and the fall of rain 0.07 inch.

JAMES GLAISHER.

Answers to Correspondents.

A SUBSTITUTE FOR GRASS ON SHALLOW LAWNS: *E. H. Caerdeon.* Spergula pilifera is, no doubt, the plant you were told about.

CUCUMBER DISEASE: *F. G.* You can do nothing to prevent this, with the present plants. A change of seed, and a thorough change of soil is your only hope, and even that cannot be guaranteed as a certain cure.

FUNGUS: *W. G. E.* Your plant is a fine specimen of Dry Rot (Merulius lacrymans). It is not uncommon to find it, as you have done, on brick walls.

NAMES OF PLANTS: *Ignorance.* A Scabious, or something nearly allied, as near as we can tell from the seeds alone.—*H. James.* From the miserable scrap you sent we infer that the plant is the Rose-bay or French Willow, Epilobium angustifolium, which, though a wild plant, is often cultivated. If the specimen in the bouquet was from a wild plant there could be no objection to its inclusion in a bouquet of wild flowers. —*E.* Impatiens parviflora.—*J. P. M.* Æthusa Cynapium. Yes; a curious variety we never saw before.—*J. C.* A seedling form of Lapageria rosea. Such blooms often come on weak shoots.—*J. M.* Hæmanthus coccineus.—*W. P.* Collomia grandiflora. —*T. Ellis.* Trifolium fragiferum.—*R. B.* Litobrochia vespertilionis.—*G. T., Marykirk.* 1, Polystichum angulare proliferum; 2, Blechnum spicant strictum; 3, Asplenium ebeneum; 4, Selaginella apoda; 8, Lomamaria alpina. The others are too imperfect.

VINES: *Isaac Debnam.* Your Vine leaves are thickly covered with warts (no disease). Keep up a drier atmosphere by giving more air.

VINES MILDEWED: *J. B. L.* The berries sent are as badly infested with mildew as they well can be; and to get rid of it it is of no use putting flowers of sulphur on the floor or on the shelves. Get some muslin, and dust the sulphur through that well on to and amongst the berries, keeping the air in the house as dry and fresh as you can. They ought not to have been allowed to get into such a state.

INSECTS: *S. R.* The insect sent is the full-grown female Sirex gigas, a well-known timber-boring pest. The annexed illustration (fig. 37) shows the full-

FIG. 37.—SIREX GIGAS.

grown larva in its burrow in the wood (principally Larch or Fir), and the mandibles of the larva and perfect insect.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time.

ERRATUM.—In report of the Kendal Show, at p. 146, read "Mr. Sandford," instead of "Sandwick," as winner of the 1st prize for Black Grapes.

COMMUNICATIONS RECEIVED:—P. W. J.—Ignoramus.—John Godfrey.—J. C. R.—J. K.—J. D.—R. D.—E. W. R.—G. F. F.—R. G.—W. M.—A. G. G.—W. S. R.—T.—G. A.—P. B. W.—O.

Markets.

COVENT GARDEN, August 5.

There is very little alteration to be noted here, as we have abundance of goods offered now, in consequence of the continuance of dry weather, and prices have not materially altered, although the demand has slackened from the London season being over. The arrivals from the Continent and the Channel Islands show a large increase, especially in Apples and Pears, but they are not first-class goods. The provincial markets are comparatively quiet. Good hothouse Grapes and Peaches are in fair request. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 0	Lemons, per 100	8 0	12 0
Apricots, per box	1 0	3 0	Oranges, p. 100	10 0	20 0
Cherries, per lb.	0 6	1 6	Peaches, per doz.	6 0	18 0
Currants, red, ½-sieve	2 0	4 0	Pine-apples, p. lb.	2 0	5 0
— black, p. ½-sieve	3 6	5 0	Strawberries, per lb.	0 4	1 6
Figs, per doz.	2 0	4 0	Walnuts, p. bush.	16 0	
Grapes, per lb.	2 0	5 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0		Herbs, per bunch	0 2	0 4
Aubergines, per doz.	4 0		Horse Radish, p. bun.	3 0	5 0
Beans, French, per bushel	6 0		Leeks, per bunch	0 2	0 4
— broad, per bushel	3 0		Lettuces, per score	1 0	
— Scarlet Run., do.	5 0		Mint, per bundle	0 4	
Beet, per doz.	1 0	2 0	Mushrooms, per pott.	1 0	2 0
Cabbages, per doz.	1 0	2 0	Onions, young, bun.	0 4	0 6
Carrots, do.	0 6		Parsley, per bunch	0 4	
Cauliflowers, spring, per doz.	2 0		Peas, per quart	1 6	
Celery, per bundle	1 6	2 0	Radishes, per bunch.	0 2	0 4
Cucumbers, each	1 0	2 6	Shallots, per lb.	0 3	
Endive, per doz.	1 0	2 0	Tomatos, per doz.	4 0	
			Turnips, per bundle.	0 8	
			Veg. Marrows, doz.	2 6	

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, 12 blooms	0 4	2 0	Pelargoniums, 12 spr.	0 6	1 6
— Clove, per doz	0 3	0 9	— Zonal, do.	0 3	1 0
— mixed, 12 bun.	3 0	9 0	Primula, dbl., p. bun.	0 9	1 6
Cornflower, p. doz. bun.	3 0	6 0	Roses, indoor, p. doz.	2 0	6 0
Eschscholtzia, 12 bun.	3 0	6 0	— outdoor, 12 bun.	4 0	9 0
Eucharis, per doz.	6 0	12 0	— Moss, 12 bun.	6 0	12 0
Gardenia, per doz.	2 0	6 0	Spiræa, 12 sprays	1 0	3 0
Heliotropes, 12 spr.	0 6	1 0	Stephanotis, 12 sprays	3 0	6 0
Lilies, white, p. bun.	1 0	2 6	Stocks, 12 bun.	3 0	6 0
Mignonette, 12 bun.	4 0	6 0	Sweet Peas, 12 bunch.	2 0	6 0
Myosotis, per bunch	0 4	0 9			

PLANTS IN POTS.

	s	d.	s.	d.		s.	d.	s	d
Begonias, per doz.	6	0	12	0	Hydrangeas, per doz.	9	0	24	0
Bouvardias, do.	9	0	18	0	Lilium lancif., p. doz.	12	0	60	0
Calceolarias, do.	6	0	18	0	Lobelia, do.	4	0	9	0
Crassula, do.	12	0	30	0	Mignonette, do.	3	0	6	0
Cyperus, do.	6	0	12	0	Myrtles do.	3	0	9	0
Dracæna terminalis	30	0	60	0	Pelargoniums, dble., per doz.	4	0	12	0
— viridis, per doz.	12	0	24	0	— Scarlet, do.	3	0	9	0
Ficus elastica	1	6	7	6	Petunia, per doz.	6	0	9	0
Fuchsia, per doz.	3	0	18	0	Rhodanthe, do.	6	0	12	0
Gardenias, do.	12	0	60	0	Roses, do.	12	0	60	0
Gladiolii, do.	9	0	18	0	Solanums, do.	6	0	18	0
Heaths, in var., doz.	12	0	30	0	Stock, do.	3	0	6	0
Heliotrope, per doz.	6	0	12	0					

SEEDS.

LONDON: *August* 4.—In consequence of the holidays, the agricultural seed trade has now assumed a very quiet appearance. All kinds of Clover seeds are, however, held with great firmness, and the impression prevails, that as soon as a demand springs up, higher prices will be obtained. For Trefoil seed there is a fair sale at full rates. Shipments of this article are still being made to France. Most of the parcels of home-growth which come to market prove to be in bad condition. For Trefoil seed there is still a strong speculative inquiry, and holders seem loth to part with their stocks even at the late advance. The reports as to the injury sustained by the new crop are now fully confirmed. For bird seeds the demand at present is slow. Sowing Mustard and Rape seed continue in steady request. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

Business at Mark Lane on Wednesday was quiet, and the attendance poor. English Wheat was in very short supply, and no cheaper than on Friday last; but there were moderate arrivals of foreign Wheat, for which full rates were not easily realised. Barley and malt were dull, while Oats declined somewhat in price. Beans and Peas were unaltered, and the few sales effected in flour were on previous terms.—Average prices of corn for the week ending July 31:—Wheat, 51*s.*; Barley, 31*s.* 4*d.*; Oats, 30*s.* 7*d.* For the corresponding week last year:—Wheat, 59*s.* 8*d.*; Barley, 46*s.* 1*d.*; Oats, 30*s.* 9*d.*

CATTLE.

At the Metropolitan Market on Monday the number of beasts on offer was considerably smaller than on the previous Monday, but the demand was not so good. Good qualities were deficient, and consequently prices were not lower. For sheep trade was slow, and quotations on the average were scarcely as good as last noted. Choice lambs and calves were in demand, at fully late rates. Prices:—Beasts, 4*s.* to 5*s.* and 5*s.* 10*d.* to 6*s.* 6*d.*; calves, 4*s.* 6*d.* to 5*s.* 10*d*; sheep, 5*s.* 4*d.* to 6*s.*, and 6*s.* 6*d.* to 7*s.*; lambs, 6*s.* 8*d.* to 8*s.*—Trade was quiet on Thursday for beasts, and prices cannot be quoted higher than on Monday. There was an active demand for sheep at fully late rates, and a good inquiry for the fair supply of lambs, at scarcely any alteration in prices. There were a good number of calves on offer, and a fair trade was done in them. Trade continues dull for milch cows.

HAY.

Whitechapel reports that, though there was only a small supply brought forward, trade was dull, and prices were with some difficulty supported. Prime meadow hay made from 90*s.* to 160*s.*; inferior ditto, 35*s.* to 75*s.*; prime Clover, 100*s.* to 160*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 35*s.* to 46*s.* per load.—Cumberland Market quotations: Superior old meadow hay, 150*s.* to 168*s.*; inferior, 110*s.* to 130*s.*; new hay, 98*s.* to 147*s.*; superior old Clover, 168*s.* to 180*s.*; inferior, 110*s.* to 140*s.*; new Clover, 115*s.* to 147*s.*; and straw, 50*s.* to 53*s.* per load.

Scott's Wasp Destroyer.

J. SCOTT offers his well-known preparation to Fruit Growers at 1*s.* 9*d.* and 2*s.* 9*d.* per bottle, post free, on receipt of stamps. No one who has fruit to grow should be without it. May be obtained through all Seedsmen, or direct from

JOHN SCOTT, The Seed Stores, Yeovil.

N.B. Beware of spurious imitations.

THE LONDON MANURE COMPANY

(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—

CORN MANURE, for spring sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

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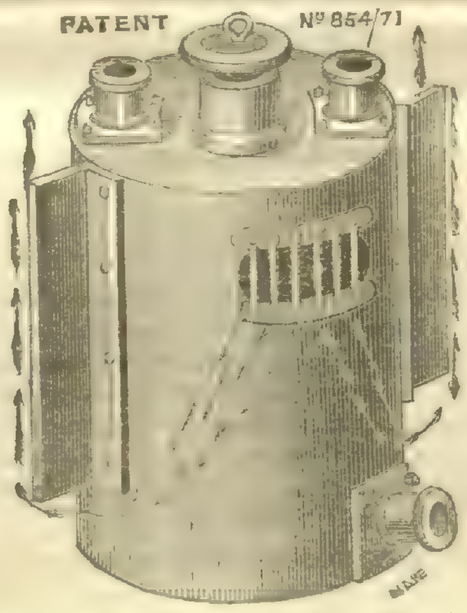

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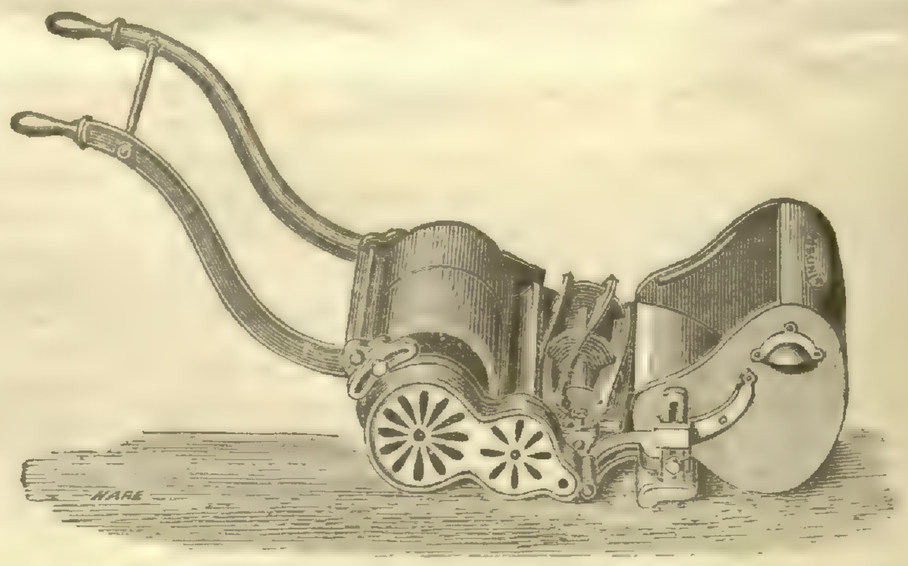

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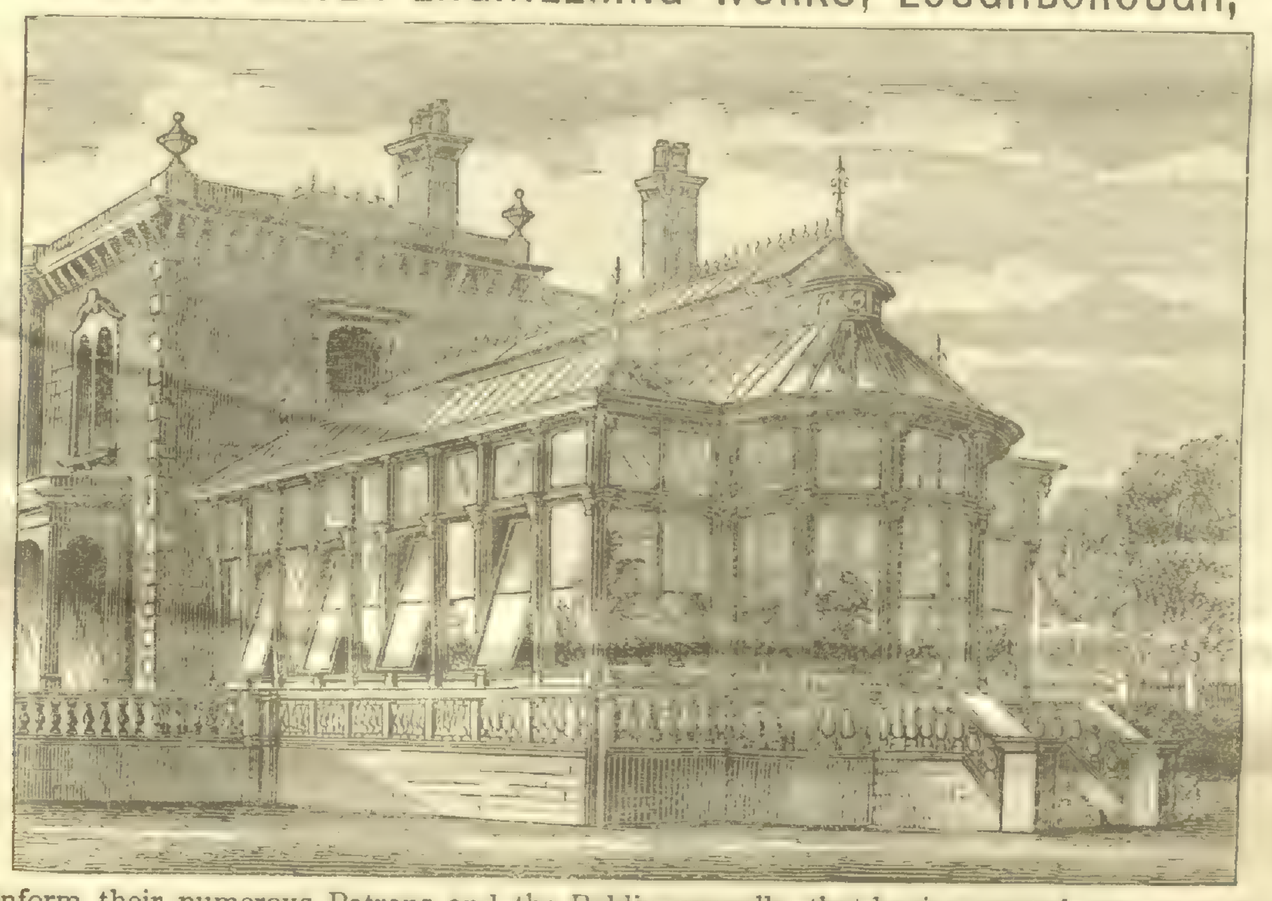

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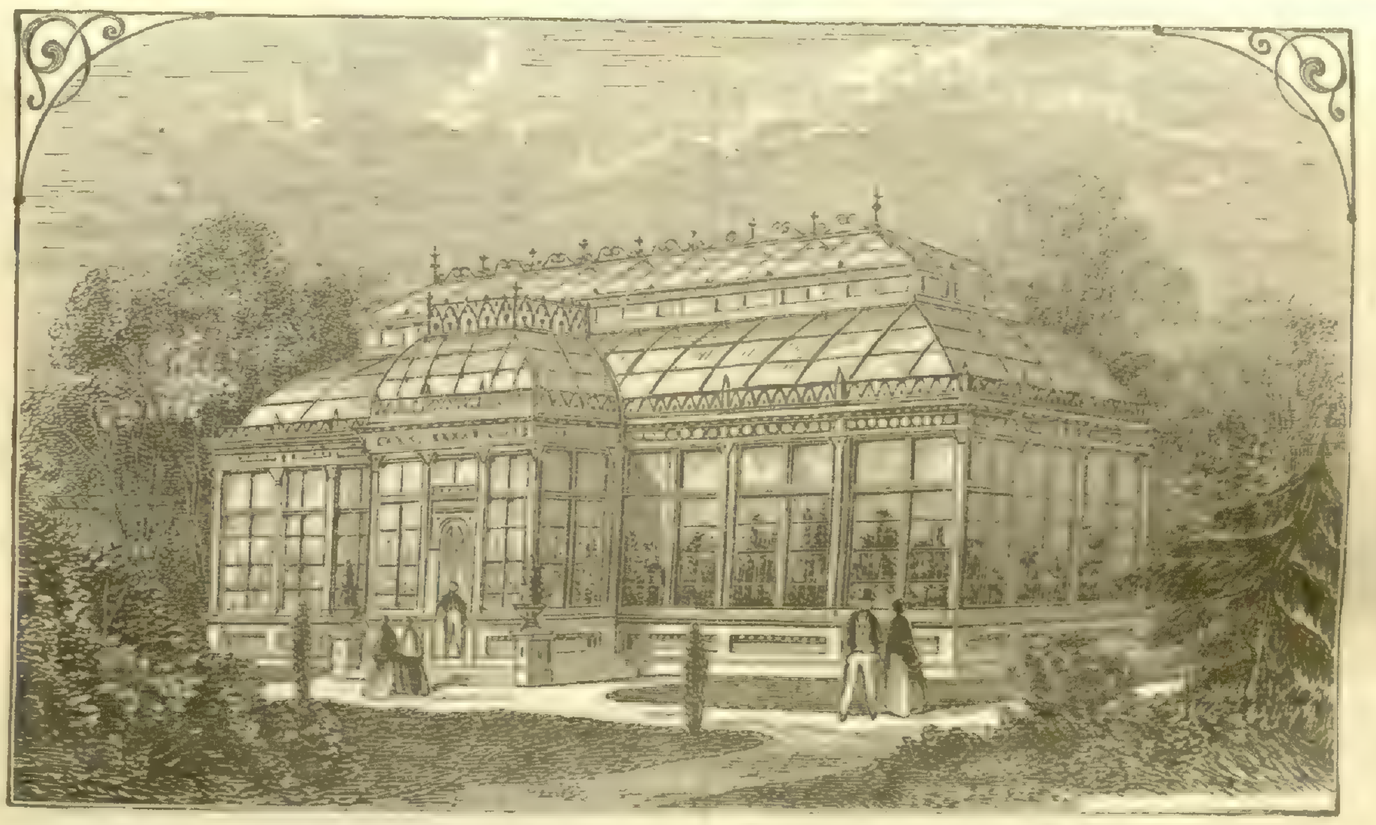

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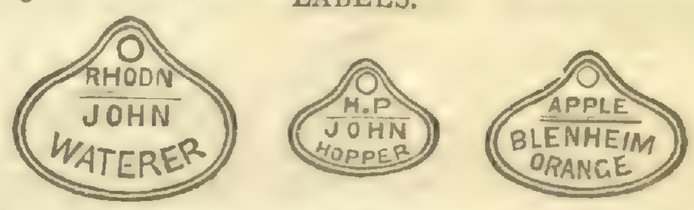

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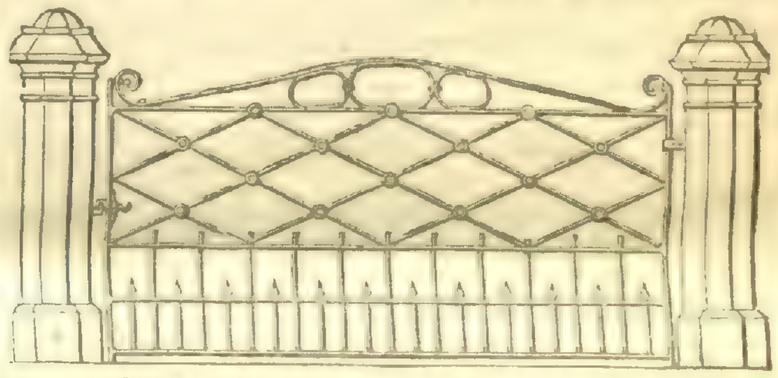

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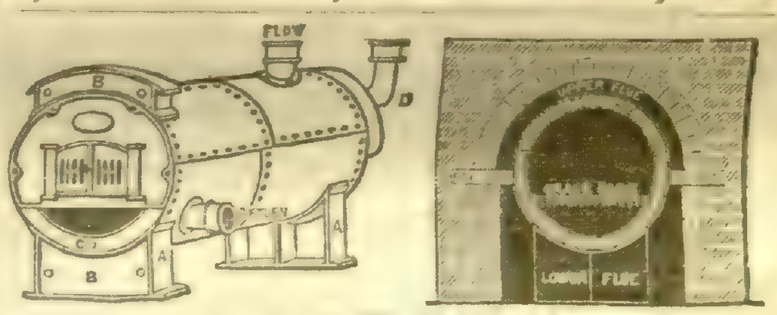

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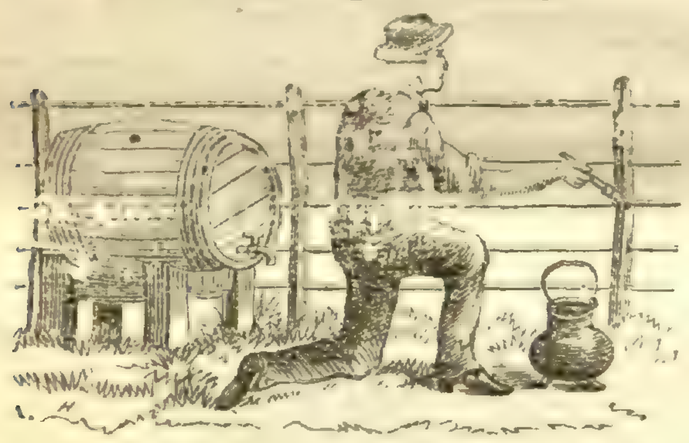

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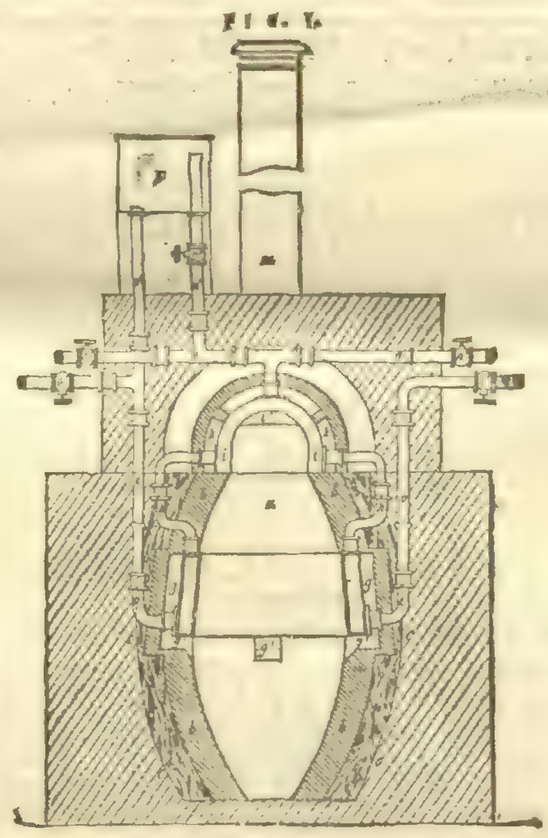

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ROYAL HORTICULTURAL SOCIETY,
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NOTICE.—FRUIT and FLORAL COMMITTEES' MEETING on WEDNESDAY NEXT, August 18, at 11 o'Clock. GENERAL MEETING at 3 o'Clock. Admission 1s.—By Order, J. S. DAVENPORT, Assistant Secretary.

INTERNATIONAL HORTICULTURAL EXHIBITION.—At a Meeting held in St. James' Hall on the 21st inst. it was resolved to hold the ADJOURNED MEETING on FRIDAY, August 20 next, at 6 o'clock, at the Criterion Hotel, Regent Circus, W., to make further arrangements for carrying out an International Horticultural Exhibition in England. Horticulturists are hereby invited to attend.

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WM. CUTBUSH AND SON'S CATALOGUE of SEEDS, GLADIOLI, &c., should be had by all Gardeners and Amateurs purchasing really first-class goods at a moderate price. Post-free on application.
Highgate Nurseries, London, N.

Dutch Bulbs.

A. E. BARNAART AND CO., Vogelenzang, Haarlem, Holland. Wholesale Catalogue of DUTCH BULBS is now ready, and may be had free from
Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.
N.B.—A large number of the Botanical and Royal Horticultural Societies' Prizes for Hyacinths, &c., were awarded to Bulbs sent out by A. E. B. & Co. during the past four years.

To the Trade.—Wholesale Bulb Catalogue.

HURST AND SON, 6, Leadenhall Street, E.C., beg to inform their Friends that the above is now ready, and has been posted to all. Should any not have received the same, it shall be immediately posted on application.

WANTED, CUTTINGS of GERANIUMS of—Jean Sisley, Madame Vaucher, Blue Bell, Master Christine. State price per hundred or thousand, to
GEO. WARD, Lynn Road, Walsoken, near Wisbeach.

WANTED, GERANIUM CUTTINGS, in small or large quantities—Madame Vaucher, Christine, Mrs. Pollock, Flower of Spring, Vesuvius. State cash price to
PREDERICK PERKINS, 2, Gold Street, Northampton.

WANTED, GERANIUM CUTTINGS.—Waltham Seedling, Lady Constance Grosvenor, Amy Hogg, Trentham Rose, Flower of Spring, Crystal Palace Gem, and Mrs. Pollock. Send sample and price per 1000 to
JOHN HOOLEY, Nurseryman, Edgeley Road, Stockport.

Winter and Spring Flowers.—Now Ready

CARTER'S Illustrated CATALOGUE of HYACINTHS, TULIPS, CROCUSES, &c., with all other popular Bulbs and Plants for Autumn Cultivating. It contains practical hints of great value to amateurs. Gratis and post free on application.
CARTER'S, The Queen's Seedsmen, 237 and 238, High Holborn, London, W.C.

STOCKS (East Lothian Intermediate).—Genuine Seed of the above magnificent Stocks, for present sowing, in four varieties, White, Purple, Scarlet, and White Wall-leaved, in packets, 1s., 2s. 6d. and 5s. each.
THOMAS METHVEN AND SONS, 15, Princes Street, Edinburgh.

FOR SALE, by PRIVATE CONTRACT, a choice COLLECTION of ORCHIDS—upwards of 100. Some fine specimen plants. For particulars apply to
Mr. ANDERSON, Gardener, Greenroyd, Halifax.

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.
Carlton, Tasmania.

LOBELIA PUMILA MAGNIFICA—strong plants of this finest of all blue Lobelias, from large 60's, 1s. each, free by post, 1s. 3d. Price to the Trade per dozen on application. Fresh gathered SEED of the same, 1s. per packet. Also seed of a splendid collection of herbaceous CALCEOLARIAS, 1s. per packet. All orders pre-paid.
J. BESTER, Florist, &c., White Hart Lane, Tottenham, N.

HELLEBORUS NIGER.—500 fine roots
For price, &c., apply to
JAMES PETTY, Crockenhill, Dartford, Kent.

Fifty Thousand Mayflower Germs.

LILIES of the VALLEY.—Strong and capable of blooming, of the best kind to force, are offered (autumn) at 27 marks, or 27s. nett per 1000. Specimen sent by
F. W. KRAUSE, Neusalz on the Oder, Prussia.

Zonal Pelargoniums—Zonal Pelargoniums.

FIFTY CUTTINGS of 25 of the best sorts in cultivation, carriage free for 6s. Warranted the best only. For cash with order.
CHAS. BURLEY, Paradise Nursery, Brentwood.

Bulbs of All Kinds.

THE NEW PLANT AND BULB COMPANY beg to announce that their AUTUMN CATALOGUE is now ready, and will be sent free on application.
Lion Walk, Colchester.

Dwarf Roses.

CHARLES NOBLE begs to say his ROSES are unusually robust, clean, and bushy. They consist of the finest kinds, viz., 1500 Baroness Rothschild, 1000 Madame Lacharme, 1000 Countess of Oxford, 1000 White Bath Moss, &c. From 50,000 to 75,000 are now ready to select from. Purchasers would do well to visit this Nursery before arranging their Rose Garden. Bagshot.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

SIR GARNET WOLSELEY.—The best new Rose of the season. See coloured plate in the *Floral Magazine* for April. Strong plants now being sent out, price 7s. 6d. each. The usual discount to the Trade.
CRANSTON AND MAYOS, Nurseries, King's Acre, near Hereford.

Special Culture of Fruit Trees and Roses by

MESSRS. RIVERS AND SON, Sawbridgeworth, Herts.

The Fruit Trees in the Orchard Houses and the Open Ground are now in full bearing, and will repay an inspection by intending planters. The Nurseries are near the "Harlow Station," Great Eastern Railway.

Notice.—To the Trade.

B. MALLER has to offer 25,000 flowering ERICA HYEMALIS, and other sorts, also a large stock of Miscellaneous Plants.
B. M.'s Fifth Annual Sale of a portion of the above will take place in September, included in which will be 3500 of Erica hyemalis, and others, in small and large 60-pots, all in fine condition. An inspection is solicited.
The Nurseries, Burnt Ash Lane, Lee, Kent.

BOX EDGING, Dwarf, 20,000 yards; also SPHAGNUM for Orchids. Cheap for cash.
Sample and price from J. B. YOUNG, Landscape Gardener, New Street, Bridge of Allan.

SPHAGNUM for ORCHIDS, 10s. per sack, of splendid quality and largely used.
JAMES ANDERSON, Nurseryman and Valuator, Meadowbank, Uddingston, Glasgow.

SALES BY AUCTION.

Valuable Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, August 17, at half-past 12 o'Clock precisely, on and for account of Mr. B. Roezl, six plants of the beautiful PESCATORIA ROEZLII, the only plants established in Europe; fine established plants, imported last year, of BATEMANNIA WALLISII (Reich.), ODONTOGLOSSUM ROEZLII, in great variety; ONCIDIUM KRAMERI, HASTIFERUM (true), RUPESTRE; MASDEVALLIA POLYSTICTA and MELANOPUS, HELCIA SANGUINOLENTA; and some extra masses just to hand, in the most healthy condition possible, of the magnificent ONCIDIUM CUCULLATUM, in great variety, from the volcano of Chimborasso: the plants consist of the large-flowering variety only, and have been collected, when in flower, with great care; also fine masses of ONCIDIUM NUBIGENUM and NUBIGENUM ROSEUM (new), in perfect health, from the Mountain of Pichinchi (Ecuador); also extra large masses of a beautiful free-flowering MAXILLARIA, from Ecuador—flower white with red lip, very large, and surpassing the white Lycaste Skinneri in beauty; an ONCIDIUM from Quito, flowers white spotted bright crimson, very free-flowering and beautiful, &c.

On view the morning of Sale, and Catalogues had.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY, August 18 and 21, at half-past 12 o'Clock precisely each day, a large importation of HYACINTHS, TULIPS, CROCUSES, and other Bulbs just arrived from Holland, in lots to suit the Trade and private buyers.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of Orchids.

(By Order of Mr. J. Linden, of Ghent, Belgium.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY, August 19, at half-past 12 o'Clock precisely, extraordinary fine ESTABLISHED and IMPORTED ORCHIDS, including splendid masses of the grand Cattleya Eldorado splendens, C. Wallisii, C. superba splendens, in exceptional good condition; the rare Epidendrum bicornutum, &c. Also some nice established plants of Odontoglossum vexillarium, Halli, and miniatum; Oncidium sarcodes and Lanceanum; Colax jugosus, Burlingtonia rosea (quite new), in bloom; Masdevallia Lindeni, amabilis, trochilus, polysticta, Davisii, &c., Dendrochilum filiforme, Cattleya gigas, sp. Orinocco, &c.

On view the morning of Sale, and Catalogues had.

Dutch Bulbs.

MR. J. C. STEVENS begs to announce that the SALES of BULBS from Holland will commence about the MIDDLE of AUGUST, and will be continued two and three days a week, as usual, during the season.

Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C. Established 1760.

TO BE DISPOSED OF, an old-established NURSERY and SEED BUSINESS, in a vastly improving Market Town, in an excellent neighbourhood, within five minutes' walk of a large station on a main line of railway. Stands in a commanding position for business. For particulars apply to

C. D., Messrs. F. Sander & Co., Seed Growers, Forest Hill, London, S.E.

TO BE SOLD, from a private Garden, one LEAN-TO HOUSE and Pit attached, 54 feet by 11 feet 9 inches by 9 feet 5 inches; one Pit, 18 feet 2 inches by 11 feet 9 inches, by 7 feet, with 100 feet 4-inch pipe, two valves. Further particulars by letter, addressed to

Mr. RHODES, 42, Cross Street, Finsbury, E.C.

To Gardeners, Nurserymen, and Seedsmen.

TO BE SOLD, or LET on LEASE, Valuable FREEHOLD PROPERTY, situated on the London Road, East Grinstead, two minutes' walk from the Railway Station, possessing every facility for doing a large and profitable trade. Premises comprise Dwelling-house with Shop (with good Retail Seed and Greengrocery Business), Greenhouses, Forcing-houses, Pits, Potting Sheds, and 2¼ acres of excellent Garden adjoining, well supplied with water. The reason of its now being disposed of is the declining health and necessary retirement from business of the proprietor. Part of the purchase money may remain on mortgage, if required. For full particulars apply to

Mr. GEORGE GROVES, Seedsman, East Grinstead, Sussex.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

SEWAGE FARM to LET.—The Town Council of the Borough of Kidderminster desire to receive Tenders for their Sewage Farm, with the Sewage arising in the Town of Kidderminster for a term to be agreed upon. The Farm comprises 172 acres of first-class Pasture, Turnip, and Barley Land, with a capital modern Family Residence, and extensive and convenient Homestead, and is about a quarter of a mile from the Stourport Railway Station. It is a very short distance from a canal wharf, and is most favourably situated for Market Gardening on a large scale. There is a large wholesale vegetable market in Kidderminster, where there is also a large Sale for Rye-grass and Roots.

To view, apply to Mr. JAMES ANSCOMBE, the Manager, Mitton, Stourport. Tenders, endorsed "Tender for Sewage Farm," are to be sent in to the undersigned (from whom further information can be obtained) not later than the 23d day of August next. JAMES MORTON, Town Clerk.

Kidderminster.—July 29, 1875.

Cyathea Burkei

AND

CYATHEA DREGEI.

MR. WILLIAM BULL has just received from South Africa a fine importation, in excellent condition, of the two above extremely rare and magnificent FERNS.

Mr. W. B. will be happy to show them to any one interested in these rare species.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Orchids.

THE NEW PLANT AND BULB COMPANY have lately received a fine consignment of South American ORCHIDS, mostly in fine pieces. These have been kept sufficiently long to prove their growing qualities; they are, therefore, now furnished with a quantity of fine breaks. The consignment includes Cattleyas, Lælias, Odontoglossums, Oncidiums, Barkerias, Sobralias, Epidendrums, &c. These present a rare opportunity to Amateurs to increase their collections at a very moderate price. LISTS free on application.

Lion Walk, Colchester.

PEARSON'S GOLDEN QUEEN GRAPE.—Plants of this splendid late keeping Grape can be sent out now, or as ripe Canes in autumn. Fine Planting Canes in 11-inch pots, 21*s.* each; Fruiting Canes, 42*s.* to 63*s.* each.

THE FOLLOWING NURSERYMEN HAVE ORDERED IT:—

Backhouse & Son, York
Bell & Son, Norwich
Bailey, Eccles, Manchester
Clarke, Uppingham
Carter & Co., London
Cooling & Son, Derby
Downie & Laird, Edinburgh
Dickson & Co., Edinburgh
Dixon, Beverley
Fisher & Holmes, Sheffield
Henderson (E. G.) & Son, London
Kimberley, Coventry
Lee, J. & C., Hammersmith
Osborn & Sons, Fulham
Paul, Waltham Cross
Paul & Son, Cheshunt
Smith, Worcester
Skinner, Wakefield
Thomson, Clovenfords
Veitch & Son, Chelsea
Walton, H., Marsden
Wilkinson, Sleaford.

Bedding Roses.

CRANSTON'S CRIMSON BEDDER: strong plants, in 5-inch pots, 30*s.* per dozen.

TEA-SCENTED, CHINA, NOISETTE, and HYBRID-PERPETUAL ROSES, in 4 and 5-inch pots, 9*s.* to 15*s.* per doz.

Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.

Address, CRANSTON AND MAYOS, King's Acre Nurseries, Hereford.

Diamond Reseda—Mignonette.

AUGUST GEBHARDT, Quedlinburg, Saxony, Germany, begs to state that he has produced an exquisite and striking new variety of the pretty Mignonette, which by its peculiarly fine scent augments the beauty of floral decorations in the garden. Endless care and ceaseless attention have resulted in the production of a splendid

WHITE-BLOOMING MIGNONETTE.

Those grown by him and introduced into commerce are by careful culture rendered constant, and so great has been the desire for their acquisition, that the stock of Seed has been found scarcely sufficient to satisfy the orders sent in.

A. G. begs to add that all known kinds of Mignonette are far inferior to this new variety, which is well worth the attention of all growers. The plants are in the form of richly-branched clusters nearly 45 centimetres in height, and in the finished growth are nearly 50 centimetres in diameter, and of a pyramidal shape. The splendid white clusters show well on the light-green, yellowish-tinted leaves, and the numerous pearly-white stamens give a beautiful aspect to the plants.

Prices—1000 Seeds, 24*s.*; 500 do., 15*s.*; 100 do., 4*s.*

Lovers of flowers or commercial friends desirous of having a Picture or Seeds of this "Diamond Reseda," are requested to forward their addresses.

NEW PLANTS.

Amaryllis Hendersoni
" " coccinea
" Henry Little
Asplenium nobile
Armeria cephalotes alba
Blandfordia flammea elegans
Bouvardia bicolor (hybrid)
" multiflora (species)
Cantua corymbiflora
Cyclamen Peakeanum
Convolvulus mauritanicus atrocoeruleus
Crowea angustifolia
Dracæna Duffii
Epigynium acuminatum
Hæmanthus Rooperi
Ixora Fraserii
Nerine rosea
Plumeria bicolor
Sonerila Hendersoni
" " argentea
" " marmorata
Yucca stricta, &c.;
with other new Florist Flowers.

The above, first offered in Trade this season, are now ready for sending out. See full descriptions and prices in

E. G. HENDERSON AND SON'S

PLANT CATALOGUE for 1875,

which will be forwarded on application, and on request will be sent their

SEED CATALOGUE for 1875,

Containing the following Flowers for present sowing, of choice quality:—

CALCEOLARIA, mixed colours, 1*s.*, 2*s.* 6*d.* and 5*s.* per pkt.
CINERARIA, mixed, or separate colours, 1*s.*, 2*s.* 6*d.* and 5*s.*
PRIMULA SINENSIS FIMBRIATA, fine strain, colours separate or mixed, 2*s.* 6*d.* and 5*s.* per packet.
" RUBELLA, fl.-pl., double red, 2*s.* 6*d.* and 5*s.*
" NIVEA, fl.-pl., double white, 2*s.* 6*d.* and 5*s.*
" PRINCE ARTHUR, double red, 2*s.* 6*d.*
" PRINCESS ALICE, new, double blush-rose, 2*s.* 6*d.* and 5*s.*
CYCLAMEN PERSICUM, mixed colours, 1*s.* and 2*s.* 6*d.*
" Double-flowered, 2*s.* 6*d.* and 5*s.*
MYOSOTIS DISSITIFLORA, true variety, 6*d.* and 1*s.*
CINERARIA, double-flowered. The seed now offered is saved from fifty to sixty plants selected from a thousand (the remainder being destroyed), and these again divided into two sections. 1st section, 5*s.*; 2d section, 2*s.* 6*d.* packet.

The Wellington Nursery, St. John's Wood, London, N.W.

C. VUYLSTEKE, NURSERYMAN, Loochristy, near Ghent, Belgium, begs to announce that he has upwards of 200,000 Plants now ready for sending out, consisting principally of Camellias, Azalea indica, Azalea mollis, Hardy Ghent Azaleas, Rhododendrons, and Kalmia latifolia.

Priced Descriptive CATALOGUE will be sent on application to him; or, to his London Agents, Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, E.C.

New Greenhouse Palm.

BRAHEA FILAMENTOSA (Wendland).—The Fan Palm of Lower California, called Arizona Palm in San Francisco; leaves palmatifid, divisions numerous, set with whitish filaments; leaf-stalks rather long, with brownish yellow prickles. The greatest merits of this Palm, besides its graceful habit, are the hardiness and the rapidity of its growth. The first specimens, planted by our correspondent three years ago as young plants in his garden near San Francisco, are now fine large plants, 5 feet high, having some resemblance to Chamærops Fortunei. Though it freezes there nearly every winter they have not suffered the least from cold, whereas the Corypha australis, planted out under the same conditions, were killed by the frost. It would follow from this fact that this new Palm will be quite hardy in the South of Europe, and most likely in the sheltered parts of England.

A figure of the plant will be published shortly.

Price of yonng seedlings, transplanted, of one to two leaves now, two to three leaves later in the autumn, £5 per 100, 15*s.* per dozen.

HAAGE AND SCHMIDT, Nurserymen, Erfurt, Prussia.

BENJAMIN S. WILLIAMS'

SUPERB STRAIN OF

FLORISTS' FLOWERS

(Post Free).

Per packet.—*s. d.*

CALCEOLARIA, Williams' superb strain, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.* and 5 0
CINERARIA, Weatherill's extra choice strain, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.* and 5 0
CYCLAMEN PERSICUM, Williams' superb strain, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.* and 5 0
GLOXINIA, saved from the finest drooping varieties .. 1 6
saved from the finest erect varieties 1 6
PANSY, saved from extra choice show varieties 1*s.* and 2 6
" Belgian, finest mixed .. .. .. 1*s.* and 2 6
PRIMULA SINENSIS FIMBRIATA, Williams' superb strain, red, white, or mixed, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.* and 5 0

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

Sutton & Sons

RECOMMEND THE FOLLOWING CHOICE

ONION SEEDS

FOR PRESENT SOWING.

These varieties, if sown at once, will come to a very large size next spring and summer.

NEW QUEEN.—The earliest of all Onions. If sown at once will be ready for use this autumn. 1*s.* 6*d.* per packet.

NEW GIANT ROCCA.—Very large, mild flavour; can be grown 2 to 3 lb. weight. 1*s.* per ounce.

LARGE EARLY RED ITALIAN, LARGE EARLY WHITE ITALIAN.—Very large, hardy, and good keepers. Each, 1*s.* per ounce.

GIANT LATE RED ITALIAN, GIANT LATE WHITE ITALIAN. Coming in a fortnight after the preceding. Very large. Each, 1*s.* per ounce.

NEAPOLITAN MARZAGOLA.—Very quick growth. 1*s.* per packet.

Postage 2d. per ounce extra.

PARTICULARS OF OTHER CHOICE

VEGETABLE and FLOWER SEEDS

For Present Sowing, gratis on application.

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

TREE FERNS.

THE LARGEST AND BEST STOCK IN EUROPE.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above; also of his

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

DUTCH FLOWER ROOTS.

OSBORN & SONS

BEG TO ANNOUNCE THAT THEIR

ANNUAL CATALOGUE OF THE ABOVE

Is now published, and may be had Post Free on application.

It contains a Choice Selection of HYACINTHS, TULIPS, CROCUS, NARCISSUS, LILIUMS, and various other BULBS; also a Select List of VEGETABLE and FLOWER SEEDS for Autumn Sowing.

THE NURSERY, FULHAM, LONDON, S.W.

HYACINTHS, CROCUS, TULIPS, &c.

DICK RADCLYFFE & CO.'S

ILLUSTRATED

CATALOGUE

of the above

IS NOW READY.

Will be forwarded

GRATIS and POST FREE

ON

APPLICATION.

128 & 129, HIGH HOLBORN, W.C.

IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, August 17, at half-past 12 o'Clock precisely, on and for account of Mr. B. Roezl, six plants of the beautiful PESCATOREI ROEZLII, the only plants established in Europe; fine established plants, imported last year, of BATEMANNIA WALLISII (Reich.), ODONTOGLOSSUM ROEZLII, in great variety; ONCIDIUM KRAMERI, HASTIFERUM (true), RUPESTRE; MASDEVALLIA POLYSTICTA and MELANOPUS, HELCIA SANGUINOLENTA; and some extra masses just to hand, in the most healthy condition possible, of the magnificent ONCIDIUM CUCULLATUM, in great variety, from the volcano of Chimborasso; the plants consist of the large flowering variety only, and have been collected, when in flower, with great care; also fine masses of ONCIDIUM NUBIGENUM and NUBIGENUM ROSEUM (new), in perfect health, from the Mountain of Pichinchi (Ecuador); also extra large masses of a beautiful free-flowering MAXILLARIA, from Ecuador—flowers white with red lip, very large, and surpassing the white Lycaste Skinneri in beauty; an ONCIDIUM from Quito, flowers white spotted bright crimson, very free-flowering and beautiful, &c. *On view the morning of Sale, and Catalogues had.*

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

HIGHLY IMPORTANT SALE OF ORCHIDS.

(By Order of Mr. J. LINDEN, of GHENT, BELGIUM.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, August 19, at half-past 12 o'Clock precisely (by order of Mr. J. Linden, of Ghent, Belgium), extraordinary fine ESTABLISHED and IMPORTED ORCHIDS, including splendid masses of the grand Cattleya Eldorado splendens, C. Wallisii, C. superba splendens, in exceptional good condition; the rare Epidendrum bicornutum, &c. Also some nice established plants of Odontoglossum vexillarium, Halli, and miniatum; Oncidium sarcodes and Lanceanum, Colax jugosus, Burlingtonia rosea (quite new), in bloom; Masdevallia Lindeni, amabilis, trochilus, polysticta, Davisii, &c.; Dendrochilum filiforme, Cattleya gigas, sp. Orinoco, &c.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

COCOA-NUT FIBRE REFUSE (H. Wright's Pure) for all seasons, as supplied to 1200 Nurserymen and Gardeners. Recent testimonial from Herr Schmidt, Nurseryman, Erfurt, Prussia, on application. Twenty bushels, 6*s.* 8*d.*; 50 for 12*s.* 6*d.*; 330 for 45*s.* Delivered free within six miles, or on rail.

HENRY WRIGHT, Fibre Manufacturer (Works, Heneage Street and Millwall)—Address, Warehouse, 81, Bishopsgate Street Without, London, E.C.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.

BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.

FRESH SPHAGNUM, 10*s.* 6*d.* per sack.

WALKER AND CO., Farnborough Station, Hants.

THE LONDON MANURE COMPANY

(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—

CORN MANURE, for spring sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6*s.* Supplied to Seedsmen and Chemists.

Prepared by JOHN KILINER, Wortley, near Sheffield.

BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass. Retail 1*s.* 6*d.* and 2*s.* 6*d.* per bottle, of the Sole Manufacturers,

BELL AND SON, 10 and 11, Exchange Street, Norwich.

Scott's Wasp Destroyer.

J. SCOTT offers his well-known preparation to Fruit Growers at 1*s.* 9*d.* and 2*s.* 9*d.* per bottle, post free, on receipt of stamps. No one who has fruit to grow should be without it. May be obtained through all Seedsmen, or direct from

JOHN SCOTT, The Seed Stores, Yeovil.

N.B. Beware of spurious imitations.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

TOBACCO PAPER (warranted the best), either manufactured or as taken from the machines. Also TOBACCO CLOTHS, JUICE, and WATER. All at very low prices.

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This remarkably ornamental plant, which is a native of the Society Islands, was first made known to me by Mr. Walter Hill, of Brisbane, and was afterwards sent to me in a living state by Mr. Henderson, of Sydney. It is, without exaggeration, one of the finest coloured-leaved plants which it has ever been my good fortune to offer. It is a plant of free-growing habit, with a woody stem, which is hirsute in the young state. The leaves are very variable in form, alternate and petiolate, the petiole and hairy costa being of a bright red colour. The leaves, which measure at least a foot long and 7 inches wide, are of membranous texture, with a glossy upper surface, and of a rich, full bronzy crimson hue, beautifully tinted with purple. The colouring is remarkably rich and constant; that of the under surface being of a bright vinous red.

The form of the leaves varies greatly; some are simple and cordate at the base, parallel sided, with the apex irregularly lobate; some have the apex regularly three-lobed, with shor entire lobes; some are deeply three-lobed, being divided nearly to the base, the segments them selves, of which the centre one is largest, being shallowly sinuate-lobed, and occasionally these secondary lobes are themselves sinuately toothed. This variety of form, and the rich colouring of the polished surface, render this one of the most effective coloured-leaved plants of recent introduction; and there is not the slightest tendency in the colouring to vary or fade, so that the effect produced is a permanent one.

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This is a remarkably fine form of Croton, from the New Hebrides, peculiar in its dense stocky habit and thickset leaves, and remarkable also for the unequal length of the leaves, and for the twisting of the blades, which causes them to face in a variety of ways. The leaves are from 4 to 6 inches long, very stout in texture, very unequal in length, bluntly rounded at the apex, and with the midrib excurrent in the form of an awl-shaped horn about an inch below the apex. Most of the leaves are twisted, the twisting occurring in various degrees, but it is usually as if the upper half of the leaf had been turned half round while the other portion had been fixed in the normal position. The course of the midrib, which takes on a crimson hue, is marked by a broader golden band, and the margin is coloured with crimson at the extreme edge, and within that by a broken line of yellow. The surface of the leaves is also mottled with yellow and red. The excurrent golden horn, the unequal length of the densely-set leaves, and the peculiar twisting of the blunt-ended blade, quite different from that of "spiralis," are the features for which this Croton will be most prized; the colouring being also very effective.

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BILLBERGIA CHLOROSTICTA
CATAKIDOZAMIA HOPEI
CINNAMOMEUM SERICEUM
COLOCASIA ARGYRONEURA
COVELLIA RHIZOCARPA
CROTON CHRYSOPHYLLUM
CURMERIA ROEZLII
CYCAS NORMANBYANA
DÆMONOROPS ORNATUS
DALECHAMPIA ROEZLIANA ALBA
DESMONCUS GRANATENSIS
DRACÆNA GEMMA
" RUBELLA
ERANTHEMUM ATROPURPUREUM
ERANTHEMUM MOOREI
" RETICULATUM
" VERSICOLOR
GONIOPHLEBIUM GLAUCOPHYLLUM
HIBISCUS (ROSA SINENSIS) VIVICANS
LAPORTEA SCHOMBURGKII VERSICOLOR
MARANTA BELLA
" LEOPARDINA
" PINNATO-PICTA
MARANTA PORPHYROCAULIS
" PRASINA
MARTINEZIA LEUCOPHÆUS
PALICOUREA ORNATA
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SATURDAY, AUGUST 14, 1875.

PELARGONIUMS.

(Concluded from p. 130.*)*

WE propose to conclude our observations upon these plants by a reference to a few of the more remarkable species which have been in cultivation, and which are very different from the "Geraniums" and Pelargoniums which we have already considered. First among these we place Pelargonium tricolor, a most charming plant, with flowers like those of a "fancy Pelargonium," but smaller, and strikingly handsome and distinct. The two upper petals are crimson, with a darker spot at the base; the three lower are pure white: the blossoms, as was remarked by Curtis, who first described it, have some similarity in form and general appearance to those of the Heartsease. Seeds of this very beautiful species were brought to Kew Gardens from the Cape by Masson, and plants raised from them flowered there in 1792; in a year or two it was to be found in most of the principal nurseries, but has now apparently gone out of cultivation. It would appear from Curtis's description that Kew boasted a large collection of Pelargoniums about this period; and it must be matter of regret to all lovers of flowers that plants of such intrinsic beauty were not preserved from the fatal results of change in taste and fashion. That "the old order changeth, yielding place to new," is an undoubted fact, and no doubt possesses its advantages; but we cannot at times help lamenting over the "lost plants," not only herbaceous but greenhouse, which have been from time to time sacrificed to the love of novelty. Take, for example, the exquisite Ixias and their allies, the likenesses of which still adorn the *Botanical Magazine* of sixty or seventy years back; or the Cape Heaths, or the beautiful Diosmas, and other New Holland Rutaceæ, for which at a later date Kew, if we may believe report, was famous. They have disappeared; other plants, not more lovely, have taken their place; but, while new acquaintances are welcomed, would it not be possible to keep the old friends in mind, and to avoid losing sight of them altogether? A history of English gardening, and the various changes it has undergone, would be an interesting and instructive work; and it is to be regretted that the venerable and respected ex-curator of Kew Gardens, who must be admirably fitted by his long acquaintance with horticulture for such a task, cannot be induced to undertake it.

A few interesting Pelargoniums were recently in cultivation at Kew, and probably are so still; but of this we cannot speak with certainty, as our recent visit to the gardens was unfortunately timed, the Cape-house being under repair; and many of the plants formerly contained in it, including the Pelargoniums, removed temporarily to a private house. In our report of the recent Pelargonium show at South Kensington we omitted to mention that Messrs. E. G. Henderson & Sons exhibited on that occasion nearly a hundred species and well-marked varieties of the genus; many of these were not in flower, but the fact deserves mention as a hopeful symptom of a future revival of Pelargonium cultivation.

The section Hoarea, to which Sweet accorded generic rank, is a very distinct one, and produces some pretty plants. They are characterised by their stemless habit and tuberous roots, the flowers, which are often yellow, having usually the full complement of petals, and the leaves being either entire, three-lobed, or deeply pinnatifid. Of the entire-leaved set the handsomest appears to be P. Grenvilliæ, which Andrews figures from specimens grown from roots sent from the Namaqualand region in 1810 by Lord Grenville. This has large Primrose-like leaves, and a tall, many-flowered scape of elegant flowers. Nothing seems to be known of it beyond Andrews' description and figure, but it should be looked out for by collectors. Other ornamental species of this group which have been in cultivation in England are P. roseum, P. rapaceum, and P. incrassatum. Many more are figured by Sweet and Andrews.

Another handsome species which was formerly in cultivation is P. crassicaule, a remarkably thick fleshy-stemmed species, with glaucous, entire, much-plaited leaves, and compact heads of regular white flowers, each petal being notched and having a purple spot in the centre. This was discovered in 1785 by Hove, growing to the height of nearly 5 feet, in the chasms of a white marble rock in a bay on the south-west coast of Africa. "On pulling up the plant the roots were several yards in length, naked, and as hard as wire, and evidently appeared to have received their nourishment solely from the moisture lodged there during the rainy season, assisted by a little sand, sifted by the wind into the cavities. The heat was so intense on these rocks as to blister the soles of the feet, and yet all the Geraniums there were in perfection, it being just then their flowering season—about the middle of April."

Another odd species which has been grown in England since 1712 is the "Gouty Geranium," as it is often called—P. gibbosum; this has a succulent stem, which is much smaller at the distant nodes, and greenish sweet-scented flowers. It was grown rather as a curiosity than for its beauty. P. carnosum is another species of somewhat similar habit.

It is doubtful, however, whether any good purpose can be served by this casual mention of the different types of this large genus. The intending cultivator will do well to go carefully through the volumes by Sweet and Andrews, to which reference has already been made, and note the forms which appear especially worthy of attention, after which he should secure such as are still in existence in England, and then proceed to induce Cape collectors to take up the matter. One or two species demand a word in conclusion, among which is P. Endlicherianum, a species which has recently been in cultivation in England. It is figured in the *Botanical Magazine*, t. 4946, and is of interest as being the only species which is a native of the East, being found in the region of the Western Taurus. The flowers have a curious appearance, owing to the large size of the two upper petals and the smallness of the lower three, ibut it is a handsome species. This irregularity n the blossoms is common to several Cape species; notably to the odd P. tetragonum, which has square succulent almost naked stems, and was in cultivation in England in 1774.

Like many other plants illustrious for their beauty, the Pelargoniums are not very useful "members of society." One species, P. antidysentericum, is employed by the natives of Namaqualand in diarrhœa and dysentery; the roots, which are sometimes as large as a man's head, being boiled in milk, and then eaten. P. reniforme, another Cape species, is employed in similar cases; and we have already referred to the use in perfumery of P. capitatum. It is much to be hoped that, through the agency of the Pelargonium Society, this interesting and beautiful group of plants may regain the position which it formerly held in public esteem; and that many of the species, which are not now to be found in English greenhouses, may obtain a place there before many years have passed by. *B. M.*

RARE CONIFERS.

PICEA CONCOLOR, &c.—In my last communication I explained the nature of the histological characters which M. Bertrand proposed to apply to the determination of species. I shall now test them upon Picea grandis, and its allies, P. concolor, P. lasiocarpa; and of which for clearness sake I reproduce the figures of the leaf sections.

P. concolor.—Fig 38 represents a section of the leaf of Picea concolor, taken from Engelmann's specimens in Kew Museum, and fig. 40 that of P. grandis, from leaves of a specimen in the Edinburgh Royal Botanic Gardens, and fig. 39 is that of P. lasiocarpa, Hooker, from the original specimens in the Kew Museum, all drawn by Professor McNab, to one scale, by camera lucida. In sending me these, the Professor remarks (1) as regards concolor—"Observe that the resin canals (R C) are close to the lower epidermis, that the hypoderm (H) is well developed at each side and below the mid-rib, and that there are a few scattered hypodermal cells below the upper and under epidermis. P. Lowii (recent) differs from this leaf in outline, but agrees perfectly in all other characters. As concolor has been dried, of course the form may not be quite restored."

Of grandis he says, "Observe the absence of hypoderm at the sides of the leaf, except just at the resin canals and the scattered fibres above and below."

And of lasiocarpa, "Observe that the resin canals are not near the lower epidermis." Thus far Professor McNab, who, so far as he has yet gone, seems disposed to put considerable reliance upon these characters. I confess I have not the same confidence, although they will no doubt in many cases be found useful accessories. The sections of grandis and concolor certainly come very near each other. The resin canals seem to me to be of greater importance than the scattered indications of hypoderm, and although in both concolor and grandis their position is nearly the same, there is a remarkable difference in their comparative dimensions.

As regards the external characters of concolor, I have made a complete re-examination of them, and my formerly expressed opinion of its identity with grandis is somewhat shaken. I have dealt more freely with the specimen cone put in my hands than I formerly ventured to do, pulling out scales and bracts from the middle, and the following comparative slightly magnified sketches of the bracts of the cone of grandis and concolor (figs. 41, 42), taken from various parts of the cone, and in grandis from various individuals, will show that there is really some difference between them—slight certainly, but even more apparent in the specimen itself than in the drawing; for in the specimen the slight terminal mucro or point in the middle is in general not visible; it has been thin and has dried up, and it is only with a lens that it can be distinctly seen. In all other respects the cones seem identical. As to the external features of the leaf, after the great variety that I found to prevail in those of grandis throughout the Rocky Mountains, I find it very difficult to attach much importance to the peculiarities specified by Mr. Syme in those of concolor. He reminds me of the importance I have attached to the stomata in time past, and it would be a good argument against me, although nothing to the purpose as regards the point at issue, if I attached the least importance to consistency; but regarding it, as I do, rather as a vice than a virtue, I decline to be bound by what I thought fifteen years ago. It so happens, however, that no great change has taken place in my views regarding stomata. I still regard them as a most useful character for discriminating species, only I do not ride that hobby quite so hard as I did once. Stomata, like everything else, must be dealt with with discretion. In one species their disposition and the number of their rows is almost invariable, and may be thoroughly depended on. In another, great allowance has to be made for variation. By experience alone can we learn whom to trust. The stomata on the leaves of the upper surface of the leaves of concolor do certainly run to an extreme away from the ordinary type of grandis, and coupling this with the slight difference in the bracts which I have figured at fig. 41 I have come to the conclusion (although not without considerable hesitation) to write down concolor in my mental tablets as a good species. Mr. Syme brings forward one argument in favour of his views which I am rather surprised at a man of his obvious capacity using, and which I am inclined to pass over in silence, for it does not seem to me to have any bearing on the question—viz., that Dr. Engelmann and M. Roezl, both trained botanists, consider the species distinct. They are perfectly entitled to do so, but I claim also a like privilege for myself.

As to lasiocarpa, with which M. Roezl considers concolor to have more affinity than grandis, it rather seems to me we are scarcely in a position to say much. There is probably more than one species cultivated under that name or that of Lowiana. One I certainly cannot separate from grandis. But as Mr. Syme likes authority, I will refer him to Professor Parlatore's monograph in De Candolle's *Prodromus*—and Professor Parlatore is at least as high an authority and well-trained a botanist as M. Roezl—where he will find that lasiocarpa is, according to his views, a synonym of amabilis, and Lowiana a

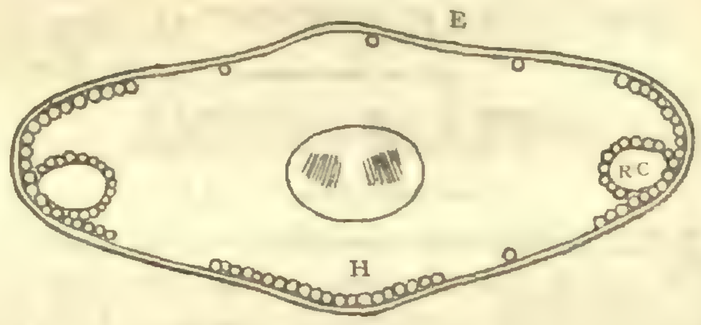


FIG. 38.—PICEA CONCOLOR.

synonym of grandis. I think he is wrong, and that whether lasiocarpa and Lowiana be in reality grandis or not, neither of them is amabilis. Perhaps I should here say, as a haze always surrounds the names amabilis and grandis, that, in accordance with what I believe to be the more

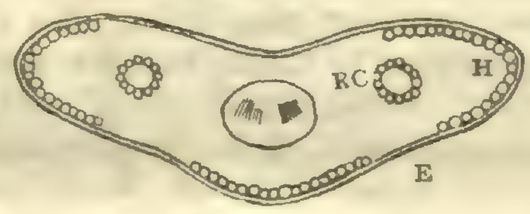


FIG. 39.—PICEA LASIOCARPA.

common practice, when I have spoken of grandis I mean the species with the single row of leaves on each side of the twig—by amabilis, the species having in addition a thick thatch of leaves on its upper side.* This amabilis has been a great puzzle in more ways than one. It has all the appearance

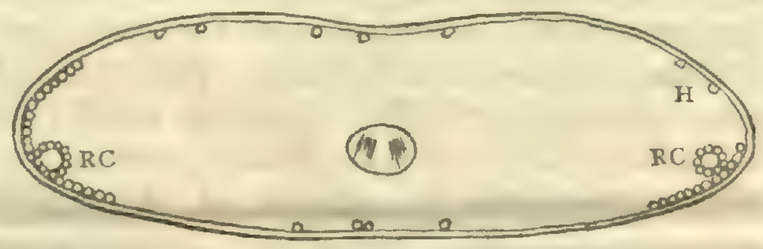


FIG. 40.—PICEA GRANDIS.

of being a good species. It was noticed as distinct by Douglas in its native country, and described by him as distinct, and seeds were sent home by him as distinct, but a mystery surrounded it from the moment of its arrival here. Plenty of the sparse-leaved grandis came up then, and hundreds of consignments

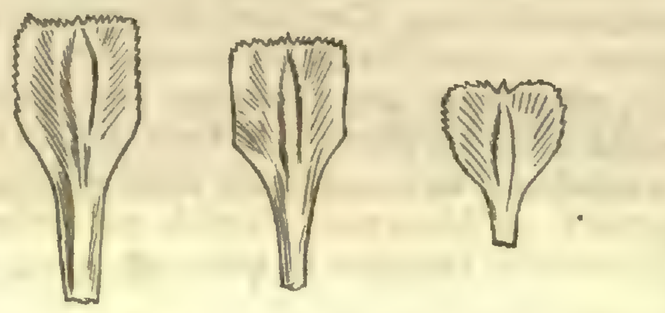


FIG. 41.—PICEA CONCOLOR.

of its seeds have been received and grown since, but of the thatch-leaved amabilis only one plant was reared, which passed into the hands of Mr. Barron; and it is, I believe, from cuttings from it that all the trees in this country have been obtained, and from that day to this no seeds of it have ever been received. Mr.

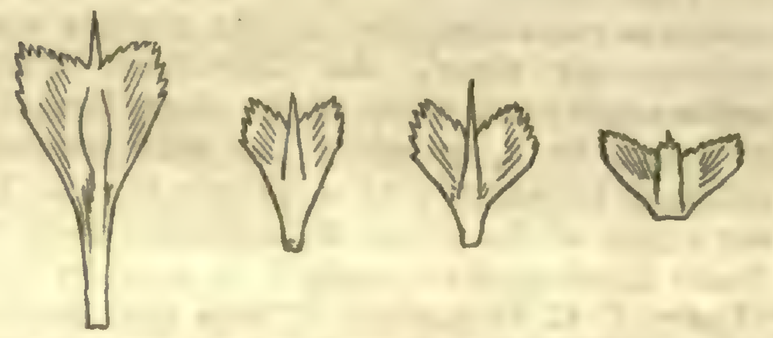


FIG. 42.—PICEA GRANDIS.

Barron, or Mr. Syme, will be able to put me right if I am wrong in this, but not long since I had a letter from Mr. Anthony Waterer asking me whether I had ever got any seed of it, or knew of its having been received, for he had never succeeded in getting any, although, like others, he had grafts. It has not yet fruited in this country; but both grandis and it have flowered this year in Mr. Barron's nursery at Elvaston, and he had the kindness to send me specimens of the male flower. There is little difference in the structure of the male flowers of any species of Picea, but here the flower of grandis was yellow fawn-coloured, that of amabilis deep purple. *Andrew Murray.*

* I attempted in times gone by to correct this nomenclature in accordance with the rules of priority (for which there was then a craze), and reversed the above nomenclature, but the big world rolls on and takes its own way irrespective of puny purists, and to avoid trouble and confusion they are obliged to give way and follow the crowd as I do now, and as I recommend others to do likewise.

THE VINE AND ITS MINERAL ALIMENTS.

I AM sorry to be unable to explain how or why, except through the agency of the mineral particles (including so much silicate of alumina and alkaline matter) it contains, granite dust is an admirable soil in which to grow Vines. There are many facts which many persons, much more learned than myself, would like to explain, but cannot. "J. S. W." is, of course, aware that other conditions, besides those connected with soil and manure, must combine in order to bring the culture of the Vine to a successful result. Soil alone, nor yet manure, unaided by other favourable circumstances, will neither increase the size of the bunches or the berries, improve their colour, flavour, and keeping qualities, nor prevent shanking.

The object of the paper criticised by "J. S. W." was, not to show that first-class Grapes cannot be produced without granite, and still less to give a lesson on the culture of the Vine, but to point out the great importance of mineral elements in the nutrition of plants in general. This truth is illustrated by few plants in a more remarkable manner than by the Vine; although the geological distribution of plants might suggest that the idea is not a mere groundless supposition. There is scarcely a cultivated plant more dependent than the Vine on the mineral food which it can obtain.

The soil in which Vines may be grown depends on the purpose for which the fruit is intended. If for the table, and especially for exhibition, it was sometimes, perhaps still is, enriched with putrid meat, blood, and other stimulants, according to the gardener's judgment or want of judgment. Among such manures "J. S. W.'s" cow manure is probably one of the best. But if the Grapes are grown for wine-making—and the area occupied by dessert and show Grapes is a mere nothing compared with those—the matter is quite different. In that case all manure is either entirely abstained from, or applied with the greatest discretion and caution. The Vine is left to feed, principally or wholly, on the native ingredients existing in the soil, of course with the help it receives from sun, air, rain and dew.

In Burgundy you see Vines growing on terraces one above the other in soil which looks like stone broken to mend the roads with. The quantity of earth mixed up with this stone is far from considerable. After a continuance of sunny weather the fragmentary stone becomes heated to a degree which would surprise the advocates of highly manured borders, and the heat is retained through great part of the night; ventilation takes place between the interstices of the broken rock, and stagnant moisture is impossible in such a situation. This earth consists almost entirely of the dust that scales off from the decomposing bits of rock. When the rains have washed it down from the upper terraces of a vineyard, it is carried up again to the top, in baskets, on peoples' backs, the process being repeated as often as required. If additional soil is absolutely wanted more earth or loam from the neighbourhood is given to the summit of the slope, with perhaps a little leaf-mould sparingly applied. Animal manures, however much they might improve the Grapes, would certainly injure the quality of the wine, and that for longer than the season in which they were applied. The more choice and valuable is the produce of the vineyard, or the *crû*, the more are the wine-growers afraid of manure. The growth of such Vines is much less luxuriant and rampant than in English gardens, in some of which they look as if the gardener's object was leaves for salad or garnishing, rather than fruit. I cannot explain why the dust of these decomposing calcareous rocks should give to all good Burgundy wines an aroma which is compared to the perfume of the Rose, and which is easily distinguishable by those accustomed to it. I only know the fact, and that the valuable influence of this rock-dust has given to the range of hills where it occurs, and thence to the Department in which they are situated, the name of Côte d'Or, or the Hill of Gold.

In the neighbourhood of Bordeaux, and especially in the Médoc, where many first-class wines are produced, the soil is full of quartz pebbles, silicious sand, besides agates and cornelians pretty enough to be polished and made into ornaments. In Burgundy the Vines are supported on stakes, *echalas*; in the Bordelais they are trained in low horizontal straight cordons, at sufficiently wide distances to admit of horse-hoeing between them by oxen, if the bull be allowed to pass

without blame. About Bordeaux they have the same fear of animal manure for wine-producing vineyards as in Burgundy. The summer prunings of the Vines are stacked in heaps to rot, eventually becoming leaf-mould, which may be applied, together, I believe, with the ashes resulting from Vine-twigs used as fire-wood. I cannot explain why the flinty dust (if it be that) contained in the meagre soil of the Bordeaux vineyards should give to all good Bordeaux wines an aroma which is compared to the perfume of the Violet, and which is easily recognised by those accustomed to it; nor do I know any one who can explain it. I only am certain of the fact of the coincidence of quartz pebbles with the peculiar qualities of the best Bordeaux *crûs*. The *graves*, the well known Bordeaux white wines, are grown on the gravelly soils—made up largely of mineral elements—brought down by the Garonne and its tributaries. The late inundations in the South of France have given a startling proof of the vast amount of mineral matters which can be brought from the chain of the Pyrenees to fertilise, in the end, the districts lying at their base.

Everybody is acquainted with the differences of flavour and quality in the wines of different wine-growing regions. The same sun shines on the Rhine and on France; the mists, dews, and rains are the same. The mineral composition of the soil differs, and may be supposed to have something to do with the difference of the produce.

Enough, I think, has now been said to justify the publication of the paper on "The Alimentation of Plants," and to show that "J. S. W." is a little unreasonable in scolding a correspondent, who writes about one thing, for not doing better service by writing about another. The "fling," if it be one, is M. Dubois', not mine, and to him belongs all the credit of the article, which strives to spread, if it has not originated, a new idea. I would never indulge in an ill-natured fling at a sincere and courteous sustainer of his own belief. But there are people who regard all novel speculations with horror, and one may surely suggest, without offence, that their mental condition is not yet perfect. We already know much, wonderfully much, but the human race, including routine people and practical men, have still something to learn.

A friend of mine has a useful old servant, who regards with contempt everything new, which he stigmatises as "inventions." If a new plough or a new drill is brought home he tries it for a day or two, and then disposes of it with the faint praise, "It's all very well, but I like the old one better."

Soon after the purchase of a barometer his master said to him, "You remember, Joseph, I told you that when the barometer went down it was likely to rain. Yesterday it fell considerably, and you see it has been raining all night long."

"Ah, yes, sir," said Joseph, knowingly, "that was a lucky chance for you,"

To this day Joseph thinks the barometer an "invention." *D.*

LONGFORD HALL, STRETFORD,

The Residence of J. Rylands, Esq.

Despite adverse conditions of soil and a smoke-laden atmosphere there is no place in the kingdom where gardening is more assiduously pursued, where more encouragement is given to horticulture, or where greater efforts are made to counterbalance the unfavourable conditions that the pursuit here labours under than Stretford. Neither is there any other neighbourhood where the comparatively short distance, say six or eight miles, that separates the east and north from the south side of the town, offers such a wide difference in the conditions conducive to success. And it is not alone to the wealthy that the pursuit is confined, for east and northwards from this enormous hive of industry, in the immediate vicinity of what may be called its ramifications—the smaller towns that in these directions stand so closely to it and each other as to make it almost doubtful where one ends and another begins—are to be met with in the humbler walks of life, hundreds who devote their leisure hours to the cultivation of such things as they find it possible to grow, and a good many that it would be deemed impossible by those who are more favourably situated if they only saw the neighbourhood, for at the east side, in addition to the excessively wet and retentive nature of the clay soil, the wind for ten months of the year carries the smoke in this direction. South of the town, where the place under description is situated, at a distance of some four miles, the conditions are as favourably changed as they well could be imagined; it is like crossing from the dreary, barren northern steppes of a mountain to the southern sunny slopes, where one is apt to forget the near proximity to the ungenial waste. The surface here is flat, the soil is composed of a mixed peaty loam, deep and cool, containing a good deal of sand quite devoid of stagnant moisture, very fertile, suffering little through drought, and well calculated to produce heavy crops of culinary vegetables. The approach is from the road leading between the villages of Stretford and Chorlton, overlooking the meadows on the banks of the Mersey, which divides the counties of Lancashire and Cheshire. The carriage drive winds its way through a piece of meadow land in the highest state of cultivation, being provided with iron piping laid under the surface, from which the whole can be irrigated. The house, a large square commodious building, faces the west. The nature of the ground for many miles in this direction, being almost flat, does not admit of anything in the shape of fine distant views, consequently attention has been directed in making the most of the place in itself, more especially to the enormous quantity of glass devoted to the cultivation of fruit and plants. The different houses, as will be seen by the description, are much above the ordinary size, and have nearly, if not all, been built, and in the most substantial manner, by Mr. Rylands' own men, of whom a regular staff is kept. Not only are the garden erections much above the ordinary description in appearance, but everything has been done to ensure their durability. Wherever stone could be employed it has been used, in floors, curbs, and shelving, which, although costly to begin with, when once done is done, and has a finish about it that more perishable materials never possess. Mr. Rylands, in erecting these houses to afford a lengthened and continuous promenade independent of all weathers, was evidently actuated by a feeling, very common to the neighbourhood, of not doing things by halves, and that what was worth doing at all was worth doing well. Parallel with and attached to the mansion on the south side is a noble conservatory 70 feet by 30. Lofty and proportionate with the dwelling, it is span-roofed—the central portion, about one-half, being composed of a curvilinear piece running the entire length and considerably higher than the remainder, from which it springs. A number of the occupants are permanently planted out; they consist of various Acacias, which almost reach the roof. These are intermixed with some splendid Agaves, Dracænas, Yuccas, and other plants of similar description. In the centre is the finest plant of the fragrant Brugmansia I ever saw. It is 14 feet in height, and was completely sheeted over with its highly-scented flowers. The iron pillars which support the roof were covered for about half their height with Abutilons, Fuchsias, &c., allowed to assume a natural character, the knife only being used to keep them within reasonable bounds. Interspersed about the floor of the house amongst the permanent plants are introduced such smaller flowering things as are in season. One plant I noticed in quantity was the sweet-scented Veronica, Blue Gem.

Adjoining the eastern end of the conservatory is a large ridge-and-furrow house, 74 feet by 40, originally intended for fruit growing in pots. In such a house, if anywhere, with its great width and equable temperature, which in a house of these dimensions can be had at command, these might have been expected to have answered, without requiring an unreasonable amount of attention; yet here, as in most other places, such was not found to be the case, and they have long since been done away with. It is now filled with a very fine lot of Camellias and standard Bays in pots: here also were a magnificent pair of Dracæna Draco, well furnished down to the pot. The plants in this house are not, as too often seen, crowded, but have plenty of room. There are no stages, everything standing on the floor, and from the walks that intersect it the plants look natural and well. There is no description of house that is more enjoyable, and although not higher than necessary to accommodate the plants that it contains, they always look well. From pillar to pillar that support the roof spring iron arches; to each pillar is planted a Vine, which is trained with a single rod round it, and over each arch. Although not an advocate for Vines over plants in ordinary houses, yet in such a house as this, which is very light, and where the pillars are at considerable distances—the Vines consequently not being too close so as to overshade the plants—they do little injury, and are very effective when carrying a nice crop of well coloured even fruit, as was the case at the time of my visit.

Leading from this is a house 150 feet in length, occupied on one side with Peaches and Nectarines; on the other is a table running the whole length filled with moderate-sized decorative subjects. This forms a connection betwixt the last house and an extensive range of plant houses. The varieties of Peaches are Grosse Mignonne, Noblesse, and Royal George, with Pitmaston Orange and Elruge Nectarines: the roots are all inside. From this we enter a very long range of span-roofed plant-houses, standing north and south, forming one of three sides of an irregular square. The first division, 50 feet by 18, is devoted to greenhouse flowering and fine-foliage plants. Amongst fine specimens of Yucca variegata was the scarce Yucca filamentosa variegata, one of the best variegated plants grown, and so accommodating as to succeed in either stove or greenhouse. The other occupants of this house were such as are grown on for removal to the conservatory. In continuation is the Azalea-house, 55 feet by 18, filled with specimen plants in good condition, well set with bloom-buds ready for bringing on into flower through the winter and spring.

From this we enter the hard-wooded plant house, 10 feet by 18. The occupants consist of Dracophyllums, Aphelexis, Hedaromas, Phœnocomas, Polygalas, and similar plants in good condition. To the pillars supporting the roof here were trained Plumbago capensis, Fuchsia corallina—the best for this purpose, and Passifloras: these were confined to the pillars and not allowed to grow on the roof so as to injure the other occupants; so treated they look well without doing harm. Lycopodium denticulatum forms quite a carpet all under the front of the stage, looking remarkably well, and so grown, stands long for any required purpose.

We now come to a small house, 18 feet by 18, with a curvilinear roof standing at right angles with, and much higher than the rest of the range, to form a break and so obviate the objectionable even line it was built. The other two ranges that form the continuation of this three-sided enclosed space have each a similar elevated curvilinear roofed house to match this, which is used as a stove. In the centre was a large plant of Musa Cavendishii, carrying a fine cluster of fruit; with it also were good specimens of Seaforthia elegans, Latania borbonica, and Chamærops humilis, intermixed with Ferns.

Next is a stove, 55 feet by 18, where, amongst the large quantities of plants which houses of these dimensions hold, most noticeable were fine examples of Clerodendron fallax, with its bright panicles of red flowers; C. Balfourianum, Dipladenias, Ixoras, Bougainvilleas, very highly coloured Crotons, Palms, Dracænas, Marantas, some beautiful Gleichenias, strong and free in growth, as they generally are when clear from insects. If this be not the case, it is useless to attempt the growth of these plants. This is a condition that purchasers of these most lovely Ferns should always be very particular about, for if they are at all affected with scale (to which they are very subject) it is a most difficult matter to eradicate the insect, even whilst the plants are small, and proportionately more so as they increase in size.

The next house, 60 feet by 18, is filled with stove flowering and foliage plants, consisting of Gardenias and Hibiscus, Theophrastas, Areca Baueri, very fine; here also was a grand Cycas revoluta, with a clear 4 feet stem, a splendid head, 10 feet across, the leaves drooping down to the ground; this plant has twice flowered, I believe, within the last fifteen years. This is the last in this very long and fine range of plant-houses. Leading from this into the next range, which stands at right angles, forming the western side of the square; it also is span-roofed. The first we enter is a vinery 55 feet long by 20 feet, filled with Black Hamburghs, Canon Hall, and Muscat of Alexandria: this house was forced so as to be ripe the end of May. The Vines are planted on both sides of the house 5 feet asunder, the roots inside each Vine having two or three rods. All the fruit was cut, but the appearance of the Vines gave sufficient evidence of their bearing capabilities, carrying foliage from 12 to 15 inches in diameter, still green and healthy, with the wood correspondingly strong and ripe.

The next is another of the small curvilinear high-roofed houses already alluded to, occupying a position on each side of the irregular square; it corresponds with the others in size—18 feet by 18. The centre is occupied by a beautiful pyramid Bay, 20 feet high by 12 feet through at the base, clothed perfectly from the ground upwards. This plant will not bear the winter out-of-doors in this locality, and for decorative purposes in tubs or boxes is equal in appearance to the Orange, much easier kept in health, and not so liable to insects. The corners of the house are occupied by a single large plant of Wistaria, Acacia hybrida, Aralia quinquefolia, and Abutilon striatum, which, altogether, are very effective.

From this we come to another span-roofed vinery, 80 feet by 20. The Vines here were planted two years last spring by Mr. Smith, Mr. Rylands' present gardener, whose abilities as a plant-grower are quite equalled by the magnificent fruits he grows, and from time to time exhibits. Like the preceding vinery, they are planted on both sides of the house at 5 feet distances, the roots all inside. They will ultimately be trained alternately right over the house, so as to afford more length to the rods—an important matter, and not sufficiently considered, for it is evident from what may be seen in places innumerable, that if the soil in which the roots are placed is right in every way, the more head-room a Vine has the stronger it will get, and the longer it will last; a result simply in accordance with what may be seen in the cultivation of any other plant. The sorts are—Lady Downe's, Madresfield Court, Black Alicante, Barbarossa, Mrs. Pince, Muscat of Alexandria, Trebbiano, and Childe of Hale. They were in fine condition, carrying five

or six bunches, each faultless in berry and bunch, splendidly coloured, both the black varieties and the Muscats. The bunches of the latter were not a berry deficient, although Mr. Smith does not keep this Grape when in bloom higher than 55° in the night, but fertilisation is assisted by going over them in the middle of the day when in bloom, with a good-sized brush composed of the softest Turkey feathers. With this implement a Vine can be gone over in a few minutes. The Madresfield Court were as handsome as the sort is proverbial for being when in good condition, not showing the least inclination to crack. It is evident that to produce this Grape in perfection with anything like certainty its roots should be all inside and under control, as these are. Lady Downe's was equally well done, as also Mrs. Pince, which was here perfectly set, and as near jet-black as possible—a condition it is not often seen in.

(*To be continued.*)

THE POTATO SIDE OF THE POTATO DISEASE.

It is probably in this direction that a cure, or remedy, will be found. We now know perhaps all that is to be known of the fungus side of the question. Science has tracked it through the mysterious round of its multiform life, or lives, and has told us where to look for it, and how, and supplied data for its destruction when found. So far, so good. But cultivators have a right to expect one thing more from the fungologists, and that is some means of killing the pest. Perfect diagnosis of disease is useful in the exact ratio that it facilitates a cure. Our scientists are hardly the men to rest content in the presence of the enemy after the lucid reports of their scouts of his character, strength, and position. However impregnable he may seem, doubtless some such chink or flaw will be discovered through which the keen arrow of discovery or experiment will hit our fungus foe with effect, and master its destructive powers. Having discovered all that is to be known of the life of the pest, the next, and really the most important, step is to devise the most potent and ready means of ensuring its destruction. Water seems speedily to quicken the Peronospora with new force and greater energy of life; may it not be possible to so doctor water with some chemical anti-Peronospora as to make it the vehicle of destruction? In following the track of the Peronospora so closely as Mr. Smith has been doing it is more than probable that he may have met with certain conditions or substances unfavourable to its growth. If so, such an accurate observer would doubtless make a note of such for future use; and, in fact, the hopeful manner in which Mr. Smith writes inspires one with hope that his brilliant discoveries may reveal a ray of cure.

Could we get rid of the resting-spores there seems some hope of overcoming the disease. In all other stages the Peronospora seems destructible within a comparatively short space of time. It would also appear as if the only home of the resting-spores were the Potato tuber or the earth in winter. The question of remedy is therefore very much narrowed, and seems to be chiefly confined to this—can the resting-spores of the Peronospora, on or in the Potato tubers, be destroyed by steeps without impairing the vitality of the Potato, or weakening its power of growth and reproduction? The alleged efficiency of steeps for seed corn, as a cure of smut, mildew, &c., would point to the possibility of doing so much.

Doubtless grain has more power of endurance than such a succulent mass as a Potato tuber. But hitherto the difficulty in regard to steeps has been less in relation to the endurance of the living power of the Potato than the certainty that they would kill the spores of the Peronospora, and indeed the absence of any positive knowledge whether there was anything in the Potatos to be destroyed. Now that it is demonstrated that the resting-spores may be in or on the tuber, it must surely be within the power of chemical and fungological science to destroy the spores of the pests, resting or otherwise.

Sulphur may be said to be specific against mildew, arsenical mixtures against smut and rust in grain, and soot, to some extent at least, against the new Hollyhock disease, Puccinia malvacearum. I tried Gishurst and almost every other known wash for this, without avail. Sulphur, lime, gas-lime, and road dust were also too dry. Soot had some effect, paints and dips compounded of soot and cow-dung, to make them stick, had more, but they did not cure. Following up the case of the soot, and after losing hundreds of old plants, the disease laid hold of the rows of fine seedling plants. In desperation I whipped the lot up, and buried them in and under soot for the winter. But few died, and the others were cleaned, and are now coming into flower, clear of the pest. I mean to test the nitrogenous power of soot against the vital powers of the spores of the Peronospora by storing Potatos in soot this winter; but doubtless other and more potent remedies will occur to chemists and fungologists. We want something that will prove deadly to all forms of the pest, and that will nevertheless leave the Potato seed and eyes sound and strong as before.

Starting with a clean seed the plant would have an immense advantage. It would no longer have its progress dogged at every step by an invisible foe, ready to take advantage of any favourable conditions of earth, air, or plant life, to strike it with fell and destructive disease. The next point would be to cleanse the soil. This can be done by preventive measures, and, perhaps, also by direct cures. The burning of the tops almost before disease sets in must materially reduce the amount of Peronospora in the soil. We burned out, by rapidly fermenting it with short grass, adds to the temperature of Melon-pits during the cold weather [?]. It would be well, however, to have the opinion of Mr. Smith on the point whether the heat of such violent and rapid decomposition is sufficient to destroy the pest in all forms. If not, then we will gladly make a present of the Potato-tops to the cremationist, though our dry manure for the following year is the decomposed matter of the preceding one. But should the Peronospora survive, the distribution of the burnings must re-stock the ground in all directions.

The earth might also be treated with caustic or other anti-fungoid dressings. Lawes' experiments threw some light on these points, and probably the result of experimenting directly on the anti-Peronospora power of different chemical compounds might result in a specific antagonistic to its growth.

Further, it is well known that certain crops are unfavourable to the growth of certain fungoids. Taking advantage of this law, might it not be possible to cross-crop the Peronospora out of our fields and gardens? How, for instance, would the Peronospora like strong-smelling alliaceous plants—hot pungent plants, such as Mustard, dry or green, in quantities? Again, the Peronospora might be starved out by a long course of rotation of cropping. How long can the resting-spores exist without being developed?—and how long can the fungus in any of its stages live without feeding upon or destroying Potatos? An answer to these queries might enable us to arrange a four, five, or six-course system of cropping, that would drive the plague out. This would be almost impracticable in small gardens, but might easily be tried in fields and large gardens. Were a list of anti-Peronospora plants forthcoming, these might also be intercropped with the Potatos, in the same way that so many cottagers use Broad Beans, which they generally declare act as moderators of the force, if not preventive of, disease; and perhaps they are right. A few Crown Imperials might be worth trying, as they impregnate earth and air to a long distance by the peculiar odour of their strong-smelling roots.

My final palliative or remedy, or both, is early harvesting. I have already adverted to this, but as the subject is so important I may be excused for advancing some more facts and fancies on the subject. The fact is that the Potato crop is safe until it approaches maturity. Just about the time of skin setting the disease is most active and destructive. How is this? Can there be any analogy between this process and the stoning of fruits? Most cultivators know how critical to the crop that crisis is. It is apparently often the merest chance whether the crop will be taken on and carried through to perfection, or carried through to completion and perfection. So it seems with the Potato plant. There seems to be a pause, an arrestment of growth, a stoppage in the full swelling flow of the tide of life, and a rolling back of that tide over and through the plant. Just at that particular moment the question seems to be asked by the plant—Shall I perfect this large load of produce, or shall I allow the Peronospora to destroy them? The first spot on the leaf gives the answer of the

FIG. 43.—ADIANTUM PRINCEPS (ONE-EIGHTH ACTUAL SIZE).

plant—the decision for the Peronospora to strike as far ahead or as fast as climatal and vital conditions will admit off. The wise cultivator, reading the decision in the first blackened leaf, thrusts in his fork and out with and stores the tubers before the enemy has time to reach them. By so doing he not only saves the crop, but lessens the amount and cripples the power of the malady for that and all future seasons. Thus by general and persistent early harvesting of the Potatos disease may be stamped out. Neither will there be much loss of bulk, perhaps none of quality, by the early harvesting of Potatos. It is found that the early reaping of Wheat and some other grains improves the sample and makes finer flour. Possibly the early harvesting of Potatos, if properly stored, might do the same. Growth is also well nigh complete before the disease is developed. The latter hits with most force just in that critical moment of weakness and irresolution, if I may so express it, when the Potato plant is hesitating whether to grow on a little or finish off its produce. Disease, ever in search of the weakest, strikes them in the transition state—between further growth and maturation; hence Potatos are mostly full-sized before they are greatly affected by disease. Early harvesting also enables us to crop our ground at once with other profitable and possibly anti-Peronosporan, crops, such as Winter Spinach, Lettuces, Endive, Onions, Turnips, Coleworts, Cauliflowers, Walcheren Broccoli, &c., for standing through or using in winter, and Rape, Mustard, Spinach, and other green crops for digging in. Such crops, either for use or manure, would far more than compensate us for any reduction of bulk in the weight of our Potato crops, while it would reduce the power of increase of the Peronospora to the lowest limits. It seems, in fact, probable that by persistent early harvesting, cross and antagonistic cropping, and seed-steeping, we might finally break the charm of the apparently endless life of the terrible pest, and practically destroy it by setting our crops free from it at starting, and promptly thrusting them out of its way at finishing.—*D. T. Fish.*

PLANT GOSSIP.

The following Agaves and Dasylirions are now showing flower-stems in the collections of Mr. Jean Verschaffelt at Ghent, Belgium :—

Agave filifera major, a fine stem more than 15 feet high.
A. univittata, stem about 10 feet high, covered with seed-vessels now.
A. filifera minor, stem about 9 feet.
A. amœna, just showing flower-spike.
A. Ousselghemiana, two flower-stems about 3 feet high, seeding freely.
A. Leopoldi, a noble specimen, showed a spike a few days since.
Dasylirion acrotrichum, stem 7 feet; will probably grow to double that height.
D. serratum, about 5 feet now, will at least grow twice as high.
Yucca funifera (Ch. Lem.), the only plant imported; a fine stem about 15 feet high.

As a great number of large specimens of Agaves and their tribe are to hand, many others may be expected to bloom this season. It is a rare opportunity to see so many of these plants flower in one collection in the same year, and this gives some idea of the importance of these collections in the above-named establishment.

—— Campanula Barrelieri makes a most effective decorative plant for conservatories at this season of the year. The short, spare flowering shoots, produced with great freedom, have their points clustered with large pale grey-blue flowers, of the size of half-a-crown; and as the flowering stems hang down over the rim of the pot in which the plant is growing, the effect is most charming. It is a plant that answers well to generous treatment, and should be in a soil made up of loam, leaf-mould, and dung, and some mortar rubbish. Specimens in 32-pots, so treated, make fine decorative objects. It is an excellent basket plant, but it should not be starved, as is too often the case with plants so grown.

—— One of the large circular beds at Gunnersbury Park, Acton, is now very effective, being planted with the variegated Abutilon Thompsoni, plentifully mingled with Lilium auratum in the centre, and Lilium longiflorum round the circumference. The whole is edged with a dark Coleus. This combination contrasts well with the rich green verdure of the turf, and the surrounding groups of shrubs, &c. Beds of Agapanthus umbellatus, edged with Ivy, are getting effective, and they seem to do well in the shade of the massive Cedars that form so striking a feature at Gunnersbury.

—— The charming varieties of Thunbergia alata appear in danger of getting into the category of neglected plants; and yet they are effective decorative objects in a conservatory when properly cultivated in pots. The first requisite is ample root space and good rich soil; and when the plants get a strong roothold they grow freely and flower with great profusion. They are apt to become affected with red-spider when grown in a dry heat, or when starved at the roots; on the other hand, if kept growing vigorously, and sprinkled freely overhead in sunny weather, the plants keep clean and healthy, and continue in bloom for a long time, if the seed-pods are removed. The Thunbergia does well planted out-of-doors in suitable places, if the plants be raised in heat in early spring, and grown on into size. One of the most striking varieties is aurantiaca, with its deep golden flowers and black throat.

New Garden Plants.

Adiantum princeps, *T. Moore, sp. n.**

The Adiantum princeps, represented by the annexed woodcuts (figs. 43, 44), is one of the finest of the many beautiful species of Maidenhair which adorn our plant stoves. It was introduced by the Messrs. Veitch & Sons from New Granada, and was first exhibited in the splendid group of novelties which was staged by them on the occasion of the horticultural demonstration in the Royal Horticultural Society's garden on July 21. The plant was brought before the Floral Committee at the following meeting (August 4), and then was crowned with its well-merited First-class Certificate.

Not only does this Fern possess a degree of boldness of character, on account of the size of the fronds and the pinnules, but the plants are also remarkably graceful, from their fulness of development, and the

Fig. 44.—Adiantum princeps.

Barren and fertile pinnules, natural size, with sporangium and spore magnified.

arching or pendent position they assume. Messrs. Veitch's specimen plant must be at the least from 5 to 6 feet across. For so large a plant both the black glossy stipes and the rachides are comparatively slender, while the stalks of the pinnules are remarkably so, and this no doubt is mainly conducive to the pendent habit, which is one of the features of the plant. The fronds are broadest at the base; in our example they have a stipe of about a foot, and a lamina of 2 feet in length, the lower pinnæ being about a foot in length, with the lower pinnule on the posterior side bipinnate, so that the frond itself becomes quadripinnate. The pinnules are large, the upper corner obliquely overlying the rachis; the basal margin is entire, and slightly concave, the inner side, or that towards the rachis, being also entire; while the somewhat rounded anterior margin and truncate apex are cut into broadish shallow lobes, and are generally fertile throughout, but where sterile are minutely serrulate. The terminal pinnule is larger than the rest, sharply cuneate at the base and spreading out into a fan-shaped figure, that at the top of the frond being fully 1½ inch across. The sori are about ⅛ inch long, sometimes considerably more, reniformly curved, with an entire indusium; they are shown too small in the annexed figure.

* *Adiantum princeps*, T. Moore, sp. n.—Fronds large (3 feet long, including stipes), deltoid, pendent, quadripinnate, of a very pale greyish green colour, slightly glaucous; lower pinnæ obliquely elongate triangular, the posterior side tripinnate, the anterior bipinnate, upper ones pinnate, with a large cuneately-flabellate terminal pinnule; apex of frond pinnate, resembling one of the upper pinnæ, but with the parts larger; pinnules large (1 inch by ¾ inch), roundish-rhomboidal, or shortly trapeziform, sometimes almost quadrate, attached by very slender distinct pedicels, ¼ inch long scarcely shorter above; basal margin entire, slightly concave, the anterior margins and apex lobate, the lobes serrulate in the sterile parts, and where fertile bearing each a concave sorus, so that the lobes appear two-horned; indusium pallid, elongate-reniform, entire; stipes and rachides glossy ebeneous.

The affinity of this remarkable novelty is with A. tenerum, in which it is probable other distinct forms lie buried; indeed Hooker's variety γ of that species, collected by Seemann in Veraguas, appears to be the same plant as that now under notice. Whether this be so or not, A. princeps is abundantly distinct from A. tenerum, and in consequence of the fronds assuming a charmingly pendent character it is altogether a much finer ornamental plant. The drooping habit, and the large quadrate lateral and flabellate terminal pinnules, together with the elongate sori, forming concave depressions and projecting horns at the ends of the lobes, and the slender pedicels of uniform length, furnish well-marked distinctions. It will make one of the finest of all exhibition Ferns. *T. M.*

Forestry.

Pruning.—The skilled surgeon scarcely feels less at ease at the sight of the operator's knife in the hands of the surgical tyro, than the skilful forester does on seeing the pruning knife in the hands of one ignorant of the laws that regulate the healthy condition of plants. A thorough knowledge of vegetable physiology is as essential to the man who practises pruning, as anatomy is to the surgeon who amputates a leg or arm from the human body; and no person is able properly to prune forest trees who knows not well the structure and whole economy of plants, and the offices which every bud, leaf, twig, branch, limb, stem, or root perform individually, as well as their relationship to one another, and to the tree as a whole. I know some foresters who prune well, and yet know almost nothing of science, and also scientific men in whose hands the pruning knife would be a dangerous weapon. The reason for this is very obvious: the one man has learned the art and practice of pruning, but never studied science, while the other has learned the science, but neglected the art and practice. When, therefore, a choice must be made between a practical unscientific man, and a scientific unpractised one, I would unhesitatingly prefer the former.

Without attempting to enter upon all the various branches of pruning, or even exhausting any one of them, I shall endeavour to lay down a few of the leading principles that guide me in the operations that generally occur in daily work.

When an operation is to be performed upon the human body, the general state of the patient's health is first carefully considered. In like manner when pruning is to be performed, whether upon a single tree, a small group, a shelter belt, an extensive plantation, or forest, the state and condition of the subject must be thoughtfully regarded and deliberated upon something in the following manner :—Is the exposure severe or is it sheltered? Is the prevailing wind from the north, south, east, or west? When was, or when must thinning be done? Is the soil such as to produce vigorous growth in the trees, or is it the reverse of this? Are the trees to be pruned intended for ship building, or boat building, or are they intended for general economical and industrial purposes, or are they only intended for shelter to the estate, or ornamental and beautifying purposes?

One form of pruning consists in cutting over trees whose top or upper portion has decayed, whether from transplanting, barking, by gum, or other cause. When the plants are small I prefer cutting them over to within an inch or so of the ground, but when large I cut only back to where the wood is alive, allowing the leader to start from one of the strongest shoots, the others being cleared away to give it freedom.

In transplanting trees of considerable size I do not interfere with any side branches, but usually lop off and lighten some of the top branches which otherwise would decay, and which benefits the tree by preventing the wind from unduly shaking its roots.

When two separate stems spring from the same root or stool, one of them, and usually the one deepest in the ground, or lowest upon the stool, is chosen to remain for the future tree.

When a tree divides into a double top, at a height below what under the circumstances is considered a fair height of stem or trunk, one of the contending leaders is shortened by about one-third of its entire length, that is, if the shoots are over 3 or 4 feet in length, while if under that the contending leader may usually be cut close to the main stem of the tree at once.

When a tree by accident loses its leader and assumes a spreading bushy top, one of the best shoots must be selected as the top, and, if required, direction given it by tying in an upright position till it acquires strength.

When branches, emanating immediately from the stem, become dead they should be removed forthwith. If allowed to remain long upon the stem they become embedded in the body of the tree, and ultimately constitute what are termed black knots, a very objectionable thing, and which detracts much from the value of the timber, especially if the knots are large. *C. Y. Michie, Cullen House, August 2.*

REPORT ON THE CONDITION OF THE FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS, AUGUST, 1875.]

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
SCOTLAND.											
ABERDEEN	Light crop	Good	Fair	Light crop	Abundant	Good; Morellos very heavy	....	....	Very abundant	....	George Donaldson, Keith Hall
	Scarcely equal to last year	Very good	Good crop, but not swelling well	Fair	Early sorts went off soon, late doing better	A fine crop of all sorts	Not grown outside	....	Gooseberries and black Currants, &c., very heavy	Showing a fair crop	R. Farquhar, Fyvie Castle Gardens
ARGYLL	Abundant	Fair	Average	Moderate	Heavy	Heavy	Peaches good	....	Heavy	Ordinary	John Caie, Inverary Gardens
AYRSHIRE	Few	Good average crop	Fair crop	Good crop	Extra heavy crop	Medium crop	Fair crop; seldom ripen properly	....	Abundant	....	John Gray, Eglinton Castle
BANFF	Abundant; fruit large and fine	Fair crops on the whole	Very good	Most abundant	Rather a light crop	Good	Good; trees healthy and vigorous	Little grown	Large crop and fine quality	....	John Webster, Gordon Castle
BERWICK	Medium crop; bloom suffered much from frost	Heavy crop	Heavy crop	Medium crop bloom suffered from frost	Most abundant; nothing like such a crop for years	Abundant and good; Geans most abundant	None grown out-of-doors, plentiful in houses	None grown out-of-doors, medium in house	Most abundant, and of fine quality	Plentiful, and very early for this locality	Peter Loney, Marchmont House, Dunse
CAITHNESS....	A few, but do not ripen well	A fair sprinkling in some places	A light crop	A light crop	Very good, and ripen well	Very good, and ripen well	A few; all under glass	....	Very good crop, and ripen well	Very few	John Sutherland, Langwell, Berriedale
CLACKMANNAN	Not much grown, and crop small	A very fair good crop	A fair crop	Not much grown here; crop small	A very good crop	Morellos abundant; others scarce	A very fair crop	Not much grown here	Abundant crops	Very partially grown here	Thomas Ormiston, Alloa Park
CROMARTY	Average crop of fine fruit	Large crop, free from canker	Abundant crop, and forward	Good crop, especially on standards	Fine crop	Average crop early	Average crop on walls	Average crop	Abundant crops	....	L. ——
DUMBARTON..	Not grown outside	Average	Good crops	Heavy crop	Heavy crop	Average crop	Don't do outside	None outside	All heavy crops	....	J. Mitchell, Camis Estean
DUMFRIES	Moderate; not a favourable climate for Apricots	Good crop	Moderate crop	Thin, except Damsons, which are a full crop	Heavy crops	Moderate, except Morellos, which are plentiful	Moderate crops	None grown outdoors	Most abundant crops	Great crops in the woods	David Thomson, Drumlanrig Gardens, Thornhill
EAST LOTHIAN	Moderate	Large	Large	Large	Very large	Large	....	....	Very large crop	....	Alex. Shearer, Yester Gardens
FIFE..... ..	An average crop on open walls	Abundant, especially culinary sorts	Plentiful, especially English sorts	Scarcely an average crop, owing to late frost	Abundant, large, and good	Very plentiful and of fine quality	Abundant under glass, light on open walls	Plentiful under glass	All sorts abundant and fine in quality	Plentiful	Robert Adamson, Balcarres
FORFAR.....	Light	More abundant than for ten years	Good crop on walls, light on standards	Good crop on walls	Very abundant and good	Very heavy crop	Above average	Few grown out-of-doors	Abundant crops of all kinds	Above average	Geo. Johnston, Glamis Castle
KIRKCUDBRIGHT	....	Good crop	Good crop	Very abundant crop	Good crop	Good crop	Better than for many years	....	Abundant of all sorts	....	James Johnstone, Terregles Gardens
LANARKSHIRE	Very thin, not many grown in this county	A full average crop	A good crop	Irregular, a few places have an average crop	An excellent crop	Below an average crop	Set thickly, and greatly above an average crop	None grown worth mentioning	Very abundant	....	Andrew Turnbull, Bothwell Castle
MID LOTHIAN	Very good crop	Crop above average, and fine clean fruit	A good average crop, looking finer than usual	Fully an average crop, Damsons very good	Abundant crop and fine fruit	Good crop and fine fruit	Very good crop	Few grown outside, very fine under glass	Very abundant, and extra fine in size and quality	Light crop	Malcolm Dunn, Dalkeith Gardens, Mid-Lothian
PERTH	Under the average	Good crop	Heavy crop	Average crop	Abundant and excellent	Abundant crop	All under glass here	All under glass	Heavy crop	Good crop	John Browning, The Gardens, Dupplin Castle
RENFREW	Thin crop	Good average crop	Abundant	Thin crop	Plentiful and fine	Good, Morellos heavy	Fair average crop	....	Heavy crops of all sorts	....	J. Methven, Blythswood Gardens
ROXBURGH....	Half a crop, but good in quality	Plentiful, but reduced very much through falling off	Plentiful	Half a crop	Large crop and excellent in quality	Extra large crop of Morellos	....	....	All these have been good and abundant	....	Henry Knight, Floors, Kelso
STIRLING	Middling	Fair crop	Good, both on standards and walls	Very middling	Good crop	Middling	Moderate crop	....	First-rate crop	....	M. Fitzgerald, Dunmore Gardens
SUTHERLAND.	Very few	An unusually heavy crop	Average	Fully an average crop	Plentiful and good	Over average	....	....	Excellent crop and good quality	Average	D. Melville, Dunrobin Gardens
WIGTOWN	....	Most abundant	Most abundant	Most abundant	Fine crop	Most abundant	Abundant where grown	Large crop	Very abundant	....	Archibald Fowler, Castle Kennedy, Stranraer
NORTHERN COUNTIES.											
NORTHUMBERLAND	A fair crop	Most abundant in orchards and gardens	Very fine crop on all sorts	Fair crop on walls, Damsons abundant	Very light crop owing to the dry season	A very good crop of all sorts	Abundant; trees clean and healthy	Very few grown out-of-doors	All sorts plentiful and good	Hazel nuts plentiful, Walnuts light crop	Alexander Ingram, Alnwick Castle Gardens
CUMBERLAND	But few grown in this district	A full average crop	An average crop	A light crop	Variable, in some places a full crop	An average crop	Not many outside	....	Gooseberries and Currants abundant	....	Joseph Williamson, Castle Gardens, Whitehaven
	Below average	Below average	Good average	Average	Abundant crop	Average	Average	Few cultivated	Abundant	Abundant	J. Taylor, Isel Grange
WESTMORELAND	Good	Good, but a quantity dropping off	Very good crop	Abundant; had all to be thinned	Very good	Average crop	None grown outside	....	Very abundant	....	William Shand, Lowther
DURHAM	Good	Superabundant	Abundant	Immense	Good	Plenty	Good	Not grown much	Abundant of all kinds	Very fine	Richard Westcott, Raby Gardens
	Few grown in this locality	Abundance of all kinds	Abundance of all kinds	But few grown; above the average	Abundance; more than usual	Abundance, but not much grown	....	....	Abuudance	....	Robert Draper, Seaham
YORKSHIRE ..	Thin in general	A good crop; full average	Good on walls, fair on standards, &c.	Average crop; some kinds heavy	Below an average	Abundant; trees very free of aphides	Very abundant	A good crop	All very abundant, but late in ripening	Very abundant	Michael Saul, Stourton, Knaresborough
	An average crop	Late varieties good	Heavy crop; fruit small	A medium crop	Heavy crop; short season	Good	Good	None grown out-of-doors	Very heavy crop	Plentiful	James Fowler, Harewood Gardens.
	Moderate	Middling	Middling	Poor	Extraordinary crop	Abundant	Plenty indoors	Plenty indoors	Abundant	....	J. Simpson, Wortley Hall Gardens
	Abundant, swelling well; trees very healthy	Generally good crop; trees clean and healthy	Medium crop; fruit small	Generally a good crop; fruit swelling well	Generally poor; fruit perished from wet weather	Good crop; fine fruit; trees healthy	Abundant crop; small for the season	Crop generally good; small for the season	Crops good; not so fine in size as usual	Generally abundant	Robert C. Kingston, Brantinghamthorpe, East Yorkshire
LANCASHIRE..	A grand crop, but the trees have suffered more than usual from gumming	An immense crop; a good deal thinned by the recent gales	A very heavy crop, requiring much thinning	A fair crop	A fine crop; great portion spoilt by the long-continued rains	A good crop, but inclined to crack with the wet	A splendid lot of fruit; trees clean and healthy	Not grown out-of-doors	An abundant crop of all sorts, but somewhat damaged with wet	....	F. Harrison, Knowsley
	Good crop	Good crop; fine fruit	Very heavy on walls and in orchards	Very heavy crop	Good crop, but not well ripened	Very good crop	Good crops where grown	Not many cultivated	Gooseberries heavy; other sorts good	Not many cultivated	Edward Green, Bank Park, Warrington
	Will not grow in this locality	Average crop	Good	Poor on walls; very good under glass	Very good	Morellos plentiful; dessert kinds scarce	Will not grow outside; under glass plentiful	Do not succeed outside	Very good, except black Currants	....	Andrew Jamieson, The Gardens, Haigh Hall
	Good on trees protected by glass	Complete failure	Average crop on the walls	Good crops of some varieties	Good crop; fruit fine	Morello's plentiful	Good crop where protected by glass	....	All varieties a heavy crop and fruit fine	....	Henry Lindsey, Huntroyde, Padiham

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
MIDLAND COUNTIES.											
CHESHIRE	Very abundant	Very plentiful	Very plentiful	Above the average	Not so good a crop as usual	Very good	A very good crop generally	Not many grown	Very plentiful	Above the average	William Whitaker, Crewe Hall, Crewe
	Not much grown in this neighbourhood; rather a thin crop	Not quite so plentiful as Pears, some trees well loaded	A fair crop; some trees very full	A most abundant crop; many trees are overloaded	A full crop, but a large portion rotted, through the wet	A good crop of both early and Morellos	A full crop, though not much grown about here out-of-doors	Not calculated upon for crops here	Abundant; Raspberries full, though a portion was lost through the wet	Not of any account here	Robert Mackellar, Abney Hall Garden, Cheadle
	Partial crop	Excellent crop	Excellent crop	Excellent crop	Excellent crop	Excellent crop	Good crops	Moderate crop	All kinds abundant	Extremely heavy crop	W. Muir, Oulton Park
	Very plentiful and good	Full crop	Very fair crop	Very heavy crop, especially of Damsons	Heavy crop; partially spoiled by the rain	Very plentiful	Plentiful; seldom ripen outside; very late	None grown outside	Heavy crops, but much damaged by rains	Heavy crops of Walnuts; no small Nuts	Thomas Selwood, Eaton Hall Gardens, Chester
DERBYSHIRE .	Moderate	Plentiful	Plentiful	Very good	A heavy crop; fruit fine	Good crop, but late	Good crop, but late	....	An abundance of all kinds	Partial	Edward Gilman, Wooton Hall Gardens, Ashbourne
	Abundant and fine; trees protected when in flower	Very plentiful and good; the orchards are laden	Fair crop of most varieties both on walls and pyramids	Very plentiful throughout this district	Fair crop; fruit small, and soon over	Good crop of sweet kinds; Morellos very plentiful	Very plentiful; trees clean and healthy	None grown outside	An abundance; very clean, and of excellent quality	Filberts and Cobs fair crop; Walnuts very plentiful	J. H. Goodacre, Elvaston Castle Gardens
NOTTS	Good crop	Average crop	Light crop	Good crop	Good crop	Good crop, especially Morellos	Plentiful	None grown outside	Great crops	Good crop	S. A. Woods, Berry Hill, Mansfield
	Plentiful	Scarce in some localities	Good crop	Very plentiful	Great crop, but some spoiled with wet	Plenty and good	Heavy crop; trees clean	Young trees, and look well	Abundant	Never saw a better crop of all kinds	John Miller, Clumber, Worksop
	Heavy crop; trees healthy	Extra heavy crop	Heavy crop	Trees loaded with fruit	Moderate; some varieties poor	Extra good crop	Very fine; trees healthy	Good crop	Wonderful crops, but injured by rain	Very full crop	Wm. Cruickshank, Kingston Hall
SALOP	Good generally; in many places abundant	Very good crop, and appearance good	Very good; small before the late rains	Very good crop; Damsons abundant	Very good, but rotted through the wet	Very good, but many cracked by the wet	Not grown generally: I have seen none this season	Plenty shown, but they do not ripen hereabouts	Very abundant; black Currants partial	Hedgerow Nuts abundant, also Walnuts	Daniel Judd, Hawkstone
	Full crop of some sorts, only half of others	Adundant; many small ones fallen off	Full crop, both on walls, standards and espaliers	Plentiful on walls; trees free from blight	Very heavy crop; sadly spoiled by rain	Trees loaded, on walls both north and south	Very heavy crop of both; trees in excellent health	Fair sprinkling and good fruit	All sorts in great abundance	A large collection here; all bearing well	Alfred S. Kemp, Haughton Hall, Shifnal
	Very good in quantity, and fine	Abundant	Good	Average crop	Very scarce, and spoilt by heavy rains	Very good, especially Morellos	Very good	Good; not many grown	Excellent	Extraordinary crop; hedgerows covered	W. H. Welch, Willey Gardens, Broseley
STAFFORDSHIRE	Abundant crop, large and clean	Most abundant everywhere	Good on walls and standards	Fair on walls; Damsons plentiful	Fine crop, but damaged by rain	Morellos fine few other sorts grown	Good average crop	Plentiful and early	All small fruits very heavy crops	Walnuts plentiful, Filberts few	Thos. Bannerman, Blithfield, Rugeley
	Full crop	Extra good	Medium crop	Abundant crop; also Damsons	Medium crop	Good	Good; not many grown	....	Large crop and fine fruits	Average crop	Owen Thomas, Drayton Manor, Tamworth
	Very fair	Good crop	Abundance	Heavy crop	Wonderful crop; damaged by rain	Good crop	Very full	Too far north	Any quantity	Plenty	Thos. Rabone, Alton Towers, North Staffordshire
	Good	Generally heavy crops, but have fallen off very much	Heavy crops; required thinning	Very good	Very heavy crop, but much spoiled by heavy rains	Very fine	Good	....	Heavy crops	Very abundant	E. Simpson, Wrottesley, Wolverhampton
LEICESTER....	A full crop; the fruit large and clean	A satisfactory crop; Apples large and clean	Partial; sorts able to bear drought bearing abundantly	Generally a good crop; excessively thick on some trees	Early kinds suffered from drought; Frogmore Late Pine a very full crop	Good crops on walls; standards failed	Trees healthy and clean, and the crop good	A moderate crop on walls	Gooseberries, Currants, and Raspberries abundant	Fair crops	W. Ingram, Belvoir Castle Gardens
	Abundant crop	Half a crop	Plentiful	Heavy crop	Plentiful; destroyed by heavy rains	Morellos abundant, few others grown	Plentiful	Good crop; much injured by late rains	Plentiful; damaged by heavy rains	....	John Browne, Gopsall Hall
	A heavy crop where trees were protected when in bloom	A very heavy crop in this neighbourhood	A fair crop on walls; very heavy crop on standards	A good crop, but not so heavy as last year	A most abundant crop, but much damaged by rain	A good crop of all sorts	Abundant of both kinds; required much thinning	A very large crop; never better	A good crop, much spoiled by wet weather	Walnuts and Filberts both good crops	Montgomery Henderson, Cole Orton Hall, Ashby-de-la-Zouch
RUTLAND	Full crop; fruit very fine, and trees healthy	Plentiful	Plentiful, and promise to swell off well	Full crop, and very fine	Extraordinary crop; fruit very fine	A good crop, especially Morellos	Full crop	Good crop	A heavy crop of all kinds	A light crop; Walnuts plentiful	Frederick Clark, The Gardens, Barleythorpe
WARWICK	Good and clean	Good and healthy	Fair crop; trees healthy	Middling crop; trees clean	Famous crop, but suffered from the rains	Heavy crop, and fine fruit	Excellent crop; trees healthy	Too cold to ripen them in this climate	Heavy crop; much injured by rains	Heavy crop, and promise to be fine	J. G. Temple, Packington Garden
	Abundant and fine	Heavy crop	Abundant, and unusually highly coloured	Very abundant	Heavy crop generally, and unusually fine	Heavy crop, and attractive to the wasps	Fair crop	Abundant	Veryabundant, and but little damaged by the rains	Walnuts very heavy crop; Filberts abundant	William Gardiner, Lower Eatington Park, Stratford-on-Avon
NORTHAMPTON	The best crop of large handsome fruit I ever saw	A good half crop of excellent fruit	A good half crop of excellent fruit	Half-crop on walls and standards	Splendid crop, but the wet weather ruined one-half	A full crop; Morellos unexceptionable	A good half crop	A good half crop	Enormous crop	Enormous crop	R. Gilbert, Burghley, Stamford
	Good crop	Good crop	Good crop	Good crop	Good crop	Good crop	Good crop	....	Good crop	Good crop	John Smith, Althorp Gardens
	Abundant, and quality excellent	An average crop	A fair average crop	Fair crop	Moderate; largest fruit damaged by showers	Plentiful, but injured by wet	Good crop	Very heavy crop	Gooseberries, Currants, and Raspberries abundant	Abundant, especially Walnuts	J. Worraker, Milton, Peterborough
BEDS	Abundant and good	Medium	Abundant and free from scab	Abundant	Abundant	Abundant	Abundant	....	Abundant and very fine	Abundant and fine	R. Budd, Luton Hoo Park
	Abundant crop	Heavy crop	Good crop	Heavy crop	Early crop good, late damaged by rain	Heavy crops, especially Morellos	Average	Good	All kinds abundant	Heavy crop	Alex. McKay, Woburn Abbey
	Abundant crop and good	Heavy crop in most places	Plentiful; blighted in some situations	Unusually heavy crop	Early kinds good, late kinds injured by rain	Large quantity, much cracked	Abundant, trees healthy	Good under glass	Plentiful, blighted in places	Filberts fine crop, Walnuts abundant in places	Geo. Ford, Wrest Park
OXFORD	Abundant crop of fine large fruit	Plentiful crop	Good average, trees healthy	Good crop, fruit large	Heavy crops, many spoilt through heavy rain	Good, Morellos particularly fine	Plenty of fruit, but very late	Abundant, but dropping through cold and wet	Most abundant, remarkably fine	Heavy crops of Filberts and Walnuts	Isaac Watson, Nuneham Park, Abingdon
	Very few	Will be plentiful	Good crops	Fair crop on walls	Great crop, and fine	Only Morellos grown, scanty crop	None grown out-of-doors	Good crop on walls	Great crops of all sorts	Very plentiful	John Greenshields, Sarsden House, Chipping Norton
	Not a full crop	Extraordinary crop	Quite a full crop	A great crop	A full crop, but the wet spoiled them	A wonderful crop of all sorts	Good, where the trees are to be found	A great crop where the trees are to be found	Bountiful everywhere, though damaged by wet	Walnuts good, Filberts and Wood-nuts extraordinary	Robert Fenn, Rectory, Woodstock
BUCKS	Plentiful and large	Very abundant, but the fruit remarkably small	An average crop, those on western aspects marked by hailstones'	Heavy crop, excepting Damsons and Coe's Golden Drop	Very abundant, one third destroyed through rains	An exuberant crop, but much damaged by wet	Plentiful and of good quality	An average crop on protected trees	All kinds very abundant and fine	Plentiful, and Walnuts most abundant	G. Thomas Miles, Wycombe Abbey Gardens
	Moderate	Very abundant crop	A very heavy crop	Good average crop	Splendid crop, much spoiled by heavy rains	Fine crop	Moderate crop	None grown outdoors	Abundant crops	Very good crop; Walnuts are very plentiful	J. Smith, Mentmore
	Very good, and promising to be fine in size	Very good crops	Very good in most places	Very good crops	Very good crops, and very fine	Heavy crops	Very good crops	Plentiful at first, but have since fallen off	Very good crops	A plentiful crop in every part about here	Philip Frost, Dropmore

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
MIDLAND COUNTIES.											
HERTS	Plentiful	Plentiful	Plentiful	Plentiful	Plentiful	Plentiful	Plentiful	Plentiful	Plentiful	Plentiful in most places	William Paul, Waltham Cross
	A very fine crop	Average crop	Good crop	Very good crop	Average, but deficient in flavour	A very abundant crop	Poor crop; scarcely worth growing here	Moderate crop	Good, but much spoiled by wet	A very heavy crop	George Sage, Ashridge Gardens
	A fine crop, but rotting from the wet and earwigs	Good, and plentiful	Abundant on nearly all the trees	I have not a good crop; plenty in other gardens	Very good; the plants fine for another year	Never finer; but more than half rotted	Excellent	None worth notice	Plentiful and good: the birds are very destructive	Filberts good; Walnuts overcropped	Anthony Parsons, Danesbury, Welwyn
EASTERN COUNTIES.											
LINCOLN	Abundant crop	Very moderate	Good crop on some sorts	Good crop of most sorts	Plentiful, but suffered from drought	Ordinary crop	Extra crop	....	Plentiful of all kinds	Average crop	W. Hurst, Somerby Park, Gainsborough
	An abundant crop	A fair crop	A fair crop	A very good crop on walls	A heavy crop, but injured by rain	Moderate crop	A fair crop	A moderate crop	A heavy crop and good	Walnuts very abundant; Filberts good	David Lumsden, Bloxham Hall
NORFOLK	Not so good as last season	A great crop of all kinds	A good crop	Abundant and fine	....	Plentiful	Good	....	An abundance of all kinds	....	Charles Penny, Sandringham
	An excellent crop	Thin here but very good in the neighbourhood	A good crop	Medium here but very good in the neighbourhood	An excellent crop, but many did not ripen	Good crops generally	Very heavy crops; thousands had to be picked off	A medium crop where grown	An abundance of all kinds	Filberts good, few Walnuts grown	Thomas Wynne, Hemsby Hall Gardens
	Abundant, except in a few instances	Thin, far below that of last season	Average crops both on walls and standards	On walls thin, abundant on standards	Good crops, but spoiled by the wet	Bad crop, except Morellos	Good on walls, and trees healthy	Moderate	Abundant, but greatly spoiled by the wet	Under average crops	J. Wighton, Cossey Park
SUFFOLK	An abundant crop	Good	A fair crop	Plentiful both upon walls and standards	Good, but half the crop lost through wet	Average	Moderate on the walls	A light crop	Plentiful and fine	A heavy crop, wild nuts abundant	Thomas Blair, gr., Shrubland Park, Needham Market
	Very abundant	Plentiful	Splendid	Very abundant	Generally very plentiful	Abundant; but rotted by wet	Excellent crop	Fair crop, rather late	Most abundant and very fine	Good crop	D. T. Fish, Hardwicke
	Most abundant, and if the fine weather continues will be large and good	Splendid crops, but damaged by hailstorm on June 18	Fine crops on walls, but variable on pyramids	Set well, but are showing a good deal of gum	Fine crops, but large quantities spoiled by the heavy rains	Most abundant; injured by rain	Very fine crops; trees clean and healthy	Very few; injured by the severe winter	Full crops of all kinds, but damaged by wet	Immense quantities of all kinds	J. Sheppard, Woolverstone, Ipswich
ESSEX.....	Abundant and good	Abundant, but I fear the fruit will be small	Medium crop	Early Prolific an extraordinary crop; other sorts thin	Plentiful, but spoilt by the rains	An abundant crop, but very much injured by the rains	Good crops; trees clean and healthy	Very thin outdoors	Abundant, but much of it spoilt	Thin, except Walnuts, which are plentiful	Thomas Simpson, Mildmay Road, Chelmsford
	Most abundant	Medium	Under average	Scarce	Abundant and very fine	Abundant	Extraordinarily plentiful	Medium	Currants and Gooseberries plentiful	Moderate	William Earley, Valentines, Ilford
SOUTHERN COUNTIES.											
BERKS	Plentiful and good	Plentiful and good crops	Plentiful and excellent	Not an average crop	Good and plentiful	Heavy crop, portion destroyed by rain	....	Plentiful, and promise well	Heavy crops	Abundance	Thomas Jones, Royal Gardens, Frogmore
	Very good, but somewhat late, owing to absence of sunshine	Plentiful crops, and are looking well	Very good crops generally	Very good; most varieties bear well	Very fine crops, but a considerable quantity spoiled by heavy rains	Very good, especially so the Morello	Very fair crops, but late; plentiful indoors	Plentiful	Fine crops; a good many Gooseberries split with the wet	Very plentiful, both Walnuts and Filberts: I should say abundant	Alexander Galt, Aldermaston Court, near Reading
	Full average: quality good	Above average; many fruits marked by the hailstorms in June	Average	Average on walls, very few on standards	A very heavy crop, many spoiled by the wet weather	Early sorts nearly average, Morellos full average and very fine	Average crop and trees healthy	Looked very promising, but many are dropping, especially Brunswick	Raspberries, average; Gooseberries and black Currants light	Walnuts abundant	Chas. Ross, Welford Park, Newbury
MIDDLESEX ..	Fair	Extremely abundant	Fair average	Very heavy crop	Full crop, but late sorts destroyed by wet	Morellos enormous, other sorts not so heavy	Very fine	Not grown in open air	Very abundant, but much destroyed by the rain	Abundant	A. F. Barron, Royal Horticultural Society, Chiswick
	Good crop; have not suffered from the wet	Enormous crop, and in good condition	Enormous crop; early kinds partially cracked by the wet	Enormous crop; in good condition	Most abundant, and the fruit large, but deficient in flavour	Abundant crop of all kinds, especially Morellos	A fair crop on open walls; uninjured by the wet	On open walls many fruits have dropped	Large crops of Gooseberries, Currants and Raspberries	Very few grown; an abundant crop in private gardens	Charles Lee, Hounslow
	....	Numerous, but small	Plentiful in places	Scarce	Not very fine	Morellos very plentiful	A middling crop	....	Scarce, except Raspberries	Very abundant	Richard D. Blackmore, Teddington
	....	A good average crop	A fair average crop	Good crop on standards	Plentiful; much spoiled by wet	Very poor crop	Fine crop	Average crop	A good average crop	Heavy crop of Walnuts	Robert Henderson, Fulham Palace
	Moderate	Abundant	In most places a full crop	In many places breaking down the trees	An extraordinary crop; quantities spoilt by the heavy rains	Very heavy; fruit on standards cracked with wet	Generally good	Late, and in many places will not ripen well	Immense crops; Raspberries inferior in quality through wet	More than usually plentiful	Thos. Baines, Avenue Road, Southgate
SURREY	Half crop, much bruised by the hailstorm in June	Middling; much bruised by hail	Good crop, but late; very much damaged by hail	Half crop; much damaged by hail	Abundant and fine, but much damaged by wet weather	Abundant; much damaged by the wet and wind	Good crop, and fine fruit	Good crop, but late	Very abundant, but much damaged by the wet	Very good crop; Walnuts also good, but late	Wm. Kemp, Albury Park, Guildford
	A good crop, but the trees have died back very much	Very plentiful, but very small	Are a very good crop, but they are small	About half a crop; dropped very much in storms	Here a heavy crop, and very good	All sweet sorts spoiled; Morellos very good	Are very abundant, but very late	Showed well, but dropped very much	All very abundant	Walnuts a very heavy crop, but others scarce	William Kidd, Tandridge Court
	Very good crop	Very good	Good	Very heavy	Very plentiful	Very good	Very good	Good	Most abundant	Walnuts fine, Cobs fair	John Burnett, The Deepdene, Dorking
KENT	A plentiful crop generally; many large branches have died off	Generally a very abundant crop, over the average	A fair crop, but rather under the average	A good average crop, some sorts over-abundant	A fine crop, very much spoiled by long-continued rains	Very abundant crop; early sorts much spoiled by rain	Very fine crop, over the average	Pretty good here, but this is not a favourable district	Very good crops, but large proportion destroyed by rain	Very abundant indeed in Filberts, Cobnuts, and Walnuts	John Cox, Redleaf, Penshurst
	Good crop	Heavy crop; fruit small	Some varieties plentiful	Moderate crop	Average; affected by drought in May	Abundant, but small	Good crop; trees injured by black-fly	Very few	All kinds very abundant	Plentiful	Thomas Newman, Torry Hill, Sittingbourne
	A good crop	An average crop	Moderate on walls; standards average	Most sorts plentiful; good on walls	Heavy crop; fruit large	Abundant crop here	Good crops of both	Heavy crop	Gooseberries, and Raspberries, fair	Good crop	F. Deuxberry, Cobham Hall Gardens, Gravesend
	A great crop	A great crop	A good crop	A good crop	A fair crop	A fair crop	A good crop	Poor crop	A very heavy crop	Good, also Walnuts	D. Coe, Chevening, Sevenoaks
	A large crop, but late	A fair crop of some sorts	Good of some sorts, others thin	Very small crop, and much blighted	A small crop on early ones, but late good	A large crop of early sorts; Morellos not so good	A good crop of both, but will be late	Small crop and late	A very heavy crop of all sorts, and good	Cob-nuts, Walnuts, and Filberts, all a large crop	William Follwell, Bramling House, near Wingham
SUSSEX	A good crop, small trees clean	A general crop; trees clean	An abundant crop; trees healthy and clean	Good crop of all kinds	Large crop; one half lost by the rains	Abundant; half the crop lost by the rains	Light crop indoors; on walls crop light	Good on walls; on the bushes in the open good crop	Gooseberries, Currants, and Raspberries, excellent	Walnuts good crop, Filberts good crop	Sidney Ford, Leonardslee, Horsham
	Abundant crop and fine	A very heavy crop	Good crop; trees thinned	Heavy crop in this district	Very heavy crop after the rain	Good crop	Very good: trees clean	An abundant crop here	Heavy crop of all sorts	Very fair crop	J. Wilson, The Castle Gardens, Arundel
HANTS	Generally good	Variable; some kinds a heavy crop, others *nil*	Abundant on walls, standards very thin	Average crop of all kinds	Heavy crops; much injured by wet	Very good	Full crop; will be very late	Good	Most abundant, but injured by heavy rains	Immense crops of all kinds	William Wildsmith, Heckfield Place, Winchfield
	Good crop	Good crop	Good crop	Average crop	Abundant and good	A fair crop; good on walls	Good; trees very clean	Good crop	Good crops of all kinds	Good, except Walnuts	George Jones, Mottisfont Abbey, Romsey

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
SOUTHERN COUNTIES.											
HANTS	Late crop; trees do very badly	Good	Average	Average	Good crop; very fine fruit	Not average	Good, but trees not healthy	Full crops, but very late	Very great; Raspberries very fine	Good; Walnuts not so good	George Harnett, The Gardens, Cadlands, Southampton
WILTS.....	Very good	Much over average	Average	A fair crop	Abundant, but many spoilt by rains	Rather above an average	Very good	....	Very plentiful and good	Abundant of all kinds	A. Johnson, Savernake Forest
	Fair crop	Plentiful, but small	Plentiful	Fair crop	Very abundant	Good crop	Good	Good	Abundant	Plentiful	William Scammel, Bowood, Calne
	Scarce	Abundant	Scarce	Fair crop where protected	Abundant; much spoiled by wet	A good crop	A fair crop	Do not flourish here	Abundant	Abundant	Wm. Taylor, Longleat, Warminster
DORSET.....	....	Abundant	Middling	Short crop	Abundant	Fair crop	Fair crop	....	Abundant	....	W. F. Radclyffe, Okeford Fitzpaine
	Very few grown in this locality	Cider fruit plentiful, dessert fruit fair	Partial, some sorts fair, others a failure	Plentiful	Abundant. but wet weather deteriorated the flavour	Fair crop	Outdoors scarce, in orchard-house plentiful	Fair crop	Gooseberries and Currants plentiful; others a fair crop	Walnuts plentiful, hedge Nuts fair crop	Henry Munro, Clevelands, Lyme Regis
WESTERN COUNTIES.											
HEREFORD....	A full crop, fruit falls through imperfect stoning	Abundant, choice kinds required much thinning	Plentiful and clean, but small	A fair crop, blossom injured by frost	Abundant and fine, much injured by the wet	Moderate, choice kinds injured by incessant rain	Heavy crop, but late, trees clean and healthy	Not much grown	Good average crop	Abundant	William Coleman, Eastnor Castle, Ledbury
	Good crop	Abundant crop	Good crop	Good crop	Abundant crop	Good crop	Good crops	....	Very heavy crops of all kinds	Abundant crop	Alfred Bye, Hampton Court, Leominster
	A good average crop	Abundance	Abundance of most sorts	Plentiful generally	Very good crops, many spoilt by wet	Very good crops	Set very thickly	....	Abundance	Plentiful, Walnuts especially	Edward Jones, Perrystone, Ross
WORCESTER ..	Average	Somewhat partial, fair average	Partial, under average	Abundant	Heavy crops, late sorts damaged from wet	Abundant, late sorts suffered from wet	Good crops, and trees healthy	Full average	Abundant crops of all kinds	Walnuts very plentiful, Nuts good	G. Westland, Witley Court
	Abundant; fine, but later than usual	Heavy crops in orchards and gardens	Great crop of most kinds	Generally abundant; few kinds light	Good, but injured by excessive rains	Very good	A fine crop; will be late in ripening	Good	Very fine and abundant	The largest crop known for many years	William Cox, Madresfield Court
	Moderate crop; trees unhealthy	Abundant crop	Moderate crop	Light crop	Abundant crop	Abundant, but much injured by wet	Full crop	....	Abundant crop	Filberts and common Nuts most abundant	John Wyke, Kyre Park, Tenbury
GLOUCESTER .	A fair crop	A heavy crop	Above average	A good crop	An abundant crop	A heavy crop	A fair average crop	....	Plenty of all sorts	A good crop	Wm. Forbes, Kingscote
	Except on the Kaisha and Roman varieties, a failure	A very irregular crop	A full crop, but the quality will be inferior	Excellent on walls; deficient on standards	Crop enormous, and of good quality	Good; particularly on standards	Upon the whole, there is nothing to complain of	The crop small; they never succeed well here	Very plentiful, and of excellent quality	So productive a crop has not been known for many years	Alexander Cramb, Tortworth Court, Falfield
SOMERSET	A partial crop here; good on higher situations	Good crop; fruit clean and fine	Good crops; generally promise to be very fine	Generally good, especially dessert kinds	Very heavy; late kinds almost useless, owing to heavy rainfall	Abundant and fine	Good crops; trees clean and healthy	Scarcely any here, but good on dry sites	An abundance of all kinds; much injured by wet	Most abundant	John Austen, Ashton Court Gardens, Bristol
	Fair crop	Average crop	Fair crop	Not half a crop	Average crop, but damaged by rain	Not half a crop of late kinds	Very good in some places	Half a crop, but not yet ripe	Currants and Gooseberries good crop	A good crop of Walnuts and small Nuts	W. Hallett, Cossington Farm, Bridgewater
DEVON	Generally scarce	Good; cider Apples abundant	Much below average	Very light crop	Good crop, fruit fine	Thin crop	Abundant and fine	Promise well for good crop	Plentiful and good	Excellent crop, and of good size	Alex. Ayson, Oxton House, Kenton
	Very few	Good crop, but not equal to 1873 and 1874	Mostly below the average	Moderate crop	Good crop, but injured by heavy rains	Good crop	Below average; trees very healthy	Fair crop	Abundant of all but Gooseberries	Very abundant, but not much grown	John Garland, Killerton, Exeter
CORNWALL....	Not generally grown; do not do well, as a rule, in this county	A good crop of kitchen sorts; dessert kinds much under average	Under the average crop	In orchards there is plenty, but thin in gardens	Abundant	The bullfinch did much mischief in spring; under average	Good crops	Abundant	Raspberries good; Currants good; Gooseberries good generally	Average	Henry Mills, Enys, Penryn
	Very few grown	Abundant crop, but at present small	Medium crop	Medium	In favourable situations an abundant crop	Where protected by nets abundant	A good crop in favourable situations	Abundant	Plentiful	Abundant	John Tyerman, Tregoney
WALES.											
ANGLESEA	Thin crop	Hawthornden and Ribstons good	Excellent crop	Good on walls	Excellent	Thin crop	Light crop	Fair crop	Good crop	Filberts good crop	Robt. Webster, Glyngarth
CARDIGAN	Very scarce	Not an average crop	Heavy crop	Victoria and Green Gage good	Very good crop	Extra good crop	Very fair crop	....	Very good crop	Heavy crop	John Hutchison, Abermaide House
CARMARTHEN	....	Under average	Good on walls	Light crop	Average crop; good fruit	Good	Good crops	Good	Good average crop	Walnuts none; abundance of hedge Nuts	J. Ticehurst, The Gardens, Dynevor Castle, Llandilo
DENBIGH.....	Very good and large on limestone; very fair on sandstone formation	Excellent crops	Excellent crops and swelling well; Quinces heavy crop	Excellent crops of all sorts	Very heavy crops, but many spoiled with the excessive wet	Very heavy crops of all sorts; some sorts cracked much with wet	Very fine crops of all kinds	Heavy crops, and swelling well	Very heavy crops of all sorts	Heavy crop on the limestone, middling on sandstone; Walnuts loaded	P. Middleton, Wynnstay and Llangedwyn Gardens
MERIONETH..	Excellent crop	Very heavy crop	Heavy crop	Rather thin crop	Excellent crop; fruit very fine	Excellent crop; Morellos very fine	Very abundant	None grown outside	Very heavy crops of all sorts	Abundant	James Bennett, Rhug Gardens, Corwen
MONTGOMERY	Full crop	Good	Full crop	Very good	Very good	Good	Full crop	Thin	Very abundant	Very good; Walnuts very good	Thomas Dutton, Leighton Hall Gardens
IRELAND.											
ANTRIM.....	....	An excellent crop	Very good crop	A fair crop	Medium	An abundant crop	None growing outside	Very few growing here	An abundant crop	A fair crop	D. Taylor, Glenarm Castle, Taine
ARMAGH	Good	Abundant in most places	Good	Fair	Very abundant	Good	Good	....	Heavy crops of all kinds	....	W. A., Brownlow Gardens
CAVAN	Scarce	About an average crop	On standards a good crop, on walls scarce	Very scarce	Rather deficient	About an average crop	Scarce	....	Fully an average crop	....	W. I.
CORK	....	Very fine	Over the average crop	Very good	Heavy crop	May Dukes very fine	None outside	A fair crop	Very plentiful	Average crop	John Fraser, Bessborough
DERRY	Medium crop	Abundant crop	Fair crop	Fine crop	Good crop	All varieties abundant	None outdoors	None outdoors	Immense crop	Abundant in adjoining districts	William Fleming, Palace Gardens, Derry
DONEGAL.....	....	Splendid crop	Very good	Early and late are good	Not so good	An abundant crop	Fair crop	....	Most excellent crop	Middling	Armstrong Hanlon, Drumboe Castle
DOWN	Light crop	Good average	A very heavy crop	The best crop for five years	A fair average crop	Good crop	A good crop on the few we have	Good crop; few grown in this district	A very fine crop, above average	....	J. T., Mount Stewart
DUBLIN	Small crop; fruit good size	Crop rather under average	Wall crop good, standards moderate	On walls light, standards thin; Damsons a failure	Heavy crop, unusually large and fine	Crop under average	Scarce on walls	Moderate crop, later than usual	Heavy crop, and fine quality	Hazels moderate crop	G. Smith, Vice-Regal Gardens
	Half a crop	Heavy on standards	Fair on walls; standards very few	Half crop on walls; standards a failure	Abundant, but damaged by heavy rains	A very fine crop	None; leaves completely scorched and withered	Abundant on walls	Very fine crops	Very plentiful	Geo. Williams, Brenanstown Gardens

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
IRELAND.											
DUBLIN	Few, in some cases none	Full crop but inferior in size	Fair average	Thin in general	Abundant, and good quality	Full crop	Full crop	Excellent	Currants middling; Gooseberries good	Middling	D. Pressley, Knockmaroon Lodge, Dublin
GALWAY	....	A heavy crop of very fine fruit	Splendid crop, much larger than usual	Rather more than an average, and very much finer	Very fine, especially President	Very fine crop, Morellos the best for years	Where not protected the crop is light and fruit small	Medium	Very good with the exception of red Currants	More than an average	Edward George, Garbally, Ballinasloe
KERRY	....	Heavy crop and good	Good; the best for past three years	Good on Victorias and Prince of Wales	Heavy crop and large	Very good	Thin crop, destroyed by east winds	....	Heavy crops of all sorts; best for past three years	Cobs and Filberts good, Walnuts none	Frederick Bedford, The Gardens, Killarney House
KILDARE	Blossoms destroyed by frost	Good crop	Good crop	Blossoms destroyed by frost	Abundant	Plentiful	Light crop	....	Very abundant	Very abundant	W. A. Emery, Kilkea Castle
	Good crop	Most excellent crop	Abundant crop on walls and standards	Moderate crop	Most abundant and fine	Most abundant and fine	Don't succeed well in this quarter	Don't do at all outdoors	Excellent crops	Moderate crop	D. James, Carton Gardens
KILKENNY	Crop destroyed on May 30	Heavy crop and quality good	Average crop	Very poor	Plentiful, and good in quality	Good	Crop moderate where grown	Crop plentiful, but late	Never known to be better	Very good	George Dodd, Woodstock Park
MEATH..	Half crop	Great crop, but small	Great crop	Good	Very fine in places	Very good	Good	Very good; best I have seen	Very good	Great crop	John Clews, Headfort House, Kells
TYRONE	....	Extra crop	Extra crop	Extra crop	Good	Good	....	....	Very good	....	D. Anderson, Baronscourt
WATERFORD .	Very poor as a rule; not much grown in this district	A heavy crop, and fruit very fine and clean	Splendid crop on walls; on bush trees not so plentiful	An average crop; fruit very large and clean	A very heavy crop; but, owing to heavy rains, was much spoiled	Good crop; Morellos very fine	A very fine crop; trees very healthy; fruit will be late	A heavy crop; more than for several years	Abundance of all kinds, and all of good quality	Poor crops; not much grown in this locality	George Fairbairn, The Gardens, Curraghmore
WEXFORD	None; they do not succeed here	Most abundant crop; fruit fine	Good crop	All kinds very scarce	Moderate	Morellos plentiful; other kinds scarce	Average crop	Very abundant; fruit fine	Heavy crop of fine fruit of all kinds	....	P. Braund, Gardens, Courtown House
WICKLOW.....	Very light crop	Abundant	Fair crop, quality inferior	Average; Damsons scarce	A grand crop	Morellos loaded, other sorts under average	Outside a light crop, under glass abundant	Exceedingly abundant and fine	Raspberries, black and red Currants, very heavy	Walnuts in abundance, Cobs and Filberts scarce	Thomas P. Turner, Killruddery Gardens, Bray
CHANNEL ISLANDS.											
GUERNSEY	Average	Fine	Fine	Fine	Moderate	Moderate	Average	Average	Average	....	T. C. Bréhaut, Richmond House
JERSEY	Scarce	Generally a good crop	Good, except Chaumontels	Good	Good crop	Plentiful	A good crop	Good, seldom fail here	Plentiful in general	Scarcely cultivated here	William Melville, Tyneville Vinery

REMARKS ON THE FRUIT CROPS.

THE fruit crops generally are the finest we have had for several years in this district, and with warmth to thoroughly ripen the autumn crops they promise to be of much finer size and quality than usual here. Strawberries, especially Garibaldi (Vicomtesse Héricart de Thury), and black, red, and white Currants have been much above the average. *Malcolm Dunn, Dalkeith Gardens, July* 29.

—— Fruit-buds were well set and matured last autumn. We had scarcely any late spring frosts, and while the trees were in flower, if we had not many warm, we had many bright sunny days, consequently fruit of all sorts set much better than usual. Pears, Apples, Plums, and Cherries, both on walls and standards, are loaded with fruit, in many cases requiring to be thinned. The season up till now has been one of the best we have had for a long time, heat, sunshine, and showers coming just at the right time. Fruit is consequently swelling fast, and promises to be the best crop we have had in this part of the country for many years. *A. Fowler, Castle Kennedy.*

—— All bush fruit trees have been very free from aphis, and the fruit is consequently in a very clean condition. *R. Draper, Seaham.*

—— The late rains caused sad destruction amongst small fruits, Gooseberries and Raspberries having fallen off wholesale through sheer decay. Raspberries are forming a good second crop; Walnuts are very abundant. *William Earley, Valentines, July* 30.

—— On the whole our fruit crops are good. Apples are not quite what was expected of them, from the very abundant blossom in spring, but there are good crops on all the hardy sorts. Apricots are abundant and good, just ripening, Pears are, like Apples, not quite what was expected of them from the appearance they had in spring, still we have a good average crop. Plums in most cases are abundant. Strawberries in most cases a very heavy crop, but were of short duration, as the heavy and continual rains injured them very much. Cherries a moderate crop, Peaches and Nectarines a good crop and clean, Figs not much grown in this locality, crop moderate; Figs under glass abundant, Gooseberries very abundant and fine, red Currants very good, white Currants good, black Currants moderate, suffered from spring frosts; Walnuts very abundant, Filberts a good crop. *D. Lumsden, Bloxholm Gardens.*

—— The condition and prospects of most fruits in this district are very encouraging and satisfactory, owing principally to the absence of late spring frosts. Apricots are above an average, even on those trees not protected there is a minimum crop. Apples are more plentiful than usual, excepting Keswick Codlins, which are not so. I did not anticipate so heavy a crop from these, as the weather was exceedingly dry the whole of the time the fruit was setting. Of Plums generally I never remember seeing a better crop, especially on wall trees. Damsons also are literally loaded with fruit, the branches requiring to be supported with stakes. Strawberries have been an average, but the fruit has been much damaged by the heavy rains which we had during the time they were ripe; Cherries have been a good crop and the fruit fair, also Morellos. Of outdoor Peaches we have but few, there is a much better crop than usual. Small fruits have been very plentiful, especially Raspberries and Gooseberries. Fruit trees generally out-of-doors have been much freer from blight and filth than usual, thanks to the heavy rains we have had. *Owen Thomas, Drayton Manor, Tamworth.*

—— Fruits of every description are very plentiful in this district. Apricots an average crop. Apples are very abundant, and the ground under some of the trees is strewn with fallen fruit, which we shall very soon have committed to the cider mill. Pears full crop, especially Jargonelles, of which there are heavy crops. Plums are very plentiful, especially the kitchen varieties. Cherries good crop. A very heavy crop of Peaches and Nectarines. The season has been most favourable for all kinds of stone fruit, also for Apples and Pears at the setting period. Figs very good, especially trees which received no protection during the winter and spring months. I shall be glad to give you my experience upon this subject on some future day, should you think it of any importance. Small fruits of every description have been more plentiful than I have seen them for a long time, especially Gooseberries, several of the bushes having succumbed to the weight of the crop. Filberts plentiful, except Walnuts, which in this district are rather scarce. *H. W. Ward, Longford Castle Gardens, Salisbury.*

—— Taken as a whole, the prospects of the fruit crops in this district, although somewhat partial, are satisfactory. This partiality is not altogether confined to individual kinds of Apples or Pears that had excessively heavy crops last season, and therefrom suffered exhaustion, but remarkable as regards the general character of the failures—whilst in some orchards the trees are borne to the ground with fruit, in others near by they are but sparsely distributed. Much damage has been occasioned to the more tender fruits by excessive rainfalls and absence of sunshine, the late varieties of Cherries bursting in quantities before they were ripe. Strawberries, which were so fine and heavily cropped, were much damaged, with the flavour greatly deteriorated, and of short duration. *G. Westland.*

—— The fruit crops in this district upon the whole are very good. The Apple crop is light, which may be accounted for in consequence of the high winds and frosts which prevailed during the blossoming season. The vegetable crops in general are particularly good. Potatos are an excellent crop, and fair in quality. The disease has made its appearance, but is not yet general; it appears to be most marked in small gardens where there has been no change of crop. *J. Taylor, Isel Grange, Cockermouth.*

—— Our fruit crops this year are very good. We have a good crop of Apricots, which we seldom get. I attribute this to the dry summer last year and the favourable spring this year. All other kinds of fruit are certainly above the average, with the exception, perhaps, of Pears. There is as yet a prospect of plenty of Nuts, but I do not think this crop safe yet. The Beeches in the forest are almost breaking down with Nuts, and the Hawthorns are also very heavily laden with berries. *A. Johnson, Savernake, August* 4.

—— Owing to a cold, tedious winter and backward spring, fruit trees of all kinds were much later than usual, and, with the exception of one severe night, which injured Plum and bush fruit, our crops set well, and gave promise of an abundant supply. Soft fruits have been seriously damaged by incessant rains, and more than half the crop of Strawberries were washed to a pulp, and rotted on the plants. Vegetables of all kinds have been plentiful and good, but mid-season Peas of the Marrow kind have filled slowly. Dr. Maclean, of which I received a few for trial, is in every way a first-class variety, and bids fair to throw many of the older kinds out of cultivation. *W. Coleman, Eastnor Castle.*

—— I never remember a season when fruit all round was so plentiful in this district as this year. Where it has not been thinned it is, however, generally small, arising from over-abundance. This district being generally fertile there is usually plenty of blossom, but, lying low, some sorts of fruits are destroyed by the spring frosts. These this year have been neither frequent nor severe, hence the abundance. *William Paul, Waltham Cross.*

—— The fruit crops as a whole in this locality are certainly above the average, both trees and fruit being remarkably clean and healthy. Vegetables of all kinds are in abundance, and are not only cheap but good in quality. *John Austin, Ashton Court.*

—— Rivers' Early Prolific Plum is quite a sight in this neighbourhood, both on standards and walls. This Plum should be grown by every one. I intend to plant it largely in my orchard. *T. Simpson, Mildmay Road, Cheltenham.*

(*To be continued.*)

Home Correspondence.

The Potato Crop.—Potatos are decaying very fast. The crop raised from home-saved seed of the American varieties—Early Rose, Late Rose, Vermont Beauty, Early Dimmick, Early Goderich, Snowflake, &c.—were early in the season attacked and greatly destroyed by the resting-spores of the Peronospora infestans. They are now utterly ruined, and not worth digging up. Then about July 20 the disease in its old form appeared amongst the earlier English varieties, Ashleaf Kidneys, &c., and has now gradually spread over nearly the entire collection. The haulm is, in most cases, quite decayed, and on examination to-day probably 30 per cent. of the tubers. The disease is thus much earlier in its action this season, and unusually severe. *A. F. Barron, Chiswick.*

—— I think this is the worst season for Potatos that I ever remember. The disease has already made fearful ravages in the early sorts, which I consider the best for planting; and unless we have hot dry weather to arrest its progress, there will be very few of the late sorts left for storing in this neighbourhood. *A. Ayson, Oxton House, August* 4.

The Weather in North Notts.—On the 7th a deluge of rain fell in this locality, during a severe thunderstorm in the middle of the day. Rain set in after taking the register at 9 A.M., and there fell in six hours 2.32 inches, and nearly an inch of this quantity fell in half an hour between the hours of 2 and 3 o'clock. Altogether the rainfall for the month up to this date is 2.73 inches, and I fear the Potato disease will now run riot from the thorough soaking the ground has had. The temperature, likewise, since the heavy rain, has risen, the atmosphere being close and sultry, and favourable for the development and spread of the fungus. I only detected the disease in the garden here last week, in a plot of the Rector of Woodstock Potatos, and on lifting a quantity of them many of the tubers showed unmistakable signs of the black spots made by the Peronospora. *William Tillery, August* 9.

Hale's Early Peach.—Having read Mr. Bréhaut's remarks on very early Peaches, at p. 132, allow me to state that I gathered quite ripe and beautifully coloured fruit of Hale's Early on August 6. The tree is growing on a south wall, and has had no protection whatever. Early Rivers, on the same wall, will not be ripe this month, unless there is a great change in the weather. Hale's Early will prove a valuable Peach, and I advise all who have not got it to obtain it forthwith. *Thomas Pitt, Bury Hill Gardens, Dorking.*

Dutch Catalogues.—From time to time, I suppose, like many other gardeners, I have received catalogues of bulbs direct from Haarlem, and for which I am thankful. But at the same time the question arises in my mind, Is it just to the nurserymen and seedsmen of this country for the nurserymen of Haarlem to send their catalogues to gentlemen and their gardeners in England, Ireland, and Scotland, soliciting orders? And not only that, but I find the introductory remarks in the said catalogues, headed "Suggestions to Customers," to contain the following:—"A comparison of our prices is respectfully requested, to satisfy intending purchasers of the large saving effected by dealing direct with the growers." Now this intimation, to say the least of it, is not very "unselfish." It may be presumed that all our metropolitan and provincial nurserymen and seedsmen have their bulbs direct from Holland; that being the case, I will venture to ask the nurserymen of Haarlem (that is where I have had all my Dutch catalogues from)—I ask them in a spirit of fairness, and hope they will take it in the same way—if they solicit and receive orders from gardeners in this country? I ask them also, In what way do they intend the nurserymen and seedsmen of the United Kingdom to dispose of the bulbs, &c., perhaps already ordered from the Dutch growers? Of course I am not aware whether our nurserymen endeavour to do a retail as well as a wholesale business in Holland and other Continental places; but if they do, I would say to others, Do likewise. Now, by way of illustration, I will put it in this way. A wholesale firm in London send their representative into the country to solicit orders. Armed with coloured plates of all the novelties of the season, the representative man calls upon "Messrs. Fearnought & Son"—gentlemen doing a very good business in a very prosperous little town. He (the traveller) points out the particular merit of each novelty, after which it may be presumed he gets an order, and forthwith takes his departure, perhaps well pleased with the stroke of business he has just transacted. But, not satisfied with that, we next hear of him canvassing for orders all the gardeners in the immediate neighbourhood of "Messrs. Fearnought & Son's" establishment for precisely the same description of goods as those he has just booked orders for, thereby leaving Messrs. F. & Son to get rid of their goods as best they may. But by so doing in what position does he (the representative man) place not only the nurserymen of the district, but his employers also? Why, the first thing the aggrieved nurserymen would think of doing when the news reached them—which assuredly it would—would be to write to the wholesale house to cancel their order. So in like manner let our Dutch friends look to what they are about, or else they might some day find themselves placed in a similar position. *H. W. W., Salisbury.*

Masters' Prolific Cucumber. — Well-grown samples of this Cucumber are inferior to no other variety for smooth and handsome form. I have just seen growing in Mr. William Cole's new vinery at Feltham the best stock of it probably existing. The plants are trained up pea-sticks against the back wall to a height of 6 feet, and fruit most abundantly. The fruit average 12 inches in length, are very even in diameter, and have the shortest heel to be found in any Cucumber I have met with. It is a capital all-round variety, but is specially suitable for winter use. Gardeners who have to maintain a daily supply of Cucumbers know that two fruit of 12 inches in length are more serviceable than one of 24 inches, and for this reason Masters' Prolific is highly esteemed by those who know its merits. Mr. Cole has had his stock for several years, having kept it true from year to year by means of cuttings. *Alex. Dean.*

Judging at Flower Shows.—Is it usual at horticultural shows to allow the judges the discretion to refuse (or reduce) a prize to the best or only exhibitor on the ground of inadequate merit, and is the discretion exercised? As to the principle involved I have my own opinion, and also as to the policy of it. A prize should mark absolute merit, and should never mean "bad, but the best." On the other hand, if you give offence to the professional the show tents on the next occasion are likely to exhibit what a physiologist might call *vacuoles*. My query is as to the existence of such rule, and its enforcement, if existing, at the metropolitan exhibitions. At those in the provinces (at Exeter, the father of the provincials) such a condition in the prize list is retained, and up to the present time abided by; and as to its adoption by Cottage Garden Societies, judges sometimes rely on the converse argument, and give Jones (or the number that stands for Jones) only a second, because no one has shown against him—the fact probably being that the article is not of first-rate excellence, but the absence of a rival is a good pretext for reducing Jones to the second rank without being unpolitely explicit. And this leads me to enquire, as to the process of adjudication, whether there be any recognised method of performing it? There is a process of elimination which is convenient when only two sets of things are compared. Thus Brown's Ixora is better than Smith's, but Smith's Dipladenia is the best; so those may be paired off: and so with other plants in succession, till the small residues left show a decided superiority on one side or other. Again, the boxes of cut flowers are compared, twelve in each box. The judge says, here are three very good blooms, six pretty good ones, and three very poor. In the next box he admits four very good, seven middling ones, and only one positively bad. This case is clear enough, but suppose No. 1 to consist of six bad and six good flowers, and that the other dozen are not exactly good or bad—how is the calculation to be worked out to a balance from those items? Perhaps such a valuation might be aided by a scale of points or marks—allowing so many for novelty and so many for good cultivation, and for other qualities which would affect the judges estimate—as beauty or singularity, size of specimen, maturity, conformity (in a florists' flower) to the conventional standard, &c. Such a scale of merit might aid the judge in deciding a closely contested prize, but whether it would be reasonable to require him or them to set out the grounds of their judgment is quite another matter. The power of choosing rightly and that of giving good reason for the choice are not always entrusted by Nature to the same individual. *T. Turner.*

Duke of Buccleuch Grape.—I am glad to see such a good account of this Grape as that given by Mr. Dell, of Stoke Rochford. With me the bunch and berry appear to present too close a likeness to the Golden Champion, of which it looks a mere variety. The leaves, however, are very thick and leathery, and the Vine appears a very robust grower, as one I have here worked on the Chasselas Musqué has this season made a rod over an inch through. I may add that I have not a Vine of the Golden Champion just now for comparison, as I did not find it at all satisfactory; but from my remembrance of it the "Duke" resembles it very closely. [The "Duke" is much rounder in berry than Golden Champion. Eds.] If it has all the good qualities of the Golden Champion without its defects, that is a recommendation rather than otherwise: and if it should turn out all that your correspondent says of it, it will supply a want much felt among white Grapes, as we have nothing particularly good or striking that will grow in a cool house and ripen with Hamburghs. There are so few of the new Grapes that are really good and distinct that one is rather chary in adding them, as they only result in disappointment; and it is better to have a few really distinct select varieties than to go in for collections. Among black Grapes of recent introduction Madresfield Court is most valuable, and is good at all points—handsome in bunch and berry, ripens early, and finishes with a beautiful bloom, while the flavour is all that can be desired. *J. Sheppard.*

Sawdust for Walks. — In the extensive wild garden adjoining the well-kept pleasure grounds at Cadland, near Southampton, the gardener, Mr. Harnett, has used sawdust as a dressing for the pathways cut out amongst the heath and trees in the woodland. The transition from smooth mown lawns, bright, clean gravel walks and brilliant flower-beds, on the one side, to the adjuncts of this wild garden, is both pleasing and refreshing, and seems specially enticing when the sun sheds a tropical heat, and quietness and solitude are most appreciated. The walks are firm and yet soft to the tread; the sawdust soon becomes of a neutral tint, closely allied to the crushed dried leafage of the Beech, which here so much abounds. Weeds seldom grow, and these are easily kept in check with the hoe, and a light sweeping with a broom keeps all clean and neat. No doubt the turpentive, found so abundantly in the wood of the Pine trine, proves a great deterrent to weed growth. In the extensive woods and preserves that abut on the gardens, there are many miles of well-kept gravel walks, through which, during the summer months, it is most delightful to ramble, and with it the incidental excitement of getting lost unless pretty familiar with the various outlets. Cadland is very commandingly situated, and enjoys some charming views—one especially, as seen through an archway of trees, of the fine seaport of Southampton, some five miles distant, is truly grand. The fine Naval Hospital at Netley is also seen through several fine vistas. *D.*

Cryptomeria japonica.—The enclosed fruit cones are gathered from a young tree which I had planted along with a number of other coniferous trees, about twelve years ago, in a rather elevated and sheltered corner in the deer park here. These are all thriving and doing well, and on looking over them a few days ago, I was surprised to find the tree well covered with cones, mostly in the same stage of growth as those sent with the young growth, again commencing at the apex of the cone, similar to a Pine-apple. There is a tree of the sort in a different position which has been planted at least twenty years, and has produced cones regularly for a number of seasons past without showing any tendency to make growth corresponding to the enclosed. Is it not uncommon? [No, not very. EDS.] There are also several cones on a tree of Wellingtonia gigantea adjoining the former specimen of Cryptomeria, this being the first which has been produced on the property. *John Webster, Gordon Castle, August* 9.

A very Fine Tulip Tree.—I have a Tulip tree in my grounds here which I consider a very fine specimen, and shall be glad to know, through the medium of your paper, whether there are many Tulip trees in the country which exceed mine in size. Mine has been carefully measured, and its height is a few inches over 75 feet. Its girth, at 6 feet from the ground, is 11 feet; at 8 feet 6 inches from the ground its girth is considerably greater, and at 10 feet it divides into two noble stems. The tree is in perfect health, and I do not know its age. Any information will be acceptable. *Arthur Mesham, Pontryffydd, Trefnant, Rhyl.*

Reminiscence of John Standish—I was exceedingly sorry to read the account of the death, at a comparatively early age, of this well-known, kind-hearted, and most enthusiastic horticulturist, whom I had long known by reputation. I never to my knowledge saw him but once—and that was at Manchester, when the Royal Horticultural Society held one of its provincial shows there, and then he, *sans cérémonie*, introduced himself, saying that he had long wished to see me; adding, in the same breath, "When I first saw your Tricolors, I dreamt of them every night for a fortnight. I gave £5," he said, "for the loan of a plant for a week, for the sake of its pollen, but the weather became dull and cloudy, and, 'bother' the plant, it did not produce a single grain of pollen all the time." As is well known, he was a most assiduous hybridiser, and was the means of introducing many valuable plants. In manner he was offhand and genial, with a pleasing, good-natured expression of countenance, which seemed to foreshadow the genuine kindness of his heart, and made one feel pleased to be acquainted with him. Horticulture may be said to owe him something, and the name of John Standish will not be very soon forgotten. *P. Grieve.*

HORTICULTURAL EXHIBITIONS, 1875.

AUGUST.

24 and 25.—Metropolitan Floral Society's Exhibition at the Alexandra Palace.
25.—Isle of Thanet Floral and Horticultural Association's Annual Exhibition. Hon. Sec., C. D. Smith, Esq., 8, Marine Terrace, Margate.
26.—Royal Horticultural Society of Ireland. Autumn Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
26.—Wantage Horticultural Society's Annual Show. Sec., C. Stroud, Alpha Cottage, Wantage.
26, 27, and 28.—Dundee Horticultural Society's Grand Floral Fête. Sec., Wm. R. M'Kelvie, 51, Reform Street.
27. — Bishop Auckland Floral and Horticultural Society's Annual Exhibition. Sec., J. C. Hendy.
28.—Wakefield Horticultural Society's Annual Exhibition. Sec., A. Holmes.

SEPTEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
2, 3, and 4.—Manchester Botanical and Horticultural Society. Exhibition of Fruits, Vegetables, and Autumn Flowers. Manager, Bruce Findlay.
2, 3, and 4.—Great Fruit Show at the Alexandra Palace. Manager, Mr. A. McKenzie.
7.—Crystal Palace. Autumn Exhibition of Fruit and Flowers.
7.—Littleover Horticultural Society's Exhibition. Sec., Mr. B. Toft.
8.—Glasgow and West of Scotland Horticultural Society. Autumn Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
8 and 9.—Brighton and Sussex Horticultural Society's Show. Sec., Edward Carpenter.
11.—Lee and Blackheath Horticultural Society's Exhibition of Cottagers' Produce. Sec., C. Helmer, 5, Boone's Road, Lee.
13 and 14.—Carnation Show at the Botanical Gardens, Old Trafford, Manchester.
15 and 16.—Royal Caledonian Society. International Fruit and Flower Show in Edinburgh. Sec., J. Stewart, 5, Alva Street, Edinburgh.
15 and 16.—Stamford Floral and Horticultural Society's Exhibition in Burghley Park. Hon. Secs., Messrs. Johnson and Laxton.

THE
Gardeners' Chronicle.
SATURDAY, AUGUST 14, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, Aug. 17 { Coventry and Warwickshire Horticultural Society's Show at Combe Abbey. Sale of Imported Orchids from M. Roezl, at Stevens' Rooms.
WEDNESDAY, Aug. 18 { Royal Horticultural Society: Meeting of the Fruit and Floral Committees, at 11 A.M. Sale of an Importation of Bulbs from Holland.
THURSDAY, Aug. 19 { Sale of Established and Imported Orchids from M. Linden, at Stevens' Rooms.
SATURDAY, Aug. 21 { Sale of Bulbs from Holland, at Stevens' Rooms.

MANY circumstances go to prove that the SAME AMOUNT OF HEAT WILL NOT ALWAYS PRODUCE THE SAME EFFECTS. Cultivators have plenty of opportunities of observing this. Under glass even, where every care is taken to render the conditions as uniform as possible, and where the amount of heat in a given time can be pretty evenly regulated, different effects are produced in different seasons. Out-of-doors, and on the large scale, it has been asserted that the progress of vegetation in the North is more accelerated than it is in the South by an equal amount of heat. For instance, in Russia and Sweden, to secure early varieties of cereals, the seed must be procured from the northern provinces; while for late varieties seed from the southern provinces must be taken. M. ALPHONSE DE CANDOLLE has been experimenting on this subject, and though his observations are at present too few to afford anything more than presumptive evidence, yet they are of a highly interesting character. They are, moreover, of such a nature that they can readily be repeated and extended by other observers in various countries. The first set of experiments made by M. DE CANDOLLE was noted by us at the time, *Gardeners' Chronicle*, 1872, p. 1002. In those experiments, the reader may be reminded, the learned botanist of Geneva procured seeds of three common wild plants from Moscow, St. Petersburg, Edinburgh, Montpellier, and Palermo respectively. The seeds were sown side by side on the same day at Geneva. Seedlings of common Groundsel, raised from northern seed, were found to be earlier than those of the same species sent from the South, but the results in the case of the white Clover and of Erysimum officinale were too varied and uncertain to admit of any fair inference being drawn from them.

From the researches of QUETELET, and the calculations of the Russian astronomer, CARL LINSTER, it appears that plants as a rule produce leaves, flowers, and ripen seed in the North with a less degree of heat than is required by the same species in the South for the like purposes. Thus, to take an illustration, the Birch tree expands its leaves at Brussels, on the average, on April 13, at St. Petersburg on May 16. Now the average total amount of heat above freezing point, as measured in degrees Centigrade, received by the Birch tree at Brussels is 381° while at St. Petersburg the sum of heat amounts only to 167°. Taking these observations and experiments as a basis, M. DE CANDOLLE further proceeded to test the matter in another manner, and has communicated the results to the Institute of France, from the *Comptes Rendus* of which learned body for June 7 of the present year we glean the following particulars:—M. DE CANDOLLE procured from Montpellier, during the winter, branches of two wild trees, the white Poplar and the Hornbeam, and of two trees cultivated for many years, but to all appearance unmodified by culture, viz., the Tulip tree and the Catalpa. At the same time branches of the same trees were taken at Geneva. All these branches, those from Montpellier and those from Geneva, were first of all placed for eight days in a room without a fire, the temperature of which was from 7° to 10° Cent. Subsequently, glass bottles half filled with water, and with a layer of sand at the bottom, were procured, and the branches were plunged into the sand, a branch of the Montpellier tree being placed in the same glass with the one cut at Geneva.

The expansion of the leaves on the trees of the respective species whence the branches were taken at Montpellier and at Geneva respectively, was noted, and with the following results:—At Geneva the Tulip tree was thirty days in arrear as regards the expansion of its leaves as compared with the same process in Montpellier; the white Poplar was thirty-three days later at Geneva, the Hornbeam twenty-four days, and the Catalpa only four or five days later at Geneva than at Montpellier. To return to the bottles, each with its pair of cut branches. On February 4 the Poplar, the Hornbeam, and the Tulip tree were placed in a room wherein the temperature ranged from 10°—16° C., and they were exposed as uniformly as possible to the light by occasionally shifting the position of the bottles. The buds on each shoot were counted and measured. On the Poplar and the Hornbeam flower-buds were observed which were larger on the shoots gathered at Montpellier than on those grown at Geneva. The Montpellier buds opened first, having ripened under the sunny skies of Languedoc in the preceding autumn. With reference to the leaf-buds, it was noticed that the Geneva shoots of Poplar showed one leaf diverging from the shoot at an angle of 45° on March 15. The buds of the same species from Montpellier had, on April 6, only just commenced to expand. There was thus a difference in the case of the leaf-bud of the Poplar of twenty-three days in favour of the more northern locality.

In the case of the Hornbeam similar results were obtained, the buds on the Geneva shoot expanding eighteen days earlier than those from Montpellier. The results given by the Tulip tree were not satisfactory, for reasons that we need not give in this place.

For the sake of comparison, other shoots of the same species from the two localities were on February 5 placed in a dark, unheated cellar, the temperature of which ranged from 4°.5 C. to 5°.5 C. Substantially the same results were observed in the case of the Poplar and the Hornbeam as in the case of the shoots exposed to the light and to a higher temperature. Of course, the buds placed in the cellar were much behind those placed under more favourable circumstances, but still the flower-buds of the Poplar and Hornbeam from Montpellier opened first, while the leaf-buds of the Geneva shoots were, on the contrary, in advance of those of Montpellier. So far, then, it is clear that the shoots from the more northern and colder locality expanded their leaf-buds (but not their flower-buds) in less time than those which were derived from the south; in other words, that the same aggregate degree of heat acts much more quickly on the leaf-shoots of the northern than on those of the southern trees of the same species.

Thus by direct observation confirmation was obtained of the deductions and inferences made by the cultivation of cereals in Russia before alluded to.

The explanation of the unequal effect of the same degree of temperature, is according to M. DE CANDOLLE, twofold: 1. The buds of a tree are engaged in a perpetual struggle. Badly placed or imperfectly developed buds develope imperfect shoots. The earliest shoots have the advantage so long as they are not injured by frost. In this way a selective process and an adaptation of the tree to the climate are carried on. This is the more probable from the individuality possessed by the buds and of which we avail ourselves in the operation of grafting. Thus, M. DE CANDOLLE cites a case of a Horse Chestnut, near Geneva, which produces year by year, on a certain branch double flowers. From this branch grafts have been taken which have furnished all the double Horse Chestnuts in Europe. Hence it may be concluded that certain branches may also be (as we know to be the case) earlier or later in development than others on the same tree, and that buds taken from these branches will preserve their characteristics when grafted. In the North precocity is sometimes advantageous, sometimes not so. In the South precocity seems generally beneficial, and yet it is in the South that species require the most heat to develope themselves. The principal cause of the difference in the vegetation of the North and of the South appears to be connected with the winter rest of plants. After a season of great external activity the plant loses its leaves and ceases to grow, but in the interior of the plant great changes and modifications of material are taking place at this time in anticipation of the development of the buds at a subsequent time. In the North the internal activity of the plant is specially marked. This is one reason why heat acts more rapidly in the North than in the South. On the other hand, in southern countries, the plant continues to grow superficially, and a larger proportion of sap being utilised at the surface, there is not so much available for the buds in spring. The mechanical effects of the same amount of heat should be everywhere the same, but when it is exerted on different material to transport or modify them it is clear that the effect will be different. Such in brief is M. DE CANDOLLE'S explanation of a phenomenon of which he has, by his experiments, given us additional confirmation. The matter is one of great practical interest, although for outdoor culture it is not generally desirable to select very early varieties, owing to the great danger of the young growths being injured by spring frosts.

—— THE ample reports on the condition of the FRUIT CROPS, which have been furnished us by our correspondents in the various counties of Great Britain and Ireland, enable us to say, in general terms, that the crop has been unusually abundant. This remark applies almost equally well to fruit of all descriptions, and says much for the ripening of the wood last autumn, and the relative absence of spring frosts this season. Of course there has been some drawback, and that was furnished by the excessive summer rains, owing to which Strawberries, Cherries, Currants, and other small fruits were spoiled in large quantities.

Cartloads of rotting fruit were carried by our windows from the adjacent market, and in some cases we heard of the condition of the fruit was such that it was not deemed worth while to gather it.

—— Another special general meeting of the Royal Horticultural Society!—this time to sanction the Report, which we annex, as well as another not yet completed. The date of our publication forbids us from giving this week any account of the proceedings, but we presume the meeting will be little else than a formality. No doubt it is expedient, under the circumstances, to work with the Commissioners so far as possible, provided the terms be anything like equitable, but, if not, then the reports should be sent back for further consideration. The Society is, to a large extent, in the power of the Commissioners, and they have shown themselves indulgent landlords, and desirous, according to their own statement, of helping the Society. At the same time, in the interests of horticulture and of the Society, we must warn the Council not to trust themselves too much in the power of the Commissioners, but to preserve their own autonomy as far as possible. We can but look on the proposed arrangements as temporary. In the document which has been circulated mention is made of a second agreement which is to be laid before the Society at the meeting. It is a great pity this also could not have been made public beforehand, as it is possible its contents may be more open to objection than those of the one now made public. In any case, very great care must be exercised, or in a year or two the Society may be landed in as great, or greater, troubles than those from which it has hardly now emerged. Meantime, every effort must be made to improve the position and usefulness of the Society: in no other way can public support be expected.

—— Subjoined is the report from the Council of the Royal Horticultural Society above alluded to:—

"The Council have the honour to report that they have succeeded in obtaining from Her Majesty's Commissioners terms which, if sanctioned by the general meeting, will in their opinion free the Society from its present difficulties, and put it in a fair way to attain the high position which it ought to occupy as the foremost institution in this kingdom for the advancement of the science and art of horticulture. It is unhappily notorious that for some time past the action of the Society for good has been paralysed by internal dissensions, and that in consequence of such dissensions its income has greatly fallen off. The Council are anxious to do full justice to all classes of the Fellows, the interests of which they think do not in reality conflict; and, whilst feeling strongly that the encouragement of horticulture ought to be their chief object, they believe that this will not be interfered with by making the South Kensington Gardens as attractive as possible to the inhabitants of London in general, and to the residents in their immediate neighbourhood in particular. By such a policy they hope, and as they think reasonably, to obtain for the Society an income sufficient to meet the requirements of Her Majesty's Commissioners, and to place it on a satisfactory footing.

"The present agreements between Her Majesty's Commissioners and the Society are so complicated that any attempt to deal with them otherwise than by way of modification was impossible in the time which the Council, without risking the very existence of the Society, could devote to the negotiation, and a question of some importance, involving the construction of these agreements, is still pending, but is, as the Council believe, in a fair way towards being settled amicably. The nature of this question is such that it is not possible to explain it within the limits of an ordinary report, but the Council refer to it here, inasmuch as it has necessitated the wording of the 3d clause of the proposed first agreement, which to those Fellows who are not intimately acquainted with the relations between the Corporations may appear obscure. Two new agreements are proposed to be made between Her Majesty's Commissioners and the Society. The heads of the first are complete, and only await the sanction of the Fellows; those of the other the Council hope to be able to lay before them at the general meeting.

"By the first Her Majesty's Commissioners absolutely remit the payment of the £2400 rent now nearly due, and authorise the Society to borrow £7000 to pay its debts and repair its buildings; and if, at the end of three years, they shall exercise the power given to them by clause 2, they must take upon themselves this £7000 of new debt, or so much of it as shall not have been repaid, out of what would have been their own rent.

"The Society's lease cannot in any case be forfeited before the end of the year 1878. It cannot be then forfeited unless the income of the Society for that year falls short of the amount required by clause 2. Even if such income should for that year fall short of that amount, there can be no forfeiture if the Society shall pay its rent in accordance with the present arrangements, or if the Society shall next year, out of monies which it could tender as rent, reduce the new debt by £2400.

"By the second new agreement the Council hope to obtain part of the French Annexe, the garden attached thereto, and a new entrance close to the Royal Albert Hall, in consideration of certain concessions in respect of the strip of land lying to the north-west of and outside the gardens, which they believe can be made without injury to the Society's property.

"The Council trust that these results will be deemed satisfactory, and they feel that it is the merest justice to state that but for the friendly feeling towards the Society of Her Majesty's Commissioners and the untiring personal exertions of General Scott to help them, they would have been unable to complete these arrangements in the very limited time at their disposal."

The following are the heads of the proposed new agreement between the Commissioners for the Exhibition of 1851 and the Royal Horticultural Society, above referred to:—

"1. The subsisting agreements to be continued in full force where they are not inconsistent with this agreement.

"2. The Commissioners to have the power of determining clauses 6 and 7 of this agreement at the expiration of the third year from its commencement, if the income of the Society for that year, from entrance fees and the subscriptions of Fellows and other annual subscribers, shall not amount to £10,000, and the Commissioners shall in that case take upon themselves the repayment of the sum of £7000, hereinafter mentioned, or so much thereof as shall remain unpaid, and the interest thereof.

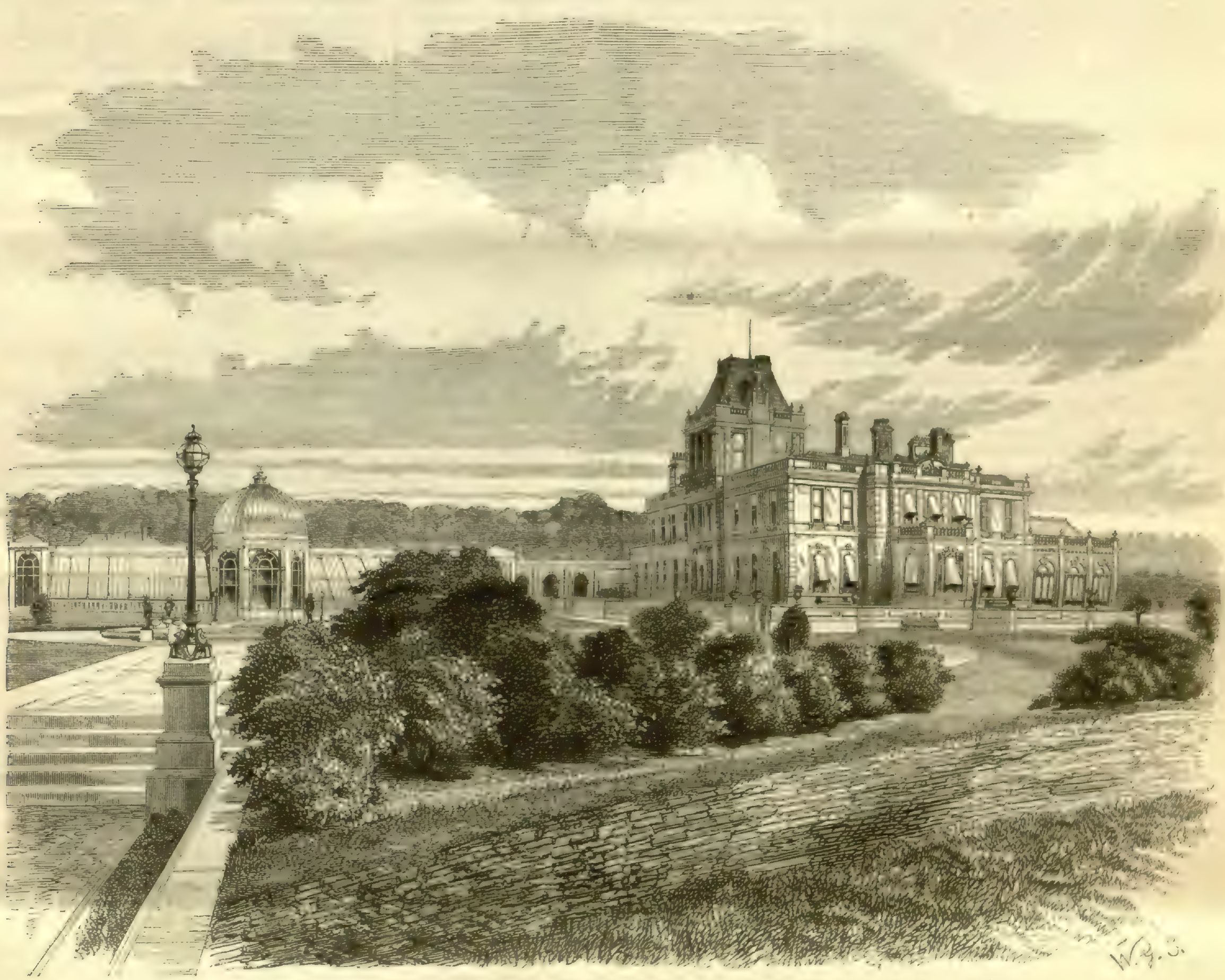


Fig. 45.—Endcliffe Hall, Sheffield, the seat of Sir John Brown.

"3. In the event of the Commissioners exercising the power by clause 2 hereof agreed to be given to them, they shall, notwithstanding anything herein contained, be entitled to any right of re-entry which they may, prior to exercising the said power, acquire by virtue of the subsisting agreements, unless the Society shall in the year 1876, out of monies which under those agreements would be applicable to the payment of the rent thereby reserved, and on or before the day on which such rent ought to be paid, pay in respect of interest on, and in reduction of the principal of, the said sum of £7000, the full sum of £2400, which but for this agreement ought to be applied in the payment of such rent; in which case such conditional right of re-entry as is given to the said Commissioners by the subsisting agreements shall be deemed not to have arisen.

"4. Save in so far as their claim thereto may be necessary to preserve such right of re-entry as is referred to in the last clause, the Commissioners shall remit to the Society the sum of £2400 which under the subsisting agreements would be payable as rent in 1876.

"5. The Society may borrow such sum, not exceeding £7000, as shall be necessary for the discharge of its existing liabilities other than its debenture debt and for the thorough repair of its buildings at South Kensington.

"6. The Society shall not accept any more life compositions without the written consent of the Commissioners.

"7. Until the present debenture debt of the Society shall be fully paid off, all sums of money which under the subsisting agreements would be payable to the Commissioners as rent, shall be applied (*a*) in payment of the interest to accrue upon such sum as may be borrowed by the Society under clause 5 hereof, and in repayment of the principal monies so borrowed until they be fully repaid; (*b*) for the mutual benefit of the Commissioners and the Society in such way as shall from time to time be determined by the Expenses Committee and be approved of by the Commissioners.

"8. Whilst the said clauses 6 and 7 remain in force, the Society shall, on the authorised Bank holidays or on such other days not exceeding five in number in any one year, as may be agreed upon by the Society and the Commissioners, admit the public to the South Kensington Gardens free, or at such charge as may be fixed by the Commissioners."

—— We have received from the *Association Horticole Lyonnaise*, through M. SISLEY, the schedule of the exhibition of plants, &c., to be held at Lyons, in the Place Moraud, from September 9 to 12, 1875. The competitions are free to all comers, and intending exhibitors should communicate with M. BERGERON, the President of the Committee, at 20, Rue du Chapeau Rouge, immediately. There are 113 classes, of three sections each, in each of which medals will be offered.

—— The floral decorations at the Victoria Railway Station, as also at the Victoria Hotel, on the occasion of the visit to Sheffield of their Royal Highnesses the Prince and Princess of WALES on Monday next, have been entrusted to Mr. JOHN WILLS, Floral Decorator, Onslow Crescent, South Kensington. The whole of the arrival platform will be set apart for the reception, and here Mr. WILLS is arranging numerous parterres of flowering plants, with bold groupings of large Palms, Ferns, &c., with a large admixture of ornamental-leaved plants. Ice rockeries will also be constructed by Mr. WILLS, and suspended over and edging the platform will hang festoons of evergreens, with large suspended bells of natural flowers at short intervals between. On the walls of the station offices, and of each end of the platform, will be displayed large medallion baskets of natural exotic flowers, surrounded with trophies of flags.

—— We have received from Cologne the following programme as to the proceedings at the forthcoming INTERNATIONAL HORTICULTURAL EXHIBITION:—

Tuesday, August 24.—7½ P.M.: Reception of the Commissioners and members of the jury at the Hotel de Ville. 9 P.M.: Meeting and supper at the Casino.

Wednesday, August 25.—8 A.M.: Reception of H.I.H. the Hereditary Prince at the central station. 9 A.M.: Meeting in the Winter Garden of the "Flora" Society. Noon: Opening of the Exhibition by his Imperial Highness. 1. P.M.: Luncheon in the Exhibition. 6 P.M.: Banquet in the Great Hall, Gürzenich. 8½ P.M.: Meeting on the terrace at Marienbildchen, Deutz.

Thusday, August 26.—Excursion to Godesberg at noon. 2 P.M.: Dinner at the Hotel Blintzer. 3½ P.M. Excursion to Rolandseck. 6 P.M.: Return to Cologne by steamboat; illumination of the city, the bridges, the Cathedral, &c.; meeting in the Flora Garden, fireworks, supper!

Ladies are invited to all the meetings except the banquet at Gürzenich, offered by the city of Cologne. Members of the jury will have access to the Cathedral, the Hotel de Ville, Gürzenich, the Museum, &c. Baron SIMON OPPENHEIM invites the jury to visit his gardens at Thürmchen. Baron ALBERT OPPENHEIM, Glockengasse 3, and MM. NEVEN, open their picture galleries. The Zoological Society throws open its gardens to the jury, and the Casino and Erholung Clubs invite members of the jury and Commissioners to their Clubs. On the 25th of last month the exhibitors' list was closed, and showed that the success of the exhibition is certain. The contributions to this show have by far exceeded the first expectations; so much so that the committee was obliged to enclose a larger piece of ground to meet the demands for space. Germany, of course, ranks first in the number of exhibitors, followed by France with a contingent of more than 100 well-known firms, among the contributions of which will be found porcelains and china from Sèvres. The new plantations and lawns laid out have thriven wonderfully through the wet spring we have had; the lawn will be relieved by numbers of parterres and flower beds, and will form a pleasing picture to the eye. Many thousand Rose trees have been artificially kept back from budding, and will, on the commencement of the show, be in full bloom. The grounds will be enlivened by many fountains, kiosques, &c., and statues, amongst which there are some by Professor BEGAS and other first-rate Berlin artists. Forcing-houses and grottos, bridges, summer-houses, and verandahs are being erected, and behind the winter garden of the Flora a magnificent *salon* has been formed for the reception of the Empress. At the entrance to the grounds of the (Flora) show a grand portico will be built by M. F. BELLSTEDT, of Bremen. The horticultural products, viz., fruits and vegetables (both in fresh and preserved state), seeds, specimens of fibre, wine, beer, and liquors, will be numerously represented. The Viceroy of EGYPT has sent 400 bales, containing the different products of his country, together with a collection of native woods and perfumery. Among other articles to be exhibited will be found collections of fossil plants, flowers, and also of artificial flowers, of which latter a splendid display will be made by the best-known home and foreign firms. Besides the prizes already made known their Royal Highnesses the Crown Prince and Princess of GERMANY have promised a set of mantelpiece ornaments in Saxon china. The number of Commissioners has been increased by two representatives from the United States.

—— The *Rural Home*, as quoted by the Boston *Journal of Chemistry*, gives an account of an experiment near Rochester in keeping APPLES on the GROUND UNDER LEAVES. Two bushels of leaves were placed on one bushel of Apples, the whole being partly surrounded by evergreen trees, which kept the wind from blowing the leaves. They were found this spring less decayed than Apples in the cellar, and fresh and fine in condition. There were obviously two or three causes which made them keep well. Contact with the earth gave them moderate and uniform heat from below; the leaves, being stratified, turned off the water and kept out the cold, the frost of very few winters ever reaching through a foot of leaves; and the evergreen trees gave an additional protection. If we were covering Apples in this way in an exposed situation, we should want a foot of leaves, held down by evergreen branches; but, surrounded closely by evergreen trees, half that depth of leaves might answer. What gardener has not picked up Apples perfectly sound and fresh which had dropped from the trees, and lain during winter hidden beneath leaves or the dense-growing crops?

—— Mr. JOHN WILSON, the able secretary of the well known YORK GALA is about to make an appeal to the Rose growers and lovers of this flower for funds to raise about £120, for the purpose of securing an exhibition of Roses in pots in June, 1876, on the occasion of their next great exhibition. Roses in pots, such as we see at the metropolitan exhibitions, have not been exhibited at York, and as the York Gala is now a great central exhibition for Yorkshire and the adjacent counties, well known to and visited by horticulturists, a great display of Roses in pots ought to be seen there, and we trust will, as very liberal prizes will be offered. It is in contemplation to offer for 12 plants in pots, no restriction as to size of pot, £30, £20, and £10; and for 30 plants in 8-inch pots, £30, £20, and £10; but of course the success met with in the form of subscriptions will govern this. As the Lord Mayor and some of the principal citizens are supporting the movement, and Mr. B. S. WILLIAMS, Mr. JOHN HARRISON, of Darlington, and Mr. HENRY MAY, of Bedale, are each giving £5, and others have already promised subscriptions, there is every probability of our seeing a great display of pot Roses at York in June next.

—— SHEFFIELD, which is to be made happy by the visit of the Prince and Princess of WALES on Monday next, contains a few garden establishments of great excellence and interest. The Botanic Garden is rich in interesting plants, and has been described in our columns (1874, vol. i., p. 568). Just out of the town is Endcliffe Hall, the seat of Sir JOHN BROWN, where is a garden establishment of such magnitude and excellence that we are surprised it is so little known. An account of it is given in the present issue. It is not unlikely that the Prince and Princess will honour Sir JOHN with a visit. In another direction are the rich nurseries of Messrs. FISHER, HOLMES & Co., some notice of which appeared in our issue for May 22 last. Wortley, whose gardens are managed by Mr. SIMPSON with a degree of skill that might be expected of so well-known a practitioner, is a few miles off. Still further, but within a drive, is Chatsworth, to which we lately devoted a special supplement. We mention these places to show that when brighter days come for the Royal Horticultural Society, Sheffield would form a good place to hold a grand provincial exhibition.

—— The question whether the nature of the soil affects the DOUBLENESS OF STOCK FLOWERS of the first generation has again been raised in the *Gartenflora*. M. STERLER, of Posenhofen, an acknowledged master in his profession, in an excellent article on the culture of Stocks, maintains that the number of plants with double flowers, assuming that the seed is good, depends upon the nature of the soil; that is to say, the same quality of seed that would bring a large proportion of double flowers in soil consisting of 75 per cent. of sand to 25 per cent. of loam, would produce a large proportion of single flowers in a rich soil, especially in wet seasons. Pot culture, too, will insure a large percentage of double flowers, Dr. REGEL, the editor, holds the same view, but another writer considers that this is not proven, though he admits, or, in his own words, nobody doubts that the nature of the soil and the method of culture exercise considerable influence on the next generation. It is not a little remarkable that luxuriance should induce doubleness in most subjects, and the reverse in stocks, especially in plants where the nature of the duplication is morphologically the same. Careful experiments to test the validity of this and many other current opinions not based upon incontestably ascertained facts, are desirable.

—— At a recent meeting of the Société Linnéenne de Paris, Dr. BAILLON read a short paper on the DEVELOPMENT OF THE OVULES OF PYRUS, limited mainly to a defence of his own views against the criticisms of M. DECAISNE in a monograph of the Pomaceæ, noticed in these columns a few weeks ago. The difference of opinion was simply as to the position of the ovules; and Dr. BAILLON again declares that in the young state the ovules of the Pear may be seen a little above the base of their cell, and for a long time they are not erect, but more or less oblique, and at first almost horizontal. Therefore, he says, it is proper to represent them in a theoretical diagram as occupying the inner angle of the ovary, just as one would if they were truly horizontal. Indeed, in some species of Pyrus the great axis of the ovule is perfectly transverse. There appears less difference in the opinions of these two botanists than there is disposition to find fault with each other's work.

—— One remarkable feature at Gunnersbury Park is the clumps of PAMPAS GRASS growing on certain spots round the large ornamental pond in the grounds. They are rapidly throwing up their flowering stems, and their position, assisted by the recent heavy rains, has done much to give them their vigorous appearance. But they are much assisted by applications of weak manure-water, which Mr. RICHARDS applies about twice a week, and which undoubtedly acts as a powerful stimulus. This grand ornamental hardy plant no doubt requires high culture to do it full justice, and many plants fail to some extent for want of a little extra attention that is amply compensated for in an increased beauty of development.

—— GOOSEBERY SHOWS appear to be as popular as ever in the North, and the Elsecar annual exhibition of Gooseberries was held at the Market Hotel on August 2. The premium Gooseberry was Conquering Hero, weighing 25 dwt. 10 gr., shown by GEORGE HAGUE, and to this the premium prize of a large brass pan was awarded. Other fine fruits were Ringer, 25 dwt.; Britain, 22 dwt. 4 gr.; Stockwell, 21 dwt., &c. The best red berry was Conquering Hero, shown by GEORGE HAGUE, 22 dwt. 20 gr.; and following this Clayton, 21 dwt. 6 gr.; Lyon, 21 dwt. 8 gr.; and Speedling, 20 dwt. 7 gr. The best yellow berry was Ringer, shown by THOMAS HAGUE, 23 dwt. 18 gr.; then came Lady Topham, 23 dwt.; Leveller, 22 dwt. 13 gr.; Catherina, 22 dwt. 6 gr.; and Lady Houghton, 20 dwt. THOMAS HAGUE was also 1st with the best green berry, having Plunder, 23 dwt. 15 gr. Then followed in order of merit Shiner, 23 dwt. 18 gr.; Stockwell, 18 dwt. 2 gr.; and Thunder, 18 dwt. 6 gr. The best white berry was Queen of Hearts, shown by THOMAS FISH, 23 dwt. 4 gr.; Antagonist, 23 dwt.; White Eagle, 18 dwt. 8 gr.; and Snowdrift, 18 dwt. 4 gr.

—— In the Economic-house at Kew we observe in fruit a HYBRID OF PECULIAR INTEREST. It is the result of fertilising a flower of Melon with pollen from a "Telegraph" Cucumber. This was effected by Colonel TREVOR CLARKE, who presented the seeds to the Royal Gardens. The male parent appears to have had by far the greater influence on the offspring. Its leaves are very like those of a Cucumber, having the same angularity and asperity, but with evidence also of the maternal Melon. The fruit is a foot long,

with a diameter of 3 inches, and the form is precisely that of a short and stout Cucumber. It has a few spines, and is covered with a fine network, the latter being the most conspicuous trace of its Melon relationship. The above cross would seem to have been before attempted, but without success. DARWIN, in his *Animals and Plants under Domestication*, tells us that SAGERET and NAUDIN found that the Cucumber (C. sativus) could not be crossed with any other species of the genus; "therefore, no doubt, it is specifically distinct from the Melon." As to the possibility of a cross we have now direct proof, though it does not perhaps cast a doubt on the correctness of the inference that they are distinct species. It does not seem clear from the above whether or not we may suppose that the two fruits have been at some time referred to one species, or that the possibility of their being the same has been suggested. Botanists at least consider them now as quite distinct. Bearing on this point, however, Mr. DARWIN continues to say, "We hear from NAUDIN that there is a race of Melons in which the fruit is so like that of the Cucumber, both externally and internally, that it is hardly possible to distinguish the one from the other except by the leaves."

—— We hear that the FLOWER GARDEN AT KILKEA CASTLE, the seat of the Marquis of KILDARE, is looking remarkably well just now. The Calceolarias are a sheet of bloom. The disease has not made its appearance there, and it may be well to state that Mr. EMERY inserts his cuttings in the open ground, covering them with a movable frame, and in bad weather covering the whole with dry hay. They are transplanted to a prepared bed in the spring, whence they are shifted to their summer quarters with a good ball. Treated in this way Mr. EMERY has never known them to fail.

—— Dr. C. M. INGLEBY, Valentines, Ilford, records in *Nature* the extraordinary fact that on Monday, July 26, in one of his meadows, the first crop of hay was carried while the second crop, or aftermath, was being cut. We saw other instances of this at the same time, and even of the cutting of Wheat while the first crop of hay was being gathered in, and the second crop being cut.

—— Some of our Lyons friends are of opinion—and we thoroughly sympathise with them in the matter—that it is a great pity that so many new SEEDLING ROSES are sent out before they have received the approval of a competent, and, if possible, an international jury. All raisers of seedlings not unnaturally attach the greatest importance to their own productions—they would be unnatural parents if they did not do so. An independent and impartial jury would be able to decide whether the new comer was really worth sending out, or whether it had been forestalled by some better variety. Of course this remark will apply to other things besides Roses. It would be very desirable that growers should come to some understanding on this point, but in this country at least, where each man boasts that his home is "Liberty Hall," it would be very difficult to ensure united action or implicit respect for the verdict of the jury. On our side of the water much good would be effected if the Floral Committee of the Royal Horticultural Society would be somewhat more sparing in their awards of certificates. A vote of thanks might be more often passed than it is. This would be a simple act of courtesy which would be appreciated, while it would not commit the Society to any definite opinion.

FIG. 46.—CORRIDOR AT ENDCLIFFE HALL.

—— We are glad to find that Mr. J. W. LAURENCE, for twenty-one years head gardener at Farnham Castle, has engaged as head gardener to W. F. WEBB, Esq., of Newstead Abbey, his predecessor having been for about sixteen years head gardener there.

—— A writer in the *Gartenflora* recommends the cultivation of the following PLANTS FOR CUTTING FROM IN WINTER:—Hexacentra mysorensis, Barnadesia rosea, Rhynchospermum jasminoides, Edgeworthia papyrifera, Echeveria mucronata (retusa, Hort.), and E. retusa (true). The separate flowers of the latter, when attached to wire, are admirable for bouquets. The Edgeworthia, or Daphne, in question has golden-yellow, highly fragrant flowers, which are produced in a cool house in February or March, but if taken into a warm house in the beginning of November they will bloom in December and January. Barnadesia rosea is a South American shrubby Composite, belonging to the sub-order Mutisiaceæ. It is armed with spines, and is not exactly an ornamental plant, though its small rosy flower-heads are suitable for cutting at a season when there is not much choice. It is sometimes called Rhodactinia.

—— The *Gardeners' Monthly* says it has lately received a FLOWER "FROM THE SPIRIT WORLD, the like of which was never seen before by human eyes." The flowers were dropped about in considerable quantity in the dark *séance* by spirit hands. It is somewhat disappointing to find the editor expressing his opinion that the flowers were those of Bougainvillea spectabilis!

—— The collection of plants at Sister House, Clapham Common, the property of AMBROSE BASSETT, Esq., realised at the sale on August 5 and 6 a little over £1000. Amongst the choicer lots were six pots of Amaryllis Ackermanni pulcherrima, 110*s.*; Azalea Eclatante, 4 feet by 2 feet 6 inches, 90*s.*; A. Extrani, 5 feet 6 inches high, and the same through, 95*s.*; A. Criterion, almost as large, 100*s.*; A. Flag of Truce, 4 feet by 3 feet 6 inches, 120*s.*; A. Acme, 4 feet by 2 feet 6 inches, 95*s.*; A. Chelsoni, "finest plant in the kingdom," 5 feet by 5 feet, 170*s.*; A. Cedo-nulli, grand plant, 6 feet by 4 feet, 110*s.*; A. Mrs. Fry, 5 feet 6 inches by the same, 130*s.*; A. sinensis, 4 feet 6 inches by 4 feet, 105*s.*; A. Flower of the Day, "finest plant in the kingdom," 5 feet by 4 feet 6 inches, 90*s.*; A. Exquisita, 5 feet by 4 feet 6 inches, 110*s.*; A. Iveryana, 4 feet 6 inches by 4 feet, 110*s.*; A. Madame Ambroise Verschaffelt, "finest plant in the kingdom," 5 feet by 4 feet 6 inches, 150*s.*; A. Holfordiana, 5 feet 6 inches by 4 feet, 100*s.*; A. Ferdinand Kegeljan, 3 feet by the same, 77*s.* 6*d.*; A. Souvenir de Prince Albert, 4 feet 6 inches by 4 feet, 126*s.*; A. sinensis alba, a grand plant, 5 feet by 3 feet, 189*s.*; Croton undulatum, from 84*s.* to 147*s.*; C. Weismanni, nice young plant, 105*s.*; Cocos Weddelliana, 84*s.*; Rondeletia speciosa, 110*s.* and 126*s.*; Alsophila squarrosa, 5 feet stem, 90*s.*; Trichomanes radicans, large mass, 160*s.*; Yucca aloifolia variegata, fine pair, 100*s.*; Dendrochilum filiforme, 100*s.*; Dendrobium nobile pendulum, two plants, 136*s.* 6*d.*; Cattleya gigas, 84*s.*; Cypripedium Stonei, 84*s.*; Masdevallia Veitchiana, 115*s.* 6*d.*; Camellia Mathotiana, 7 feet high, 157*s.* 6*d.*; C. Mathotiana alba, 126*s.* and 294*s.*; C. Countess of Derby, 8 feet 6 inches, 147*s.*; C. Lady Hume's Blush, 136*s.* 6*d.*; C. Princess Bacciochi, 8 feet, magnificent specimen, 147*s.*; C. Countess of Orkney, 130*s.*; C. Reine des Fleurs, 105*s.*; C. alba-plena, 6 feet 6 inches, very fine plant, 325*s.* 6*d.*; C. Saccoinova, 115*s.* 6*d.*; Rhododendron Edgworthii, 90*s.*; R. fragrantissima, 100*s.*; R. Princess Royal, 157*s.* 6*d.* and 136*s.* 6*d.*; and Imantophyllum miniatum, 3 feet across, 100*s.*

ENDCLIFFE HALL, SHEFFIELD,

THE SEAT OF SIR JOHN BROWN.

ON the outskirts of the noisy town of Sheffield is the residence of Sir John Brown, attached to which is a garden-establishment of first-rate character, but of which, probably from the modesty of the gardener now in charge, but little is known beyond the immediate vicinity. And yet we have here a fine conservatory well stocked with specimen plants, range after range of forcing houses placed round two quadrangles, the area of which is occupied by the kitchen gardens. Besides, there are flower gardens and shrubberies, lawns and fountains, terraces, and all the appurtenances of a first-class establishment, and all maintained in first-rate condition and high keeping.

On the south side of the carriage-drive, leading to the mansion, divided by a bank of Laurels and shrubs, there is what is called the Sweet Walk, from whence the approach is made by two flights of steps to the conservatory (No. 1), 40 feet by 20, and 20 feet high. The front is built of stone, carved with flowers, Ferns, and garden tools; between the stonework are large sheets of plate glass, forming three doorways. The floor is laid with ornamental tiles, and there are stages on three sides well filled with flowering plants. On the walls are creepers, and hanging from the roof are baskets of Schizanthus, well bloomed and very pretty. The conservatory is divided from the principal entrance hall by large plate-glass doors, and can be lighted by gas when required. Leaving here the visitor passes on to the upper terrace, on the walls of which are eighteen white marble vases filled with plants. On this terrace are three sets of fountains, and from hence we get a good view of the flower gardens and of the surrounding country for miles around.

Descending a flight of steps we arrive at the middle terrace, which is tastefully laid out. Here are introduced designs of dwarf shrubs in the beds, so that when bedding plants are over another pretty change is introduced. On this terrace alone upwards of 9000 bedding plants are put out. In the centre stands a large ornamental basin, worked out in stone; on the corners are four bronze figures, representing the four seasons; on each side of these figures are white marble vases filled with plants; and from the surface of the water are thrown nine jets of water. The white Nymphæa grows and flowers freely in this basin. This terrace is bounded by an ornamental stone balustrade, and here stand on pedestals two life-

size bronze figures, also white marble vases filled with scarlet Pelargoniums. At the end of this balustrade we arrive at a flight of steps, where sit a a pair of splendid white marble St. Bernard dogs, which appear to be baying; here is a long border planted with monthly Roses, which flower from early spring to the end of autumn, and passing onwards we come to an ornamental piece of water, around which are vases and figures. On three sides are sloping banks of grass, at the foot of which are ribbon borders, containing upwards of 3000 bedding plants.

Mounting a flight of steps we arrive at two pretty different designs of chain borders, planted with dwarf Box, filled in with white spar and red brickdust. These borders are tastefully arranged with bedding plants, and backed with a choice collection of shrubs and Roses. On these terraces are broad walks, asphalted and covered with red shale, which have a neat appearance; and standing on the walks are several of the Falkirk Iron Company's easy garden seats. The whole can be lighted with gas by ornamental globe lamps.

The small dome entrance is planted with Oranges and Camellias, and also contains a nice young plant of Testudinaria elephantipes. Then follows the second early Peach-house, 25 by 17 feet, height 15 feet, containing a splendid tree of Royal George, also a tree of Early York, carrying fine crops of fruit, and ripe on July 1, averaging 8 to 10 inches in circumference. The back wall is planted with Camellias, and their border is covered with Selaginella denticulata, which has a very pleasing effect. The vinery is the same size as the Peach-house, and planted with Black Hamburgh and Muscats, bearing a nice crop of fruit. On the back wall of this house is a fine specimen of Psidium Cattleyanum, heavily laden with fruit. Passing through the large dome we come to the late vinery, planted with Lady Downe's, Black Alicante, Barbarossa, and Muscat Muscadine, a good late Grape. The back wall is planted with Figs. The third early Peach-house is the same size as the vinery, and contains fine trees of Royal Charlotte and Grosse Mignonne; an excellent crop of fruit is coming on. The back wall is here also planted with Camellias, and the border with Selaginella denticulata. The houses in this range are ventilated by well arranged back and front ventilators at the top, also bottom front ventilators worked by levers, and they are heated by eight rows of 4-inch hot-water piping. A small dome is planted with Oranges, Lemons, and Roses, which flower abundantly through the winter; it contains also a fine plant of Abutilon insignis. Looking back we see the whole range through large plate-glass doors, 7 feet by 4.

Close by is a large specimen plant stove, 60 feet by 26, height 20 feet, with iron circular roof, ventilated along the top. The path is 8 feet wide, and the house contains fine specimens of Anthurium Scherzerianum, the large-spathed variety, 3 feet 6 inches through, with upwards of thirty spathes open at one time; a grand plant of Monstera deliciosa, bearing large fruit; Pandanus ornatus, with leaves 6 feet long; Cycas revoluta, bearing upwards of eighty leaves; a fine specimen of Anthurium magnificum, Latania borbonica, 12 feet through; a pair of Lomaria gibba, stems 2 feet high, with beautiful heads; Phœnicophorium sechellarum, leaves 2 feet across; Pandanus utilis, 8 feet by 10 feet; Hibiscus Cooperi, well coloured; Cibotium princeps, stem 3 feet, with a fine head of foliage; Clerodendron Balfourianum, on a trellis 8 feet by 8 feet, and well bloomed; nice piece of Maranta vittata, also Maranta Veitchii, 4 feet through; Croton Hookeri and Croton interruptus, 5 feet by 4; also Palms, Ferns, Crotons, Marantas, Dracænas, Dieffenbachias, Caladiums, and others too numerous to describe. The back wall is covered with moss and planted with Ferns, a collection of Lycopodiums, Begonias, and Tradescantias, and has a pretty effect. On the roof are hanging baskets of Ferns, Stanhopeas, Achimenes, and such creepers as Passifloras, Ipomœas, Allamandas, Bignonias, Stephanotis, Hoyas, &c., heated by 22 rows of 4-inch hot-water piping.

No. 9 house is 58 feet long by 25, height 30 feet. The centre bed is filled with different varieties of Musas; on the left-hand bed there is a fine plant of Livistonia subglobosa; and on the right is a bed containing a fine plant of Seaforthia elegans, also Phœnix leonensis: the bed is raised 2 feet high, with rockstones planted with Begonias, Ferns, &c., and which has a pretty effect. The side borders are planted with Bamboos, Ficus elastica, a very fine plant; also Ficus Cooperi, bearing fruit; Cinchona peruviana, Phyllanthus lanceolatus, very interesting on account of its flowering on the edges of its leaves; Alpinia nutans, with fine spike of bloom, thirty flowers; Acrostichum alcicorne, 3 feet by 3 feet; Gymnogrammas, 3 feet through; Asplenium nidus-avis, a good plant; Phlebodium sporodocarpum, 5 feet through, splendid plant; also a seedling of Blechnum corcovadense, which has red leaves in its young growth, very pretty; Saccharum officinarum, a fine piece of Rhopala corcovadensis, and many other varieties of plants.

No. 10 is a greenhouse, which in size and build corresponds with the large plant-stove, and is filled with specimen plants—Araucaria excelsa glauca, a magnificent plant, 14 feet by 11; a pair of Dicksonia antarctica, a pair of Alsophila australis, a Dicksonia squarrosa, with 3 feet stem and leaves 4 feet long, a fine plant; Areca sapida, fine plant; Yucca aloifolia variegata, 8 feet; Phormium tenax var. superba, with thirty leaves; Cordyline indivisa, a fine plant; Dasylirion acrotrichum, with leaves 4 feet long; Imatophyllum miniatum, 3 feet through; a pair of Dracæna australis, also Camellias planted in borders. This house contains a good standard Fuchsia with stems 6 feet high, and forming heads from 2 to 4 feet through, filled in with Palms, Ferns, and hard-wooded plants and creepers on the roof, such as Cobœa scandens variegata, a very large plant; Passifloras, Tacsonias, Clematises, Tecomas, Habrothamnus fasciculatus, a useful winter flowering plant; beautiful baskets of Schizanthus in varieties have a pretty effect. The swinging folding-doors are of plate glass, and when thrown back a beautiful promenade of 150 feet through these houses is formed (see fig. 46.)

We next enter No. 11, a lean-to Peach case, 172 feet long, 10 feet wide, 12 feet high, the back wall of which is planted with Peaches and Nectarines, the varieties being Violette Hâtive, Bellegarde, Barrington, Early York, Crawford's Early, Royal George, Grosse Mignonne; and Violette Hâtive, Downton, Elruge, Bowden, and Pitmaston Orange Nectarines. On the front of this house Vines are trained half-way up the roof, the sorts Black Hamburgh, Lady Downes, Alicante, Royal Ascot, and West's St. Peter's, which afford good Grapes for winter use. It is heated by two rows of 4-inch hot-water pipes, and is also made useful for storing Strawberry plants and bedding plants in spring. No. 12 is the second early vinery, 27 feet by 16, height 12 feet, planted with Black Hamburgh and Foster's Seedling, and Tomatos on the back wall. No. 13, first early vinery, contains Black Hamburgh and Foster's Seedling, cut in April; the back wall being covered with Tomatos, from which Mr. Stephens has been gathering since March. In these houses are a lot of Adiantums for table work, nice plants. These two vineries are heated by eight rows of 4-inch hot-water pipes, with bottom-heat under each bed. Vines are planted on the inside border; there is also a border outside, originally covered with glass, but as this did not answer for Vines so well as long manure, the glass is now disused.

Passing through a glass-covered gateway we enter No. 14, a late vinery, planted with Alicante, Lady Downe's, Madresfield Court, Gros Colman, Lee's White Torquay, carrying a splendid crop of fruit; and fruiting Tomatos on the back wall. We noticed in this house a collection of Coleus—fine plants, which are found very useful for conservatory decoration. No. 15, a first early Peach-house, planted with Royal George and Violette Hâtive, had borne an excellent crop of fruit, which began to ripen in April. The front trees in this house are trained on a low trellis, in order to admit light to the back wall. The two last-named houses are heated by six rows of 4-inch hot-water piping, and are of the same height and size as the first and second early vineries; they are built with a hip-span, are ventilated top and bottom, worked by levers. The footpaths, being of flagstone and stone-curbed, have a neat appearance.

Passing through a cistern-house, containing hot and cold water taps, we enter No. 16, a Camellia-house, with Vines on the roof, which make excellent shade for Camellias. No. 17, a vinery, is planted with Black Hamburghs and Foster's Seedling, carrying a good crop of fruit: there are also Camellias in this house. We also noticed here a pair of plants of Cypripedium insigne, 3 feet through. Passing through a glass-covered archway, we enter No. 18, a greenhouse, filled with varieties of greenhouse plants. We noticed in this house a glass case filled with Todea; it also contains a fine plant of Todea pellucida, 3 feet through. The next house, No. 19, contains a choice collection of Orchids, amongst which we noticed a pair of Dendrobium Dalhousianum, and other varieties of Dendrobium; nice pieces of Vanda suavis, V. tricolor, &c., and a grand spike of Lælia purpurata, the flowers measuring 8 inches across—a very fine variety; Lælia anceps, throwing up nine spikes of bloom; Aerides Dayanum and Lobbii odoratum, nice pieces; Cattleya Trianæ, Skinneri, Mossiæ, bicolor, and Amethystoglossa, nice plants; Cypripedium barbatum superbum in a 7-inch pot, bearing fifteen splendid blooms; C. nigrum, also villosum, Hookeri, and others; Lycaste Skinneri alba, and others; a plant of Miltonia spectabilis, 2 feet through, showing upwards of forty spikes of bloom; and Brassia brachypus, throwing up eight spikes of bloom. There is also in this house a nice young plant of Anthurium Scherzerianum, large-spathed variety, growing freely; also, trained on pillars, the Vanilla aromatica, and many other interesting plants.

We next enter No. 20, a small plant stove, filled with different varieties of plants for table decoration and specimen plants of Allamanda, Maranta, Rondeletia, Acalypha Wilkesiana, well coloured; Alocasias, Dracænas, Crotons, also Croton undulatus, 5 feet high, 4 feet through. On the back shelf near the glass are varieties of Calanthe, making fine growth; also a plant of Stephanotis trained on the roof, where it flowers freely. This range of three houses is 30 feet long by 16 feet wide, 12 feet high, hip-span, heated by top and bottom heat, flagstone path down centre, ventilated back and front (worked by levers). We now cross a path and enter No. 21, a second early Strawberry-house, 20 feet by 16 feet, built with a hip; the hanging shelves from the roof will carry 250 plants in succession, now filled with Poinsettias, &c. No. 22 is an early Strawberry-house, of the same size and build, heated by six rows of 4-inch piping. In these houses there are annually forced upwards of 2000 plants; and fruit is gathered daily, from February to the end of June. The varieties grown are Vicomtesse Héricart de Thury, Eclipse, Prince of Wales, La Constante, Victoria, and Elton Improved—a fine variety for late use. This house is now occupied by Figs in pots, and a fine crop of Tomatos on the back wall.

On leaving the Strawberry-house we come to the kitchen garden, which is laid out in four squares, sloping to the south, with borders all round, and walled on three sides. The fourth side is a low wall, with ornamental palisade open to the main public road, as it is Sir John's wish not to obstruct the splendid view which can be obtained from that point of the beautiful mansion and terraces, and especially of the kitchen-garden, which a great many from Sheffield and the surrounding hamlets view with delight and call a model garden. The walls are planted with Pears, Plums, and Cherries. The centre walk is 12 feet wide, planted on each side with pyramid Apples and Pears, which are forming beautiful trees just coming into bearing. The ground is well stocked with every kind of vegetable required for the family use, and all is kept in high condition. We here noticed an excellent strain of Parsley, which looks like tufts of moss, it is so densely curled. It has been selected with great care from year to year, from choice roots, and might now be well named Perfection. Mr. Stephens has also a seedling Rhubarb, which he thinks will prove a fine variety, for, when peeled and cut, it is red throughout, and when cooked has a fine flavour and colour.

On one of the cross walks is built a brick pit, 50 feet by 5 feet, for growing early Potatos, Carrots, &c. On returning from this garden we see the potting shed, well fitted up with racks and other suitable requisites. Passing through a gateway we come to the bothy—a four-roomed house, in which a woman lives, to cook and manage for the young men. Next stands a range of pits, 90 feet by 6 feet, for storing bedding plants, &c. Near here stands the head gardener's residence. Passing through a glass-covered gateway we come to the fruit garden, where stands a range of pits, 50 feet by 5 feet, in which are four partitions; and here we are struck with the results of Mr. Stephens' mode of growing Mushrooms, which are so extraordinary, and at the same time so fully within the powers of the humblest gardeners, that we must not fail to call attention to them. Mr. Stephens conducted us to a cold frame, removed the lights, pushed aside a covering of hay and then was exposed to view a great profusion of Mushrooms in all stages of growth, many, though still succulent, of very large dimensions. Mr. Stephens makes up the bed in a Cucumber frame in the ordinary way, places the spawn in it in the autumn, and then covers the whole with a covering of hay 18 to 24 inches thick. No artificial heat is applied, neither is the bed watered from the time of its formation. Such is the simple method practised by Mr. Stephens, and certainly under no circumstances have we ever seen greater profusion of Mushrooms and certainly never of such fine quality. In the other divisions are grown Melons and Cucumbers, for summer use.

Near to these pits are planted eleven rows of Raspberries, each row 60 feet long, and one row of the fine-fruited American Blackberry, all of which bear abundant crops. They are trained to strained wires, which make good trellises for the purpose. Here were also abundant crops of Gooseberries, Currants, and Strawberries. The Strawberry is extensively grown at Endcliffe, as it is a favourite fruit with the proprietor. A great quantity of the wire crinoline is used, as they are good things for keeping the fruit clean and free from slugs. Down the centre walk is strained wire fencing for growing espalier Apple and Pear trees. We here come to a range of pits 100 feet long by 8 feet, divided into five pits, for growing Pines, Melons, Cucumbers. We noticed on a wall in this garden a fine crop of Morello Cherries. Standing outside in this garden we saw a quantity of specimen, half-specimen, and small plants of Azaleas, Heaths, Epacrises, and many other useful winter flowe plants. ring

Adjoining the flower garden is an oblong sheet of water with appropriate ornamentation, and near it a terrace with scroll beds of Box and spar, and backed up by specimen Conifers. Here is the site for a proposed winter garden, which will add an additional

charm to this well-kept and extensive garden, the excellent condition of all departments of which is highly creditable to the skill and zeal of Mr. Stephens. The gardener's residence and the accommodation provided for the young men are of a superior character, and reflect honour on the liberal-minded and popular proprietor of Endcliffe.

BRITISH GARDENERS — XXIII.

Richard Gilbert.

This fine specimen of a British gardener, whose portrait we place before our readers to-day, was born at Worksop, on August 6, 1821. His father was the proprietor of the Red Lion Hotel, but the son, not relishing either hotels or horses, was always to be found in his grandfather's garden, and at the age of twelve years was allowed to dig the south border for early Potatos—a great privilege in his estimation.

"After staying at home until I reached the age of fourteen," writes Mr. Gilbert, "and having already filled the position of principal foreman for two years under my grandfather, I was apprenticed to Mr. John Wilson, Worksop Manor Gardens, whom I served for seven years. Worksop Manor was then the property and occasional residence of the Earl of Surrey. The glass-houses were among the best in England, and gardening was well carried out at the Manor. Pines and Vines were here done to perfection; the former I have seen 11¾ lb. (Providence), grown in pots, and, by-the-by, splendid houses of succession plants, and a fine canopy of Grapes overhead. Here I used to visit Welbeck, Clumber, Thoresby, and Osberton, and being quite the white-headed boy with my excellent friends, Mr. Tillery and Mr. Moffatt—the former still at Welbeck and the latter then at Clumber—they always showed me round themselves, and took the greatest interest in my welfare generally. I am happy to say that the friendships then formed last to this day.

"After my seven years' stay at Worksop Manor I was sent to Arundel Castle, under Mr. R. Wilson, where, I believe, I filled every place in the garden except the master's—first flower-garden foreman, then kitchen-garden foreman, and afterwards, when the lamented Mr. McEwen took charge, general foreman. I cannot pretend here to relate the great ability and success with which Mr. McEwen filled the position he there held, but I may say that I never saw George McEwen's master at growing Strawberries. Grapes and Pines he was not so successful with, but as a general horticulturist his name stood high, and deservedly so.

"After spending about ten years at Arundel, which were among the happiest days of my life, my old master, Mr. John Wilson, recommended me to Dr. Lindley, and never shall I forget my first interview with "the Doctor." He scanned me closely, asked me a great many queer questions, but at last said, 'I want you to wait upon Yarborough Yarborough, Esq., at the Pall Mall Club, and you will come back and let me know how you get on.' I kept the appointment, and was engaged for my first place in a very short time. I then returned to the Doctor (an errand I did not much relish), but, however, we got on very well, he giving me a few instructions how to proceed.

"Mr. Yarborough's place was Sewerby House, Bridlington Quay, where we had a large orangery, a conservatory, and several half-span and lean-to pits, and houses for Grapes, Peaches, and Figs, &c.

"Here I soon discovered that though head gardener I had about half the power I had when foreman. However, I rubbed on till the August of the following year, when I had to exhibit my produce at the Bridlington Quay flower show—where I won eighteen first prizes, ten second, and four thirds, and received £3 12s. 6d. for thirty-two prizes (a large amount was it not?)—and was then questioned as to "what I intended to do with the money." This astonishing success encouraged me to stay a little longer, and the following year I repeated my successes. Not liking Yorkshire so well as a more southern clime, I went to my old master (McEwen) at the Royal Horticultural Gardens, Chiswick. From this time dates my friendship with the present worthy superintendent, with whom I have mown short grass in the dear old arboretum from four in the morning till nine at night. I was after a time put under Ben Hyde (what Chiswick man has not kindly recollection of "Old Ben"?) in the distribution department, and I should like publicly to thank Ben for the disinterested kindness I received at his hands in those days and since.

"From the Society's gardens I went to take charge of the gardens of Samuel Rickards, Esq., Shalimar, Acton, where I found two little vineries and a conservatory. While in this situation I believe I was the first to patronise Sir Joseph Paxton's 'hothouses for the million,' getting first two small lean-to's, subsequently two Peach-houses, an orchard-house, Strawberry-house, and Pelargonium-house. I well remember the pleasure my master had in looking round his garden, and notably his pride when we cut our first Pine, a Smooth Cayenne of 6 lb., and his sending it to a friend in Paris.

"I served him for seven years, adding yearly to the dessert-table and to the pleasure of my employer; and it is but fair to add that he fully appreciated my endeavours.

"Alas! Mr. Rickards died. I lost a kind, good master, and the place was soon sold, and a great part is now built over. When this occurred, I was sent to a place called Burntwood, Wandsworth Common, where eight months was a sufficiently long stay. After this I went back to Chiswick for a short time, then to Blackmore Priory, Essex, where two of the young members of the firm of Wheatly & Myatt, of Deptford, lived. Here I got on well, always receiving the greatest kindness from my employers, until I was recommended to the Marquis of Exeter (my present noble employer) as kitchen gardener. Here I am still, and hope to remain. As was stated recently in the pages of the *Gardeners' Chronicle* I have now entire charge of all matters horticultural at Burghley. It is needless for me to give particulars of the place, as it is well-known in the gardening world. My employer is a kind and good master, taking great interest in the state of the gardens.

"As regards exhibiting I have never done much except with vegetables; but at the provincial shows of the Royal Horticultural Society I have never, except on one occasion, been left out in the cold entirely. My most fortunate hit, however, was winning the 'Carter Challenge Cup' a few weeks ago."

Mr. Gilbert's native modesty has prevented him from more than casually alluding to his success as an exhibitor of vegetables, but it is due to him to say that no man has done more with his pen, and more substantially with his productions, to kindle enthusiasm in the culture of vegetables—the sheet anchor of every good gardener; and it would be difficult to estimate the value of the services so cheerfully and, shall we say, so originally rendered. We may add that Mr. Gilbert not only enjoys the friendship of a great number of the members of the gardening fraternity, but also great popularity amongst the men employed under him. About two years ago they presented him with a handsome timepiece; and on the occasion of a recent very successful competition, with his favourite vegetables, and which was also the seventh anniversary of his directorship at Burghley, he again received a token of their esteem in the shape of a handsome arm-chair. Mr. Gilbert does all that a man can do to better the position of his men, and the good feeling which exists between them is alike creditable to all concerned.

Since Mr. Gilbert has been at Burghley the Fruit Committee of the Royal Horticultural Society have awarded him no less than twelve first-class and special certificates, five of which were for Melons alone—a fact which we believe is quite unprecedented. Since he became a head gardener, Mr. Gilbert has made it a practice to take no apprentices; but, as we have heard him remark, when he gets a boy with a head on his shoulders he always brings him out. Neither does he accept gratuities from young journeymen seeking employment at Burghley, but for obtaining them a situation after serving under him his fee is a new hat, and long may he live to wear the stock already accumulated!

Reports of Societies.

Cheadle (Cheshire) Flower Show: *August 6 and 7.*—When a man has a rational hobby, and his friends take pleasure in co-operating with him, the outcome is tolerably certain to be worth attention, and likely to be beautiful and enjoying. Mr. Edward Stone, of Cheadle, Cheshire, has a hobby of this description. It consists in getting up an annual plant, flower, and fruit show, such as shall be a credit not only to the village, but to the county, and he succeeds to admiration. His father, the late Mr. Daniel Stone, distinguished as a chemist, led the way, now many years ago, and the son finds his pastime is persevering in the excellent work. Mr. Stone receives the support of all the professional gardeners in the neighbourhood; the amateurs come up in very fair numbers; and the cottagers are so well encouraged, that their contributions would suffice in themselves to make a very creditable exhibition. It is really quite pleasant to see the enthusiasm of an individual, when expended, as in the present instance, on a noble and refining art, becoming an inspiration to the many. It reminds one of the spirit of the great souls who in the bygones founded theologies and schools of philosophy; and truly, whatever good may have accrued to the world from the institution of these, never has a sounder or more salutary doctrine been submitted to mankind than that which translates itself into the theory and practice of high-class horticulture, and which has given birth to the beautiful realities of the flower and fruit show.

The Cheadle exhibition of the 6th and 7th inst. was the eighth of the new series, and was very deservedly an advance upon the average of those of former years. There were more plants, and better ones; the variety was more considerable, and it seemed to us that the general scenic or *coup d'œil* effect was more engaging. This may have come in part from the tents being considerably more capacious than on previous occasions, therefore less crowded as to their contents, so that the adjustment of the various outlines and colours of the objects exhibited could be finished off more carefully, and harmony be made concurrent with distinctness of parts and ingredients. In the construction of a flower show these are points which require attention every bit as much as the material it consists of. We have seen more than one which might have been made imposing, spoiled, nevertheless, by injudicious marshalling of the plants. Every one knows that good projects are often ruined through indiscretion as to the way they are put into practice, and that the most beautiful objects may be sacrificed by being ill-placed, and nowhere perhaps are these misfortunes more likely to occur than at a flower show, if it be not remembered at the very beginning that, like a great picture, it needs perfect balance of contours and of light and shade. Merely to take plants and flowers into a tent, and put them on tables and stages, is not to create a flower show. People of taste desire impressions of the picturesque as much, or even more, than to be treated to the sight of the last new Pelargonium or Clematis; and if the promoters of flower shows wish to gratify the thoughtful and observant, they must strive quite as earnestly to attain the highest possible degree of excellence in regard to the picturesque qualities of the entire mass, as to get plenty of exhibitors and of competitors for the prizes. The higher that the spirit and composition of the flower show are lifted towards the realms of poësy—the poësy that speaks to the imagination through the eye—so much the more is the show ennobled: while the less attention that is paid to this, and the more it is let down to the bare prosaic purposes of a trading speculation or advertisement, in precisely that same degree is it degenerated.

It was very wise, therefore, of Mr. Stone to employ a couple of tents for what, from a dealer's point of view, could very readily have been concentrated into a single one; and to go yet further, and use the village schoolroom for the fruit and vegetables and miscellaneous objects. Consequent upon this, a good view may be obobtained of everything, and an opportunity provided for a novel and very elegant kind of partition. Down the middle of tent No. 2, which was without a central platform, there was a row of Vines in pots, trained in such a way to a thin trellis as to form a green dividing wall. The foliage of the Vine is unexcelled for richness and verdure, and it seems strange that it is not more commonly resorted to for purely ornamental purposes. No. 1 tent was devoted to the great stove and greenhouse plants, of which there were many scores, and all good. Having plenty of space

for the spread of their majestic leaves, the Fan Palms and the Tree Ferns (plants which should always be treated after the same manner as the members of the Royal family) stood out gloriously. So, and for the same reason, did the herbaceous Ferns, many of which were magnificent. To this class belonged perhaps the best things in the show. It would have been difficult, at all events, to find anything superior to the specimens, of which there were several, of Brainea insignis, Adiantum cardiochlæna, and Davallia Mooreana. The fine-foliage plants were of all the accustomed kinds, and therefore presented every variety of beautiful effect, the most noticeable being the Crotons, many of which were of prodigious dimensions, and wanted only a finer and warmer day for the due setting-off of the green and gold of their elegant languor, always so rich and oriental. The Caladiums also were exceedingly beautiful. One of the very loveliest things in the show was a Caladium argyrites, a plant hard to beat as regards adaptedness for a dinner-table ornament. Orchids arrived to the number of only half-a-dozen or so, though excellently represented in a very well flowered Brassia verrucosa. Ericas were more numerous, and with very telling representatives in some capital plants of Lindleyana—one of that remarkable section which has the ends of the long scarlet corollas dyed with pea-green, a feature so much the more interesting because of the extreme rarity of this colour in petals. The Heaths and the Orchids divide it almost entirely between themselves. It occurs now and then in the Pelargoniums of the Cape of Good Hope, in the Asclepiads, and the Solanaceæ: but with these the list nearly closes. Most of the large natural orders of plants do not furnish a single example. Even in the second largest, the Leguminosæ, green in the flowers is of the utmost rarity. How pretty, in their way, are the twin emeralds at the base of the violet-purple petals of the Dulcamara, and the green veins in the rose-coloured blossoms of some of our native species of Orchis, not to mention the Aceras and the Listeras, which are green throughout. The occurrence of green in the flowers of these little indigenous plants illustrates yet once again how charmingly the great and often-supposed unique phenomena which come before the student of exotic plants, have their reflex in miniature in our indigenous flora. There is very little to be found in foreign plants that is not set forth modestly in the wild flowers of England. A prize might fittingly be offered in some flower show schedule of the future for a collection that should illustrate exotic plants by means of British ones. Were a little more introduced into our flower shows that should talk to us of the life history of plants, space being obtained by some abatement of the plethora, so very, very common, of what are really no more than fancy patterns, reminding one of the ribbons in a milliner's shop-window—coloured-leaved Geraniums for example, Coleuses, and the whole army of things that are petted just because their leaves are deficient in some portion of their natural green—they, the flower shows, would hold a corner of more dignified complexion than is ordinarily the case at present. They are pretty, without doubt, often extremely pretty; but how pleasant it would be to see a trifle more of the letterpress of the great volume of Nature, and a proportionate diminution of the duplicate examples of the coloured plates.

What a relief it is, always so well arranged for at Cheadle, after going one's rounds among the current fashions in floral silk and muslin, to come upon such things as the Ouvirandra and the Nepenthes, each in its own way a miracle of structure; the Ouvirandra a living skeleton, the Nepenthes taking us back in its name to the days of Helen, while we wonder what it can be that is contained in those curious pitchers—what is the purpose of the lid, whether it shuts down, how it comes that the little amphoræ never spill or upset of their own accord. It may be said that the function of the flower show is to encourage good gardening—that there is a place for everything, and that the place for the Ouvirandra is that where Cinderella stayed while her gaily apparelled sisters went to the dance—but good gardening does not mean simply growing "show-plants." Any doctrine that would operate to the disadvantage of any plant or class of plants which interests any considerable number of intelligent human beings must needs be unsound, and contrary to the creed of good gardening, which of course is entitled to its preferences, but which altogether forgets its nobleness of purpose when it asks only what will tell best at an exhibition, and pay expenses. Meritoriousness in plants is to be estimated by rules based upon common sense, and not upon the fictions which exclude because "unsuitable for show." Just as in the schooling of lads there is something better than the production of simply "commercial men," namely, a free and general culture, such as is likely to make gentlemen of them besides, so in gardening, and in the programmes of flower shows, that which, after all, is the most valuable is the providing of material that shall delight the heart and stimulate the imagination. The invitation to grow other than "show plants," so wisely proffered now and then in schedules of prizes, is one that is calculated to have an immensely beneficial effect. A garden surrendered to the growth of show plants, like one that is given up to "bedding-out," is only a sarcophagus of pure horticulture.

Quite as interesting in their way, at Cheadle, as the Nepenthes and the Ouvirandra, were some splendid plants of Indian Corn, taken up bodily from the soil, the beautiful tassels of golden-buff pistils hanging out at the sides, while at the summit was the grand impurpled panicle of staminiferous flowers, the lesson of the stately fabric worth that of half-a-dozen of the simply "exhibition plants." We make these remarks with not the slightest intention of underating or deprecating the "show plants;" solely, on the other hand, with a view to recommending more ample recognition of plants which ordinarily are ignored. It is a lamentable thing for the gardener himself, to say nothing of the public for whom he professes to cater, when things that intrinsically are lovely or admirable, become to him tame and insipid, through too constantly dwelling on the gaudy and the sensational. Another very good feature at Cheadle, not everywhere observable in the degree that it ought to be, is the introduction of banks or groups of simple and inexpensive things—flowers and plants that may be everybody's. Nothing in this way could be prettier than the little aggregates contributed by Mr. Hooley and Mr. Studd, the former including Grevilleas and other Proteads, with plenty of those neat little rosetted succulents which are never superfluous, and never incompatible or inconsistent; while in the collection from Heaton Mersey were sweet little Retinosporas, adapted for the decoration of the poor man's home every bit as well as for the abodes of princes. Men who provide what every one may become a possessor of, render a service to floriculture and horticulture like that which is supplied by cheap issues of noble books, and deserve to be thanked accordingly.

Of the details of this beautiful show, and of the awards, it is unnecessary to speak at length. A list of prize winners is interesting to the people who are immediately concerned, and in the columns of the local newspaper is right and proper enough; but to other people it is only under very special circumstances that it can be more than a dead letter. Suffice it to say that in every department the exhibition was well sustained, the fruit and the vegetables lacking in no degree. In the fruit-room the effect was very pleasingly enhanced by abundance of bouquets, baskets of flowers, dinner and supper table devices, &c., while every "coign and vantage" of the ancient oak-beamed roof was occupied by some telling plant. The cottagers' prizes, instead of being given in money, were handed over to the winners in the shape of useful and ornamental household articles—workboxes and satchels for the girls and young women, cruet-stands and tea-trays for the married ones, more solid things for the men. It is far better to give such things than to pay in coin. Silver cups and so forth keep for years, and are pleasing memorials, whereas money, being one of the volatile essences, departs and leaves no trace. A plant of particular beauty, by the way, ought not to be left without mention, viz., the white-flowered Swainsona, the purity of the bloom set off charmingly by the pinnate leaves. White flowers are so uncommon among the Leguminosæ—we have scarcely any in cultivation after the Robinia, the Portugal Broom, the common Galega, and the culinary Pea—that this beautiful variety of an old favourite gains trebly in value. Another striking object was a very well grown Ficus Weddelliana, the leaves 9 inches long, ovate, and slightly cordate at the base.

The whole affair was highly creditable to the head and hands that were concerned in it. Unhappily, the weather was very unfavourable. Next year, it is to be hoped, these excellent Cheadle gardeners may have it balanced by uniform and abounding sunshine.
Leo Grindon, Manchester.

Weston-super-Mare and East Somerset: *August* 4.—In the western division of the kingdom there are now several societies whose summer shows will bear favourable comparison with any held at the same season, even in the northern counties, of these the Weston-super-Mare is one of the best. The exhibition on the present occasion, as heretofore, was held under five large tents, in the Grove and Rectory fields, an enclosure at the western side of the town, well situated for the purpose, but which if larger would all the better accommodate the throng of visitors. Not only do the general residents of Weston and the many who temporarily take up their abode here for the summer season, go to the exhibition, but their numbers are increased by an influx of people from a distance brought in for the day by rail from Bristol, Exeter, and other surrounding places, who together make up a large attendance. Committees of this and similar societies do well to extend, as far as possible, the influence of their shows by drawing distant visitors in quantity, and not depending alone upon local support which when the time comes is not always forthcoming. By this means only can they secure the means to offer liberal prizes, failing which it is useless to look for the presence of distant exhibitors, without whose productions these shows often lack the elements which give character sufficient to make them attractive. On the occasion of the flower show the inhabitants of this pretty watering place do much in the way of decoration. The Society offers prizes for triumphal arches, that give the town quite a festive appearance, and which is evidently not thrown away, as it is a means of attracting many to the exhibition.

The principal classes of flowering and fine-leaved subjects were well represented collectively, possessing much more than ordinary merit. In the class of twelve stove and greenhouse plants in or out of bloom, Messrs. Lucombe, Pince & Co., Exeter, staged a group such as at this advanced time of the exhibition season it would be difficult to surpass, consisting of eight flowering and four foliage, amongst which were two large finely-bloomed Allamandas—Schottii and nobilis; a beautifully finished Stephanotis; Eucharis amazonica, bearing some thirty-five spikes of its chaste white flowers; a well-bloomed, splendidly-coloured Bougainvillea glabra, and Erica Irbyana, the foliage being Latania borbonica, 14 feet across, green, and perfect in its leaves; Pritchardia pacifica, a grand Palm; a huge Croton variegatus, beautifully coloured; and a good Maranta Veitchii. Mr. Cypher, Cheltenham, who was 2d, showed all flowering plants—an excellent collection, including a fine example of Erica Hartnelli, as also Ericas Turnbullii and Jacksoni; the highly-coloured Dipladenia Brearleyana, D. amabilis, Clerodendron fallax, with numerous spikes; a very fine Phœnocoma prolifera, and a couple of well-bloomed Allamandas. Messrs. Parker & Bush, Bristol, were 3d, in whose lot were Ixora Williamsii, nicely flowered; a good Anthurium Scherzerianum, Franciscea calycina, Allamanda grandiflora, and a well done Rondeletia speciosa. Messrs. Bryant & Hoskins, Bristol, were 4th, and amongst others had the deep purple-flowered Lasiandra macrantha, Statice profusa, and Ixora amboinensis. For six ornamental-foliaged plants Messrs. Lucombe, Pince & Co. were also 1st, with a moderate-sized, well-matched half-dozen, including a beautiful example of Cocos Weddelliana, Thrinax elegans, and Croton angustifolius; 2d, Messrs. Parker & Bush, in whose group were fresh, healthy examples of Livistonia altissima, and Croton Weismanni; 3d, Messrs. Bryant & Hoskins, who also had a very good lot, not over large.

For six stove and greenhouse plants in flower Messrs. Bryant & Hoskins were 1st, with a nice collection of moderate-sized plants, in which was a well-flowered Chironia, covered with its numerous pink blossoms, a useful plant at this season for either home decoration or exhibition purposes; Franciscea calycina, and Erica Aitoniana superba; 2d, Mr. S. Brown, Weston-super-Mare, who had amongst others Stephanotis floribunda, the pea-flowered Swainsonia galegifolia, and Erythrina Crista-galli. In the class for eight exotic Ferns Mr. Cypher was 1st, staging a clean, well-grown collection, conspicuous amongst which were Gleichenias dicarpa, Speluncæ, and flabellata, Cyathea medullaris, and Adiantum Ghiesbreghtianum; 2d, Mr. S. Brown, in whose group was the elegant Lygodium scandens. Mr. W. Perry, gr. to J. W. Miles, Esq., Shirehampton, had the best eight Adiantums—small plants, but even and well grown. Mr. S. Brown came in 2d, with larger but not so well-finished a lot. Eight hardy Ferns: for these Mr. Brown took 1st honours, with plants fresh and distinct; 2d, Messrs. Bryant & Hoskins. Four Lycopodiums: 1st, Mr. S. Brown; 2d, Mr. G. Matthews, gr. to T. T. Knyfton, Esq., Uphill.

Eight Zonal Pelargoniums: 1st, Mr. G. Paine, gr. to W. Ash, Esq., Weston-super-Mare. His group were moderate in size, not so flat and unnaturally trained as these plants are often met with on the exhibition stage; they were well flowered, and contained a nice assortment of colour. In exhibits of these subjects red too often preponderates to such an extent as to make them painful to look upon. Mr. S. Brown was 2d, with much larger plants, not so well bloomed; 3d, Mr. Perry. Four Gold and Silver Tricolors: 1st, Mr. A. T. Hall, Bath. Six Orchids: 1st, Mr. Perry, who exhibited a nice half-dozen, containing the not-often-seen Mesospinidium vulcanicum, Pilumna fragrans, Lælia purpurata, and Odontoglossum hastilabium.

Six Liliums: 1st, Mr. S. Brown, who was also 1st for six Petunias, six Balsams, six Gloxinias, six bulbous and tuberous rooted plants, and six Coleus; 2d in the latter class, Messrs. Bryant & Hoskins. There were shown some remarkably good Cockscombs; these showy decorative things are now receiving more attention than of late years. 1st for six, Mr. Paine, with a beautifully grown lot, some of which were 30 inches from point to point of the flowers, even in shape and dwarf; 2d, Mr. G. Hopkins; gr. to the Rev. W. C. Kinglake, North Petherton. New or rare plant: 1st, Messrs. Parker

& Bush; 2d, Messrs. Lucombe & Pince; both showing Croton majesticus.

Amateurs or their gardeners.—Six stove and greenhouse plants in flower: 1st, Mr. Perry, who staged a good half-dozen, in which was a well-bloomed Anthurium, Statice Holfordii, Clerodendron Fallax, and a Bougainvillea. Mr. Paine, who was 2d, also had a very good six, his best being Allamanda Hendersoni, with very large flowers; 3d, Mr. G. Matthews. Six ornamental-foliage plants: 1st, Mr. Paine; 2d, Mr. Perry; 3d, Mr. G. Matthews. Single plant in bloom: 1st, Mr. Perry; 2d, Mr. Pain. Six exotic Ferns: 1st, Mr. T. Hallett, Cossington; 2d, Mr. Paine; both showed well-grown not over-large plants. Eight hardy Ferns: For these Mr. Paine was 1st, Mr. Hallett 2d. Fuchsias were in this division much better shown than in the open classes: 1st, Mr. Dafforn; gr. to J. G. Oswald, Esq., Weston-super-Mare; 2d, Mr. Reading, gr. to J. Wright, Esq., Weston-super-Mare; 3d, Mr. G. Matthews. Six Zonal Pelargoniums: 1st, Mr. Paine; 2d, Mr. Dafforn. Six variegated Pelargoniums: 1st, Mr. E. Hall, Bath; 2d, Mr. Gullick, gr. to Mrs. Boudier, Weston. Six Bronze and Gold Pelargoniums: 1st, Mr. J. C. Somerville, Dinder; 2d, Mr. E. Hall. Six double Pelargoniums: 1st, Mr. Paine; 2d, Mr. E. Hall. Four Coleus: 1st, Mr. H. Howell, gr. to J. Matthews, Esq., Weston-super-Mare.

Cut flowers were largely shown and in fine condition, especially Roses, which the damp weather we have had has evidently suited; many of the flowers exhibited on this occasion were as fine as often seen in June. In the open class of twenty-four Messrs. Paul & Son were 1st, with an extremely good lot; 2d, Mr. Cooling, Bath; 3d, Mr. W. Corp, Oxford; both of whose exhibits were good. In the amateurs' class for twelve, 1st Mr. J. W. Chard, Salisbury; 2d, Mr. T. Hobbs, Bristol.

Mr. S. Dobree, of Wellington, was 1st in the open classes for twenty-four Dahlias and twelve fancies, showing for so early very good blooms. He was also 1st in the twelve for amateurs, Mr. Perry 2d. Gladiolus were produced in grand style by Messrs. Kelway & Son, Langport, who, as usual, were 1st for twenty-four with splendid spikes, amongst which were several seedlings—one named Clopea, white ground flaked with carmine, a magnificent broad-petalled flower of great substance. Ball of Fire, the name telling its colour, in which it is undoubtedly the finest that has yet appeared: it may be described as a crimson-scarlet, with violet centre, the individual flowers very large, finely shaped, and well set on the stem; the intense colour of this variety can best be realised by placing it beside Brenchleyensis, which absolutely looks dull when compared with it. Veronica, pure white ground, flaked with purple, bottom petal deep crimson; a colossal flower, possessing beautiful form. President, salmon-red, streaked with deep red, a bold, well-shaped flower. These, as they well deserved, received First-class Certificates. Mr. S. Brown was 2d with a very good lot, conspicuous amongst which was a spike of Kelway's Hogarth—a grand flower, blush flaked with lilac, purple on bottom petals.

Fruit was brought out in considerable quantities, and mostly good, especially Grapes, of which some very excellent examples were staged. Twelve dishes: Mr. Hallett took the lead, who, in a good collection, had Muscat and Black Hamburgh Grapes, Peaches, Nectarines, and Apricots; 2d, Mr. Sweeting, gr. to T. Y. Venn, Esq., Sneyd Park, Bristol. Pines: Mr. Gamlin, gr. to H. Spicer, Esq., Putney, and Mr. D. Wood, gr. to G. Harbin, Esq., Newton House, Yeovil, equal 1st. White Grapes, three bunches: 1st, Mr. O'Brien, gr. to Mrs. R. P. King, Brislington, with not over large but finely coloured bunches; 2d, Mr. G. R. Daley, gr. to Mrs. Ride, Yeovil. Three bunches of black Grapes: 1st, Mr. R. Shore, gr. to the Rev. J. Heyworth, Westbury-on-Trym, with good Hamburghs, weighing near on 4 lb. per bunch, large in berry, and well covered with bloom; Mr. Sweeting, 2d, with very nice examples of Venn's Black Muscat, in shape not unlike Madresfield Court. Melons, green-fleshed: 1st, Major Law, Banwell; 2d, Mr. Somerville. Melons, scarlet-fleshed: 1st, Mr. Somerville; 2d, Mr. Paine. Dish of Peaches: 1st, Mr. Sweeting; 2d, Mr. Perry. Nectarines: Mr. Sweeting, 1st; Mr. Perry, 2d. Apricots: 1st, Mr. G. Matthews; 2d, Mr. Somerville. There was a large show of hardy fruits, good in quality.

Vegetables were plentiful, and, as might be expected from the district, of unexceptionable quality. For a collection Mrs. Pinder, Cadbury Lodge, Yatton, was 1st, Mr. O'Brien 2d. Cottagers' productions, in the shape of vegetables, fruit, and cut flowers, are encouraged by better prizes than those offered in many places; this is as it ought to be, and resulted in a large tent being filled with exhibits that were highly creditable to all concerned. (*From a Correspondent.*)

Newport and County Horticultural: *August* 5.—This was the first exhibition of this newly formed Society. Hitherto it has been the rule to hold a Chrysanthemum exhibition in the autumn, but it was on so small a scale that there was danger of its dying out for want of interest. An attempt was then put forth to form a horticultural society for Newport and district, and the townspeople rallied well to the support of the promoters, and a subscription list of something over £100 was raised. Lord Tredegar, Mr. Thomas Cordes, M.P. for Newport, the Mayor, and many other gentlemen of the district lent their support, and there now appears every prospect of having a good annual exhibition of horticultural produce at Newport. In the Welsh district horticultural shows are not nearly so numerous as in many parts of England, but they are spreading, and one of the evidences of this quickened interest was the first exhibition of the Newport society.

The promoters were very fortunate in procuring an eligible site for the show almost within the heart of the town. It took place in the King's Hill field, which adjoins the residence of M. Jones, Esq., and if it can be had annually for the purposes of the show, it will be of great assistance in a financial point of view, as it is within an easy distance from the railway station. That Newport has horticultural tastes that only require bringing into play was made evident by a walk through the town. The forecourt gardens to many of the houses were charmingly decorated with flowering plants; some growing in beds, others on stages fixed against the fronts of the dwellings; while in the bye streets inhabited by the working classes there were many evidences of a liking for the culture of flowers: in one very small forecourt garden could be seen growing quite a large bush of Fuchsia fulgens, and plants of the same species were to be met with in windows. The town of Newport occupies a fine strategical position, beautifully sheltered, if indeed not shut in by ranges of lofty hills on the east, the north, and the west, and gifted by Nature with a deep and spacious tidal river, running through a belt of rich level country to the neighbouring waters of the Bristol Channel. The county of Monmouth is famous for its antiquities and historical associations, for it contains the site of the ancient and once magnificent city of Caerleon, the great Roman city of Caerwent, Llantarnam Abbey, the Priory of Bassaleg, Tintern Abbey, &c.

The exhibits were grouped in one large tent, and, as might be expected at a first exhibition, there was a lack of completeness in the arrangements which gave a little extra trouble to the judges—a matter that will soon come right as the officials gather experience. The leading class was for six varieties of stove and greenhouse plants in flower, the only groups being staged by Mr. T. Wattie, gr. to Thomas Cordes, Esq., M.P., Newport, who had very creditable examples. The best three stove and greenhouse plants came from Mr. George Harris, gr. to John Davis, Esq., Mr. Wattie being 2d.

Fine-foliaged plants were nicely shown by Mr. Wattie, who was also 1st in the class for six with well-grown examples. Mr. Harris, who appears to be the leading rival plant cultivator to Mr. Wattie, was 2d, with smaller but nicely developed specimens. The best three foliaged plants came from Mr. Harris.

A capital group of six exotic Ferns from Mr. J. Bishop, gr. to T. P. Banks, Esq., was 1st in that class; Mr. Wattie was 2d, and C. Lyne, Esq., 3d. Some excellent groups of British Ferns were staged, and no less than six groups competed; unfortunately the best had to be disqualified, owing to species not indigenous being staged. The 1st prize went to Mr. E. Watts, gr. to D. Morris, Esq.; the 2d to Sir G. Walker, Bart.

Achimenes were well shown by Mr. Wattie, the varieties being Edmund Boissier, Baumanni, Ambrose Verschaffelt, longiflora major, and the bright-coloured Meteor. The best Balsams, large in size and finely flowered, were shown by Mr. John Davis, of Castle Town.

Lycopods, well grown, were shown by Mr. J. Towell, gr. to Colonel Lyne, and Mr. J. Bishop. The former took the 1st prize.

Some of the best flowered Zonal Pelargoniums we have seen this season were staged on this occasion. The best four came from Mr. T. Cordes, M.P., large examples, literally covered with flowers. Mr. Harris came 2d, with plants showing high-class cultivation, but beaten by the massive heads of bloom on Mr. Cordes' plants. A specimen of Lord Derby, shown in one of the classes, was probably the best pot example of this variety ever seen; the trusses unusually large, and the pips of great size. Variegated Pelargoniums were also nicely done; vigorous in growth, and the foliage well marked.

The best Fuchsias came from Mr. Wattie, in their style of training resembling the severe conical method seen in the West of England. Colonel Lyne was 2d, with very nice bushy plants not enough in bloom.

Roses were the leading feature among cut flowers. The best twelve in the open class came from Messrs. Cranston & Mayos, Hereford, and contained very fine examples. Mr. W. Earl, Favourwood Nurseries, Newport, was a good 2d. The best stand of six blooms was staged by Mr. E. Fowler, Pontypool. In addition fine collections of Roses were staged by Messrs. J. Garaway & Co., Bristol; Cranston & Mayos; Davidson, Hereford; and W. Earl. Cut Phloxes, Verbenas, Carnations and Picotees, and boxes of cut flowers were also neatly shown.

The best collection of fruit came from the gardens of Tredegar Castle, and consisted of Black Hamburgh and Muscat of Alexandria Grapes, Raspberries, Moorpark Apricots, &c. Three excellent bunches of Duchess of Buccleuch Grapes were staged by Mr. Geo. Haines, gr. to Jno. Davis, Esq. Some good Pines in pots, as well as Peaches and Nectarines in pots, were also shown. Other fruits were fairly represented, but did not call for special remark.

Vegetables were very well shown indeed, especially in the classes for collections; and there was abundant evidence that there are plenty of good kitchen gardeners about Newport. In the classes for cottagers the exhibits, though not numerous, were of a very satisfactory character, and a great accession of exhibitors is looked for next year. (*From a Correspondent.*)

Royal Botanic: *August* 10.—The thirty-sixth anniversary meeting of this Society was held on Tuesday, at the Society's house, in their gardens, Regent's Park, Lord Chesham in the chair. The ballot for the Council resulted in the addition of Lord Londesborough, Lord Rendlesham, and Mr. J. Travers Smith as new members. H.S.H. the Duke of Teck was re-elected President, and Mr. W. M. Coulthurst was re-elected treasurer. The Secretary read the reports of the Council, auditors, &c., from which it appears that the affairs of the Society are in a satisfactory state, although the excess of rain at the end of July had somewhat interfered with the success of exhibitions and the evening *fête*.

A total of 124 new Fellows had been elected during the year, a number in excess of that of last year, and which had only been exceeded in one year of the last ten; the amount received in subscriptions was also in excess, being £300 more than that reported last year. Not only the usual exhibitions of plants, flowers, and fruit had taken place, but shows of special tribes of plants, such as Clematis, and a geographical grouping of plants had been commenced. From the Secretary's report we are glad to learn that the educational department is not neglected; a considerable portion of the garden, and an extensive range of greenhouses is devoted to the practical pursuit of botany, and (as mentioned in the Society's charter of incorporation) its application to the arts and manufactures. In this special collection are now to be seen most of the plants, whether natives of the tropics or the temperate zones, which are useful to man, and from which he draws his supply of food and drink, either that which is considered necessary as the staff of life—bread, Rice, &c., or those classed, may we say, as luxuries—spices, condiments, Tea, Coffee, Cocoa, wine, *et hoc genus omne*; the raw material of his clothing, the timber for his houses and ships, the pigments with which to beautify them—yea, and even to adorn his own "noble self"; in fact, the sources of the many streams of wealth flowing from the vegetable creation to satisfy our wants or supposed wants are here more or less brought before our eyes in a very small compass. In the year 1851 thirty-eight persons were admitted free upon application to study in the gardens. This year, 1874-5, the number was 364, including thirty-one ladies and twenty-seven artists; and 32,946 cut specimens were given to professors, lecturers, and students.

The lectures, which are free to all visitors to the gardens, and were delivered by Professor Bentley, were well attended.

A society which, at a considerable cost to itself, thus liberally supplies to all-comers practical information touching on so many and so great a variety of subjects connected with our daily life, our manufactures, and commerce, claims the hearty support of all thinking men, and we wish it every success.

Apiary.

HONEY HARVEST.—We have certainly had no honey harvest for the past five years so poor as the present one: we are writing now our experience of the North of England. As a rule in wet rainy seasons we have an abundance of swarms, and but little honey, for the simple reason that the bees, being unable to fill the cells with honey, the queen makes use of them by depositing eggs in each empty cell; thus breeding goes on at a rapid pace. On the contrary, it does not follow that dry seasons are productive of a large honey harvest, because in rainy seasons the honey may be abundant but the bees are unable to make use of it to the extent they would if the flowers and leaves were dry; and we believe a large quantity of the honey-dew deposited on the leaves of trees is washed off by heavy rains. Honey being scarce we may expect it will realise high prices at the forthcoming Wrexham Honey Fair. It may seem strange to speak of a fair or mart held especially for the sale of honey, but such

is the fact. Does it not make some of my readers desirous to be there? Even the thought of fine jars filled with limpid though often dark coloured heather honey causes one's mouth, to use a frequent expression, "to run water." At this far-famed if not celebrated fair, held in the old Welsh town, the honey is not sold by weight. Of course our London friends purchase their winter stock from some Italian warehouse or chemist at a certain price per pound, but at Wrexham it is retailed by the quart; probably they are aware to within an ounce or two of the exact weight in each quart.

Perhaps at no meal during the day do we relish honey so much as at breakfast, and we believe it is far healthier to eat than butter. Of course it would scarcely do to eat at every morning meal—we should soon become cloyed with it, but by way of change butter your toast with honey, for it is a relish which may appear on the table of both rich and poor alike, without being thought extravagant.

HOW FAR WILL BEES GO FOR HONEY? is a question which has never been satisfactorily answered. A bee-keeper once tried the old experiment of dusting his bees with flour as they left the hive, then rode to a heath seven miles away, where he discovered his white bees most busy collecting honey; however, this experiment cannot be relied upon, for the simple reason that pollen, with which bees are often completely covered, bears a general resemblance to flour, and might be mistaken in colour when the bees are on the wing. We think they seldom venture more than three miles from home, for we have known them to be in a starving condition when another apiary four miles away was flourishing, and gathering stores rapidly. It has in recent years been proved by Italian hybrids that queens have met with drones which were known to be at least three miles away, but this will scarcely apply to worker bees flitting about from flower to flower; they must become weary before they are three or four miles from their home.

PRINCIPAL SOURCES OF HONEY.—We must not for a moment suppose that bees gather all their rich stores from the garden. If they were to depend upon the supply from cultivated flowers we should have but little honey to sell, instead of reaping a substantial harvest. The chief sources of honey in this country are the white or Dutch Clover and the Heather; the Buckwheat yields a large quantity, but it is not cultivated sufficiently largely to make the supply good. The honey gathered from the Heather is dark coloured, but of a rich wild flavour; this is principally collected in the autumn. Our stocks are now known to have the finest honey in April and May; this is more pure and better flavoured than any other, and is procured from the Clover. Bees kept on open downs or in the neighbourhood of extensive pasture lands always pay the best in a pecuniary point of view; they feed principally on the Clover. We spoke recently to a poor widow who gains the best part of her living from bee-keeping—nay, it is her great boast that she has never troubled the parish for a penny, but her bees have been a sure source of income. When we have heard nothing in other quarters but complaints about the wretched honey harvest, she can often glean about 40 lb. of rich white honey from each stock. So we asked her opinion as to where her bees pastured? Her reply was quite characteristic; pointing to the long level stretch of sheep lands lying before us, she said, "Ah! if I kept a cow, I could not even be allowed to turn her in the lanes, and if I allowed her to stray in the fields I should be fined, but they cannot fine my bees, and these can pasture upon all the Duke's lands." The Borage, Mustard, and Raspberry are also excellent honey plants, still, being limited in cultivation, the supply of honey from them is uncertain.

We once tasted a beautiful sample of honey in Liverpool; and upon inquiries we found it came from near New Brighton. Going afterwards over the extensive sandhills on the coast, we found it covered with a large quantity of wild Thyme. This gives a richly flavoured honey, but not so white and clear as that of the white Clover. Mr. Pettigrew makes a calculation that a 20-acre field sprinkled with Clover will yield 100 lb. of honey per day. This may appear to many persons slightly exaggerated; we hope to refer again soon to this interesting subject, one, too, of vast importance in a commercial point of view.

BEST HONEY SEASON.—Which is the best honey season, a wet or a dry one? A long drought soon destroys the harvest of honey, and a too wet season is even worse, a medium betwixt the two is, we find, the best. We base this upon the past ten years' experience of bee-keeping. When we hear fears expressed about an expected drought, the bees are then storing honey rapidly if this happens to be in early summer, but if it continues the honey gradually becomes scarce. A tolerably moist season is after all the best, for the secretion of the honey depends much upon the state of the atmosphere. During dry easterly winds the fields present to the bees nothing but barrenness, and if they have no stores to fall back upon they begin to starve—which is soon discovered by their casting out the brood. When the weather is moist and sultry, and the air charged with electricity, honey is most abundant. The bees know this only too well, for instead of idling at home, singing "a better day is coming on," they work to make hay while the sun shines. Huber remarks that the collection is never more abundant, nor their operations in wax more active, than when the wind is in the south, the air moist and warm, and a storm approaching. Heat too long protracted, cold rains, and a north wind entirely stops honey gathering.

The famed Narbonne honey is said to be collected from the wild Rosemary, which is as abundant on the hills of the South of France as the wild Thyme is in England. *R.*

ABUNDANT SWARMS.—I can fully bear out your correspondent, "A. G.'s" statement in your last issue respecting excessive swarming; in my apiary I, too, have had many hearty laughs about it. For example, in a little village, noted for its numerous small apiaries, in which is only one shop professing to sell bee-hives, the shop-keeper procured his usual stock of skeps in the spring, but somehow he sold out before June had passed away, and the bee-keepers have been at their wits' end to find receptacles for their swarms, so that one used his dog kennel, another a large flour barrel, whilst pan-mugs of all sorts and sizes have been pressed into the service. One swarm waited so long in a Cherry tree under the hot sun that it at length lost all patience and took up its quarters in a cottage chimney; in the evening, when the inmates came out of the fields and lighted a fire, to their astonishment bees came flying about the room by hundreds, insomuch that at length they fled for refuge to the next house for the night. Under the boards over a cottage door, called the weather boards, another swarm alighted, and are still working very peaceably; we have also a swarm beneath the dial of the church clock, and several in the thatch in cottage roofs. In wet seasons we have many swarms, as explained recently by one of your correspondents, which is, I believe, the most reasonable way of accounting for this profuse bee-swarming. *J.*

Notices of Books.

THE August number of the *Revue de l'Horticulture Belge* contains a coloured plate of double-flowered varieties of Prunus sinensis. From the news columns of this journal we learn that M. Dallière, the proprietor of one of the best managed establishments in Ghent, has disposed of his nursery to M. Adolphe d'Haene.

—— The June number of the *Gartenflora*, which has just reached us, contains a coloured plate of Campanula turbinata and of Cereus Landbecki, together with a lithograph of a curious Commelynaceous plant, Campelia mexicana. Our German friends seem rather behindhand with their news, for we have now only the commencement of the report on the Florence Exhibition of May, 1874. We poor unfortunates fret and chafe if we cannot get the report in the same week that the show opens, or at latest the following week.

—— The *Journal of Education*, published at Brooklyn, New York, is a monthly periodical devoted to the education of mind and body. Its articles are sensible and entertaining, with nothing of the pedagogic spirit about them. Those who are open to conviction, and not too wedded to the old ways, would do well to study the articles in this excellent periodical. They will derive much benefit from seeing educational matters treated in a fresh and unaccustomed manner.

—— The last issued part of Sowerby's *British Wild Flowers* (Van Voorst) includes coloured plates representing, on a small scale, the various British plants, from Poplars to Starch Hyacinth and its allies.

—— A second edition of Mr. Merrin's *Lepidopterist's Calendar* has recently been published (Gloucester, Marsden). It will be found exceedingly useful by collectors, as it gives under each month lists of the eggs, caterpillars, crysalides and perfect insects, together with indications of the plant or other substance on which they may be looked for. The author should have secured the services of some botanical friend to revise the names of plants.

Law Notes.

A CAUTION TO INEBRIATED GARDENERS.—GARDINER *v.* LONG.—This was an action brought in the Bloomsbury County Court, and heard on Monday last before Mr. J. Lake Russell, judge, in which the plaintiff, a gentleman's gardener, sued to recover from the defendant the sum of £19 10*s.* for arrears of salary, and £2 for the inconvenience he had suffered by abrupt dismissal. Mr. Wright, solicitor, appeared for the plaintiff, and Mr. Pain for the defence. From Mr. Wright's opening, it appeared that early in June, 1874, the defendant wished to secure a continuance of the services of the plaintiff, who signed an agreement for 30*s.* a week, out of which 5*s.* a week was to be kept for him as a precaution against his spending the money in drink. Plaintiff remained at work until the Easter following, when on the Easter Monday he was dismissed, without either wages or notice. The plaintiff corroborated his attorney's statement, but in cross-examination admitted that he had had a serious attack of ague on the day he was dismissed, but was not drunk, although he could not reach home and had to sleep at a neighbour's house. The plaintiff's wife was called in support of her husband, and her evidence completed the plaintiff's case. Mr. Pain urged in defence that the plaintiff was a very valuable man, and that in order to help him, the defendant made him sign an agreement to keep sober; leaving 5*s.* a week in his employer's hands as security for his good conduct, to be forfeited if he broke his agreement. The defendant stated in evidence that the plaintiff was so often intoxicated that he made him sign the agreement referred to, which he subsequently infringed by his habits of intoxication, and finally struck his employer, which at once led to the plaintiff's being taken into custody by the police, fined, and immediately dismissed. The learned Judge considered the plaintiff had had a most humane employer, from whose evidence it appeared the plaintiff had been paid more than the money due to him; and as the plaintiff had broken the agreement, which was signed, he must give judgment for the defendant, who would not apply for costs.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, AUGUST 11, 1875.

MONTH AND DAY.	BAROMETER. Mean Reading Reduced to 32° Fahr.	BAROMETER. Departure from Average of 18 Years.	TEMPERATURE OF THE AIR. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	WIND. Average Direction.	RAINFALL.
Aug.	In.	In.	°	°	°	°	°	°			In.
5	29.81	+0.06	68.2	48.7	19.5	56.7	− 5.4	47.6	71	N.: N.E.	0.03
6	29.71	−0.04	78.1	56.1	22.0	64.0	+ 1.9	59.0	84	N.	0.00
7	29.80	+0.05	77.2	58.4	18.8	65.6	+ 3.6	60.0	83	N.E.: S.	1.02
8	29.85	+0.10	74.0	60.0	14.0	66.0	+ 4.0	58.1	80	E.N.E.: S.E.	0.01
9	29.64	−0.11	74.8	60.4	14.4	65.4	+ 3.3	55.6	71	S.: S.W.	0.01
10	29.66	−0.09	78.2	57.4	20.8	64.8	+ 2.7	57.1	76	S.W.: S.	0.02
11	29.72	−0.04	74.2	61.2	13.0	65.1	+ 2.9	58.8	80	S.W.: WSW	0.03
Mean	29.74	−0.01	75.0	57.5	17.5	63.9	+ 1.9	56.6	78	N.E.: S.W.	sum 1.12

Aug. 5.—A fine day, partially cloudy. Smart shower of rain at 7.45 P.M.
— 6.—Overcast in morning. Fine from 1 P.M. to 4 P.M. Dull and frequent thunder heard after.
— 7.—Overcast and dull in morning. Terrific thunderstorm, accompanied by heavy rain, from 2 to 3 P.M.
— 8.—A very fine day. Shower of rain in early morning.
— 9.—Dull and cloudy till noon; fine and clear afterwards. Shower of rain at 6 P.M.
— 10.—A fine day, though dull at times. Rain fell in early morning.
— 11—Overcast, dull, showery in early morning. Tolerably fine after noon.

—— During the week ending Saturday, August 7, in the vicinity of London, the reading of the barometer at the level of the sea increased from 30.12 inches at the beginning of the week to 30.27 inches by the morning of the 2d, decreased to 29.89 inches by the afternoon of the 6th, and increased to 30.04 inches by the end of the week. The mean reading for the week was 30.07 inches, being 0.16 inch less than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged from 66¾° on the 4th to 78¼° on the 6th; the mean value for the week was 71½°. The lowest temperatures of the air varied between 44¼° on the 2d and 58½° on the 7th, with a mean for the week of 51½°. The mean daily range of temperature in the week was 20°, the greatest range being 26° on the 2d, and the least 15¾° on the 4th. The mean daily temperatures of the air and the departures from their respective averages were as follows: August 1, 57°.3, −5°; 2d, 55°.2, −7°.1; 3d, 59°.5, −2°.7; 4th, 57°, −5°.2; 5th, 56°.7, −5°.4; 6th, 64°, +1°.9; 7th, 65.°6, +3°.6. The mean temperature for the week was 59°5, being 2°.8 below the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 131¼° and 137° on the 2d and 3d; on the 4th, 114° was the highest reading, The lowest read-

ings of a thermometer on grass, with its bulb exposed to the sky, were 41° and 45° on the 2d and 5th; on the 7th, 56° was the lowest reading. The mean for the several low readings was 46°.

The direction of the wind was N., and its strength brisk.

The weather during the week was generally fine, and the sky cloudy.

A violent thunderstorm occurred between 2 and 3 P.M., on Saturday, the 7th, accompanied by very heavy rain. At Woolwich three soldiers were struck by lightning and one of them killed on the spot. A man was also struck dead at Chislehurst. At Lee, Lewisham, Catford, Ladywell, and Blackheath, serious inconvenience was caused by the sudden filling of the sewers which were inadequate to carry off the water and the consequent flooding of the basements of a number of houses.

At Blackheath the water came down from the heath with such violence into the low-lying parts of the village, as to seriously threaten the foundations of the houses.

In England the extreme high day temperatures ranged between 78¼° at Blackheath and 65° at Newcastle-on-Tyne, the general average all over the country being 71½°. The extreme low night temperatures varied from 49½° at Liverpool to 39¼° at Eccles, with an average value of 43¾°. The mean of the extreme ranges of temperature in the week was 27¾°; the greatest range was at Manchester and Eccles, 36°, and the least at Liverpool, 18¾°. The mean high temperatures observed by day ranged from 71½° at Blackheath and Cambridge to 62° at Newcastle-on-Tyne, the general average being 66¾°. The mean low temperatures observed by night varied between 53½° at Liverpool and 46° at Newcastle-on-Tyne, with a general average of 49½°. The mean daily range of temperature in the week was 17¼°, varying from 22° at Cambridge and 12° at Liverpool. The mean temperature for the week was 56¼°, being 1¼° lower than the value for the corresponding week in 1874. The highest occurred at Blackheath, 59¾°, and the lowest at Newcastle-on-Tyne, 56¼°.

The amount of rain measured at Sheffield was 3½ inches nearly, more than 2⅓ inches of which fell on Saturday, the 7th inst. At Blackheath, during a thunderstorm on the 7th, 1.02 inch fell between the hours of 2 and 3 P.M.; at Manchester, 1.58 inch fell during a very heavy thunderstorm; at Eccles, 0.77 inch fell; and at Hull 1.70 inch was measured. The various amounts collected in the week varied from 3½ inches at Sheffield to a few hundredths of an inch at Norwich, Bristol, Bradford, and Leeds. At Truro no rain fell. The average fall over the country was three-quarters of an inch.

The weather during the week was fine, but dull, and the sky generally cloudy. Thunderstorms occurred generally over the country on the 7th inst. Heavy rain fell at Leicester on Friday night, and a thunderstorm passed over the town on Saturday morning. Manchester and Leeds were also visited by very heavy thunderstorms on Saturday night. Part of the Manchester, Sheffield, and Lincolnshire Railway line (near Worksop), has been washed away, though not to such an extent as to stop the traffic. Thunderstorms were very general over the country on Sunday and Monday, the 9th and 10th inst.

In Scotland, the highest temperatures ranged from 75° at Dundee, to 65½ at Aberdeen. The lowest temperatures varied from 49° at Greenock, to 41½° at Paisley, their averages being 69½° and 46° respectively. The mean temperature for the week was 57¼°, being ½° higher than the value for the corresponding week in 1874, the highest was at Greenock, 59¼°, and the lowest at Paisley, 56¼°. The fall of rain during the week was generally small; the amounts varying from four-tenths of an inch at Greenock, to one-tenth of an inch, nearly, at Paisley; the average fall over the whole of Scotland was a quarter of an inch.

At Dublin, the highest temperature was 74¼°; the lowest, 39¼°; the mean, 59°; and rainfall, 0·57 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Greenhouse Hard-wooded Plants. — The removal of a considerable portion of the specimen hard-wooded plants to the open air for a time will allow more room for the small young stock that is often confined to pits during the early part of the season, and where, unless given a greater than usual amount of space, it does not receive the wanted light to the lower branches. This must necessarily be so in pits constructed in the ordinary way with brick walls, all the light admissible coming through the roof. Where young hard-wooded plants have been kept through the early part of the season in such structures, they should now be removed to the more open situation occupied by the larger specimens previous to the latter being put outside. This will greatly benefit the young stock, which by being placed thinly and elevated well up to the glass will get the light and air necessary to mature their growth. For some weeks now, until the time has arrived for again housing the larger plants, give all the air possible both night and day to this young stock. We are here speaking of such as since the commencement of the year have been moved on from 6-inch pots, or something approaching this size, and which for the present season are much better kept under glass than put out in the open air, as advised for larger plants. The reason for not fully exposing young stock is that the comparatively small body of soil their roots occupy is much more acted upon by sun and drying winds than when they are in larger pots, which has the effect of unduly hardening the growth, often inducing a stunted condition, from which it is difficult to get them to move; and by treating them as above advised they will get sufficiently ripened to stand the winter, without subjecting them to over-much exposure. Any plants that have been out-of-doors during the recent heavy rains, unless means as advised were taken to keep them from getting too much wet, cannot fail to have had their soil completely saturated. This, as has often been urged, should never be allowed to occur, and with such it will be necessary for some time to exercise more than ordinary watchfulness, to see that henceforward through the season they are not subject to a repetition, for it must not be supposed that the fact of a plant bearing any excess once would warrant its being a second time treated similarly. When anything grown in a pot has received more water at the roots than it likes, means should be taken without delay to bring the soil to a sufficiently dry, healthy condition. This will not take place so quickly as it ought if they are placed on any moisture-holding material, such as the bed of ashes recommended for standing them on, consequent upon the water continuously drawn up by the pots. The best means to remedy this is by putting the plants for a few days on inverted pots sufficiently large to ensure their not being blown off. To those who have not had much experience in growing hard-wooded subjects, such precautions against the effects of superabundant moisture as the above, and many other minute details in their culture, which are from time to time given, may appear tedious and unnecessary, yet it is by close attention to often apparently trivial matters that success with this class of plants can be attained.

Camellias.—The greater portion of the stock—that is, those that neither bloom very early nor very late—will now be about setting their flower-buds. Some difference of opinion exists as to the best time for potting Camellias, yet a little reflection upon the natural habit of the plants, confirmed by practical results, unmistakably point to the present season, soon after the buds are formed, as the time most suitable for potting. As has before been urged, the objection to moving them in the spring after they have bloomed is that it cannot then be done without disturbing the roots, which are then active and very brittle, as also impatient of being interfered with. At that season, just when the plants are about to push their shoots, any disturbance of the roots always interferes with the growth to a serious extent. So far is this apparent, that when moved late in the spring they frequently fail to grow further than simply to set flowers from the points of the preceding year's wood. When Camellias are shifted as soon as their buds are set nothing of this nature can occur, the plants having all the autumn and following spring wherein their roots can recover the check they have received, before the season's growth commences. But in this repotting, after the flower-buds are set, it is imperative to carry out the work soon after they are formed, before they have attained much size, or they will in all probability drop off from the effects of moving. They should be shifted before the buds get larger than a half-grown Pea. As to soil some growers prefer loam, others peat, or a mixture of peat and loam. Peat is undoubtedly better suited to the rapid growth of the plants, but in it they usually do not set their flowers so freely. Where good rich loam can be had, full of fibre, it is, taken altogether, the best; if this is not obtainable, and moderately fibrous peat can be had, it is better to use the latter; but whichever the plants are grown in it should not have been allowed to lay stacked longer than just to kill the roots of the grass, as, if further decomposed, it is so much worse. Do not break it too fine, add as much sand as will insure porosity, and use the potting stick so as to make the new soil as solid as the existing ball. Avoid over-potting; the Camellia does not require so much root-room as most plants. *T. Baines.*

FRUIT HOUSES.

Melons.—The weather for the past fortnight has been everything the Melon grower can desire, and a glut of richly flavoured fruits is the result. A glut of fruits is seldom desirable in private gardens; remember, therefore, what has been previously advised in regard to removing fruits from the Melon-house proper to prolong the season of supply. Fires may be safely dispensed with during a continuance of this weather. Husband a good sun-heat, by closing the ventilators early in all structures wherein are growing crops, and maintain a moist atmosphere to all plants not actually in the setting or ripening stage. I have previously advised that the plants should be excited as little as possible during the setting period; also that they should not be fumigated, and that the use of the knife should be discontinued until the fruits begin to swell off. Remember also to secure a number of fruits on individual plants of a simultaneous stage of growth, to effect which it is mostly necessary to remove the first fruits. Plants fairly strong should carry at least six fruits each. Continue to support by means of tables or nets those fruits which are becoming heavy beneath the trellis, and earth up from time to time those which have just set their fruits, previously placing a little lime round the collars. Get the last batch out as early now as possible, and maintain a minimum temperature of summer-heat: a good bottom-heat must also be secured. In pits and frames the last batch are growing freely, and will shortly be setting their fruits, when a dry condition of both the roots and atmosphere must be observed. Shade no more than is absolutely necessary to prevent flagging and scalding. Be careful that plants growing in pots or boxes do not suffer for the want of water. *Thos. Simpson, Chelmsford, August* 10.

Vines.—The canes of pot-Vines intended for very early forcing should now be in the last stage of ripeness; but if by reason of the cold sunless summer any are not ripening kindly, fire-heat should be applied forthwith, and this with abundance of air will soon have the desired effect. Those that are ripe will go to rest all the sooner if moved into the open air, but provision should be made to protect them from heavy rain, as at this stage a wet state of the roots would prove most injurious, and it should also be remembered that over-dryness is equally so, so that both extremes should be avoided. All attempts at lateral growth should be checked by pinching, but all the old foliage should be left on and allowed to fall naturally. Early Vines, if the wood is fully ripe, may now be partially pruned, that is, all laterals may be cut away and some of the longest shoots be shortened back. I do not recommend to finally prune till the foliage is all, or nearly all, down. Now is a good time to renovate the borders of early houses. It is always desirable to keep the roots within reach of sun and air, and the best way to accomplish this is to apply annually fresh feeding material. The old surface soil should be taken away and replaced with good loam, with which has been incorporated a small proportion of crushed bones, wood ashes, or charcoal. Ripe Grapes will require frequent looking over to remove shanked or decayed berries. Wasps also are likely to be troublesome, for, notwithstanding the wet and cold weather, they are very numerous in this district; all openings should be covered with hexagon netting, but the best remedy is to take the nests of such tormentors. Vines that are colouring and swelling off their crops should be aired freely, and that night and day—applying fire-heat when necessary, as a warm, dry atmosphere is indispensable to high finish in Grapes. Hasten by every possible means the progress of any Grapes that are now in any later stage than colouring, as perfect maturity or ripeness ensures perfect preservation. As a general rule, all Grapes not ripe before the end of September fail to keep satisfactorily. *W. Wildsmith, Heckfield.*

Variorum.

CARNIVOROUS PLANTS.

What's this I hear,
My Molly dear,
About the new Carnivora?
Can little plants
Eat bugs and ants,
And gnats and flies?
Who is the wise,
Who is the great "diskiverer"?

Not Darwin, love,
For that would prove
A sort of retrograding;
Surely the fare
Of flowers is air,
Or sunshine sweet;
They shouldn't eat,
Or do aught so degrading.

Alas, 'twould be
Sad news to me,
To hear your own dear Fido pet
Had lost his breath
In cruel death,
Because, one day,
In thoughtless play,
He went too near a Violet.

Or, horror! what
If, heeding not,
Some cruel plant carnivorous
We ventured near—
Yes, we, my dear—

And swallowed were,
With no one there
To succour or deliver us?

And yet, to die
By blossoms, I
Would call a doom chromatic,
For one might wait
A harder fate
Than have a Rose
End all his woes
In pain called aromatic.

Ah, science knows
Each flower that blows,
And all its wicked habits.
'Tis not for us
To make a fuss.
For aught we know,
The Lilies grow
From dining on Welsh rabbits!

Scribner's for April.

Enquiries.

He that questioneth much shall learn much.—BACON.

57. BLACK ANTS.—Can any of your correspondents tell me how to get rid of a lot of black ants, which have got into a greenhouse and infest the plants? It is a large house, where Camellias are planted against the back wall, so that the use of hot water for destroying the ants cannot be easily applied. *Rusticus.* [Plunge a saucer of oil so that the rim of the saucer is nearly level with the surface of the soil.]

58. FOLIA ORCHIDACEA. — *C.* asks if any correspondent can tell him where to procure the first part of this publication? He has tried in vain in the ordinary channels.

Answers to Correspondents.

BEGONIAS: *A. Walker.* Hybrid Begonias of the type you send are now raised in quantities in all directions. They vary considerably, and are all pretty floral objects for house decoration; but those sent are individually surpassed by some of the named sorts.

FUCHSIAS: *J. Bryson.* No. 1 is one of the largest double-flowered varieties, with purple corollas, which we have seen. Its merit depends on its habit. The striped double (number detached) is also promising.

GREEN-COLOURED OAK: *C. E. F.* The piece of wood sent has been stained by the spawn of Peziza æruginosum, and is similar to that used in the manufacture of Tunbridge-ware.

MEDLARS: *W. C. T.* The leaves of Medlar appear to be attacked by a minute black fungus, which is not yet perfectly developed, and may be a Depazea or Phoma—it is impossible to say which, except that the Phoma, if present, would probably be the stylosporous state of some Depazea. Spots are, however, this year common on Beans where there is no fungus or mycelium, the effect of long-continued ungenial weather. *M. J. B.*

NAMES OF PLANTS: *J. G.* 1, Trifolium repens; 2, Centaurea nigra; 3, Ranunculus acris; 4, Poterium Sanguisorba; 5, Vicia cracca; 6, not determinable without the leaves.—*J. C. R.* 1, Tilia parvifolia; 2, Euonymus europæus (the Spindle tree).—*J. A. S.* 1, Gymnogramma ochracea; 2, Adiantum macrophyllum; 6, Adiantum Capillus-Veneris, apparently, but the tip of a frond affords very imperfect materials for determining. The three Begonias were crushed; had it been otherwise, the materials were insufficient. —*G. H. Bebington.* 1, Dion edule; 2, Zamia horrida. —*Ignoramus.* Gypsophila perfoliata and Silene armeria.—*J. K.* Catasetum Wailesii, Hook., Honduras.—*E. N.* Spergula arvensis.—*M. J.* 1, Polygonum amphibium; 2, Alisma plantago; 3, Potamogeton natans; 4, Epilobium hirsutum; 5, Galega officinalis; 6, Veratrum nigrum; 7, Lysimachia vulgaris; 8, Scrophularia nodosa.—*M. R.* Selaginella Krausiana, commonly miscalled S. denticulata; and Schyzanthus pinnatus.—*P. P.* Pteris aquilina.—*J. K.* Francoa sonchifolia and Asclepias curassavica.—*E.* Atriplex angustifolia: an annual.—*C. N. Dove.* Cystopteris fragilis, a small neat form, but not C. regia.

COMMUNICATIONS RECEIVED:—B. W. and W. R. (your letter should have been addressed to the journal which published the statement objected to).—H. J. V.—R. F.—W. M.—W. W.—W. E.—T. J.—W. G. (next week).—W. P.—G. B.—J. K.—N. S.—P. H. G.—G. H.—E. W. R.—G. H. B.—W. B. M.—C. W. D.—G. D.

Markets.

COVENT GARDEN, *August* 12.

The market continues heavy; sales are only effected by lowering prices. Large quantities of Plums and Apples are making their appearance, and, as generally occurs with heavy crops, barely remunerate the grower. The supply of hothouse fruits is more than equal to the demand. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	1 6	Lemons, per 100	8 0	12 0
Apricots, per doz.	0 9	2 0	Oranges, p. 100	10 0	20 0
Cherries, per lb.	0 6	1 6	Peaches, per doz.	2 0	15 0
Currants, red, ½-sieve	2 0	4 0	Pine-apples, p. lb.	2 0	5 0
— black, p. ½-sieve	3 6	5 0	Plums, per bushel	3 0	4 0
Figs, per doz.	1 0	3 0	Strawberries, per lb.	0 4	1 6
Grapes, per lb.	1 0	5 0	Walnuts, p. bush.	16 0	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Horse Radish, p. bun.	3 0	5 0
Aubergines, per doz.	4 0	..	Leeks, per bunch	0 2	0 4
Beans, French, per bushel	6 0	..	Lettuces, per score	1 0	..
— broad, per bushel	3 0	..	Mint, per bundle	0 4	..
— Scarlet Run., do.	5 0	..	Mushrooms, per pott.	1 0	2 0
Beet, per doz.	1 0	2 0	Onions, young, bun.	0 4	0 6
Cabbages, per doz.	1 0	2 0	Parsley, per bunch	0 4	..
Carrots, do.	0 6	..	Peas, per quart	10	1 0
Cauliflowers, p. doz.	2 0	..	Radishes, per bunch.	0 2	0 4
Celery, per bundle	1 6	2 0	Shallots, per lb.	0 3	..
Cucumbers, each	0 3	0 9	Tomatos, per doz.	1 0	2 0
Endive, per doz.	1 0	2 0	Turnips, per bundle.	0 8	..
Herbs, per bunch	0 2	0 4	Veg. Marrows, doz.	2 6	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, 12 blooms	0 4	2 0	Myosotis, per bunch	0 4	0 9
— Clove, per doz	0 3	0 9	Pelargoniums, 12 spr.	0 6	1 6
— mixed, 12 bun.	3 0	9 0	— Zonal, do.	0 3	1 0
Cornflower, p. doz. bun.	3 0	6 0	Primula, dbl., p. bun.	0 9	1 6
Eschscholtzia, 12 bun.	3 0	6 0	Roses, indoor, p. doz.	2 0	6 0
Eucharis, per doz.	6 0	12 0	— outdoor, 12 bun.	4 0	9 0
Gardenia, per doz.	2 0	6 0	Spiræa, 12 sprays	1 0	3 0
Heliotropes, 12 spr.	0 6	1 0	Stephanotis, 12 sprays	3 0	6 0
Lilies, white, p. bun.	1 0	2 6	Stocks, 12 bun.	3 0	6 0
Mignonette, 12 bun.	3 0	6 0	Sweet Peas, 12 bunch.	2 0	6 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0	12 0	Hydrangeas, per doz.	9 0	24 0
Bouvardias, do.	9 0	18 0	Lilium lancif., p. doz.	12 0	60 0
Calceolarias, do.	6 0	18 0	Lobelia, do.	4 0	9 0
Crassula, do.	12 0	30 0	Mignonette, do.	3 0	6 0
Cyperus, do.	6 0	12 0	Myrtles do.	3 0	9 0
Dracæna terminalis	30 0	60 0	Pelargoniums, dble., per doz.	4 0	12 0
— viridis, per doz.	12 0	24 0	— Scarlet, do.	3 0	9 0
Ficus elastica	1 6	7 6	Petunia, per doz.	6 0	9 0
Fuchsia, per doz.	3 0	18 0	Rhodanthe, do.	6 0	12 0
Gardenias, do.	12 0	60 0	Solanums, do.	6 0	18 0
Gladiolii, do.	9 0	18 0	Stock, do.	3 0	6 0
Heaths, in var., doz.	12 0	30 0			
Heliotrope, per doz.	6 0	12 0			

SEEDS.

We have to report a brisk trade now doing in farm seed. Of new English Trifolium the supply is now rather larger, and we have a brisk demand for the article at full prices. Very few of the samples on offer are good either in colour or condition. The rates ruling in France have as yet been too high to admit of importations into this country. Trefoil and Clover seeds are held with the exception of enhanced values. For new sowing Rape seed there is a free sale. The quality for the season is satisfactory. Fine samples of white Mustard are getting scarce, and consequently realise more money, tht trade being lively. Notwithstanding the fact that new Canary seed is now offering, the quotations, owing to speculation, show a further advance on the week. The samples of new winter Tares which have as yet appeared on Mark Lane have been small and poor. We have an inquiry for winter Barley and Rye. Blue Peas come to hand sparingly. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday a rise of 1*s.* to 2*s.* per qr. was established in Wheat. Barley was dull, though not lower in price than on the previous Monday. Malt was without any material change in value; Oats went oft at last week's rates; and Maize was steady on former terms. No change worthy of remark was to be noted in Beans and Peas. There was a sympathy with Wheat in the flour market, and the quotations had an upward tendency. — The market on Wednesday was dull as regards business, and the fine weather was not without some effect upon prices. The show of English Wheat was small, and holders of that description of produce were not anxious to realise, but the arrivals from abroad were good, and prices underwent no material change. Barley, malt, Oats, Maize, Beans, and Peas were also about the same in value as on Monday, and the rates of that day were not exceeded for flour.—Average prices of corn for the week ending August 7:—Wheat, 53*s.* 10*d.*; Barley, 40*s.* 4*d.*; Oats, 32*s.* 4*d.* For the corresponding week in last year:—Wheat, 58*s.* 6*d.*; Barley, 39*s.* 1*d.*; Oats, 30*s.* 8*d.*

CATTLE.

Choice English beasts were scarce at market on Monday, but trade was dull, and prices for all kinds gave way. In sheep choicest qualities did not suffer much, but trade was very languishing. Lambs and calves were decidedly lower, and it was difficult to clear them. Quotations:—Beasts, 4*s.* to 5*s.*, and 5*s.* 8*d.* to 6*s.* 4*d.*; calves, 4*s.* 6*d.* to 5*s.* 6*d.*; sheep, 5*s.* 4*d.* to 6*s.*, and 6*s.* 6*d.* to 7*s.*; lambs, 6*s.* to 7*s.* 6*d.*; and pigs, 4*s.* 6*d.* to 5*s.* 6*d.* —Trade in beasts was dull at Thursday's market, and Monday's rates were not realised throughout. Choice quality sheep were dear, and lambs on the average lower. Business in calves was slow, at reduced rates. Milch cows remain at late quotations, with a dull trade.

POTATOS.

Borough and Spitalfields markets reports are to the effect that supplies have been moderate. Regents made from 80*s.* to 120*s.*; Shaws, 40*s.* to 90*s.*; and kidneys, 80*s.* to 140*s.* per ton. The arrivals from abroad last week were very low; only 10 tons and 100 casks being received from St. Vaast and 67 sacks from Dunkirk. Prices improved toward the close of the week.

COALS.

The market was without change on Monday, and on Wednesday a steady business was done at the following prices:—East Wylam, 19*s.* 6*d.*; Holywell Main, 19*s.* 6*d.*; Weardale Unscreened, 15*s.*; Walls Ends—Lambton, 22*s.*; Kelloe, 19*s.* 3*d.*; East Hartlepool, 22*s.* 3*d.*; Original Hartlepool, 22*s.* 6*d.*; South Kelloe, 20*s.*

R. HALLIDAY AND CO.,
HOTHOUSE BUILDERS
AND HOTWATER ENGINEERS,
MANCHESTER.
OFFICES—22, Barton Arcade.

Metallic Hothouse Builder to Her Majesty.
HENRY HOPE
(late Clark & Hope, formerly Clark),
HOTHOUSE BUILDER and HOT-WATER APPARATUS ENGINEER,
55, Lionel Street, Birmingham. Established A.D. 1818.
BOOKS of DESIGNS, 5*s.* each.
☞ The Extensive Ranges of Metallic Hothouses in the Royal Gardens, Windsor and Osborne, were executed at this Establishment.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable, at 1*d.* per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.
EDGINGTON'S CRICKET and GARDEN TENTS are the prettiest.
EDGINGTON'S MARQUEES for Hire are the most elegant and capacious.
EDGINGTON'S RICK CLOTHS for 69 years have maintained their celebrity as the best.
TIFFANY, SCRIM CANVAS, and every other kind of NETTING.
Be particular—FREDK. EDGINGTON AND CO., Rick Cloth, &c., Manufacturer to Her Majesty, 52, Old Kent Road, London, S.E.
A quantity of good Second-hand Government TENTS for Sale, Cheap.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.
TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3*d.* per yard, or 100 yards, 20*s.*, 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.*
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
TIFFANY, 6*s.* 6*d.* and 7*s.* 6*d.* per piece of 20 yards.
EATON AND DELLER, 6 & 7, Crooked Lane, London Bridge.

The Most Perfect Hot-water Pipe in the World.
MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy Labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	..	..	..	3*s.* 4½*d.*
3-inch Pipe, per yard	..	..	..	2*s.* 8½*d.*
2-inch Pipe, per yard	..	..	..	1*s.* 8*d.*

Connections at proportionate prices.
Illustrated Price List free on application to
MESSENGER AND COMPANY, Hot-water Engineers, Loughborough.

The Royal Pottery, Weston-super-Mare.
UNDER ROYAL PATRONAGE.
JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.
JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries.
KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

PAXTON'S CALENDAR.

NOW READY, A NEW AND THOROUGHLY REVISED EDITION OF THE

COTTAGER'S CALENDAR

OF

GARDEN OPERATIONS.

ORIGINALLY COMPILED BY THE LATE SIR JOSEPH PAXTON, M.P.

OPINIONS OF THE PRESS.

"We are quite glad to see this useful little book once more, and it is like a whiff of perfume from the heather in bloom to read on the wrapper 'two hundred and twenty-first thousand.' We advise all who are interested in the promotion of cottage gardening to sow this little book broadcast."—*Gardeners' Magazine.*

"The information conveyed in this little book is well adapted for all persons having small plots of ground. The necessary operations for each month are clearly laid down, and are of a thoroughly practical nature. The sorts of both fruit and vegetables are well selected, many of them being excellent in quality. To our readers who are interested in the cultivation of their flower and kitchen gardens, we can safely recommend this as being a most concise and useful work."—*Bell's Messenger.*

"It has been carefully revised by an experienced gardener, and the lists of vegetables, fruit, and flowers have been corrected by the substitution of the most approved modern kinds, in place of those which were mentioned in the first edition, and many of which have ceased to be worthy of cultivation. It is a thoroughly sound, practical treatise; but it has been so long before the public, and so deservedly appreciated, that any special commendation of it now is unnecessary."—*Midland Counties Herald.*

"This is a handy volume, consisting of seventy pages of letterpress and illustration, containing much and varied information likely to prove useful to all cottagers, &c., who possess a garden. To all such, who require a cheap and reliable book of reference, we heartily recommend it."—*Lloyd's.*

Price 3d., Post Free 3½d.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, LONDON, W.C.

Q Valuable Scientific Discovery.

Do the results of a long-continued series of practical tests of Apps.'s Meeks & Day's Patent Steam Engine Boilers, as to Economy of Fuel, and Effective Power, entitle them to the Highest Commendation as a Valuable Invention, and worthy of Universal Adoption?

Yes. The Boilers are now only sold at 20 per cent. below the Advertised Prices, and a Guarantee for 10 years is given with every Boiler.

As a minimum saving of 30 per cent. has been effected, and may be confidently relied upon, by the use of Apps.'s Meeks & Day's Patent Water-Tube Diaphragm Boilers, with Vertical Plates exposed to the Fire, as compared with the ordinary Internal Flue Boiler, with Horizontal Plates and Flat Fire-box, which, being constructed through the Furnace Steam, greatly increases the Consumption of Fuel, and other Inconveniences.

Apps.'s Patent Diaphragm Boilers are the most Economical, and are Guaranteed to Burn their own Smoke—Consumers.

Apps.'s Patent Diaphragm Boilers are the most Economical, and are Guaranteed to Burn their own Smoke—Consumers.

Who Effective Steam Engine, with Vertical Plates exposed to the Fire, as compared with the ordinary Internal Flue Boiler, with Horizontal Plates and Flat Fire-box, which, being constructed through the Furnace Steam, greatly increases the Consumption of Fuel, and other Inconveniences.

Who invention in connection with Apps.'s Patent Duplex System of Two Boilers in one, at once condenses these Boilers the most Economical, and effective ever invented, while for durability Meeks & Day's Boilers are Guaranteed with every Boiler a Fixed by them.

Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierly Hill Ironworks, near Dudley; and 118, Queen Victoria Street, London, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For particulars and Testimonials, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

CARSONS' PAINT,

PATRONISED BY THE QUEEN,

H.R.H. THE PRINCE OF WALES,

The British, Indian and Colonial Governments, 8000 of the Nobility, Gentry, and Clergy, Railway and Canal Companies, Collieries, Iron-masters, &c., &c.,

Is extensively used for all kinds of

OUTDOOR WORK.

It is especially applicable to

WOOD, IRON, BRICK, STONE & COMPO.

CAN BE LAID ON BY UNSKILLED LABOUR.

Sold in all Colours.

2 cwt. free to all Stations.

Prices, Patterns, and Testimonials sent Post Free.

WALTER CARSON & SONS,

LA BELLE SAUVAGE YARD,

LUDGATE HILL, LONDON, E.C.,

And 21, BACHELOR'S WALK, DUBLIN.

No AGENTS.

LAWN SWEEPING and ROLLING MACHINE, Patented.—Great economiser of labour. To the hand besom what the mowing machines have been to the scythe. Independent of lawn sweeping and rolling we sweep and roll one mile of sand walks, averaging 9 feet wide, under two hours, with ease, with a 3-foot machine. Is not that economy? During five months' rough work, testing the machines, the besom has only worn one-eighth of an inch. They sweep and roll close up to the verge. Illustrated Price List on application.

SINCLAIR AND CLAYTON, Ripley, Leeds.

BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities, of

BETHAM & SON,

9, LOWER THAMES STREET, LONDON, E.C.

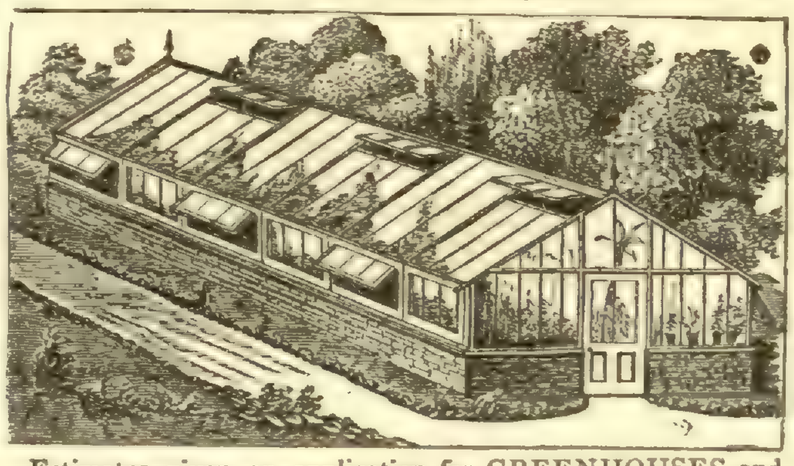
B. & S. have always a large Stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., in 16 oz. and 21-oz.

HOT-WATER APPARATUS.

BARNARD, BISHOP & BARNARDS will be happy, upon application, to furnish estimates for Heating Churches, Conservatories, Greenhouses, Forcing Pits, &c.

NORFOLK IRONWORKS, NORWICH.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE. Illustrated Price Lists free.

HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

HORTICULTURAL IRON and WIRE WORKS.

For CONSERVATORIES.
Wirework Baskets.
Wirework Trellis.
Wirework Flower Stands.
Ironwork Flower Stands.
Balloon and other Trainers.

GARDEN.
Wirework Arches
Wirework Roseries.
Wirework Summer-houses.
Wirework Screens.
Wirework Hurdle Fencing.
Iron and Wire Espaliers.
Iron Gates.
Water-piping laid on in Gardens.

Illustrated CATALOGUE of Designs.

R. HOLLIDAY, Iron and Wire Works, 2A, Portobello Terrace, Notting Hill Gate, London, W.

Under the Patronage of the Queen.

J. SMITH'S IMPROVED METALLIC LABELS.

The above Labels—which have just been adopted for the Royal Gardens at Windsor—are made of a White Metal, with RAISED BLACK-FACED LETTERS, and are of various shapes and sizes. Samples and Price List free.

Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

GOVERNMENT EMIGRATION.

SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s.*

For passages and further information, apply to the AGENT-GENERAL, 3, Westminster Chambers, Victoria Street, S.W.

AGRICULTURAL LOCOMOTIVES,

STEAM PLOUGHING MACHINERY,

ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES, STEAM ROAD ROLLERS.

For Prices, Description, and Reports of Working, apply to the Manufacturers,

AVELING & PORTER,

ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

W. RICHARDSON & CO.,

Horticultural Builders and Hot-water Engineers,

DARLINGTON,

Have pleasure in informing their friends that they have just completed extensive NEW WORKS, fitted up with the most modern STEAM-POWER MACHINERY, and every appliance for the Manufacture of Horticultural Buildings in Wood and Iron.

A siding from the main line of the North-Eastern Railway being laid direct into the Works, W. R. & Co. are in a position to deliver their Glazed Structures *carriage paid to any station in Great Britain*, including risk of breakage.

Richardson's Patent Horticultural Buildings

Are portable, thoroughly strong and durable, and have the most perfect system of ventilation, with complete protection from the weather.

Designs and Estimates prepared for Conservatories, Greenhouses, Orchard-houses, Vineries, Peach-houses, &c.

HOT-WATER APPARATUS, portable or otherwise, fixed by experienced workmen in any part of the country, and guaranteed.

ILLUSTRATIONS, PRICE LISTS, AND TESTIMONIALS FREE ON APPLICATION TO THE MAKERS.

NORTH of ENGLAND HORTICULTURAL WORKS, DARLINGTON.

JOSEPH HAYWOOD & CO.,

MANUFACTURERS OF

CELEBRATED AND WARRANTED

PRUNING AND BUDDING KNIVES,

VINE SCISSORS, ETC.

GLAMORGAN WORKS, SHEFFIELD.

LONDON AND COUNTY BANKING COMPANY.

Established in 1836, *and Incorporated in* 1874 *under "The Companies Act*, 1862."

Subscribed Capital, £3,750,000, in 75,000 Shares of £50 each.

REPORT ADOPTED AT THE HALF-YEARLY GENERAL MEETING, AUG. 5, 1875.

The Directors, in laying before the Proprietors the Balance Sheet of the Bank for the Half-year ended on 30th June last, have the satisfaction to report that after paying Interest to Customers and all charges, allowing for Rebate and making provision for ordinary Bad and Doubtful Debts, the Nett Profits amount to £165,920 2s. 10d. This sum, added to £18,936 9s. 5d. brought forward from the last account, produces a total of £184,856 12s. 3d.

They have declared an Interim Dividend for the Half-year at the rate of 16 per cent. per annum, which will absorb £96,000, and after reserving £6093 15s. to meet Interest accrued on New Shares, there remains a balance of £82,762 17s. 3d. to be carried forward to Profit and Loss New Account.

The Directors regret to report that an exceptional loss has been incurred through the failure of Messrs. A. Collie & Co., whose drafts upon various firms, amounting to £213,398 17s., held by the Bank, have not been, or will not be paid at maturity, or in full. To meet this loss the Directors have transferred from the Reserve Fund and placed to a special account the sum of £75,000, which, with the balance of Profit and Loss carried forward, will in their judgment be an ample provision for any deficiency that may arise.

The Reserve Fund, after the above deduction, stands at £636,895.

The Directors have the pleasure to report that they have elected Mr. Robert A. Brooks (of the firm of Messrs. Robert Brooks & Co., of St. Peter's Chambers, Cornhill), to a seat at the Board, vacant by the retirement of Mr. N. Alexander.

The rules and regulations for granting retiring and other allowances to Officers of the Bank, having been submitted to Counsel for consideration, he has advised that it is desirable that the resolution passed by the Proprietors at the Annual General Meeting held on 4th February last, authorising the Directors to grant those allowances, should be confirmed by the Proprietors at an Extraordinary Meeting, which, in conformity with notice already given, will be held after the conclusion of the present Meeting when the resolution referred to will be submitted for confirmation.

The Dividend, £1 12s. per Share, free of Income Tax, will be payable at the Head Office, or at any of the Branches on or after Monday, 16th instant.

BALANCE SHEET OF THE LONDON AND COUNTY BANKING COMPANY, JUNE 30, 1875.

DR.	£	s.	d.	£	s.	d.
To Capital paid up	1,200,000	0	0			
Instalments received in respect of New Shares	223,790	0	0			
				1,423,790	0	0
Reserve Fund	525,000	0	0			
Instalments received in respect of New Shares	111,895	0	0			
				636,895	0	0
Amount due by the Bank for Customers' Balances, &c.	21,249,000	17	1			
Liabilities on acceptances, covered by Securities	1,960,488	6	0			
				23,209,489	3	1
Profit and Loss Balance brought from last Account	18,936	9	5			
Gross Profit for the Half-year, after making provision for Bad and Doubtful Debts	445,438	7	7			
				464,374	17	0
				£25,734,549	0	1

CR.	£	s.	d.	£	s.	d.
By Cash on hand at Head Office and Branches, and with Bank of England	3,200,484	3	1			
Cash placed at Call, and at Notice, covered by Securities	2,989,906	17	3			
				6,190,391	0	4
Investments, viz.:—						
Government and Guaranteed Stocks	2,021,814	16	9			
Other Stocks and Securities	82,103	7	6			
				2,103,918	4	3
Discounted Bills, and advances to Customers in Town and Country	14,831,608	1	3			
Liabilities of Customers for Drafts accepted by the Bank (as per contra)	1,960,488	6	0			
				16,792,096	7	3
Freehold Premises in Lombard Street and Nicholas Lane, Freehold and Leasehold Property at the Branches, with Fixtures and Fittings				421,815	9	10
Interest paid to Customers				102,915	0	7
Salaries and all other Expenses at Head Office and Branches, including Income-tax on Profits and Salaries				123,412	17	10
				£25,734,549	0	1

DR. PROFIT AND LOSS ACCOUNT.	£	s.	d.
To Interest paid to Customers, as above	102,915	0	7
Expenses, as above	123,412	17	10
Rebate on Bills not due, carried to New Account	53,190	6	4
Dividend of 8 per Cent. for Half-year	96,000	0	0
Reserve to meet Interest accrued on New Shares	6,093	15	0
Balance carried forward	82,762	17	3
	£464,374	17	0
CR.			
By Balance brought forward from last Account	18,936	9	5
Gross Profit for the Half-year, after making provision for Bad and Doubtful Debts	445,438	7	7
	£464,374	17	0

We, the undersigned, have examined the foregoing Balance Sheet, and have found the same to be correct.

(Signed) WILLIAM NORMAN, RICHARD H. SWAINE, STEPHEN SYMONDS, *Auditors.*

London and County Bank, July 29, 1875.

By Order, GEO. GOUGH, *Secretary.*

London and County Banking Company.

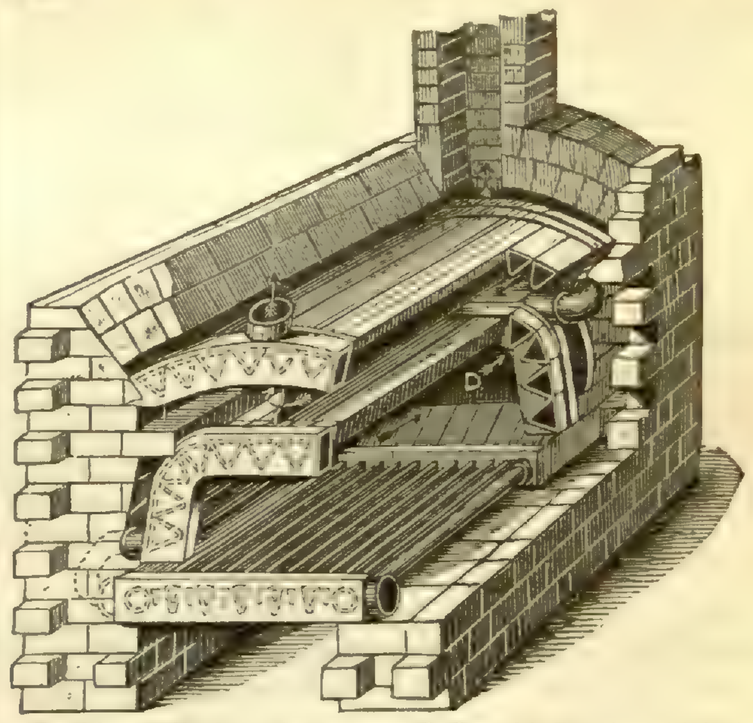
NOTICE IS HEREBY GIVEN that a DIVIDEND on the CAPITAL of the COMPANY, for the half-year ended June 30, 1875, at the rate of 16 per cent. per annum, will be PAYABLE to the Proprietors either at the Head Office, 21, Lombard Street, or at any of the Company's Branch Banks, on or after MONDAY, the 16th instant.

By order of the Board,

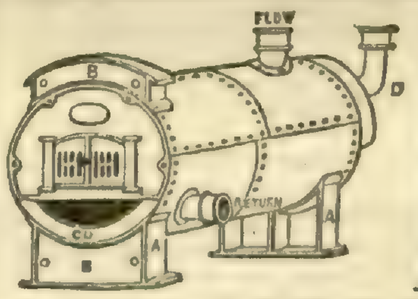
W. McKEWAN, WHITBREAD TOMSON, *Joint General Managers.*

21, Lombard Street, August 6, 1875.

MESSENGER AND COMPANY'S PATENT TUBULAR BOILER.—Nearly 3000 now in use.



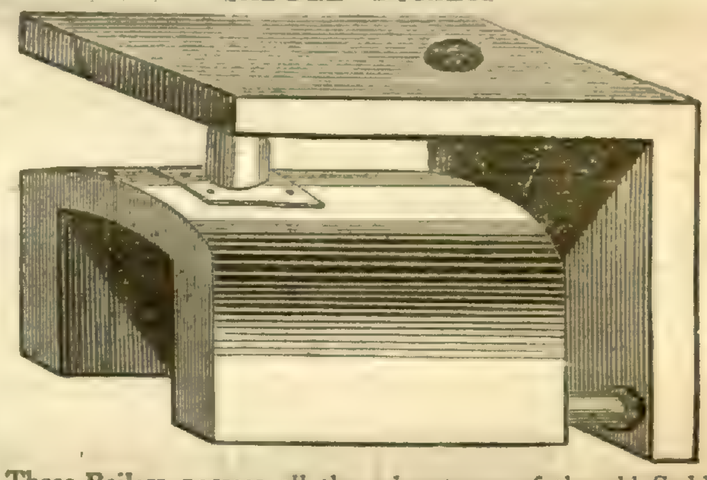
Combines all the advantages of the old Saddle, which is acknowledged to be the most economical, with the Tubular, the most powerful form of boiler. By the use of triangular tubes a larger amount of heating surface is exposed to the direct action of the fire than in any other form of boiler. The water-bridge (D) also receives the most intense heat. The boiler is made of cast-iron, which is admitted to be the best material as regards durability, strength, &c. In consequence of the above advantages we are enabled to supply boilers with a large amount of heating-power at very moderate rates. The power of this boiler can at any future time be increased by adding another row of tubes. Illustrated List free on application to MESSENGER AND COMPANY, Hot-Water Engineers and Horticultural Builders, Loughborough.



STEVENS' TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



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20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0

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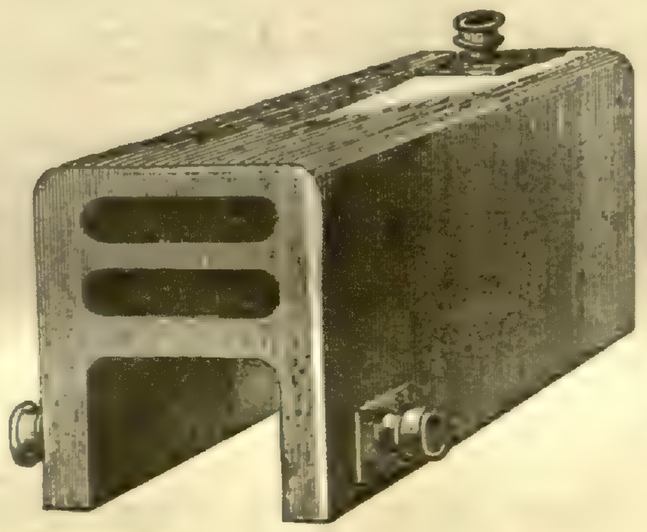

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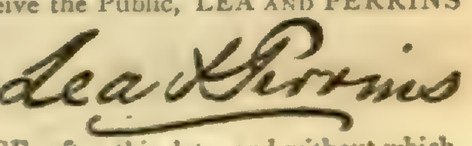

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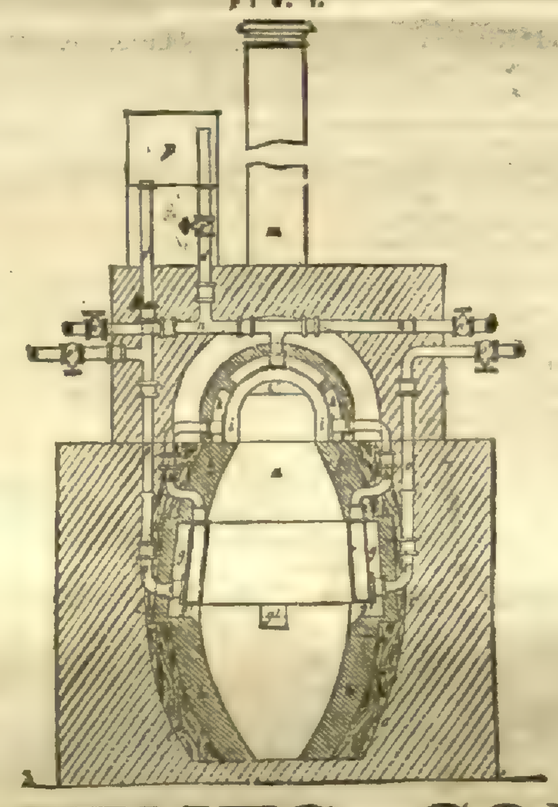

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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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Catalogues (when ready) may be had of the Auctioneers, 98, Gracechurch Street, City, E.C.

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MESSRS. PROTHEROE AND MORRIS beg to announce that this important ANNUAL SALE will take place on THURSDAY, September 9, commencing at 1 o'Clock precisely, by order of Mr. R. Parker.

More detailed particulars will appear next week.

Tottenham, N.

GREAT ANNUAL TRADE SALE of Winter-blooming HEATHS, together with a quantity of Selected STOVE and GREENHOUSE PLANTS, the whole being in fine thriving condition.

MESSRS. PROTHEROE AND MORRIS are requested by Mr. John Maller to announce that this SALE will take place on the Premises, the Brunswick Nursery, Tottenham, Middlesex, on TUESDAY, September 14, commencing at 11 o'Clock punctually.

Full particulars will shortly apper,

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY, August 25 and 28, at half-past 12 o'Clock precisely each day, a large quantity of HYACINTHS, TULIPS, CROCUSES, and other Bulbs, just arrived from Holland, in lots to suit the Trade and private buyers.

On view the morning of Sale, and Catalogues had.

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MESSRS. LUCAS AND CO. will SELL by AUCTION, on SATURDAY, August 28, at 12 o'Clock, at their Repository, Liverpool, fifty pens of DARK BRAHMA POOTRA FOWLS, comprising nearly the whole of the adult stock and some fine Chickens, the whole belonging to Thos. F. Ansdell, Esq., Cowley Mount, St. Helen's, who has been one of the most successful Exhibitors of Prize Winners in England.

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SALE of Valuable LONG-WOOL SHEARLING RAMS.

MESSRS. BRIGGS will offer for SALE by AUCTION, in the above Fair, on SATURDAY, September 4, thirty-five LONG-WOOL SHEARLING RAMS, the whole of which are bred by, and the property of, Mr. W. F. Marshall, of Branston, near Lincoln. The Branston flock has been before the Public so many years that it is unnecessary to speak of the merits of the Sheep. Bred from the most noted Prize and Cup winners of the last few years, the Sheep exhibit those qualities which breeders are aiming at in the present day—long lustrous fleeces, with fine form and abundance of mutton. This year the Shearlings are, if anything, better than usual, and an inspection is invited.

Kelstern Grange, August 17.

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MESSRS. HUTCHISON AND DIXON will SELL by AUCTION, at Newton House, Cambuslang, near Glasgow, on FRIDAY, September 10, commencing at 11 o'Clock, the well-known Collection of GREENHOUSE and STOVE PLANTS, rare ORCHIDS, &c., that belonged to the late A. G. Kidston, Esq., and to be sold by order of his Executors. The Collection includes fine Azaleas, Camellias, Heaths, Tree and Specimen Ferns, also a large collection of rare Orchids. The plants are in the highest state of cultivation, and have always taken first honours when shown.

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Notice.—To the Trade.

B. MALLER has to offer 25,000 flowering ERICA HYEMALIS, and other sorts, also a large stock of Miscellaneous Plants.

B. M.'s Fifth Annual Sale of a portion of the above will take place in September, included in which will be 35,000 of Erica hyemalis, and others, in small and large 60-pots, all in fine condition. An inspection is solicited.

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W. AND J. BROWN, Nurserymen, Stamford.

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ALFRED LEGERTON, WHOLESALE SEED MERCHANT, 5, Aldgate, London, E., begs repectfully to inform his numerous Patrons and the Trade generally that he has received his first consignment of Choice DUTCH BULBS, ex "Batavia and Rotterdam," in prime condition. Early orders solicited to ensure the finest and largest roots. CATALOGUES forwarded on application.—London, August 12.

Diamond Reseda—Mignonette.

AUGUST GEBHARDT, Quedlinburg, Saxony, Germany, begs to state that he has produced an exquisite and striking new variety of the pretty Mignonette, which by its peculiarly fine scent augments the beauty of floral decorations in the garden. Endless care and ceaseless attention have resulted in the production of a splendid

WHITE-BLOOMING MIGNONETTE.

Those grown by him and introduced into commerce are by careful culture rendered constant, and so great has been the desire for their acquisition, that the stock of Seed has been found scarcely sufficient to satisfy the orders sent in.

A. G. begs to add that all known kinds of Mignonette are far inferior to this new variety, which is well worth the attention of all growers. The plants are in the form of richly-branched clusters nearly 45 centimetres in height, and in the finished growth are nearly 50 centimetres in diameter, and of a pyramidal shape. The splendid white clusters show well on the light-green, yellowish-tinted leaves, and the numerous pearly-white stamens give a beautiful aspect to the plants.

Prices—1000 Seeds, 24s.; 500 do., 15s.; 100 do., 4s.

Lovers of flowers or commercial friends desirous of having a Picture or Seeds of this "Diamond Reseda," are requested to forward their addresses.

New Greenhouse Palm.

BRAHEA FILAMENTOSA (Wendland).—The Fan Palm of Lower California, called Arizona Palm in San Francisco; leaves palmatifid, divisions numerous, set with whitish filaments; leaf-stalks rather long, with brownish yellow prickles. The greatest merits of this Palm, besides its graceful habit, are the hardiness and the rapidity of its growth. The first specimens, planted by our correspondent three years ago as young plants in his garden near San Francisco, are now fine large plants, 5 feet high, having some resemblance to Chamærops Fortunei. Though it freezes there nearly every winter they have not suffered the least from cold, whereas the Corypha australis, planted out under the same conditions, were killed by the frost. It would follow from this fact that this new Palm will be quite hardy in the South of Europe, and most likely in the sheltered parts of England.

A figure of the plant will be published shortly.

Price of yonng seedlings, transplanted, of one to two leaves now, two to three leaves later in the autumn, £5 per 100, 15s. per dozen.

HAAGE AND SCHMIDT, Nurserymen, Erfurt, Prussia.

TO THE TRADE.

HELLEBORUS NIGER (Christmas Roses), strong crowns, 8s. per 100
HEPATICA, single white, strong crowns, 16s. per 100
,, single red, strong crowns, 8s. per 100
,, double red, strong crowns, 16s. per 100
,, single blue, strong crowns, 6s. per 100
DIELYTRA SPECTABILIS, very strong, 12s. per 100
SPIRÆA JAPONICA, strong clumps, 3s. 6d. per dozen
CROWN IMPERIALS, 20s. per 100
IRIS GERMANICA, in finest mixture, 5s. per 100
,, PUMILA AZUREA, 5s. per 100
LEUCOJUM VERNUM (Spring Snowflake), 15s. per 1000
LILY, white garden, 12s. per 100
LILIUM BULBIFERUM, 15s. per 100
,, EXCELSUM, 30s. per 100
,, MARTAGON, 15s. per 100
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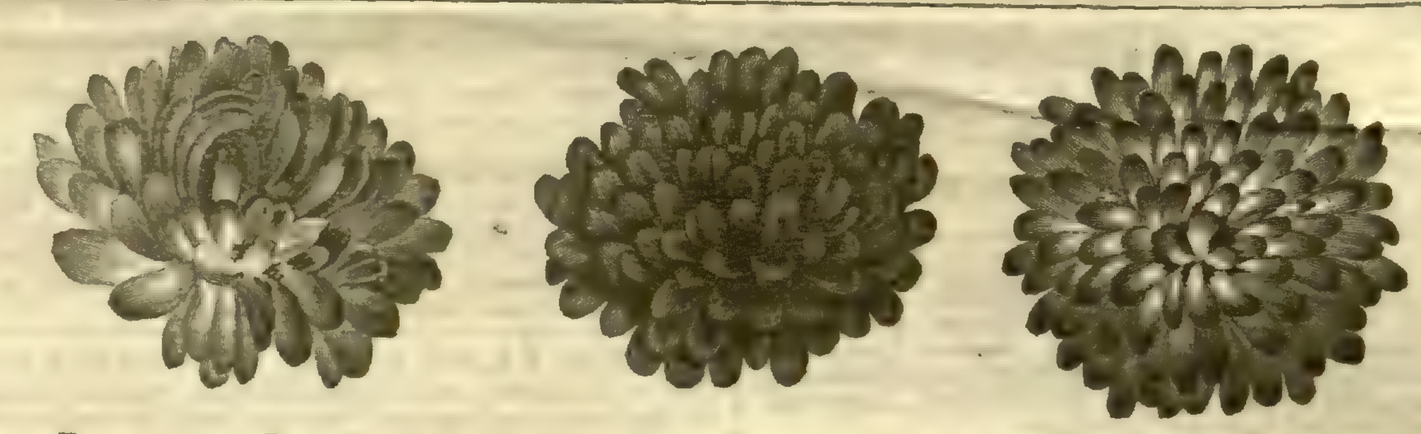

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CROTON TRILOBUM.

In this we have the type of an entirely new race of Crotons, having lobate leaves, and therefore quite distinct from those already familiar in gardens. The present is the first of this type which has been offered in commerce. It is a very handsome plant, remarkable for its distinctness in a family which already presents great diversity of character. The leaves are from 9 to 10 inches long; the lower third of their length, which is broadest, being from 2½ to 3 inches wide, narrowing downwards towards the petiole, which is an inch or so in length; this broader portion forms in some cases a rounded shoulder, in others a short lobe, usually on each side and nearly opposite, but sometimes leaves occur in which the lobe is developed on one side and the shoulder only on the other; the middle portion of the leaf is narrowed, the sides being nearly parallel towards the base, but towards the shortly acuminate apex again bulging out slightly, so that this portion becomes broadest upwards. The more perfectly formed leaves have, in consequence, a kind of hastate or halberd-shaped outline, but with an elongated base. The costa and principal veins are marked out by lines of golden yellow, and the leaves are variously reticulated and spotted with the same on a green ground; the veins themselves eventually take on a crimson hue, and the same is extended to the spots, while more or less of the orange tint, caused by the blending of the yellow and red, becomes suffused over the surface, and the underside is of a uniform wine-red in the mature stages. In some cases the lateral lobes are from 1 to 2 inches long, and they are usually opposite and equal, though not always so. It is a thoroughly distinct and remarkably handsome addition to our collections of ornamental-foliaged plants.

Price 2 guineas each.

ARTOCARPUS CANNONI.

This remarkably ornamental plant, which is a native of the Society Islands, was first made known to me by Mr. Walter Hill, of Brisbane, and was afterwards sent to me in a living state by Mr. Henderson, of Sydney. It is, without exaggeration, one of the finest coloured-leaved plants which it has ever been my good fortune to offer. It is a plant of free-growing habit, with a woody stem, which is hirsute in the young state. The leaves are very variable in form, alternate and petiolate, the petiole and hairy costa being of a bright red colour. The leaves, which measure at least a foot long and 7 inches wide, are of membranous texture, with a glossy upper surface, and of a rich, full bronzy crimson hue, beautifully tinted with purple. The colouring is remarkably rich and constant; that of the under surface being of a bright vinous red.

The form of the leaves varies greatly; some are simple and cordate at the base, parallel sided, with the apex irregularly lobate; some have the apex regularly three-lobed, with short entire lobes; some are deeply three-lobed, being divided nearly to the base, the segments themselves, of which the centre one is largest, being shallowly sinuate-lobed, and occasionally these secondary lobes are themselves sinuately toothed. This variety of form, and the rich colouring of the polished surface, render this one of the most effective coloured-leaved plants of recent introduction; and there is not the slightest tendency in the colouring to vary or fade, so that the effect produced is a permanent one.

Price 10s. 6d. each; a few good plants, of extra sizes, can be offered at 1 and 2 guineas each.

CROTON IMPERIALIS.

This is a remarkably fine form of Croton, from the New Hebrides, peculiar in its dense stocky habit and thickset leaves, and remarkable also for the unequal length of the leaves, and for the twisting of the blades, which causes them to face in a variety of ways. The leaves are from 4 to 6 inches long, very stout in texture, very unequal in length, bluntly rounded at the apex, and with the midrib excurrent in the form of an awl-shaped horn about an inch below the apex. Most of the leaves are twisted, the twisting occurring in various degrees, but it is usually as if the upper half of the leaf had been turned half round while the other portion had been fixed in the normal position. The course of the midrib, which takes on a crimson hue, is marked by a broader golden band, and the margin is coloured with crimson at the extreme edge, and within that by a broken line of yellow. The surface of the leaves is also mottled with yellow and red. The excurrent golden horn, the unequal length of the densely-set leaves, and the peculiar twisting of the blunt-ended blade, quite different from that of "spiralis," are the features for which this Croton will be most prized; the colouring being also very effective.

Price 1½ guinea each.

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Mr. WILLIAM BULL has recently imported, direct from the South Sea Islands, some fine plants of this handsome Aralia, and can make special offer of strong plants for propagating from.

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COVELLIA RHIZOCARPA
CROTON CHRYSOPHYLLUM
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DRACÆNA GEMMA
„ RUBELLA
ERANTHEMUM ATROPURPUREUM
ERANTHEMUM MOOREI
„ RETICULATUM
„ VERSICOLOR
GONIOPHLEBIUM GLAUCOPHYLLUM
HIBISCUS (ROSA SINENSIS) VIVICANS
LAPORTEA SCHOMBURGKII VERSICOLOR
MARANTA BELLA
„ LEOPARDINA
„ PINNATO-PICTA
MARANTA PORPHYROCAULIS
„ PRASINA
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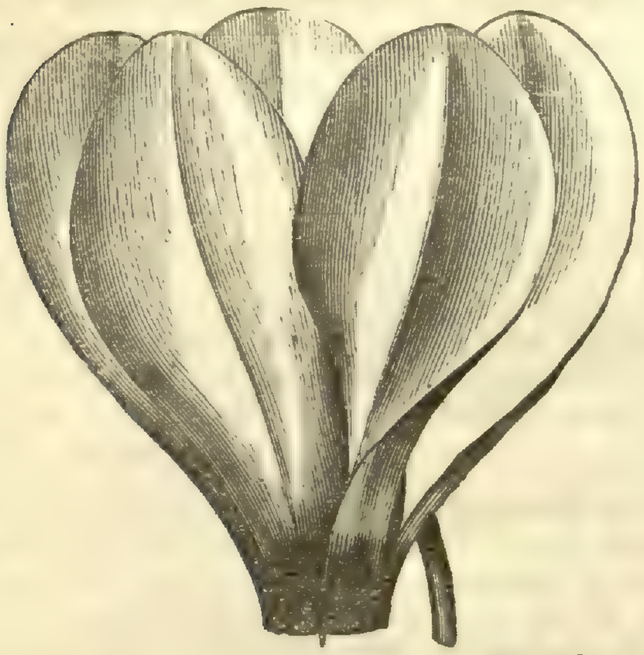

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ALBUM, pure white.
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RUBRUM, bright crimson.
PURPUREUM, purple.

A Collection, containing a packet of each of the above varieties of Cyclamen, price 5*s.*, post free.

Suttons Sons

THE QUEEN'S SEEDSMEN, READING.

SATURDAY, AUGUST 21, 1875.

VERVAIN.

MR. GRINDON, at p. 162, enters at some length into the history of the Verbena of the ancients, and the myths and traditions regarding it; and the following brief notes upon the folk-lore of the Vervain of more modern days may serve as a supplement or appendix to his paper. Granting, as we may freely do, that the Verbena of bygone times was a different plant from our Vervain—just as the Samolus of the Druids is hardly likely to have been the little Brookweed which now bears the name—a vast amount of legendary lore has been connected with Verbena officinalis, not only in our own country, but in other parts of Europe.

Beginning where it is said that charity should begin—"at home"—we find Vervain prescribed in various remedies, not only in Anglo-Saxon, but also in later times. Langham, in his *Garden of Health* (1632) enumerates no less than sixty-five cases in which it may be beneficially employed, which makes it the more remarkable that later writers do not recommend its employment in any disease. Gerarde, with unusual caution, refuses to give spaces to the "odde old wives' fables tending to witchcraft and sorcerie" which were written of Vervain; but Mr. Halliwell cites a rhyme from a manuscript of the time of Elizabeth, which was recited while the plant was being gathered. It runs as follows:—

"All hele, thou holy herb Vervin,
Growing on the ground;
In the Mount of Calvery
There was thou found:
Thou helpest many a greife,
And stendest many a wound.
In the name of sweet Jesus
I take thee from the ground.
O Lord, effect the same,
That I doe now goe about."

Another version of this rhyme may be found in White's *Way to the True Church* (1624), where we read that "Many use to weare Vervain against blasts; and when they gather it for this purpose, first they crosse the herbe with their hand, and then they bless it thus: 'Hallowed be thou, Vervain!' &c."

The wearing of Vervain root round the neck has been practised even more recently than the beginning of the reign of George III. Miss Pratt says, that "even of late years" she has seen a piece of it tied round the neck of a child as a charm to cure the ague, and was told that the plant required to be attached to a white satin ribbon to ensure its efficacy; and Mr. Conway also refers to its use in this manner. In the South of England, according to Francis, it is also looked upon as a protector of cattle. The odd names which the plant formerly possessed in England show that it must have been well known, and held in some popular estimation—such names, for example, as Mercury's Moist Blood, Holy Herb, and Simpler's Joy.

In many parts of France the Vervain is gathered with mysterious ejaculations under different aspects of the moon, and is supposed to cure various diseases, not only of the body, but also of the mind. The mere possession of it brought "good luck" to the owner; all maladies were cured by it; "heart's that had been long estranged" were brought together by its influence, and in love affairs its power was great, as it caused an attachment to spring up between the person wearing it and the "beloved object." At the present day it is in repute in France as a wound-herb; it is collected on Midsummer Eve, and kept in the houses, where its presence is deemed a good omen. It is gathered in some parts of Spain on the same day, and is there also preserved in houses as an amulet or charm.

In Germany a hat made of Vervain, or into the composition of which Vervain enters, is presented to the newly-married bride. It is believed also to preserve a house protected by it from thunder. In Bohemia it is believed that water in which Vervain and Rue—plants frequently associated for mystical purposes—have been boiled, will render a gun in which it has been poured of an unerring aim; and Vervain which has touched a midsummer fire will snap iron. *B. M.*

New Garden Plants.

VANDA TERES, *Lindl.*, VAR. CANDIDA.

There has been for years and years much talk about the phenomenon of a cream-white Vanda teres, just as there would be about a rosy one, provided the common form were white. I have finally been so lucky as to obtain this *rarissima avis* by the kindness of Mr. Harry Veitch. It has the colours of Dendrobium infundibulum—white, with some yellow on the lips. It comes from Lord Crewe, in Cheshire, and was grown by Mr. Whittaker, his gardener. Let us hope that a plant may be spared for Paris. It is well known that the plant wants the brightest sunshine, and while the English or northern Germans regard it a grand thing to be able to flower the plant, every one at Paris succeeds in flowering it most freely. Parisians, however, are poor in this success, when compared to Mr. Prestoe at Trinidad. I hope not to be regarded indiscreet by this excellent gentleman and colleague, when copying for publication some lines of a letter of his (July 9, 1875). Speaking of the grand pleasure of our Mr. Day's visit, he continues: "Mr. Day missed a good thing, when our Vanda teres was in flower soon after he left. I had over 250 flower-spikes open at the same time. Some few years ago I placed a good tuft on an old stump of Bauhinia ungula. It was thus fully exposed there, it has always flowered most profusely. Before it has never given a spike. When it flowers it is all brown and shrivelled." *H. G. Rchb. f.*

PESCATOREA LAMELLOSA, *n. sp.**

This is very much like Mr. Day's lovely Pescatorea The flower at hand is smaller than that of any I saw of that species, white, the lamellæ of the lip yellow, with brown dorsal keels, and the anterior surface of the column reddish. The body of the lamellæ gives the mark of distinction used in lieu of being united in one solid body, and only toothed at the front side; they are all free one from another down to the ground, and in lieu of sitting on the base of the lip they nearly cover half the surface of it. Let us add that it is a good deal shorter than that of Pescatorea Dayana. It is one of the numerous New Granadan discoveries of M. Wallis, for which I have to thank Messrs. Veitch. [The plant was exhibited at a recent meeting of the Royal Horticultural Society.] *H. G. Rchb. f.*

NOTES FROM A LANCASHIRE GARDEN.

AUGUST 16.—Those of your readers who so kindly followed me as, month by month last year, I described the varied fortune of my garden, may perhaps feel some little interest in its present condition.

It is Mrs. Barbauld who speaks of the Carnation as waiting "for the full strength of the year," and now, as the Carnation bed is coming into bloom, I can find no fitter time to write. The year is at its best, and if we have still some gains to hope for, we have losses to expect.

What a tangle of blossoms there is on the herbaceous border! The yellow Œnothera, the red Yarrow, the Marigolds, the Fuchsias, the white Spider-wort, and some fifty more, all leaning up against one another, half smothered it may be, but all looking full of life and vigour. They cannot be too thick, as it seems to me, and I sympathise with the great lady, in whose celebrated east country garden no gardener was allowed to stay if she found that she could stick the point of her parasol upon an inch of uncovered soil.

My spring garden has been particularly successful. Beds of Nemophila, of Virginia Stock, of Saponaria, and the red Silene, autumn sown and then pricked out, have been very beautiful; and all along the Vine

* *Pescatorea lamellosa*, n. sp.—Aff. P. Dayanæ: labello transverso subcordato oblongo retusiusculo utrinque ante basin angulato; lamellis 13 a basi in medium labelli inter se liberis, bene carinatis, antice abruptis; ungue brevi, columna basi utrinque angulata.—Zygopetalum lamellosum: flos niveus, carinæ flavæ dorsis brunneis; columna antice rufo striata.

border I have had a long row of Sweet Peas (which are still full of beauty and of odour), of the red Silene, the blue Myosotis dissitiflora, and the white Saponaria. The bulbs were fair, but the Ranunculus bed was a failure. I must grow better Pansies, too, another year. Few flowers have more associations than the Pansy, and yet I find that I have never yet mentioned it in my "Notes." It is Shakspeare's "Love in idleness"; it is Milton's "Pansy freak'd with jet." The American poet, Edgar Poe, speaks of the "beautiful Puritan Pansies"; and I remember a fine wild passage in one of this same poet's little-known essays, in which two angels are talking, and one says:—"We will swoop outward into the starry meadows beyond Orion, where for Pansies, and Violets, and Heartsease are the beds of the triplicate and triple-tinted suns"—a far grander conception than Longfellow's :—

"Blossomed the lovely stars, the Forget-me-Nots of the angels."

But I must come down again to my own earthly garden. Among the beds that are now in beauty none can compare to that of the purple Clematis Jackmanni. It is a perfect mass of flowers, and covers every strip of the withies, around and over which it twines and clings; and at the edge of the bed I have planted the Japanese Lonicera, with its golden and mottled leaves. Again, as in last year, I have the Lobelia cardinalis, with its scarlet spikes, and the Agapanthus, with its azure clusters. Again, the Lilium auratum is opening its great scented chalices, from the middle of dark grey plants of Heliotrope. Again, the Verbenas form a carpet for the Aralia's glossy leaves, and the white Japanese Anemone (which I learn was brought first to England by Lady Amherst) is again encircled by the light lilac of the Statice.

Then there are some beds which are new to us this year. There is a bed of variegated Agaves, graduated in size from the larger one in the centre to the small ones at the edge. There is a flourishing bed of the Canna indica, which we brought on in heat, and which is as good as though it were growing in the gardens of the Luxembourg.

The Roses are for the present nearly over, and they have hardly been as abundant as they were last year. The rain, too, dashed them terribly, just as they were coming into bud. One of my two large standards, the Boule de Nantes, is dead, and it must be many a long day before I can hope to get a standard so full and free-flowering to take its place.

The Kalmias, the Buddleas, and the alpine Rhododendrons have done as well as possible; and the great Magnolia against the wall has already given me three of its grand white blossoms, and I see there are six more to come.

Along the grass walk there are, as before, the gay tents of red and green, which the trained Scarlet Runners have formed, and at the far end is the new seat, over the trellis of which a Tropæolum speciosum is beginning to make itself at home.

The fruit wall is very different to what it was last year. Partly owing to the season, and partly to the greater care in the cleaning of the trees, I have really a fine crop of both Nectarines and Peaches. The aphis has ceased to trouble us, and the ant has not cared for pasture where there is no aphis to be found. Cherries are, with the exception of Morellos, a failure, but the trees are not, I think, yet in full bearing, and perhaps the aspect is unfortunate. Apricots are doing well; we have already had Figs in the open air, and the Green Gage tree has a very respectable show of fruit. The Pear trees are, many of them, laden, and the Apples will also be abundant. Of the smaller fruit Strawberries and Raspberries were rather injured by the rain, but our Currants and Gooseberries could hold their own against any in the neighbourhood. Our Grapes are particularly fine for us.

In the outer garden and lawn we have been very busy during the year. We have taken down an old lodge, which was neither useful nor ornamental, and altered and replanted the drive. We have taken up part of the lawn, which was terribly full of weeds, and cleaned it all and sown it over. We have made a bank behind the wood to hide some cottages in the lane. And now we are beginning to reap the fruit of our labour. The place never looked so well. The very trees seem to have a deeper foliage. The herbaceous Phloxes have thicker masses of crimson blossom. The Clematis lanuginosa on the house shows six grey discs for one last year, and for the first time we have berries on our Pyracantha. The Clethra arborea has been moved in its huge tub to a place by the drawing-room window, where it is now laden with bloom, and we have plunged a large Pomegranate tree into the turf near the front door.

The Yucca gloriosa, which also stands near the house, will not flower this year, which is a disappointment to me. I was at a stately country house in Shropshire the other day, and at the end of a broad walk, where a circle of Yuccas had been planted, there were no less than five in full flower, throwing up perfect jets of blossom, like fountains, towards the sky. I never saw anything more perfect in its way. But it is said that the right time to see a Yucca is by moonlight. There is a very striking passage in one of the letters of the most remarkable of American women, Margaret Fuller (afterwards Countess d'Ossoli), in which she says :—

"This flower" (it was the Yucca filamentosa) "is made for the moon as the Heliotrope is for the sun, and refuses other influences or to display her beauty in any other light. Many white flowers are far more beautiful by day. The Lily, for instance, with its firm thick leaf, needs the broadest light to manifest its purity; but these transparent leaves of greenish white, which look dull in the day are melted by the moon to glistening silver. . . . The second evening I went out into the garden again. In clearest moonlight stood my flower, more beautiful than ever. The stalk pierced the air like a spear, all the little bells had erected themselves around it in most graceful array, with petals more transparent than silver, and of softer light than the diamond. Their edges were clearly, but not sharply defined. They seemed to have been made by the moon's rays. The leaves, which had looked ragged by day, now seemed fringed by most delicate gossamer, and the plant might claim with pride its distinctive epithet of filamentosa."

Can I do better than end these "notes" of to-day with this extract, for which your readers will, I well know, thank me? *H.*

LONGFORD HALL, STRETFORD.

(*Concluded from p.* 196.)

We now come to the side of the square opposite to where we first commenced at. The first house in this range, which has a western aspect, is a lean-to 100 feet by 14. considerably above the usual height; it is filled with Peaches and Nectarines, and is the second house forced of these fruits. The back wall is planted, and there is a trellis in front covered with trees in splendid condition, the wood very strong, with the deep red colour indicative of being thoroughly ripe. The Peaches in this house are Royal George, Noblesse, Chancellor, and Bellegarde, with Violette Hâtive, Pitmaston Orange, and Elruge Nectarines.

This leads to the last of the small, high, curvilinear roofed houses, corresponding with the others described, 18 feet by 18; it is used as an intermediate plant-house, and from it we reach.

The earliest forced Peach-house, which is 135 feet by 14. The arrangement of the trees here is similar to the preceding—on back wall and front trellis—which in each case is not so high as to interfere with the light getting to the trees on the wall. The sorts are similar to those grown in the other house, with their roots, as in it, all inside. They are equally strong and in good condition. The trees in these houses have for a number of years produced extraordinarily fine fruit, and they appear quite equal to their old state under the present management.

The next is a small, 22 feet square house, from which are entered the fruit room, and potting sheds at back.

Next in continuation of this range is a Muscat vinery, 72 feet by 22. The border occupies the whole of the inside space and about 15 feet outside. The Vines have most of them two rods each, and are in good bearing condition; the crop was partially cut, the remaining were good in bunch, moderate size in berry, with the finest possible colour.

Adjoining is a Hamburgh-house, 65 feet by 20. The Vines have been three years planted, and from them was cut the beautiful basket of Grapes exhibited by Mr. Smith at the Manchester great show last May, and which received a special prize: the roots, like the last, are both outside and in.

We now come to a house, 50 feet by 20, filled principally with West's St. Peter's, which Mr. Smith is about to replace with Black Alicante, which is preferred, although the crop the present Vines are carrying is all that can be desired.

Next is another vinery, 50 feet by 20, filled with Lady Downe's. These were just finishing a beautiful crop of moderate-sized bunches, good in berry and as black as Sloes, in perfect condition for hanging through the winter.

At the back of this house and adjoining it, but not forming part of the range, is a fernery, 40 feet by 30. It is arranged in the natural style, with artificial rockwork; all are planted out, the continuous green colour of the Ferns and Lycopodiums nicely relieved by broad-leaved Begonias, red Dracænas, and the green and white Aspidistra lurida variegata, the whole forming a nice assemblage, and furnishing quantities of materials for cutting.

Re-entering the vinery we have just left, and proceeding from it, we enter a house 33 feet by 14, used for propagating, and in which also is grown a small collection of Orchids, amongst which were nice healthy plants of Phalænopsis amabilis, Vandas Bensoni and tricolor, Oncidium Krameri, Cypripediums, Dendrobiums, Cattleyas, Lælias, several varieties of the beautiful but now very scarce Anæctochilus, and the most useful winter flowering Calanthe Veitchii and C. vestita.

The next house, 60 feet by 15, is devoted to the cultivation of Tomatos in pots, which here, as in other parts of the county, do not succeed well out-of-doors. These are started early, and through the season produce large quantities of fruit.

Adjoining this, but at the opposite angle, forming the fourth but incomplete side of the square, is a lean-to house facing the north, 90 feet by 15, two years planted with Black Alicante and Lady Downe's—the latter only bearing indifferently in this aspect, whilst the stronger constitutioned Alicante was carrying some beautiful bunches. The roots are all inside. The back wall is planted with Cucumbers.

If the reader has in imagination accompanied me through this considerably over a fourth of a mile of plant and fruit houses, he will, as I was, be quite ready for breathing the external air, yet a more agreeable promenade on a cold winter's day it would be difficult to find anywhere in the kingdom. In the eastern portion of the space enclosed by the houses already described stands a block of four span-roofed houses, side by side, each 70 feet by 14, the first of which is devoted to succession Pines, which at the time of my visit (the middle of September) were ready for moving into the fruiting (12-inch) pots. The sorts grown are Queens, Montserrats, Black Prince, and Smooth Cayenne, and they were strong and clean.

Next is another succession house, the plants a little larger than the last. They occupy a pit in the centre, with a good passage all round, over which are grown winter Cucumbers planted out in a stone-enclosed space over the pipes; so arranged there is no loss of room. Adjoining is the fruiting house, in which were a good lot of useful fruit. Over the path—which here, as in the succession houses, surrounds the centre bed—are grown Melons in the summer and Cucumbers in the winter. The fourth and last of these blocks is wholly devoted to Cucumbers in the summer, which are kept going up to Christmas, when they are removed, and the house used for forcing Asparagus and similar things, as well as for bringing on flowering plants for winter decoration.

At a short distance is another span-roofed house, 70 feet by 14, mostly filled with Tomatos, which under this system of culture can be had fresh most of the year. Here also are the pits for Heaths, bedding plants, &c., and for forcing Potatos, French Beans, and Strawberries. Their length is 350 feet. The portion of the garden occupied by these houses, pits, &c., is divided from the shrubbery and flower garden, which lie southwards from it; the beds are in grass, and well planted, occupying sufficient space, but not too extensive to be in keeping with the rest of the place. The ground westward, comprising the space enclosed by the glass erections—about an acre and a half—is occupied principally as a fruit and vegetable garden, the intersecting walks being bounded by espalier trained Pears, Plums, &c., with considerable quantities of bush fruits.

Where such an amount of glass exists there necessarily is required considerable space wherein to do the work: this is amply provided for. At the north side of the principal range is the potting-shed, which is virtually a glass-house glazed with rough plate, 50 feet by 18, wherein is plenty of room, and every convenience for carrying on the work of a large place. The fruit-room, which is here close at hand, is 80 feet by 18, and fitted up with every convenience. The Mushroom-house is under the principal range, the arches upon which the inside border rests forming the roof of the Mushroom-house; it is 140 feet by 14, extremely well fitted up, as is the rest of the place, and is sufficiently heated with piping.

On visiting this place one of the first things that will occur to any one possessing a knowledge of garden architecture is the quantity of piping it will require to heat it all, more especially as here there is so much forcing done. In the whole there are 2 miles, including 1045 yards of 14-inch piping, and 748 yards of 6-inch. We frequently hear a good deal about the extraordinary capabilities of this or that boiler heating untold lengths of piping, on the principle of one doing the whole work, and capable of much more if required. Now, here it might be supposed was a first-rate chance for any one showing what could be accomplished in this way, but, unfortunately for the Longford Hall fuel account, with the most skilful arrangement of the piping, careful setting of boilers, and getting them well down below their work, it requires six to do it—two large sized tubulars, three of the second size, and a 6-feet saddle, with one of Lumley's patent as a reserve for the vineries and plant stoves in case of accident.

There is a good deal of kitchen garden. Eight years ago an additional one of 2 acres was made—this, with the rest, was in excellent keeping, with abundant crops, clean, and free from weeds—the fruit trees, which bound the walks, bearing evidence of skilful management, as was apparent in each department under Mr. Smith's charge. Another most important consideration in connection with an extensive garden, where there is such an enormous quantity of plants and fruit culture under glass, and especially where it is found necessary to have so much of the Vine and Peach

borders inside, is the supply of water. In this, as in other essentials, ample provision is made; the roof-water from the whole of the houses, sheds, and other buildings is carried into a very deep, tank-like sort of well, and thence pumped by a steam-engine into a tank over one of the buildings, from which an unlimited supply is always at command.

The men employed are well-cared for. A new house adjoining the garden has been recently built, wherein eight of the young men are comfortably lodged within a few yards of their work. This last is of great importance to the health of those who during a considerable portion of their time are working in hot, moist houses, as if on leaving such they have to go to and fro a considerable distance to their lodgings they get chills that have been the means of shortening many a life, or have left the constitution a mere wreck. *T. Baines.*

PEACH FARMING EXTRAORDINARY.

WE had this week brought under our notice a very interesting and noteworthy illustration of Peach farming on a colossal scale, and Irish enterprise, as also of the successful transmission across the Atlantic, and the arrival in Dublin in excellent condition, of a quantity of ripe Peaches, gathered some three or more weeks since in the Peach orchards of far distant Alabama!—this last a feat, as far as we are aware, hitherto unaccomplished, and which is to be credited to a countryman of our own, J. H. Parnell, Esq., of Co. Armagh, younger brother of Mr. Parnell, M.P. As well as in Armagh Mr. Parnell, jun., possesses property in Alabama, and resides there occasionally. Peach farming is one of the most important industries of America, and, as illustrating it, we remember seeing it stated somewhere that the shipment of Peaches from the State of Delaware alone in one season was considerably over half a million baskets; and further, that the number of huge waggon-loads sent over the railway in one day for supplying New York was ninety-eight, and twenty-five for Philadelphia. That Mr. Parnell goes in for Peach growing on a pretty extensive scale in the South may be inferred, when it is stated that he has 10,000 trees in his Peach orchards, all, or nearly all, planted by himself, and imported from England. Though only some three or four years planted, he is now enabled to supply Rivers' Early Beatrice, in quantity, to New York as early as the month of June; later kinds, as Crawford's Early and others, in July, when they bring from £2 10*s.* to £5 per bushel, according to quality, the bushel containing about fifty dozen. The present year, before leaving for Ireland, Mr. Parnell informs us he sold 2000 boxes! But to come to the point that most concerns us here, fruit growers and consumers—namely, the mode successfully adopted by him for bringing over a large quantity of ripe Peaches from the Southern States to Dublin, and which we are of opinion might be advantageously availed of by our gardeners or fruiterers, who may have to keep over choice melting fruits, or transmit them long distances. On handling and examining one of the Peaches, brought by Mr. Parnell as a specimen—the very high colour notwithstanding—we confessed to being sceptical as to ripeness and remarked that it was hard as a stone. Mr. Parnell admitted it was so, but promptly gave the reason why, by saying it was frozen, and that if allowed to stand for a day or two it would be found soft and melting enough. Mr. Parnell kindly took us to Fitzwilliam Square, North, where he is at present stopping, and showed us the ingenious contrivance, by means of which he has been enabled to treat his friends in Ireland to the melting and juicy products of his Peach orchards, in as good condition as though pulled from one of our own house or wall trees the day before. The contrivance consisted of a large, square bin or deep wooden chest, strongly put together, and lined with zinc; within this was another large chest similarly lined, a space of some 8 or 9 inches intervening between the inner and outer chest, which was filled with ice. In the inner chest the Peaches were stored, not in separate trays, layers, or anything of the kind, but heaped as you would stow Potatos in a pit; and there they lay, a rosy and happy looking mass, in the best possible condition. In a compartment separate from the Peaches were some remarkably fine specimens of the Water Melon, far superior, Mr. Parnell informed us, to the Spanish Water Melons imported by our fruiterers; indeed, so much so, that those familiar with the former would not think of eating the latter. It is scarcely necessary to say that the condition of the Melons was all that could be wished for. The Peaches were Crawford's Early, a yellow-fleshed, very highly-coloured variety, but small, and one very much larger called by Mr. Parnell White Clingstone.

Should the foregoing be deficient in any particulars or incorrect in any way, as it very probably may be, being merely gathered in conversation, perhaps if it meets his eye, Mr. Parnell will kindly supplement or correct it in a future issue. *Irish Farmers' Gazette.*

MEADOWBANK AS A NURSERY.

THE name of Meadowbank has long been as a household word among the readers of the *Gardeners' Chronicle* and horticulturists generally throughout the length and breadth of the land. The position to which it attained as a school of horticulture, and more pre-eminently of Orchid culture, during the lifetime of Mr. Dawson, and its steady and uninterrupted progress from humble obscurity to honourable notoriety, together with the final dispersion of the collection on his death, have already become matters of garden history. Its fame was of no mushroom growth, and owed its existence, not to any sudden and spasmodic fancy, but was rather the result of the happy union of a refined and well-directed taste, coupled with unquenchable devotion on the one part, ably seconded and developed by a spirit of indomitable perseverance and great practical ability on the other. In Mr. Dawson and Mr. Anderson the characteristics so essential for harmonious working were happily met, and the result of their labours is well-known, though it can never be fully estimated by any but those who had the privilege of inspecting the wonderful collection which grew up under their hands. The regret that such a collection should be scattered must have been keenly felt by all who were in the least degree interested in the culture of Orchids; to connoisseurs because it deprived them of a rare opportunity of cultivating their acquaintance, and of studying and admiring them in their most perfect condition—and not less to the aspiring novice, whose experience was so limited as to render the advice and assistance of an expert not only desirable, but indispensable, as one of the results of the change has been to deprive them of the valuable aids afforded by Mr. Anderson's pen, which he used so freely and effectively in their service.

On the Meadowbank of the past, however, we have no purpose to dwell, but rather to give a little consideration to the Meadowbank of the present and future.

It was a matter of no little satisfaction to all who were conversant with the past history of an establishment of so great repute, and who would have lamented the utter erasure of the name from the garden directory, that, in the dispersion of the collection at Mr. Dawson's death, Mr. Anderson conceived and carried out the idea of taking over the whole of the pleasure grounds and houses for the purpose of embarking in nursery enterprise; and as we have felt that it must be interesting to many to know something of its present condition and prospects under this new phase in its history, we propose giving the sum of a few jottings made during a recent visit, and we deem the present a very fitting occasion for such a purpose, as the approaching international exhibition in Edinburgh will doubtless attract many who used to be frequenters of Meadowbank in olden times, and what we have to say may in some measure prepare them for the changes they will then see.

The houses at Meadowbank having all been built according to Mr. Anderson's designs and under his personal supervision, are thoroughly adapted for plant culture. Like all good plant-houses they are span-roofed erections, and the various appliances for heating and ventilating are of the most approved systems. The first we enter is a large roomy house in which we find the side stages chiefly occupied by specimen greenhouse plants, among the most striking of which we note splendid examples of such fine things as Pleroma elegans, Phænocoma prolifera Barnesii, the different varieties of Aphelexis, Dracophyllum gracile, grand specimens of Rhododendrons Gibsoni and Edgeworthii, a superb Erica Victoria, quite a picture, together with such fine things as Hydrangea paniculata grandiflora, looking gay with its attractive large white panicles of flower, the useful old Tritonia aurea, and a host of other choice species. The centre stage is well filled with good specimens of Tree Ferns and an excellent assortment of specimen Camellias in pots, all the best varieties.

Passing from this house, we find a large heated pit, containing an extensive collection of Amaryllis, a class of plants for which Meadowbank has always been famous. Mr. Anderson has them here in thousands, both of the finest named varieties, some of the very best of which have been raised by himself, and also of seedlings yet to be proved, among which, without doubt, many fine things will be found. The collection is altogether unique, and by a little management in keeping back and bringing forward, Mr. Anderson is able to keep up a succession of bloom nearly all the year round.

Leaving these we now reach the intermediate Orchid-house, which we find partly used for Orchids and partly occupied by another batch of Amaryllis. Among the former we find several examples of the pretty Thunia Bensoniæ flowering nicely, and among miscellaneous plants Streptocarpus primuloides attracts especial notice as it throws up its flowers freely from leaves which have just struck root. In an inner division of the same range we find a choice collection of young stove plants in magnificent condition, comprising numbers of Adiantum farleyense and other varieties, fine young Pitcher Plants, well furnished with pitchers; the new varieties of Crotons and Dracænas, healthy and well coloured; nice plants of Anthurium Scherzerianum, and the choice Palms, such as Cocos Weddelliana, and the different varieties of Areca, with such useful decorative plants as Campylobotrys refulgens, a beautiful plant when well done; Artillery Plants, Marantas, &c. Along with these we also notice a capital batch of Cattleya superba just getting established; a lot of fine plants of the lovely Cypripedium niveum in splendid condition, Dendrobium taurinum, strong and healthy; and a fine lot of these queens among Orchids, Phalænopsis amabilis and grandiflora.

In the house set apart chiefly for cool Orchids we find a very interesting collection of all the choice varieties. As a rule, the plants are not large, but are exceedingly healthy, and present a most promising appearance. Mr. Anderson grows them plunged in fresh sphagnum, which he finds much the best mode of treating this fine section of the Orchid family. We notice in the collection beautiful young plants of Odontoglossum Alexandræ and Pescatorei in considerable numbers—a most valuable stock—together with quantities of such varieties as O. luteo-purpureum, sceptrum, maculatum, liliiflorum; the rare O. coronarium and miniatum, perhaps the most valuable and most lovely of all, as it is also the most rare; O. blandum, a variety resembling niveum, but broader in the flower and much scarcer. O. Roezlii is also here showing its charming blossoms, and nebulosum, which has always been particularly fine at Meadowbank. Among other species we saw several fine plants of the grand Oncidium macranthum, in splendid health; with good plants of O. angustatum, and nice bits of the charming little O. Phalænopsis. Masdevallias are also numerous and comprise the best varieties; and a particularly fine variety of Disa grandiflora attracts attention by the splendid blaze of its flowers. The rare and shy Epidendrum erubescens is also here, and seems quite at home, having fine healthy foliage, good fat bulbs, and plump, active-looking roots. Among other subjects worthy of attention are a fine collection of Nerines, including flexuosa, venusta, coruscans, Fothergillii, and the rare Meadowbankii. These have always been special favourites at Meadowbank, and they are in capital condition, just throwing up for flower; and we have another fine lot of Amaryllis in a more advanced stage, having large, strong bulbs, several of them at present throwing up promising flower-spikes.

The next house we enter is of a more miscellaneous character as regards its occupants, being principally devoted to saleable stock of such things as Kalosanthes, Pelargoniums, and general greenhouse stock. Among more prominent specimens are fine strong masses of the useful Vallota purpurea, Dyckia splendens, gay with its curious scarlet inflorescence, and an extensive collection of thriving young Camellias. In an enclosed case at the end of the house are a fine lot of Todeas and Killarney Ferns, which have made a capital growth, and look very promising, with their deep green feathery fronds. Leading from this we pass through another house occupied by a lot of healthy young Vines grown from eyes this season. All the favourite varieties are well represented, and as they are thoroughly clean, and have every opportunity of maturing their growth, they will make excellent stock for planting.

In the house for specimen stove plants we find many things claiming our notice. Among the larger-sized specimens Medinilla magnifica, Rondeletia speciosa major, Bougainvillea glabra, Allamandas, Ixoras, Gardenias, Eucharis amazonica, &c., figure finely among the flowering plants; while the ornamental foliaged section includes fine specimens of Dracæna Cooperi in splendid form, Pandanus Veitchii, Croton angustifolius, Cycas revoluta, the variegated Pine-apple, &c. Among smaller stock, we note a fine new Tillandsia from Buenos Ayres with fine scarlet tube and violet flowers, and a remarkably desirable variety of Stephanotis floribunda, producing large flowers very freely on the smallest sized plants. This latter is a grand acquisition, and will no doubt be much sought after, as many of the varieties at present in cultivation are very shy in producing their flowers. Dioscorea porphyrophylla is a beautiful stove climber, when we see it, as Mr. Anderson has it, with the leaves in perfection; and we must not omit a fine lot of young Dæmonorops palembanicus, and other varieties, and a nice lot of Gardenias planted out for growing flowers for cutting. Mr. Anderson finds these succeed

admirably when treated in this manner, producing their flowers in abundance, and being less liable to attacks from their enemies, the mealy-bug and scale.

Exactly facing us as we leave this house we find another large and commodious erection, with a stock of specimen Indian Azaleas of all sizes up to 6 feet high, and proportionately furnished. The collection comprises handsome examples of all the leading varieties, such as Iveryana, Criterion, Distinction, Duc and Duchesse de Nassau, Souvenir du Prince Albert, William Rollisson, George Loddiges, Gem, Perryana, &c. The collection altogether is quite a picture, and we feel assured that its equal could not be found out of London, and even there it would be impossible to find plants in finer condition. The centre part of the house is filled with large Camellias planted out for flowering purposes. They are also in splendid condition, being covered with flower-buds, and the foliage presenting the fine deep green which betokens an abundance of vigour and of healthy action; and as the varieties are all most choice they will when in flower be worth a long journey to see. In one division of the vinery we find an excellent crop of Grapes just ready for cutting, bunches of moderate size, with large plump berries; and in an adjoining division we meet with more Orchids, mostly imported pieces, just starting away. Several fine masses of Dendrobium Falconeri are throwing out new growths, and look very promising, and D. thyrsiflorum, Bensoni, &c., with a miscellaneous lot of other species, are fast getting up into valuable stock.

Leaving these, we enter the Cattleya-house, and again find ourselves surrounded with a choice collection. To enumerate all the plants here worthy of notice would be no easy task, but we specify a few of the more prominent. With fine lots of the well-known C. Mossiæ, most of them selected varieties, are associated well established plants of the more rare Dawsoni, Mendelii, speciosissima, Warneri, Trianæ, superba, and lobata; with Lælias grandis and purpurata, a specially fine lot of L. anceps grandiflora, and fine plants of Saccolabium Dayanum, Vandas suavis and tricolor, Aerides Larpentæ, quinquevulnera and Lobbii rubescens, the latter particularly fine. Large masses of Miltonia virginalis and that most serviceable Orchid, Cœlogyne cristata, also attract attention, as do many other things, such as Phajus maculata, Dendrobium fimbriatum oculatum, Cypripedium Lowii, and the pretty Maxillaria stapelioides, a small growing plant bearing large flowers barred and spotted with crimson on a creamy white ground, with sepals well thrown back, and somewhat resembling in character and habit the curious Promenæa stapelioides. But perhaps among the various plants in the house the most noticeable of all was a magnificent specimen of the Flamingo Plant, which was a show of itself. The variety was superb, the spathes being large and numerous, and altogether the plant was a most telling one.

In another house we find more of the commoner plants adapted for the million, such as the finer varieties of Zonal, Nosegay and double Pelargoniums, Fuchsias, &c., and some robust Roses planted out for forcing for cut flowers. In yet another we see a select collection of the best varieties of greenhouse Ferns and Lycopods, and a nice lot of the curious Sarracenias appear to thrive beautifully alongside of them. Another house, containing young greenhouse stock, Ericas, Epacris, Pimeleas, Aphelexis, &c., with pits for propagating and bringing on Cyclamens, Cinerarias, &c., complete the list of glass erections, and it will be seen from what we have noted above that it is no mean array. Considering how short a time has elapsed since the contents of the houses were scattered, and the many things to which, during the interval, Mr. Anderson has had to give his attention, we were prepared to find, if not a beggarly array of empty stages, at least houses but sparsely populated, but our visit has shown us that the characteristic zeal and energy of Mr. Anderson have in no way abated, and we are heartily pleased to testify that his latest efforts have proved quite worthy of his antecedents.

Leaving the houses, we proceed for a short tour of inspection of the surroundings, and passing along the principal walk we are introduced to more of the beauties of Meadowbank. We were here glad to find that, in adapting the grounds for nursery work, Mr. Anderson had been able to preserve the leading features of the place intact, so that in its main aspects it still presents the appearance of a comfortable and well-ordered gentleman's residence, while the numerous and well-selected plants and shrubs with which it was furnished formed a rare stock-in-trade to commence with, many of them being much larger than the specimens to be met with in nurseries.

Meadowbank is beautifully situated on the banks of the Clyde, and looking upwards as we pass along, we have a lovely view of the winding river with its overhanging trees, the landscape being crowned with the ruins of Bothwell Castle towering in the distance. On the other side, and looking towards Glasgow, the scene opens up in the rich valley of the Clyde, the intervening distance from the city being just sufficient to prevent the factory chimneys from obtruding themselves on the view. Passing along the main avenue, which is fringed on the top of the river bank by rows of specimen Irish Yews and Rhododendrons, and skirted on the other side by a border of mixed flowering plants and shrubs, we reach the flower garden, which is laid out in the centre of a grassy lawn, and surrounded by specimens of ornamental shrubs and Conifers, the whole protected from the blasts which sweep down the river by a thick Yew hedge. In laying out his flower garden for the season Mr. Anderson has succeeded in blending the beautiful with the useful in a very effective manner. Interspersed with flowering plants he has fine beds of young plants of variegated Hollies and other small-growing shrubs, including the green and variegated varieties of Retinospora, the small-growing Cupressus, and several other species. The general effect is good, and an additional advantage gained by giving these fine things an extra chance of thriving. Among the larger specimens we note excellent examples of Wellingtonias, Cupressus, Crimean and Californian Silver Pines, Black American Spruces, Thuja Lobbii and borealis, &c., in various sizes up to 12 or 15 feet in height. These have all been carefully prepared for lifting, and may be transplanted any distance without risk. Resuming our walk, we find a fine line of Austrian Pines, taking the place of the mixed border to our right, a similar line on the left having lately been removed and replaced by a choice collection of a mixed character. Here we observe Picea nobilis, looking remarkably fine, with splendid dark glaucous foliage; and one specimen, not more than 5 feet high, bearing cones—a most unusual circumstance in this locality. Hybrid Rhododendrons of the best varieties are also numerous, and with flowering Azaleas, fine plants of Thujopsis borealis, Araucarias, &c., combine to make a very rich border. The effect of these is greatly heightened by a splendid background composed of large trees of Silver Birch and Purple Beech, with flowering Chestnuts and different varieties of the flowering Thorns. At the end of this border and near the main entrance another walk, going off at an angle, brings us to the herbaceous border, which is of considerable length, and is richly furnished with all the leading species of this most interesting class. The boundary wall which forms the background is well covered with Roses and other choice climbing plants, which during the greater part of the year yield a brilliant display. Following up the avenue, a walk to the right leads us to another border of specimen shrubs surrounding the quarters for smaller nursery stock, and here, again, Irish and English Yews, Portugal Laurels, Hollies, and Box plants, with all the other favourite species, are to be met with in specimens of huge dimensions all in the pink of condition, and all, as Mr. Anderson is careful to explain, well prepared for removal in anticipation of the approaching planting season.

In drawing these hasty notes to a close we can only remark that though the character of the stock at Meadowbank has been greatly changed, it has not been changed for the worse. By the break up of the Orchid collection the diminution of interest attaching to it has doubtless been great, and from the one point of view all but irreparable, but by the change the establishment has been opened up to a wider constituency, and what has been lost in one respect is more than made up for in another, by the introduction of a greater variety than was formerly to be met with in the collection. Outdoor and indoor alike the whole stock is in a satisfactory condition, and reflects credit on the administrative capacity of Mr. Anderson. We heartily wish him good-speed in the enterprise he has so spiritedly undertaken, and we trust that the issue may be altogether to his satisfaction. *B.*

MINERAL ALIMENTS.

THE INFLUENCE OF HEAT IN ACCELERATING VEGETATION.

IN your issue of last Saturday (August 14) there are two questions raised, respecting which my experience of the Mediterranean shores and islands enables me to contribute a little information. 1st. The power of mineral *detritus* or dust to support vegetation, not only that of Vines, but of cereals and fruit trees, alluvial soil or humus being all but absent. 2d. The comparative influence of temperature in leaf development in southern and northern climates.

The entire north shore of the Mediterranean, from Gibraltar to the Dardanelles, with the exception of the mouths of rivers, may be said to be a mass of rocky mountains, principally calcareous, sometimes schistic. The southern flanks of these mountains or rocks are generally more or less precipitous, and burnt as they are by a southern sun, with a five or six months' summer drought, present but a scanty vegetation, pretty nearly everywhere of the same character—Borage, Thyme, Juniper, Euphorbia, Taxodium, Cistus, Lavender, Mediterranean Heath, Maritime Pine, Aleppo Pine, &c.; and, where cultivated, Olive, Orange, Lemon, Opuntia, Almond, Apricot, Peach, and Vine.

The wild plants and trees above-named cover the rocks sparsely, so as often to be scarcely perceptible at a distance, but grow healthily if not vigorously. If their roots are traced they will generally be found to have entered a crevice or fault in the rock. In calcareous rocks these crevices are very common on the surface. If such rocks are broken or blasted they will generally be found to present them in great numbers, and the roots of the plants growing on the surface will be found therein contained, often, but not always, surrounded by a little vegetable soil, the result of the decay of similar roots, their predecessors for countless ages. These plants and trees subsist clearly in a great measure on atmospheric and mineral food, for they get scarcely any other.

The cultivated plants and trees being all grown for the fruit they produce, although in a congenial climate, require man's assistance to produce it of good quality, and this is the way in which such assistance is given. Terraces or shelves are formed by the pick-axe, hammer, or by blasting, on the side of the mountain. These terraces are filled with broken and powdered stones. A little road-dust or a little vegetable soil, if it can be found, is scattered on the stones, a hole is made therein, a handful of manure is placed at the bottom, and the fruit tree planted. Under these conditions it thrives, and produces fruit if watered during the season of drought. Surely, under such conditions, the plant-food must be principally the carbon of the atmosphere, and the mineral constituents of the rocks.

Just under my rock garden at Mentone, which is 300 feet above the sea, and itself formed of successive terraces or shelves, as described, this process has been going on for the last four years, and I have been observing it with great curiosity and interest. A jetty or pier is being made, and the contractor in search of stone bought the terraces below me, which were covered with healthy Lemon trees in full bearing, some 20 feet high, with trunks a foot in diameter. These terraces have been one by one consumed to make stones, *pour faire des pierres*, as the local saying is, the trees being cut down, and the earth scattered. This has given me a splendid opportunity of observing and studying in succession the entire thickness of the terraces in which these healthy Lemon trees were growing. To my surprise, I found that there were only 8 or 10 inches of red calcareous soil on each terrace, then 18 inches of small calcareous rubble, and then the rock. The trees had all rooted well into the rubble, but never penetrated more than 2 feet from the surface. Thus perched up, as it were, on shelves, on a dry and all but precipitous rock, in the full blaze of a south-west Mediterranean sunshine, growing in only 8 inches of poor rocky soil, they formed a luxuriant grove or wood, producing fruit in abundance. The only assistance they wanted or got was water once a fortnight in summer, and a little manure in a trench 3 feet from the trunk every two or three years.

The destruction of these terraces enabled me to witness and study the formation of others. One of my neighbours, still lower down, owned a rock immediately overlooking the sea, to which it descended by a rapid slope like that of a house-top. Seeing valuable soil wasted in the quarrying above described, he determined to buy it from the contractor and to utilise his naked rock. He first made a large reservoir, capable of holding 10,000 cubic feet of water, and then commencing quarrying his terraces on the rock, for it amounted to that. With the larger blocks of stone he built up the outer wall of each terrace some 10 feet wide, the next-sized stones were put at the bottom, the small ones above, and on the top were strewn 2 or 3 inches of road sweepings and of the bought soil; then some young Lemon trees, five years old, were planted as described, at about 10 feet distance. They now form pretty young fruit-bearing Lemon trees. The bare rock has truly been transformed into a garden. At Malta I saw, in May, 1874, identically the same process going on, but on less precipitous rocks. The formation o, Malta is also calcareous, and the wild vegetation ise in a great measure, that of these rocks in the entirs Mediterranean basin. A great part of the island is under cultivation, but in some parts the bare calcareoua rock crops out to the surface, like the bones of half-starved man coming through his skin. Here and there it is in process of redemption, and a marvellous process it would seem to a Yorkshire farmer. The pickaxe, hammer, and blasting powder are brought into requisition, all protuberances are levelled to the ground, walls are built with the larger blocks, the small stones and stone-dust are spread over the enclosure, road sweepings, soil, manure, anything that can be got, is strewn over the field, and cultivation at once begins. Beans, Peas, cereals, and Cotton are planted, and, wonderful to relate, they flourish and produce crops—heat, light, sunshine, aiding and making them all but independent of a rich loam soil.

Olive trees, and all kinds of fruit trees, will flourish

and live in these rock-dust terraces, and with the addition of a little manure and water will produce good fruit abundantly. It really would seem as if in this climate, with its mild temperature in winter, its heat in summer, and its intense light, mineral and atmospheric aliment were all but sufficient for mere plant nourishment. This fact is admirably illustrated by the Carouba tree. It is a splendid evergreen tree, abundant in Syria, in Palestine, indeed in the driest regions of the Mediterranean shores, which grows as large as good English Oak, and is as well supplied with foliage. This tree flourishes in the rockiest, driest situations, on the slope of precipitous sun-burnt calcareous rocks, where there is no vegetable soil whatever, except what is contained in the crevices and cracks of the rock.

I would remark that most of the plants and trees, that seem in the South all but independent of soil, that appear to be able to get their mineral constituents (only a few per cent.) out of the rocks, and their carbon out of the atmosphere, are evergreens, which feed atmospherically all the year round, as is the handsome Carouba. A remarkable exception, however, is the Terebinthus Chio — the last shrub or tree which shows itself in the Desert of Sahara, according to Dr. Tristam. It grows freely and luxuriantly on my rocks, as well as at Chios, and in the Great Desert, but is leafless from December to April, to my great annoyance.

2d. The remarks in your leader on "Heat" (p. 204) have brought vividly to my mind a fact connected with the progress of vegetation in the Mediterranean in the spring, which I have never been able satisfactorily to explain, viz., Why is the leaf development of deciduous trees so tardy in spring in a climate so much milder, so much warmer than that of the North of Europe? Taking Mentone as the centre of observation, there is at least two months' difference in the flowering epoch of surface flowers and of small shrubs, such as Roses, as compared with the North of France, or the South of England; whereas the difference is not more than about three weeks or a month when we study deciduous trees, Willows, Poplars, Planes, Oaks, &c. According to my own observations, based on fifteen years, the minimum for February is 43°.9, the maximum 55°.7. The minimum of March 45°.3, the maximum 59°.3; the minimum of April, 50°.8, the maximum 66°.3. With such temperatures, aided by abundant spring rains in March, one would have thought that the deciduous trees would have been in full leaf by the end of March, but it is not so, they are not in full leaf until the end of April—scarcely then. I may mention a remarkable illustration of this fact. On May 6, 1874, I was at Tunis, and went to visit the Bardo, the Bey's palace, which is some 10 miles inland away from the sea, Tunis itself being six. Outside the palace there was a grove of large healthy Walnut trees, which had not a single leaf! The leaf-buds were large, swelling, but not one had expanded.

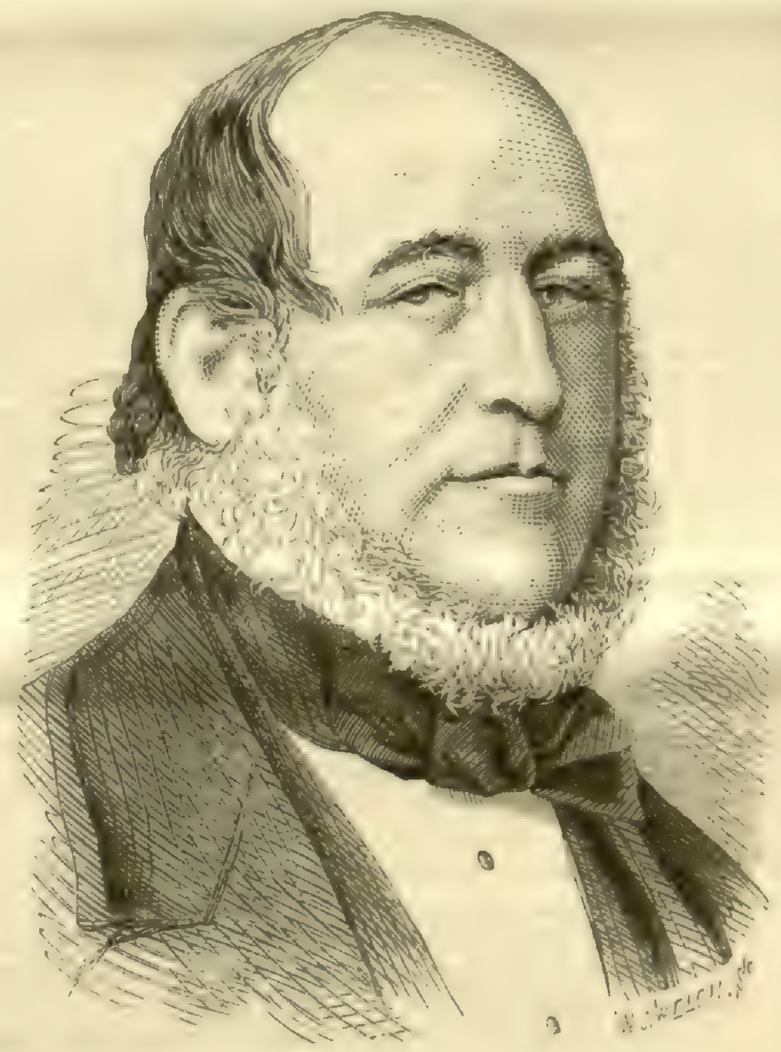
I thought at one time, and to a certain extent think so still, that the difference between the development of the surface flower vegetation and that of the trees, was owing to the ground at the surface becoming early in the season thoroughly warmed by the sun's rays, which did not penetrate deeper to the roots of the deciduous trees. But I kept a thermometer for several winters, at 2 feet below the surface in my garden, and never found it below 45°; so with roots at 45°, and the trunk and branches in the temperatures given, we might expect earlier leaf development in spring.

May not light, and the comparative duration of daylight, have something to do with the question? As we advance north the days become much longer than they are in the south, and the nights shorter. This no doubt has a deal to do with the ripening of crops and fruit in northern regions. Even in our own island crops and fruit are ripening under an unusually low temperature. At the end of last month (July), and at the beginning of this, the thermometer repeatedly went down nearly to freezing point. Indeed we have had during the last month of midsummer the thermometer oftener below 40° than at Mentone during the six months of winter, and yet all summer fruits are ripening each after their kind.

Then we must not forget the habit, the nature of plants, which it is difficult to modify. My gardening experience at Mentone gives me many illustrations of this fact, one of the most remarkable of which is the history of the Snowdrop. I take out a number every year for "auld lang syne," and plant them out in October, but they never flower sooner than February, wherever I may place them, in the blaze of the sun or out of it. They will not be put out of their way, and flower with me just at the same epoch as they would in the snow in the Shetland Isles. I can, however, get the two months' advance with most garden flowers in the open, but I cannot get three. I can get in March our garden flowers of May, in April those of June, but by no treatment can I get in March and April the flowers of July and August, although, were it a question of heat above, there is quite enough to develope them. This is so much the case that, as I leave in the month of April, I have all but concluded to no further attempt to flower any plant that does not flower until July in the North of Europe. *J. Henry Bennet, M.D., The Ferns, Weybridge.*

JOHN STANDISH.

We are enabled this week to lay before our readers a portrait which may serve—somewhat imperfectly, it must be owned—to recall the lineaments of this much-respected horticulturist. We need add nothing to what we have already said as to the genial characteristics of the man, and the good service he did as a skilful hybridiser, and in other ways, in promoting the art and science of horticulture. Our testimony has been supported by others of his friends. He leaves a void which will not easily be filled. We learn that it is proposed to raise, as a mark of affectionate respect, a tablet over his remains in the Ascot churchyard. We quite agree to the spirit of the proposal so made, but we would suggest that a preferable mode of carrying it out would be to secure, if possible, a portrait to be hung in the Council-room of the Royal Horticultural Society, side by side with those of others of his and our friends. In that situation the memorial would be more frequently under the eyes of those with whom he was for so many years so pleasurably associated. The memorial in Ascot church might preferably be left to the care of his immediate relatives. We may mention that the treasurer to the fund is Mr. H. J. Veitch, Royal Exotic Nursery, Chelsea.



JOHN STANDISH.

NEW BOTANICAL GARDENS AT CHURCHTOWN, LANCASHIRE.

Some time ago we gave an account of the great winter garden established in connection with the new Southport Aquarium. Incidentally it was mentioned that Southport is the handsome modern offspring, a thousand times in advance, of the primitive village of Churchtown, which, though few would imagine such a thing possible, is still the ecclesiastical centre. The village is between two and three miles distant, in the direction of the Ribble (famed for its salmon), thus on the north-eastern or Preston side of Southport, but still in close proximity to the shore. Up to the present time Churchtown has been regarded only as the simple ancestor of the fashionable and thriving bathing-place in which we find the Aquarium, and has been noted for little besides retirement, pure air, and productive Strawberry gardens. The extension of the Southport tramway system along the well-kept and pleasant lanes which lead to the ancient village, clearly portended a year ago that something remarkable was imminent in regard to its restoration to fame and "pride of place," and now, sure enough, it has been made the locality of what promises to become one of the pleasantest and most attractive public gardens in Lancashire, and, better still, in the estimation of botanists and horticulturists, an arboretum of considerable magnitude and value. The promoters call themselves "The Southport and Churchtown Botanic Gardens and Museum Company (Limited)." The funds have been raised by means of £5 shares, of which there are 2400, and so sanguine is the community as to the success of the venture that the scrip is now at a premium of 42*s.* 6*d.* The new Churchtown gardens will in no way interfere with the Southport Winter Garden. To a certain extent the two establishments go hand-in-hand. The Mayor, Walter Smith, Esq., one of the most energetic men in Southport, is chairman of both companies; and so rapid and continuous is the progress of Southport, and so constantly is the place increasing in popular favour, both as a residence and as a holiday resort, that there can be no doubt that the prosperity of this last new undertaking will fully equal that of all former efforts. Southport and Churchtown are favoured with a delightfully salubrious climate, adapted to almost everything of vegetable nature that in England will flourish out-of-doors. The difficulties consist, at Southport proper, in the immense predominance of sea-sand; and along the coast generally, in the winds, which at times blow very strongly from the south-west. By going to Churchtown to lay out their garden, the promoters of this excellent scheme have quite relieved themselves of the first-named hindrance, since here, instead of mounds of shifting sea-sand, there is a depth of at least 18 inches of a fine alluvial deposit, the margin, apparently, of the great surface which, in the first instance a watery flat, one or two hundred years ago was drained artificially, and is now a singularly fertile stretch of farm-land, reaching many miles in every direction. The winds, in turn, have had their hurtfulness neutralised in very considerable measure, if not entirely, by the skilful laying-out of the ground, and the special arrangements for the localising of the plants, the ligneous ones in particular. This department has been very wisely put in the hands of Mr. John Shaw, of Bowdon, who has effected results, by means of embankments, &c., which not only present a complexion of the very happiest picturesque, considering the place and the materials at his command, but which guarantee perfect shelter. The area of the gardens is about 20 acres. Originally a little stream, weedy and inelegant, threaded its way from near the present entrance gates to the meadows beyond, dividing the ground into two nearly equal portions. By dint of immense labour, reminding one of railway works, this mean little watercourse has been superseded by a lake, the only one in the district, a quarter of a mile in length, and full of graceful turns and varied outlines, the whole never visible from any single point of view, while every now and then it widens into a bay, exactly suited to the plants which it is desired to introduce—Nymphæas, of many kinds, and other high-class ornamental aquatics. At proper intervals the margins are planted with Weeping Willows or the Pinus Mugho, which in due time will conceal them—the one with its pendent light green, while the other is dark and massive. The plants are all in their places, so they have now only to grow. The enormous quantity of earth supplied by the excavations has, of course, come in very usefully for the embankments, and here it is that Mr. Shaw has shown his mastery and ingenuity; pleasant fair-weather abodes are provided for the trees and shrubs, and at the same time they enjoy an almost perfect immunity from damage by storms from the sea. This last advantage has been secured by the constant employment of curves, and the institution of large recesses, well fenced behind, and having an outer barricade of Beech and Lombardy Poplar. The centre, or broad and open floor of the recess, is a level grass plat, and will be unbroken except where Roses or Rhododendrons (just two or three) are placed as a dimple. The banks rise gradually, and are already well-stocked with plants, the total, so far, in the gardens being not less than 20,000 individuals, and as soon as the season returns this will be vastly increased. Nearly the whole are ligneous, and of what character may be judged when we say that they include everything of the class represented in Salisburia, Taxodium, and Catalpa, with all the finest varieties in cultivation of Acer, Tilia, Quercus, Cratægus, &c., not to mention Araucaria, Deodara, and other usually familiar forms, which of course are introduced in plenty. The great majority of these beautiful plants are at present quite unknown to the horticulture of Southport and the neighbourhood, where the predominant trees are Populus nigra and Populus alba, with a smaller proportion of Sycamore, Hornbeam, and Willow, and in the gardens a few Lilacs, &c. There are likewise, in the new grounds, the Bay, the Arbutus, the Cornelian Cherry, and very many more of the second class as to dimensions; with Garrya, Forsythia, and a score of others as representatives of the third class. Scarcely one of these occurs elsewhere in the parish. In regard to its "aspects of vegetation,"

and from the educational point of view, the Churchtown Arboretum will thus be a profound novelty for the intelligent visitor, and the influence upon private gardening thereabouts cannot fail to be extremely beneficial. Any one who establishes an arboretum is, from the very nature of things, a public benefactor. It is intended by-and-bye to add to the collection many such plants as the Tamarisk, the Myrtle, and the Eucalyptus, which will no doubt succeed almost as well as in the South. Great care has been taken to dispose the larger kinds of trees with a view to autumnal effects, and to the beauty which comes of well-harmonised contrasts of physiognomy and foliage. Here, we take it, the power and the good taste of the landscape gardener are displayed every bit as much as in simple laying-out of surfaces. It is not only or so much how things begin as how they finish that is important. A plan may be good as regards walks, embankments, and water, yet be quite spoiled by injudicious allotment of the trees and shrubs, which is the true conclusion, and the vital point; therefore, it behoves a landscape gardener to be intimately acquainted with every plant he handles, to have watched it from his youth upwards, and to have noted its manners and customs all the year round. Situated in so genial a climate, so perfectly guarded from access of wind, and of draughts and currents in particular, and so rich in species, this new Southport Arboretum must needs, in the course of a few years, become one of the most remarkable in the North of England. There is not an atom of misgiving as to the plants taking kindly to the soil; and of their flourishing, if defended from the sea-winds when blowing strenuously, and that this precaution has been taken in a way that will ensure success cannot be doubted. At present, of course, the trees and shrubs are mostly young and small, but a season or two will see them grow rapidly. A feature of the grounds by no means to be overlooked is the beautiful way in which, by constant employment of the curve, the paths and roads diverge and glide imperceptibly into one another, making the 20 acres appear to be 50. Optical illusion of this nature is another special triumph in good landscape gardening. Not that they form serpentines, which are simply an abomination. Serpentine walks and the Hogarthian "line of beauty" are by no means to be confounded or even compared. Pains have also been taken to introduce the curve in every instance of rise and fall of the ground, thus getting rid of the offensive angles too commonly met with, and again supplying illusions as to extent of surface. Except upon the spacious lawns, and near the entrances, there is scarcely a bit of absolute level in the garden.

Herbaceous perennials will be added in due time, and plenty of ordinary decorative flowers. But there will be no "bedding out," except as regards Roses and Rhododendrons, many rich varieties of which are disposed in circular beds 9 feet diameter, one variety to each. For tender plants there will be ample provision in the shape of conservatories. One, 40 feet by 20, has been completed, and is partially stocked; the foundation-stone of another and immensely larger one was laid not long since, when likewise the first stone was laid of the grand fernery that is to be, and of the pavilion and museum, which last is to be devoted to objects specially illustrative of economic botany, and of whatever is useful and interesting to rational human beings, in the way of vegetable produce, both simple and manufactured. The Churchtown gardens will thus become a grand centre of scientific banking in regard to everything congenial to the aims and spirit of botany, and of its faithful auxiliary and ally, the *Gardeners' Chronicle*. For the gratification of the non-scientific, all the accustomed factors of a good and well-kept public pleasure-ground will be added; nice reaches of turf are already in preparation for croquet and archery, and, in due time, there will be exhibitions. A large supplemental piece of ground is devoted to the purposes of a *culinarium* and already stocked, the design being that the inhabitants of Southport shall learn the superiority of high-class vegetables, cut or gathered just when wanted, and no sooner, as contrasted with imports from a distance, perhaps a week old. There are also two vineries, each 90 feet long and full of vigorous young plants, some of which are showing bloom; and, in addition, some 2 or 3 acres of Strawberries. Standing on the highest point of the grounds, north and east there is a pleasing horizon of distant hills; and westwards, at high water, there is the sea.

The people of Lancashire, and of Southport in particular, have great reason to be thankful to the promoters of this splendid undertaking. It is no mere airy project. Two-thirds of the heaviest work has been completed, and the remainder is being pushed forwards with all speed. A few years must necessarily elapse before the trees can acquire commanding dimensions, but this deficiency, of course, counts for nothing. It is no objection to a noble and promising lad, born to a certain fortune, and with the best of constitutions, that he is at present only a lad—there will be joy, indeed, when he comes of age. *G.*

CURIOSITIES IN THE NAMES OF PLACES.—II.

(*Continued from p.* 168.)

In a previous paper we endeavoured to illustrate and prove, by evidence derived from the names of places, that this country of ours was extensively wooded, and that the timber trees growing on its soil were numerous and various. We had reached in our course—

"The monarch Oak, the patriarch of trees,"

and found that we could not, in justice to our theme, overlook the many forms in which the evidence of the wide distribution of the Oak appears in the variety of the names which have been left to us indicative of the Oak's being an old occupant of places almost innumerable in the British isles. The importance of this fact is very great. It has had a great influence on the national character, as is seen in the phrase employed to denote that their inhabitants are bravely trustworthy, or "hearts of Oak;" and it has very materially affected the history of the land, by affording these "wooden walls" which enabled the England of old to sing:—

"Britannia needs no bulwalks,
No towers along the steep;
Her march is o'er the mountain-waves,
Her home is on the deep:
With thunders from her native Oak
She quells the floods below,
As they sweep through the deep
While the stormy tempests blow,
While the battle rages loud and long,
And the stormy tempests blow."

We go on now to show, in continuation of what we said before, that the Oak was extensively distributed over Britain. Directly from the Saxon Ac we have the names East and West Acklum, Ackworth, and Acomb in York; as well as East and West Acomb in Northumberland; Aconbury in Hereford and Acrise in Kent come from the same sources. The same fact in what might be called botanical geography receives enforcement from Acton in Chester and Suffolk, from Acton Beauchamp in Worcester, and from Acton Burnell, Acton Round, and Acton Scott in Shropshire. Then there are Akeley in Buckingham, and Akenham in Suffolk, St. Andrew Auckland and West Auckland in Durham, and Eakring in Nottingham. Ockbrook in Derby, Ockham and Ockley in Surrey, and North and South Ockenden in Essex, as well as Okeford Fitz Paine in Dorset, Okehampton in Devon, and Okeover in Stafford, lead to the same conclusion. Anderness, which is the contracted form of Ackmunderness, signifies the promontory sheltered by the Oak, and so shows that the Oak did good service to the Lancashire headland. Axholm certainly, probably also Axbridge and Axminster, involves the name of the Oak etymologically, although perhaps the last two may refer to the Axe river, which might get its name, like the Exe, from the Celtic *uisge*.

Passing from the Oak, we must confess that we know no names of places in Britain like Fichtelgebirge, the hill of Pines; but we have Poplar, formerly a hamlet in the parish of Stepney, but now almost Poplar-reft, incorporated with the metropolis between Commercial Road and Blackwall. We have a Plumtree in Notts, and several places named Plumstead, one in Kent and three in Norfolk; though, by-the-by, there is Pine-apple Court in Westminster as a witness to the existence of such trees as the Pine [!]. Among the names which refer to the Alder tree we may note Alderbury in Wilts, Alderford in Norfolk, Alderley in Gloucester, Aldermaston in Berkshire, Alderminster in Worcester, Aldershot in Hampshire; and there is an Alderton in each of these counties — Gloucester, Wilts, Northampton, and Suffolk. Can we say of them as Tennyson sings?—

"And here will sigh thine Alder tree
And here thine Aspen shiver,
And here by thee will hum the bee
For ever and for ever."

That there are several places in the country where the coopers' favourite small-hoop wood grows, and where the simile upon the lips of the swains regarding their sweethearts might be like that of Petruchio in "The Taming of the Shrew"—

"Kate, like the Hazel twig
Is straight and slender, and as brown in hue
As Hazel nuts, and sweeter than their kernels."

we may note by mentioning Hazelleigh in Essex, Hazelton in Gloucester, and Hazelwood in Suffolk. We may state, too, that Dunkeld in Perthshire signifies the hill of the Hazel trees, and that from the fine Hazels growing so densely in this Arcadia of Scotland, the capital of the central part of the kingdom of the Picts, the ancient designation of the inhabitants of that land—Caledonians, and the name of Caledonia, are derived. In the same way, and from a common Celtic root, the romantically situated Merionethshire town at the base of Cader Idris receives the name of Dolgelly from having been the capital of the dale of the Hazel groves.

Of the growth of the Maple, which sometimes works so well in the joiner's hands, we have a record preserved for us in Maplebeck, Nottingham; Maplederwell, Hampshire; Maple Durham, Oxford; and Great Maplestead and Little Maplestead in Essex. There is a Mapleton both in Derby and in York.

Of the prevalence of the Willow we have many evidences; such as Willybourne in Wiltshire, the rivulet among the Willows. It is a matter of dispute among etymologists whether Ely, which is surrounded by marsh grounds and abounds in eels, receives its name from the Saxon eel, which designates that species of the genus Anguilla, or from helys, the Sallow, which is the tree most plenteous in the district; but there can scarcely be a mistake about Willoughby in Warwick and in Lincoln; Willoughby-on-the-Wolds in Nottingham; Waterloo Willowby in Leicester; and Willoughton in Lincoln. Willerby in York, Willersey in Gloucester, and Willersby in Hereford, seem to owe their names to this tree's growth in their neighbourhood. So do the various Wiltons—as Hockwold-cum-Wilton in Norfolk and in Somerset, Wilton near Salisbury, in Wiltshire, and Bishop Wilton in Yorkshire. From Salix, the Latin term for Willow, we have Carnsalloop in Dumfriesshire, Scotland; and perhaps Sall in Norfolk and Great Saling in Essex.

Of the growth of the Yew tree we have the evidence afforded by a Ewhurst in Sussex, another in Surrey, and a third in Kent. We have besides Ewelme in Oxford, and Ewell both in Kent and in Surrey.

While these various specific names of places give indication of the particular trees which had their early habitats in this island, and make it abundantly evident that the timber which grew on its surface had great influence over the selection of designations for villages and towns, a very large number of names include in their etymology proof of the general diffusion of naturally growing wood over a large extent of the country. Hurst signifies in Saxon a forest, and we have Broadhurst and Penshurst in Kent, Brockhurst in Warwickshire, Brockenhurst, Holdenhurst, and Lyndhurst in Hants, Salehurst and Midhurst in Sussex, Deerhurst in Gloucester, Chesthurst in Hertfordshire. We have also Hurstmonceux in Sussex, and Sissinghurst in Kent, &c. Shaw is another term for a wood or a collection of trees, and from it we have Painshaw, the wooded hill, in Durham, Openshaw in Lancaster, Shawbury in Shropshire, Shawell in Leicester, and Shaw-cum-Dornington in Berks, &c. In the same way we have Grove in Buckingham and Nottingham, Potsgrove in Bedford, Bromsgrove in Worcester, Bolgrove in Sussex, Cosgrove in Northampton, &c. Again, from the Saxon Wirl, a forest, we have Worcester, Wirksworth in Derby, Worsthorne Worsley in Lancaster, Worstead in Norfolk, &c. Wealt is yet another form in which a forest is indicated in Saxon; thence we have "the Wealds" in Kent, Surrey, Essex, &c. Waltham in Kent and in Lincoln, Walthamstow in Essex, as well as Abbey Waltham, Great Waltham, and Little Waltham in Essex; Bishop's Waltham and North Waltham in Hampshire, St. Lawrence Waltham in Berks, and Waltham-on-the-Wolds, Leicester. Then we have St. Paul's Walden in Hertford, Saffron Walden in Essex, and Waldershave in Kent. Up-Waltham in Essex, Monsewold, Tinwald, and Torthorwald (the tower of the god Thor in the woods) in Dumfriesshire, as well as the Boheimerwald, or Black Forest, in Bohemia, all belong to this class of place-names.

In conclusion, we may be allowed to notice one or two miscellaneous instances of the influence of the widely-spread growth of wood to affect the names of places. Madeira, from the Spanish for the Latin *materies*, is the wooded island. Balbymure, in the county of Antrim, in Ireland, signifies the township amid Yew trees; Clarendon, in Wilts, indicates a hill cleared of its wood; Buxton, in Derbyshire, is the town among the Beeches; and Buckingham is the hamlet in the meadow surrounded with Beech trees. Medina-del-Pamar, in Spain, is the Apple-orchard city; Leipsig is the town among Linden trees, at the bend of the river Spree; Vierwaldstadtensee is the inland lake of the state of the four forest towns in Switzerland; Kingussie, in Aberdeenshire, is the headland of the Fir trees; Kintore is the head of the wood; and Altguish, in Aberdeenshire, signifies the town of the river with Fir trees on its banks. Coillamore, in the parish of Laggan in Inverness, indicates the great wood. Trefycoed in Cardiganshire and Trecoed in Radnorshire, indicate a town in the wood; Valladolid is the vale of the Olives. The town in Hindostan called Jogareste means the Bamboo fort, and that named Boughir signifies the woody mount, while Baal-tamar, in the Holy Land, indicates that in that part of the tribe of Benjamin an image of Baal was set up among the Palm trees.

These may serve as specimens of the interest, amusement, and information which lie concealed in our old terms, and are quite enough to prove that the

actual existence of timber has had a great influence in our geographical vocabulary. The facts stated send our thoughts back for ages, to the time when the care of the forests and the course of the timber trades were in their infancy, but certainly not inactive. Nor will the thoughtful pursuer of his vocation in the timber trades of the present day be unheedful of the evidence given by the names of places of the vast diffusion of timber in the olden times, nor negligent of the suggestiveness as to the ancient condition of the country in connection with the work and interests of the present day, which these curiosities of the names of places present or may excite. We have done enough to open up the associations of woods, and to direct attention to their meaning: those who feel the charm of the occupation will pursue these lines of thought further; those who content themselves with the perusal of what we have written will, we hope, acknowledge that even the wordlore of the woods is poetical, informing, pleasant, and profitable. *Timber Trades Journal.*

THE CENTENNIAL EXHIBITION AT PHILADELPHIA.

WE have received the system of classification to be adopted at the International Centennial Exhibition in Philadelphia, next year, from which we extract the portions relating to Agriculture and Horticulture:—

DEPARTMENT VI.—AGRICULTURE.

Arboriculture and Forest Products.

Class 600.—Timber and trunks of trees, entire or in transverse or truncated sections, with specimens of barks, leaves, flowers, seed vessels, and seed; masts, spars, knees, longitudinal sections of trees, railway ties, ship timber, lumber roughly sawn, as planks, shingles, laths and staves; timber and lumber prepared in various ways to resist decay and combustion, as by injection of salts of copper and zinc.

Class 601.—Ornamental woods used in decorating and for furniture, as veneers of Mahogany, Rosewood, Ebony, Walnut, Maple, and Madrona.

Class 602.—Dye-woods, barks, and galls for colouring and tanning.

Class 603.—Gums, resins, caoutchouc, gutta-percha, vegetable wax.

Class 604.—Lichens, mosses, fungi, Ferns.

Class 605.—Seeds, nuts, &c., for food and ornamental purposes.

Class 606.—Forestry: illustrations of the art of planting, managing, and protecting forests. Statistics.

Pomology.

Class 610.—Fruits of temperate and semi-tropical regions; as Apples, Pears, Quinces, Peaches, Nectarines, Apricots, Plums, Grapes, Cherries, Strawberries, and Melons.

Class 611.—Tropical fruits and nuts, Oranges, Bananas, Plantains, Lemons, Pine-apples, Pomegranates, Figs, Cocoa-nuts.

Agricultural Products.

Class 620.—Cereals, grasses, and forage plants.

Class 621.—Leguminous plants and esculent vegetables.

Class 622.—Roots and tubers.

Class 623.—Tobacco, Hops, Tea, Coffee, and Spices.

Class 624.—Seeds and seed vessels.

Land Animals.

Class 630.—Horses, asses, mules.

Class 631.—Horned cattle.

Class 632.—Sheep.

Class 633.—Goats, alpaca, llama, camel.

Class 634.—Swine.

Class 635.—Poultry and birds.

Class 636.—Dogs and cats.

Class 637.—Wild animals.

Class 638.—Insects useful and injurious: honey bees, cochineal, silkworms.

Marine Animals, Fish Culture, and Apparatus.

Class 640.—Marine mammals: seals, cetaceans, &c., specimens living in aquaria, or stuffed, salted, preserved in alcohol or otherwise.

Class 641.—Fishes, living or preserved.

Class 642.—Pickled fish, and parts of fish used for food.

Class 643.—Crustaceans, echinoderms, beche de mer.

Class 644.—Mollusks, oysters, clams, &c., used for food.

Class 645.—Shells, corals, and pearls.

Class 646.—Whalebone, shagreen, fish-glue, isinglass, sounds, fish-oil.

Class 647.—Instruments and apparatus of fishing: nets, baskets, hooks, and other apparatus used in catching fish.

Class 648.—Fish culture: aquaria, hatching pools, vessels for transporting roe and spawn, and other apparatus used in fish breeding, culture, or preservation.

Animal and Vegetable Products used as Food or as Materials.

Class 650.—Sponges, sea-weed, and other growths used for food or in the arts.

Class 651.—The dairy: milk, cream, butter, cheese.

Class 652.—Hides, furs, and leather, tallow, oil, and lard, ivory, bone, horn, glue.

Class 653.—Eggs, feathers, down.

Class 654.—Honey and wax.

Class 655.—Animal perfumes, as musk, civet, ambergris.

Class 656.—Preserved meats, vegetables, and fruits. Dried, or in cans or jars. Meat and vegetable extracts.

Class 657.—Flour, crushed and ground cereals, decorticated grains.

Class 658.—Starch and similar products.

Class 659.—Sugar and syrups.

Class 660.—Wines, alcohol, and malt liquors.

Class 661.—Bread, biscuits, crackers, and cakes.

Class 662.—Vegetable oils.

Textile Substances of Vegetable or Animal Origin.

Class 665.—Cotton on the stem, in the boll, ginned, and baled.

Class 666.—Hemp, flax, jute, ramie, &c., in primitive forms and in all stages of preparation for spinning.

Class 667.—Wool in the fleece, carded and in bales.

Class 668.—Silk in the cocoon, and reeled.

Class 669.—Hair, bristles.

Machines, Implements, and Processes of Manufacture.

Class 670.—Tillage: manual implements, spades, hoes, rakes; animal-power machinery, ploughs, cultivators, horse-hoes, clod-crushers, rollers, harrows; steam-power machinery: ploughs, breakers, harrows, cultivators.

Class 671.—Planting: manual implements, corn planters, and hand drills; animal-power machinery, grain and manure drills, corn and cotton planters; steam-power machinery, grain and manure drills.

Class 672.—Harvesting: manual implements; grain-cradles, sickles, reaping-hooks. Animal-power machinery, reapers and headers. Mowers, tedders, rakes, hay elevators, and hay loaders.

Potato diggers.

Class 673.—Preparatory to marketing: thrashers, clover-hullers, corn-shellers, winnowers, hay, cotton, wine, oil and sugar making apparatus.

Class 674.—Applicable to farm economy: portable and stationary engines, chaffers, hay and feed-cutters, slicers, pulpers, corn mills, farm boilers and steamers, incubators.

Class 675.—Dairy fittings and appliances: churns for hand and power, butter-workers, cans and pails, cheese-presses, vats, and apparatus.

Agricultural Engineering and Administration.

Class 680.—Laying out and improving farms: clearing (stump extractors), construction of roads, draining, irrigating, models of fences, gates, drains, outfalls, dams, embankments, irrigating machinery, stack building and thatching.

Class 681.—Commercial fertilisers: phosphatic, ammoniacal, calcareous, &c.

Class 682.—Transportation: waggons, carts, sleds, harness, yokes, traction engines, and apparatus for road-making and excavating.

Class 683.—Farm buildings: models and drawings of farm-houses and tenements, barns, stables, hop-houses, fruit-driers, ice-houses, windmills, granaries, barracks, apiaries, cocooneries, aviaries, abattoirs, and dairies.

Tillage and General Management.

Class 690.—Systems of planting and cultivation.

Class 691.—Systems of draining and application of manures.

Class 692.—Systems of breeding and stock feeding.

DEPARTMENT VII.—HORTICULTURE.

Ornamental Trees, Shrubs, and Flowers.

Class 700.—Ornamental trees and shrubs.

Class 701.—Herbaceous perennial plants.

Class 702.—Bulbous and tuberous-rooted plants.

Class 703.—Decorative and ornamental foliage plants.

Class 704.—Annuals and other soft-wooded plants, to be exhibited in successive periods during the season.

Class 705.—Roses.

Class 706.—Cactaceæ.

Class 707.—Ferns, their management in the open air, and in ferneries, Wardian cases, &c.

Class 708.—New plants, with statement of their origin.

Class 709.—Floral designs, &c. Cut flowers, bouquets, preserved flowers, leaves, seaweeds. Illustrations of plants and flowers. Materials for floral designs. Bouquet materials, bouquet holders, bouquet papers, models of fruits, vegetables, and flowers.

Hot-houses, Conservatories, Graperies, and their Management.

Class 710.—Hot-house and conservatory plants.

Class 711.—Fruit trees under glass.

Class 712.—Orchids and parasitic plants.

Class 713.—Forcing and propagation of plants.

Class 714.—Aquatic plants under glass, or in aquaria, &c.

Class 715.—Horticultural buildings, propagating-houses, hotbeds, &c., and modes of heating them. Structures for propagating and forcing small fruits.

Class 716.—Portable or movable orchard-houses and graperies, without artificial heat. Frames, beds.

Garden Tools, Accessories of Gardening.

Class 720.—Tools and implements. Machines for the transplanting of trees, shrubs, &c. Portable forcing-pumps, for watering plants in greenhouses, and methods of watering the garden and lawn.

Class 721.—Receptacles for plants: flower-pots, plant-boxes, tubs, Fern cases, jardinières, &c. Window gardening: plant and flower stands, ornate designs, in iron, wood, and wire.

Class 722.—Ornamental wire-work, viz., fences, gates, trellis bordering of flower-beds, porches. Park seats, chairs, garden statuary, vases, fountains, &c. Designations, labels, numbers.

Garden Designing, Construction, and Management.

Class 730.—Laying out gardens: designs for the laying out of gardens, and the improvement of private residences. Designs for commercial gardens, nurseries, graperies. Designs for the parterre.

Class 731.—Treatment of water for ornamental purposes, cascades, fountains, reservoirs, lakes.

Class 732—Formation and after treatment of lawns.

Class 733.—Garden construction, buildings, &c.: rock-work, grottos, rustic constructions and adornments for for private gardens and public grounds.

Class 734.—Planting, fertilising, and cultivating

HALF HOURS AT KEW.—V.

ACACIAS.

(*Concluded from p.* 131.)

THE species of the next group of the Uninerves, the triangulares, have phyllodes of a more or less triangular outline, the principal nerve being central or near the lower margin, and usually terminating in a sharp thorn; and the flowers are borne in solitary heads. A. decipiens is an attractive and commonly cultivated representative of this group. It is variable in the shape and size of the phyllodes, which are more or less irregularly triangular or trapeziform. The principal nerve is near the lower margin, and runs out into a sharp point, directed downwards in the typical form. A variety called præmorsa is the one usually seen; it was introduced in 1830. This has triangular phyllodes, the base of the triangle being farthest from the stem. This species is a native of Western Australia, growing in various situations, and differing much in habit, according to the nature of the soil, from a low spreading bush to a height of 10 or 12 feet. Another of this group is the curious A. vomeriformis, which gets its name from the resemblance in the shape of its phyllodes to a coulter. The latter are small and rigid, about a quarter or a third of an inch long, and the nerve is almost close to the lower margin. It is one of the hardiest species, having a wide distribution, from the southernmost part of Tasmania, throughout the temperate parts of Eastern Australia. On the mainland of Australia it inhabits mountainous districts, growing in barren places on the Blue Mountains, Grampians, Lofty Range, &c., up to 4000 feet. Although introduced so long ago as 1818, it is not much grown, being inferior to many others as an ornamental plant. It is of prostrate or almost trailing habit. A. hastulata, introduced from Western Australia in 1824, is a third species of this group, growing naturally in sandy and rocky places. It is a dwarf shrub 2 or 3 feet high, with slender branches and small phyllodes. The succeeding group, brevifolia, is characterised by having either short, broad, ovate or falcate, or narrow phyllodes and single-headed peduncles. The first we have to mention is A. obliqua or rotundifolia; it is figured under the latter name both in the *Botanical Magazine* and in Paxton's *Magazine*. It is a much branched shrub, several feet in height, with obovate or orbicular phyllodes, rarely exceeding half an inch in length; a native of the temperate parts of Eastern Australia. Several others of this group are in cultivation, as A. lineata (A. runciformis), hispidula, and undulifolia, but they are not among the most ornamental. The latter, however, is a very variable species, and in favourable situations it is described as very handsome from its long, pendulous, garland-like branches. According to soil and situation, it is a dwarf bushy shrub or small tree. A. uncinata, *Botanical Register*, t. 1332, A. filigera, *Botanical Magazine*, t. 3394, and other forms, are referred here. It is a very common species in the Blue Mountains, Liverpool Plains, and other parts of New South Wales. We now come to a group—the angustifolia, in which the phyllodes are oblong-lanceolate or linear, and usually more or less resinous on the surface. The flowers are solitary on each stalk or peduncle, and the peduncles either solitary or clustered. A. verniciflua, leprosa, stricta, and dodonæfolia, belong to this group. The first was introduced in 1818, and is remarkable for its very resinous, viscid phyllodes and abundant flowers. It is a tall shrub, inhabiting mountain and forest regions from New South Wales to the extreme south of Tasmania. A. graveolens, *Botanical Magazine*, t. 3279, and A. virgata, Loddiges' *Botanical Cabinet*, t. 1246, are varieties of this species. The phyllodes in all the species mentioned vary from 2 to 4, or even occasionally 5 or 6 inches long, and they are mostly shrubs of graceful habit. A. stricta was introduced in 1790, and has nearly the same range of distribution as the last, growing in a variety of situations, from sandy or rocky coasts and stony mountains, to wet valleys or forest ground. A. dodonæfolia, from Kangaroo Island, Port Lincoln, and other parts of South Australia, is almost as resinous as verniciflua, and equally ornamental. The odour given off by these resinous Acacias is very peculiar, resembling somewhat that of Hops, but less refreshing. The group racemosæ, the next in order, and the last of

this series, is distinguished by the flower-heads being arranged in axillary racemes, and includes many highly ornamental species among the forty enumerated by Mr. Bentham. A. falcata is a tall shrub or tree with narrow sickle-shaped one-nerved phyllodes, 3 to 6 inches or more in length, and from ten to twenty flower-heads in each raceme. A native of New South Wales and Queensland, introduced in 1790, and deserving a place in every collection. A. cyanophylla is an exceedingly handsome species, with long blue-green glaucous phyllodes, from the Swan River district of Western Australia. It is a tall shrub, and luxuriant specimens have phyllodes from 6 to 12 inches in length. A. salicina, as the name indicates, is an elegant shrub or tree, in its pendulous branches and phyllodes resembling a Willow. The racemes are sometimes reduced to a single head of flowers, and usually bear only two or three heads. It is a widely dispersed species, occurring on both sides of the Continent. Passing by several less ornamental species, we come to the handsome A. brachybotrya. It is a variable shrub, of moderate size, and the extreme forms are very distinct, the foliage being either glabrous and glaucous or clothed with a short dense silky silvery tomentum. The phyllodes are thick and coriaceous, obliquely obovate or oblong, and from 2 to 4 inches long, according to the luxuriance. Mr. Bentham makes three varieties of this, the first of which is most deserving of notice here. It is the A. argyrophylla of the *Botanical Magazine*, t. 4384, and includes A. bombycina, figured in Lindley and Paxton's *Flower Garden*, ii. 101, fig. 186. The young foliage and shoots are clothed with a beautiful silvery silky tomentum, which in some specimens changes to a golden-yellow. We saw living specimens last spring of the most lovely golden-yellow. This variety is from South, not West, Australia, as stated in some gardening books. A. cultriformis is a very different species, with long slender branches, clothed with numerous broadly triangular slightly curved glaucous phyllodes, less than inch in length, and large racemes of flowers. It is a native of rocky ridges and brushy forest ground in New South Wales, and was introduced in 1820. A myrtifolia is the last of this species we shall mention. It is a tall shrub, with erect angular branches, and very thick ovate lanceolate obovate or linear phyllodes 2 to 3 inches long, or longer when narrow, with a prominently thickened margin. A very ornamental shrub for the cool conservatory. The typical form, which is the one generally seen in gardens, is abundant in "dry soil" in Tasmania, and "frequent in barren places, as well in the lowlands as in the highlands throughout Victoria," also in New South Wales. A. celastrifolia is a variety from West Australia, and marginata is another variety with narrow phyllodes, from the same region.

The seventh series is designated the Plurinerves, from the fact of the phyllodes having two or more longitudinal nerves rarely furnished with a sharp point (except some with broad phyllodes), and thus distinguished from the group plurinerves of the series Pungentes. Flowers in globular heads on axillary peduncles, either solitary or racemose. The species belonging to the first group of this series, the armatæ, are characterised by having spinescent stipules, of which A. urophylla is a good representative. It is a very distinct species, with two to four-nerved strongly veined ovate-lanceolate acuminate phyllodes, very much resembling true leaves, especially those of a Smilax on Dioscorea, and in Fielding and Gardner's *Sertum* it is figured under the name of A. smilacifolia. A native of Western Australia; introduced in 1836. Space compels us to pass on to the fifth group, the microneuræ, in which the phyllodia are very thick and the nerves scarcely visible without a magnifying glass. This group includes the valuable A. homalophylla, one of the Ungall trees, and A. pendula, the only timber tree of the immense morasses of the Lachlan River in New South Wales. The group nervosæ furnishes the comparatively hardy and interesting A. melanoxylon, or Beechwood. This is a small tree, with falcate-oblong or lanceolate phyllodes, 3 to 6 inches long frequently, especially on young specimens, bearing true leaves on some of them. A native of South-eastern Australia and Tasmania, hardy in the Scilly Isles, and perhaps in some other favoured localities in the south-west of England and Ireland. A. implexa is a closely allied species, with narrower phyllodes. The group dimidiatæ, having broad long falcate phyllodes, with two or more prominent nerves, and prominent reticulating veins between, was formerly represented in gardens by A. binervata, umbrosa of the *Bot. Mag.*, tab. 3338. The eighth and last series of the Phyllodineæ, is the Julifloræ, which includes all those species having the flowers in cylindrical dense or uninterrupted spikes except A. tripteris, mentioned in a former paper. It will be remembered that, with this exception, all those mentioned have the flowers in small globular heads. This series includes upwards of sixty species, but comparatively few of them are, or have been, in cultivation; and they are, for the greater part, natives of the tropical regions. Disregarding the groups into which Bentham divides the series we arrive first at the place of the extremely variable longifolia, which embraces several very distinct forms deserving of cultivation. Indeed this species must be regarded as one of the most valuable for embellishing the conservatory in spring. It is an erect branching shrub, varying chiefly in the size and shape of its phyllodes. As understood by Mr. Bentham it includes A. sophoræ, mucronata, floribunda, and a host of intermediate forms. The phyllodes vary from broadly oblong to oblong-lanceolate, and even to linear in the variety mucronata, and in length from 2 to 6 inches.

The different forms extend from Moreton Bay southward: two, A. sophoræ and mucronata, are among the handsomest of the Tasmanian species; the former was introduced in 1805. We may mention the group Stenophyllæ, on account of the remarkable long narrow phyllodes of its species, which attain from 6 to 12 inches in ephedroides, cyperophylla, &c., and the dimidiatæ on account of their large broad phyllodes, which are sometimes as much as 9 inches long and 4½ inches broad.

A few words now respecting the Australian species, in which the leaves are invariably bipinnate, for some of them are certainly among the most elegant of half hardy flowering shrubs. Indeed some of the Tasmanian forms are hardy in the more favoured parts of the kingdom, and even if they are cut to the ground by unusually severe frosts, they will throw up again from the root. And associating with other plants with ornamental foliage, either in the conservatory, or out-of-doors in summer, they are invaluable. We need only mention how popular the closely allied Albizia lophantha from West Australia has become. Not to make too numerous a selection we may limit it to the following—A. spectabilis discolor, decurrens (including mollissima), dealbata, pulchella and Drummondi. With the exception of the two last, which are the only ones in the selection from Western Australia, the globular flower-heads are arranged in racemes or terminal clusters. A. spectabilis is a native of New South Wales, and was introduced in 1837. It is a handsome shrub, whose leaves are divided into two to four pairs of pinnæ, each pinna with about four to eight pairs of leaflets. The leaves of the A. discolor have from two to six pairs of pinnæ, and ten to fifteen pairs of leaflets to each pinna, dark green above and pale beneath. This is common near the sea coast in Tasmania, and extends through Victoria to New South Wales. It was first introduced in 1784, and merits more general cultivation. In A. decurrens we have an increase in the number of pinnæ (eight to fifteen or more pairs, or rarely fewer), and very numerous leaflets. The specific name is taken from the angular or almost winged branches. A very hardy species, forming a tree of considerable size in some localities; it is the black or green Wattle of the colonists. In Victoria it is frequent along river valleys, and ascends to subalpine elevations, and the variety mollis or mollissima is common throughout Tasmania. The young shoots and foliage of this variety are very beautiful, being clothed with a golden-yellow tomentum. The handsomest species of this group is, perhaps, A. dealbata, which is very near the last, except that the leaves are clothed with a glaucous or hoary, very minute pubescence. It is likewise common in Tasmania, and has stood out for many years even in the neighbourhood of London, and when cut down in severe winters it has invariably sprung up again. In more favoured situations in the south-west it will doubtless not only live, but thrive. According to a recent report in the *Journal* of the Central Horticultural Society of France, a certain Madam Leon made a considerable plantation of it at Bayonne a few years ago, which has now developed into a miniature forest of the most charming description. Even as far north as Nantes it flourishes, and has attained the size of a fair Cherry tree. It is an exceedingly profuse bloomer, and its pretty pale yellow flowers perfume the air far around. The colonists have given it the name of Silver Wattle, in allusion to its silvery foliage. The two western species are elegant shrubs with globular or oblong flower-heads on simple, solitary, or clustered peduncles. A. pulchella is a prickly shrub with small leaves, composed of one pair of pinnæ, each of about four to seven pairs of leaflets; and A. Drummondi is an unarmed shrub, whose leaves are composed of two pairs of pinnæ, each consisting of two to six pairs of leaflets. Both are compact-growing, easily cultivated shrubs, flowering in an ordinary greenhouse towards the end of winter or at the beginning of spring.

REMARKS ON THE FRUIT CROPS.

AFTER a long and somewhat severe winter we had a remarkably fine show of healthy bloom on all kinds of hardy fruit trees, and last spring the prospects of an abundant supply of fruit were never better. The late spring frost did us little injury, as everything was very dry. Our greatest enemies this season were bullfinches, which came in droves. *J. H. Goodacre, Elvaston.*

—— The fruit crops here and in this district are above average, nearly all kinds being plentiful. The heavy and continuous rain has, of course, rendered a large quantity of small fruits quite useless. Apples, Pears and Peaches on our dry soil—now that warmer weather has set in—show that a wet season suits them, as they promise to be very fine. *W. Wildsmith, Heckfield.*

—— In consequence of the late severe winter and the long and excessively cold spring of the present year the progress of vegetation was exceedingly slow, and fruit of all kinds was carried beyond the usual period of spring frost visitations, and hence we have a very abundant crop of all kinds of fruits, and I never saw the foliage of both bush and tree so clean and fresh and within a week or two so free of insects, especially the aphis family. The Pear leech I find is now making rapid progress, which I shall put an immediate stop to by dredging the trees with fresh quicklime. The Gooseberry grub we are almost free of; as a preventive we dredge the bushes every April with soot and wood ashes when wet. Culinary crops are generally good, but quite a fortnight late. *R. Westcott, Raby.*

—— The bloom on fruit trees this year was good, except Cherries; but nights being very cold, with rain, is the only reason I can give why they did not set their fruits. Peaches, Nectarines, and Apricots are protected from spring frosts with us by common fishing-nets. Often we put them on double. They admit plenty of sun and air, and the trees generally set their fruit well. All wall fruit out-of-doors is very late in this neighbourhood. *W. Hallett, Cossington Farm, Bridgwater.*

—— The fruit crops are generally good. Apples have fallen off a good deal lately, probably owing to the drought in April and May. Damsons are an extraordinary crop in most places in this district, but some few gardens have very light crops, which is difficult to account for. Fruit trees in general are very clean, and swelling the fruit well. *E. Simpson, Wrottesley, Wolverhampton.*

MR. WARNER'S ORCHIDS.

ABOUT the middle of May last Mr. Robert Warner's house of Vandas presented the appearance which the accompanying illustration (fig. 53, p. 235) recalls. Like the display of Cattleya Mossiæ, consisting of 400 blossoms, to which we drew attention at the time (see *Gardeners' Chronicle*, 1864, 553), the display of Vandas

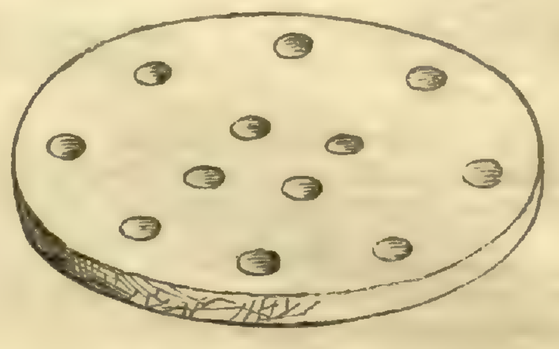


FIG. 49.—TILE BLOCK FOR ORCHIDS.

was a sight long to be remembered. The conditions under which they were grown, and which, perhaps, Mr. Warner will some day be good enough to explain for the benefit of our readers, were evidently such as they delighted in; but one fact we ascertained—they were wintered in a much cooler atmosphere than is generally considered necessary. The house was a narrow lean-to of about 30 feet long. On the back stage occupied by these Vandas there were, when we saw

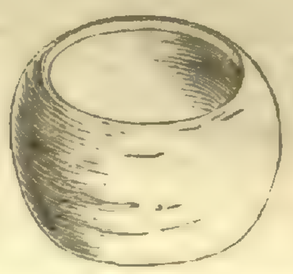


FIG. 50.—TRAP FOR WOODLICE.

them, fifty-seven noble spikes of flowers. Some of the plants—none of which were large specimens—bore as many as four spikes, and there were from ten to thirteen well-developed blossoms on a spike. One small plant, not more than 2 feet high, of V. suavis bore four of these fine spikes of flowers. The group consisted of the following kinds, namely, Vanda tricolor, and its varieties marginata, formosa, planilabris, and Warneri; V. insignis, and Veitch's variety of V. suavis. The best of them all was V. tricolor War-

neri, the sepals and petals of which were spotted with chocolate and edged with deep rose, the front part of the lip being a deep violet, the bright colouring and distinct marking rendering it very handsome.

A fine houseful of happy-looking plants of Cattleya Mossiæ, and other species, gave promise of another floral treat at no distant date. It is Mr. Warner's experience that when a fine bloom, such as that of the Cattleyas above referred to, occurs two or three years in succession, the plants are exhausted, and it takes some few years to get up their full vigour again; and this appears to be the reason why such exceptional displays are few and far between.

The Odontoglossum-house (fig. 51), contained some very fine specimens both of O. Alexandræ (crispum) and Pescatorei, with fat-looking pseudobulbs, taking on a rich brown tint from the abundance of fresh air to which they were treated. There were here both fine specimens and fine varieties, it being an object in managing such a collection as Mr. Warner's to select the best forms, and get rid of the inferior ones. In the same house the Masdevallias were doing well.

by a wire passed through one of the marginal holes. The porous material retains just sufficient moisture to induce the roots to cling to it, and they are in due time easily removed to other positions. Another of these contrivances is a little cup (fig. 50) of the same kind of common pottery-ware, scarcely an inch deep inside, and about 1¾ inch in diameter, the upper edge slightly incurved—like a half Potato scooped out. These are used as traps for woodlice by inverting them on any uneven surfaces about the plants, when the woodlice crawl under, and are readily caught and destroyed. Another plan adopted for valuable Cattleyas is to have the bottom made separate from the pot, and sustained in its place by two wires passed through holes in the lower edge of the pot. When a plant requires repotting the wires are removed, which releases the bottom and the crocks above. The live roots clinging to the inside of the pot are easily released without breaking, a point Mr. Warner considers of great importance. Mr. Tell Christy, Broomfield Road, makes these specialities for Mr. Warner. *T. M.*

species. Neither the one described by Mr. Linden, nor the one described by Mr. Smith, is the true Masdevallia Chimæra. The one I found in 1871 and forwarded to Professor Reichenbach, by whose able pen the plant was described in the same year, is totally distinct from the variety described by Mr. Smith, his belonging to a quite different class. The flower-stem of Masdevallia Chimæra is black, 2 feet long and very thin and hard; the plant produces three to six flowers on a stem; the prolonged sepals are 10 to 12 inches long and very narrow; the slipper-shaped lip is white; the yellow spots in the purple sepals are very large, and the latter thickly covered with hair. I have repeatedly tried to send home the true variety, but hitherto have entirely failed to do so. I do not believe there is at present a true plant of this remarkable species in Europe; those that have been flowered in this country and named M. Chimæra belong to quite a different group, and a class of which my memory counts at least fifteen varieties. *B. Roezl.* [Mr. Roezl's drawing shows a plant which appears to be quite distinct from the one figured by Mr. Smith. EDS.]

FIG. 51.—MR. WARNER'S ODONTOGLOSSUM HOUSE.

Our special text to-day is the Vandas, which form the subject of the illustrations published herewith, and therefore we say no more of the varied store of Orchid riches, which, it is well known, the Broomfield collection contains. Suffice it that the reputation which Mr. Warner has acquired as a cultivator is in no danger of being tarnished, if we may trust the present appearance of the plants, which fill house after house, all looking exceedingly well cared for, and prepared to repay in their own way, with a wealth of floral display, the judicious attention which provides so well for their wants.

There are, however, one or two little matters connected with Orchid culture which we noticed at Broomfield, and which seemed to us to be ingenious and useful. The one is a thin, flat circular tile (fig. 49), from 3 to 4 inches in diameter, pierced with holes, about eight round the edge, and four in the centre, and which are used as Orchid blocks, on which newly-imported plants are started. These may be called tile-blocks, and when put into use the Orchid bulb is fastened to the surface with soft wire by passing the wire through any of the holes which come convenient; and the plant thus fixed is suspended from the roof

Home Correspondence.

Masdevallia Chimæra.—Travelling one day on horseback with a companion in Choco, along a lovely valley, my eye was arrested by a most beautiful object some yards distant, growing near by a rock. I stopped the horses, and the one arm now in my possession making it difficult for me to alight, I asked my companion to do so, and he at once complied with my wishes, and jumping off the horse went and fetched a few of the plants I pointed out to him. He held them up to me, and on my saying "I do not want to see the roots but the flowers," he answered, "There are no flowers on them." "Yes; but turn the plants round—the flowers are behind your arm." He did so, and I then discovered that he had gathered the beautiful Masdevallia Chimæra. On it were flower-stalks quite 2 feet long; so long that the flowers were behind him when he held the plants up to me. I am, of course, astonished at seeing Masdevallia Chimæra figured and described in the *Gardeners' Chronicle*, January 9, and cannot help trying to lift the mist and veil that surround the early discovery of the true

Dr. Alfred Carpenter and the Potato Fungus.—In your number for July 24 last (p. 111) you have printed a letter from Dr. Alfred Carpenter, in which he says he saw for certain the resting-spores of the Potato disease (as recently described by me) three years ago, and that he published a *description* of the bodies in the *Times* for Sept. 15, 1872, and exhibited the organisms before the Croydon Microscopical Society. You properly appended an editorial note to this letter to the effect that "on and in the epidermis" seemed to require further explanation, but at present no explanation has appeared. If Dr. Alfred Carpenter really discovered these bodies three years ago, he should at the time have laid his observations before the Royal, the Linnean, the Royal Horticultural, or the Royal Agricultural Societies, or have written to one of the numerous scientific or horticultural papers published in this country. As far as I can learn no cognisance whatever has been taken of this letter to the *Times* in proper quarters. If I (as a non-medical man) fancied I had discovered the germs of cholera or typhoid fever, I certainly should not write to the *Times*, and lay my observations before a small provincial society, but go to head-quarters at

once, where the subject would be understood, and its merits judged by those who knew. Dr. Alfred Carpenter's letter is reproduced, from the *Times*, in the *Gardeners' Chronicle* for September 28, 1872, p. 1288, and on turning to this communication it will be found to be the well known letter in which it is said "the tuber is planted with the resting-spore in its eye," and "it sends up its haulm with the spore in its tissue," &c. The letter is almost confined to suggestions for storing, washing the spores out of the eyes, and planting, and contains no new botanical information. I am not aware what (if any) rejoinders appeared in the *Times*, but in subsequent numbers of the *Gardeners' Chronicle* the suggestions in the reprint were adverted to by practical growers. The paper further says "the resting-spores are produced in abundance," but they are not described: no size is given, whether large or small; no colour, white, brown, or black; no shape, round, square, or triangular; no surface, whether smooth or covered with spines. The germs of any disease common to the human subject thus described I am sure would not suit doctors, although Dr. Carpenter in his letter humorously compares the human subject with diseased Potatos, where he says "Just as is the case with highly-fed, richly-seasoned human beings—wherever fever gets at them they rot most rapidly." As Dr. Carpenter says, the bodies are produced in abundance, and that he has twice exhibited them and explained their functions, it would perhaps be well if he would give us in your columns their size in decimals, their colour, shape, and the nature of their external surface, as observed by him, and say whether or not they produce zoospores on germination. Your practical readers (as well as botanists) will disagree with Dr. Alfred Carpenter where he says, speaking of diseased Potatos, "they may be allowed to decompose beneath the surface of the ground, in which case very little if any damage will arise to the crop." This is probably one certain mode of propagating the disease. The spores of the Potato fungus will always germinate on and in moist ground, and in the allied species (Peronospora Valerianellæ) the resting-spores themselves germinate at once upon the ground. *W. G. Smith.*

The Royal Horticultural Society.—I am not quite satisfied with the prospects of the Royal Horticultural Society. The new Council has among its members some energetic, well-intentioned men, who will work hard to clear off the present money difficulties, and will probably succeed in doing so, and this mainly by means of South Kensington Fellows, but I think it behoves us Horticultural Fellows to inquire what is to follow when this has been done. Having gone through the worry of the revolutionary time, turning out Councils, &c., are we merely to get back to much what we were three years ago, and be more dependent than ever on South Kensington for existence? It cannot be too often repeated that the Royal Horticultural Society has been fashionable, but at no stage of its career prosperous;—that horticulture has more well-wishers through the country than any one of the many objects for which rich, comfortable societies exist and flourish;—that the rise of great district societies has not taken the wind out of the sails of the Royal Horticultural Society, as much of the more important work of horticulture is and can be done only by a great central society to which all parts of the country will send. The Society never will, never can be in a sound, prosperous state till it rests on a broader base than it has hitherto—until the country comes in and joins it. I think that what has hitherto kept the country back is the notion that the lion's share of the Society's funds goes for the keeping up South Kensington Gardens, which, whatever may be their merit as a recreation ground, cannot advance horticulture. I would suggest, and have already done so to several of the members of Council, that there is a simple mode by which, without disturbing many existing Fellows, a large number of most useful Fellows might be added to the Society. It is this: I think it will be admitted that all a horticultural society proper requires for its operations is an experimental garden in the country, and places for committee and other meetings and for exhibitions in town; and that, therefore, for these only might horticultural Fellows be expected to pay: that with a large number of Fellows a guinea annual subscription would be sufficient for these; that the cost of the expensive South Kensington Gardens (which is outside the above necessaries) should be borne by the neighbourhood which has it, and Her Majesty's Commissioners, who are saved the trouble of keeping it up. Beyond an easy drive (say 6 miles) from the garden, people would not use it much for promenade purposes; I would, therefore, admit to the Society suitable Fellows living beyond a radius of 6 miles, at a guinea subscription. I have been told that the Society is in such an encumbered condition that this is not the time for taking lower subscriptions. I hope, however, that you will agree with me in thinking—that is like saying—we are so poor that we cannot afford to take the easiest means of becoming prosperous. I think the Council may reasonably say that they cannot accept guinea Fellows until a certain large number of candidates have expressed their desire to join, and, therefore, that it is desirable to go on collecting as many names as possible of suitable would-be guinea Fellows: we shall then be in readiness for any emergency. *Geo. F. Wilson, Heatherbank, Weybridge Heath, August* 14.

Beech Tree Struck by Lightning.—The question has been frequently asked during many years if ever lightning struck the Beech. It has been repeatedly brought forward in your valuable paper, though I have never seen a reply in the affirmative. I am now able to state that lightning does not evade the Beech, and that a Beech tree of some 25 to 27 cubic feet, clean, and free from branches, has been struck by lightning some two or three weeks ago during one of our passing thunderstorms. The electric fluid seems to have struck the bole about the middle of the stem, where it is quite shattered, and rent the tree from top to bottom from the heart. It is to be seen in the middle of a small wood called Dingdale, surrounded by trees of similar age and size, north of the "Downe Arms," Wykeham, near Scarborough. *Andrew Bod, Wykeham Abbey, York, August* 10. [Mr. McNab's point is that the Beech, if struck, is not usually rent by the lightning. To this rule the present case presents an exception. EDS.]

The Vine Coccus.—The rods of an outdoor Vine, with a west aspect, growing on the walls of this house, are overspread with the coccus. As this is mentioned in White's *History of Selborne* (pp. 292, *et seq.*, Constable's edition) as being very rare, it will be well to inquire of your readers whether they know of any Vines in the same condition. Then may follow the question, How far the excessive winds and wet of the first half of the present year have been instrumental in causing the visitation. In case some of your readers should not know the coccus by name, I will quote some part of the Rev. Gilbert White's account of it. He says:—"Behind the larger boughs we were surprised to find that they were coated over with husky shells, from whose sides proceeded a cotton-like substance, surrounding a multitude of eggs." In himself quoting from a *Natural History of Gibraltar*, written by the Rev. John White, he says:—"In the year 1770 a Vine . . . was suddenly overspread . . . with large lumps of a white fibrous substance resembling . . . raw cotton. Nothing was to be seen connected with it but many brown, oval, husky shells; . . . it was of a very clammy quality, sticking fast to everything that touched it, and capable of being spun into long threads. . . . I often pulled off great quantities by handfuls; but it was so slimy and tenacious that it could by no means be cleared." The Rev. Gilbert White also mentions that Mr. Lightfoot, of Weymouth, had never seen the coccus but once upon a Vine, though he gives the authority of Linnæus that in the South of Europe it is "an horrid and loathsome pest." *Jennett Humphreys*, 28, *Westbourne Park Road, W.*

The Potato Disease.—After reading over with great interest Mr. Worthington Smith's most valuable papers in the *Gardeners' Chronicle* on the Potato disease, so well timed for directing attention to the actual condition of the crops, I examined mine carefully. I had previously found the new second early variety in my kitchen garden, the Rector of Woodstock, seriously stricken, leaf and haulm. I had the crop dug up, and found a large proportion of the tubers badly diseased. My main crop of Paterson's Victoria, on a portion of an old pasture field, on which Potatos have never been planted two years in succession, in the middle of July appeared quite free from spot. Before the expiration of the month the spot on the leaves became general, and I carefully looked over the haulm, which was apparently of a bright green, and entirely free from the brown patches which sooner or later follow the spots on the leaves. On August 1 I selected four rows, about 30 yards in length, and had the haulm carefully drawn up by the root from No. 1; No. 2 was left untouched, No. 3 was treated the same as No. 1, and No. 4 was left in the same state as No. 2. I then had the Potatos in the Nos. 1 and 3 dug up, yielding a good crop, and not a single tuber exhibiting any sign of disease. The skins were not quite set, the usual sign of ripeness; but, on being steamed for table, they came in so satisfactory a state that I determined on having the haulm drawn from the remainder of the crop, and carefully removed for burning, eventually leaving the crop of tubers in the ground until the usual season for harvesting the crop. The results of these three different modes of treatment, at the same period of growth, will be carefully noted, and sent to you in due time. *Charles Laurence, Cirencester.*

Notes on Vegetables.—Among the many new productions which raisers of vegetable seeds have during the past few years given to the public I can, from trial and close observation, vouch for the following, which notably stand out as decided improvements, and well deserving of selection for general culture in the season's crop. Peas: William the First, and the best of the early varieties. I have grown it for three years, and this season side by side with other reputed early ones, but sowing it exactly thirty-eight days later, I had it first and in best condition for table. Laxton's Supreme (an excellent second cropper), Fillbasket, Maclean's Best of All, and G. F. Wilson, for general crop. French Beans: Williams' Early Prolific, very dwarf, and most suitable for forcing as well as outdoor culture. Wheeler's Cocoa-nut Cabbage, a good and distinct sort. Veitch's Autumn Giant Cauliflower, the very best for general produce, if sown in the latter end of the year and planted in spring, along with Early London, will make a nice succession, and once in it has no rival for the rest of season, withstanding the vicissitudes of the weather better than any other sort I am acquainted with. My friend and near neighbour, Mr. Dunlop of Auchenhaglish (who, by the way, is one of our most successful vegetable cultivators), has some magnificent examples of it, measuring 12 inches across. He is also this year growing a very remarkable Broad Bean, named Seville Longpod, and reported in catalogues to have been over 9 inches in length of pod; but this by no means represents its full size, as I recently measured several pods upwards of 12 inches, with six large Beans in each: it has likewise the advantage of being earlier than the Windsor (which was sown at the same time, and is growing alongside it), more productive, and of growing not more than 2 feet high. The above list is not meant to exhaust the many good things sent us of late years, but is simply an epitome of such sorts as are well worth looking after, and keeping true to name. *Alex. Scott, Auchendenan, Dumbartonshire, August* 15.

Honour to Hale's Early Peach.—Notwithstanding this excellent very early Peach behaves so badly in most sections of the country, on account of its propensity to rot, still we owe it a debt of gratitude for being the instrument whereby we have secured and are obtaining a large number of very early varieties. Every year we see a list of these new kinds, each of which is quite as early as this famed old variety, and some of them superior to the pioneer itself. I have been induced to make these remarks from the fact that a friend has just sent me (July 20) a box of delicious Peaches, ripe and luscious, superior in size and quality to Hale's Early, and quite as early. The colour is remarkable, being beautifully marbled with red, a point greatly in its favour, as every marketman is fully aware. Out West these new early Peaches lead the Hale a few days in the ripening season, so that, with additional earliness, increased size, better quality, and freedom from the rot, we must certainly feel greatly encouraged to persevere. *New York Tribune, August* 4.

Black Ants (*Enquiries*, p. 214).—If the "black ants" of "Rusticus" are the Formica fuliginosa, and are well established, he has a most troublesome task before him in endeavouring to extirpate them, and though a saucer of oil, and any other method of attracting the wanderers is serviceable, I should strongly advise the use of carbolic acid. The nests of this species are of great size, and formed in timber or logs, which they completely riddle in time by gnawing them into intersecting, blackened galleries, and the colonies are immensely numerous. I have known them introduced into greenhouses by a small piece of their timber nest being left near, and the only remedy I have found thoroughly effectual is rubbing carbolic acid in all their lurking places and traffic ways, and most especially thoroughly stuffing up all their roads of entrance with lumps of cotton-wool well soaked also in carbolic acid. If they are only stragglers this plan will almost certainly get rid of them very soon, but if the headquarters is near at hand it will be necessary to destroy it before any permanent good can be expected at the outposts. The nest might be looked for in some old tree, or old log near at hand, and the trains of ants passing to and fro would guide to it. *O.*

Bees Attacking Ripening Fruit.—Yesterday and to-day the bees have attacked our ripening Peaches and Apricots most savagely, so much so that we were obliged to gather all that were anything like ripe. I never observed this before. Have you heard of any similar complaint? Wasps, so far, have not been very plentiful. *W. Miller, Combe Abbey, Aug.* 16.

The Royal Horticultural Society's Great Summer Show.—My attention has been called, by the chairman of the meeting on July 21, to an accidental omission in your report of the proceedings of that day, viz., the accompanying vote of thanks which was unanimously passed to the exhibitors of plants, &c., on that day:—"Proposed by Mr. David Wooster, seconded by Dr. Masters, that a special vote of thanks be entered on the minutes to all the exhibitors who have so materially contributed to the interest of the exhibition to-day." *J. S. Davenport, A.S., August* 12. [By an "accidental omission" the vote of thanks pro-

posed by Mr. Wooster was also unrecorded in the official minutes of that meeting. Eds.]

Science at Muswell Hill.—The new Alexandra Palace, with its pleasant grounds, pictures, and good music is a great attraction for North Londoners. Weary of work I strolled there last week to look at the gardening and listen to the music. Passing from the main hall, through the picture gallery, I lighted upon a stand of no less than twenty really good microscopes (nearly all double-barrelled) with the following legend, printed in large letters, attached :—"The wonders of Nature as seen by the aid of the microscope." The admission fee was the modest sum of 2*d*. I need not tell you, sir, that at this unexpected sight I felt like Ulysses on his return from the shades when he neared the coast of the Sirens. The labels seemed to say, as the Sirens sang to Ulysses—

"Approach! thy soul shall into raptures rise;
Approach! and learn new wisdom from the wise."

On nearing the stand I could see some of the descriptive labels: the first was "Maidenhair Fern leaf," showing "the tubes by which the leaf is supplied with moisture;" the next was a "human louse," which may be termed ambiguous if not nasty. But it is never wise to judge by mere external appearances, so I knocked my projected musical recreation on the head, and speculated on two-pennyworth of Muswell Hill microscopical wonders, expecting to possibly see (at last with my eyes) the famous "tubes" and "nids" which were some time since so whimsically set down as the two most recent discoveries of De Bary in Potatos. On entering the enclosure I was shown a portrait of Prince Albert and another of Dr. Livingstone—hardly "wonders of Nature" thought I, and with no special novelty. I was somewhat disappointed with the "human louse," for having heard of the "human vulture" and the "human frog," I almost expected to see another portrait—possibly of some journalist who thrives without acknowledgment on other people's heads. Leaving the "human louse," the next object was a "flea—male—human," which I left too, as not being botanical. Being, as you know, fungologically inclined, a blackened Bean leaf, with the following legend, "smut or black blight on Bean leaf," attracted my attention. On taking a peep, it was not the fungus (known as Puccinia fabæ) which met my view, but a family of black aphides. I passed my old friend the frog, with his foot extended to show the circulation of his blood, and the "human lung, showing parts which are affected by consumption," and went on to the "everlasting Daisy—showing pollen in the pods"—which proved to be no other than the disc of a composite flower. Then to the famous "tubes" in the Fern leaf, the "tubes," of course, being (as all your readers will surmise) the numerous forked veins which converge at the base of the pinnules. The attendant being near, I said, "I cannot perceive any water, sir, in these tubes which supply the leaves with moisture." "Sir," said he, in reply, "it is not possible to see it." I thought so too, and, passing again into the central hall, was in time for part of Rossini's "Stabat Mater." *W. G. S.*

Cicuta virosa: Why called Cowbane?—The enclosed plant, which I believe to be Cicuta virosa—Cowbane, grows in considerable quantities in the pits used as drinking-places for cattle in the old pastures about here. It is a common plant in such localities; and, though it appears to be cropped by the cows, the tenants I have asked have never suspected it of being poisonous to them. Can any of your readers say under what circumstances it deserves its name? *C. Wolley Dod, Edge Hall, Malpas, Cheshire.*

How to Propagate Pachyphyton.—A simple and sure method of propagating that pleasing bedding succulent, Pachyphyton bracteosum, as well as its fellow, P. roseum, is to break off any of the bottom leaves at any time during the summer, and lay them upon the floor of a greenhouse, where it is at all times just a little damp. Here, so long as not injured or swept away, it will not matter if for a time forgotten, but in about two months every leaf will have thrown out roots, and have begun to develope a plant at the base; these, if placed in small pots singly or in pans, will make nice useful stuff by the next bedding-out time. No doubt Cotyledons, and other such-leaved plants, would propagate freely in the same simple fashion. *D.*

Seedling Delphiniums.—The Delphinium is a plant I am very fond of, and of which I have a good collection. Last summer I saved a quantity of seed from the finest kinds, and sowed it directly it was gathered in drills in a bed, and they were left without any protection during the winter. I had them transplanted in April, when they had made about an inch of growth, and at the present time I have about 2000 plants in flower, and more or less beautiful, some especially so, and varying in colour from delicate blue-lilac to the deepest shades of blue and purple, and many with spikes 2 feet in length. My plants will be gay for a month or six weeks yet, as a quantity of lateral shoots have yet to open, and many plants have yet to flower. *W.*

The Potato Crop.—The soil here being exceedingly light the wet weather proved beneficial rather than otherwise to the Potato crop. The sorts grown are Rivers' Royal Ashleaf Kidney, The Coldstream, Climax, York Regent, Late American Rose, and the Red-skinned Flourball. The two first named sorts were quite ripe, and were taken up about the middle of July, and proved to be of excellent quality and quite free from disease. Soon after this time the tops of Climax were attacked by the disease, and in the course of a few days they were all dead; and when the tubers were at once taken up only a few were found to be affected by the disease, but the crop was light and the tubers small. About this time the plantation of the Late American Rose variety was in full health, and the foliage presented that singular shade of soft green which is peculiar to this variety, and which distinguished it, even at a distance, from all the other varieties. About July 28 or 29 a few spots were first observed upon the leaves, and in the short space of two days after this discovery the tops were all dead and dried up. The tubers were immediately dug up, and were found to be of excellent quality, of large size, and a very heavy crop, and to all appearance free from disease. It was also observed that about this time the York Regents had become slightly spotted, and the tops are now all quite dead; the tubers are being dug up and are found to be a rather light crop and smaller than usual, a good many of them being considerably diseased. The foliage of the Red-skinned Flourball became somewhat spotted at the same time as that of the York Regents did, but appears now to have quite recovered from the attack and continues to grow vigorously, the tubers not being yet quite ripe. All the varieties mentioned were planted about the same time, on the same soil—aspect, &c., being all the same. The destruction of the haulm of the Late Rose variety was the most sudden of all, and the tubers at present appear to have been the least affected. *P. Grieve, Culford, Bury St. Edmunds.*

Apiary.

Pettitt's Cottage Hive.—For those persons who cannot spare much time in the management of their stocks, such as cottagers who are out working

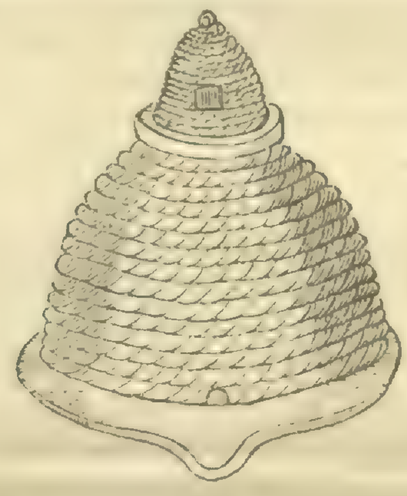


Fig. 52.—Pettitt's cottage hive

all the day and have only a few minutes in the evening to glance round the admired bee-bench, around which they have trained, may be, some pretty Rose, Honeysuckle, or other climbing plants, to show the interest manifested in their home—to this class of bee-keepers this hive will be a boon. However, those who are ingenious enough may easily manufacture a few caps or supers during the long winter evenings, then use them to their common hives by cutting out about 2 inches of the centre of the crown. When the bees show signs of swarming, by clustering outside, at once place the super on the hive. It may prevent swarming, but you will have instead a few pounds of superior or super-honey, which is worth 1*s*. 6*d*. per pound. This has certainly proved a wretched honey season, but it may after all be only the forerunner of an abundant honey year. We have known it to be so in former years, therefore it is well to be in readiness to reap the harvest when it does come. *R.*

Notices of Books.

The *Geographical Magazine* for August opens with an interesting article on the explorations now in progress on the Congo, explorations of very high scientific importance, and which practically would repay their cost with abundant interest in the shape of ivory, copper, and other products. The Baobab, Adansonia digitata (not gigantea, as printed), is stated to yield fibre, from which the best paper that can be made may be manufactured. Mr. Clements Markham, the writer of the article, very judiciously recommends the cultivation, or conservation rather, of the tree, on correct forest principles, so as to secure a regular supply of the fibre, without recklessly destroying the goose that lays the golden eggs, as is usually the case in such matters. From Mr. John Forrest's account of his journey across the interior of Western Australia, great part of which is described as "utterly wretched," though at first grassy alluvial flats, with pools of water here and there, and plenty of game, gave promise not realised by further exploration. Of the "Spinifex desert," which he traversed for 600 miles, Mr. Forrest speaks as follows:—"As far as you can see in every direction stretch plains of apparently ripe corn, which is the grass or stalk growing out of the Spinifex tufts. Spinifex is very sharp, and on that account is commonly called Porcupine-grass. It is the Festuca irritans of botanists. The grass is very disagreeable to walk through, and often makes the horses' legs bleed; when dry horses will not and cannot eat it; the grass or stalk is so dry and entirely without nutriment. Day after day, week after week, and for months we fought against it; and in this fearful country whichever way we turned all was the same." The scarcity of water is the worst evil to be encountered. Mr. Forest tells us that the natives sometimes get water from the "roots of a species of Eucalyptus, called Mallee scrub. They choose the roots, break them in lengths of about a foot and stand them on end, when all the moisture drains out into a wooden dish. The traveller meets with great heaps of these roots, and it is a bad sign when in search of water."

—— The plates in the current number of the *Botanical Magazine* are devoted to illustrations of Mertensia alpina, "a lovely little rock plant," with nodding clusters of blue flowers; Michelia lanuginosa, a native of Sikkim Himalaya, like a Magnolia but with narrower petals—the colour of the flowers is pale straw-coloured, and the perfume very agreeable; Typhonium Brownii is a very singular Aroid, with hastate, three-parted leaves, which appeared at the same time as the purplish spathes—the plant was introduced by Mr. Bull; Eranthemum hypocrateriforme, a very handsome species from Sierra Leone, with dense trusses of flowers, each of which has a straw-coloured tube and a red limb, with a darker centre sprinkled with black dots—this remarkably handsome plant flowered at Kew in May last; Allium narcissiflorum is described as "by far the most showy in its flowers of all the Alliums," a statement that may be qualified without detracting from the merits of the present plant; it has deep purple flowers borne in umbels on the top of a scape, and linear strap-shaped leaves; it is a native of South-east France and North-west Italy. Columellia oblonga is a very remarkable plant, botanically speaking, and by no means unworthy of notice as an ornamental plant; it has elliptic lanceolate leaves, green above, grey and pubescent beneath, and terminal cymes of yellow flowers. The position this plant should occupy has been, and still is, a puzzle to botanists, who have expressed very widely different opinions on its position. For our own parts we are disposed to side with those who allocate it near Saxifragaceæ. Its resemblance, especially in the fruit, to Escallonia is very striking. The presence of two stamens only in the perfect flower, and the curiously twisted conformation of the anther, are morphological puzzles, which analogy has not explained, but the solution of which may possibly be obtained from a study of development, or by a lucky accident.

—— Of *Warner's Select Orchidaceous Plants* (London: Reeve & Co.) the thirteenth part of the second series, completing the second volume, has recently been issued. This splendid publication, which is got up with all the artistic skill that can be brought to bear upon it, and which is enriched by the cultural notes of one of our most successful cultivators, has now been too long before the public to need any encomiums from us, but we may mention that Mr. Warner intimates his readiness to continue the work, if the public is willing to support him in the effort. The volume, like the preceding one, is dedicated to Her Majesty the Queen. The subjects in the present part, which contains an introduction and index, are—Renanthera coccinea, from the plant flowered and exhibited last season by Mr. Williams; Odontoglossum vexillarium, from the splendid specimen flowered in 1873 by Mr. Rucker; and Vanda tricolor Warneri, a superb form bloomed in Mr. Warner's own collection at Broomfield, and distinguished by the sepals and petals being distinctly margined with deep rose, and the whole front of the lip being of a rich deep rosy purple. This variety is said to be known also by its strongly-ribbed leaves. We shall look forward with interest to the continuation of this noble work, and may just throw out the hint that it would be still more welcome if it came at more regular intervals.

HORTICULTURAL EXHIBITIONS, 1875.

SEPTEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
2, 3, and 4.—Great Fruit Show at the Alexandra Palace. Manager, Mr. A. McKenzie.
7.—Crystal Palace. Autumn Exhibition of Fruit and Flowers.
7.—Littleover Horticultural Society's Exhibition. Sec., Mr. B. Toft.
8.—Glasgow and West of Scotland Horticultural Society. Autumn Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
8 and 9.—Brighton and Sussex Horticultural Society's Show. Sec., Edward Carpenter.
11.—Lee and Blackheath Horticultural Society's Exhibition of Cottagers' Produce. Sec., C. Helmer, 5, Boone's Road, Lee.
13 and 14.—Carnation Show at the Botanical Gardens, Old Trafford, Manchester.
15 and 16.—Royal Caledonian Society. International Fruit and Flower Show in Edinburgh. Sec., J. Stewart, 5, Alva Street, Edinburgh.
15 and 16.—Stamford Floral and Horticultural Society's Exhibition in Burghley Park. Hon. Secs., Messrs. Johnson and Laxton.

THE

Gardeners' Chronicle.

SATURDAY, AUGUST 21, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	Aug. 24	Metropolitan Floral Society's Exhibition at the Alexandra Palace (two days).
WEDNESDAY,	Aug. 25	Sale of Hyacinths, Tulips, Crocuses, &c., at Stevens' Rooms.
THURSDAY,	Aug. 26	Royal Horticultural Society of Ireland's Autumn Exhibition. Wantage Horticultural Society's Annual Show. Dundee Horticultural Society's Grand Floral Fête (three days).
FRIDAY,	Aug. 27	Bishop Auckland Floral and Horticultural Society's Exhibition.
SATURDAY,	Aug. 28	Wakefield Horticultural Society's Exhibitions. Sale of Dutch Bulbs, at Stevens' Rooms.

IN a paper contained in the recently published *Annales Agronomiques* (edited by M. P. DEHÉRAIN), M. PLANCHON has an interesting and suggestive paper on the PHYLLOXERA, its origin, diffusion in Europe, means of prevention, or of extenuation, &c. A great deal of what M. PLANCHON has to say is, of course, of special application only in France and other countries where the Vine is cultivated on a large scale in the open air. Still much that he says is applicable in this country, and, moreover, it is of the more interest since it is we who have the credit of introducing the pest to Europe *vid* America. Again, some of the conclusions at which M. PLANCHON arrives seem to be not quite in accordance with the facts as observed in this country, and hence some discussion relating to them may be serviceable. As it is unnecessary for us to analyse the whole of M. PLANCHON'S paper, we give his general conclusions in the first instance, and shall then proceed to make some comments on them. 1. The Phylloxera is a native of the United States of America. 2. It has been imported into Europe with American Vines. 3. Districts as yet free from the Phylloxera would do well to take precautions against the importation of American Vines (*cépages*) and of Vines coming from infected districts. 4. The stamping out of the disease, which is possible in vineries under glass, is well nigh impossible under open-air culture. Nevertheless, it is a palliative which may be adopted with due compensation, and, as far as possible, as a matter of reciprocal arrangement between the several growers where the infected places are of small area and far apart. 5. American or other suspected Vines should be allowed to pass freely from the ports of arrival to the infected districts, their carriage by railway offering no serious danger to the country traversed. To establish administrative restriction would be "illegal, arbitrary, irrational, and inopportune." "Let us hope," continues M. PLANCHON, "that on these points public opinion, indicated and guided by agricultural societies, will do more for the protection of local interests than legislative enactments—inaccurately termed protective—could do."

Such are M. PLANCHON'S general conclusions. With reference to the introduction of the Phylloxera, he brings forward various facts to show that, so far as France is concerned, the insect was introduced direct from America with American Vines to Bordeaux in 1862. A similar mode of origin was traced in various parts of Germany and Portugal. In the case of Great Britain, M. PLANCHON recalls the first notice of the insect by Professor WESTWOOD in 1863, and he goes on to state that the presumption is that the insects were first observed in American varieties. As to this latter matter, as the Professor brings forward no evidence whatever, we must be permitted to express grave doubts. American Vines are not grown in this country. To the majority of our cultivators they are absolutely unknown. Of course the thing is possible—American Vines may have been introduced at some time or other, perhaps in transit to France or other countries. All that we can say is that, after careful inquiries, we have been quite unable to trace any such connection. Whether the insect can be imported with any other plant than the Vine is a question which M. PLANCHON appears to negative, and it is difficult to account for its introduction into England otherwise than on the Vine. Another point of considerable interest is this, that, so far as our experience goes, it is on pot Vines that the pest has been most often observed in this country.

In any case perfidious Albion and her vigorous offspring across the Atlantic have the credit of introducing into Europe several of the most disastrous maladies which affect plants. In 1789 the American blight was first detected in England, yet it did not appear in France till between 1812 and 1815. In 1847, at Margate, first appeared the Vine mildew, Oïdium Tuckeri. Another pest, similarly of American origin, is the American Water-weed, Elodea canadensis, better known perhaps under the name of the Anacharis.

Now, with reference to the introduction of the Phylloxera into this country, we have unfortunately little or no evidence to offer; we think, however, upon M. PLANCHON'S own showing, that it may have reached us from France quite as readily, if not more so, than from America. There is no evidence of any direct importation from America to this country. American Vines, as a rule, are not imported here. On the other hand, as M. PLANCHON shows, American Vines imported into Bordeaux were the real sources of infection in the case in France. Now, while we import few or no American Vines into this country, we do import some other Vines from France. The inference appears to us, so far as we are justified in drawing an inference at all, that we derived the pest from France.

The reasons for these facts are, of course, easily supplied by the incessant traffic between America and Great Britain, and between France and this country, and by the passion for new plants; thus, the conservatories of amateurs, like botanic gardens, compensate for the good they do by the mischief of which they are also sometimes the unwilling perpetrators. Another interesting point mooted by M. PLANCHON is as to the mode of introduction of the pest. Is it by means of rooted eyes or cuttings, or by means of canes? The learned author does not hesitate a moment on this point. He condemns the introduction of rooted plants, and maintains that cuttings not rooted may be introduced with relative safety. His reasons for so saying are, that the cuttings are taken from the Vines at some distance from the soil at pruning time after the fall of the leaves, and he adds that the American Vines very rarely present the insects on the leaves. Of course M. PLANCHON is writing of France and of Vines grown in open-air vineyards. In this country our experience is just the reverse. Where we have seen one Vine root affected with Phylloxera, we have seen a dozen leaf-galls with the insects inhabiting them. Their appearance on pot Vines especially, but not exclusively, in this country, does not favour M. PLANCHON'S views. Indeed the author himself goes on to cite a case where a quantity of cuttings of Vines sent from America to Germany caused the appearance of the insect in the latter country. It is fair, however, to add, that there is some doubt whether the cuttings so sent were not really rooted cuttings.

THE present Council of the ROYAL HORTICULTURAL SOCIETY is so much in earnest in its desire to come to terms with Her Majesty's Commissioners, and it is so very desirable, as things go, that terms should be arrived at, that we can hardly be surprised at the result of the meeting on Friday last. There was, in addition to the document we printed last week, a second agreement, the contents of which were not made public till the time of the meeting, and which contains, to our thinking, some most objectionable clauses. The Fellows present, however, seemed to think any agreement better than none, and so they sanctioned agreements, some parts of which put the Society even more than ever at the mercy of the Commissioners, even in the smallest details. It may be that, for a time, the power will not be exercised. We are willing to admit that the Commissioners have at present no desire to do other than help the Society—but what of the future? What guarantee have we that the power so fully given away may not be exercised against the Society's interests? In this matter the Commissioners seem to be only using the Society for their own purpose. They do not want to have the garden on their own hands; they do not want the responsibility of maintaining or managing it. No, the Society must do that. And so the Horticultural Society is to go on as before, burdened with the load of a garden of no use to it as a horticultural society, of no use (save as a meeting place) to practical or scientific horticulture. To this it is answered that the inhabitants of the neighbourhood will, by taking family tickets or other devices mentioned in Admiral HORNBY'S speech, practically maintain the garden, and by raising the annual income to £10,000 fulfil one of the terms of the agreement with the Commissioners. We scarcely know whether to wish it may be so or no. We do know that the late Council made efforts to increase the subscription from South Kensington and failed. Admiral HORNBY may be more lucky. But suppose he is, what the better will the Society be? How will practical and scientific horticulture be benefited? By the receipt of a larger income, will be the answer. This may be so. The Society may have a larger income, but it may not really be much the better off. Its *prestige* and influence for good as a horticultural society will be none the better because a few more of the wealthy residents of the neighbourhood contribute to its coffers, and fill the gardens with their children. We want to popularise the Society, to make it the Horticultural Society of Great Britain, whose influence for good shall be felt in every village in the kingdom; we want it to be the real centre of practical and scientific horticulture of the country. Every one who cultivates a garden, large or small, should be made to feel that he or she has a direct interest—it may be slight but still a direct interest—in the work of the Royal Horticultural Society. Every master gardener in the country should be admitted at a reduced rate, and deem it an honour to be associated with the Society, and should do his best to prove "a useful and valuable member thereof." Is the strengthening of the ties which bind us to South Kensington the way to accomplish this? We fear not. We can but look on the present schemes but as temporary makeshifts hardly,

if at all, sufficient to avert the final catastrophe for a few years longer. In so saying we would deprecate any wish or desire of reflecting on the conduct of the present Council, or of in any way embarrassing them. They constitute, we believe, the best working Council the Society has had for a long time, and we are ready to make every allowance for the great difficulties of their position and the almost utter impossibility of maintaining anything like an independent course of action.

—— WE are requested to state that the exhibition announced to be held in the Botanical Gardens, Manchester, on September 2, 3, and 4 next, is postponed.

—— From the *Daily News* we learn that for some days past a countryman has stationed himself near the Bank and Royal Exchange, with a basketful of specimens of the ROUND-LEAVED SUNDEW (Drosera rotundifolia), for sale. The plant is that upon which Mr. DARWIN has made most of his experiments as to the carnivorous proclivities of plants, and is found growing in most of the bogs of Kent and Surrey.

—— The well-known group of lofty SCOTCH FIRS IN KENSINGTON GARDENS, near the Porchester Gate entrance, on the Bayswater Road, which, says the *Daily News*, has been painted for many a water-colour exhibition, and figures in Mr. MATTHEW ARNOLD'S *Lines in Kensington Gardens*, has just lost three of its number by the axe of the Commissioners of Woods and Forests. The felled specimens, which now lie on the greensward, were among the oldest trees in the gardens, and had the characteristic flat heads of foliage and pink scaly bark which make the mature Pinus sylvestris a favourite with the artist. For several seasons they had ceased to renew their leaves, and it was thought they were attacked by one of the destructive Pine beetles, but the timber proves to be sound, and these highly ornamental trees have died a natural death in a good old age, considering their proximity to London smoke. They have left a conspicuous gap in the gardens.

—— For the first time in England, and we believe in Europe, the PICEA MAGNIFICA, about which there has been so much discussion, is producing cones in Mr. ANTHONY WATERER'S nursery at Knap Hill. A young plant of some 4 or 5 feet high has borne three cones, which are nearly or quite full grown. These cones entirely confirm the opinions of those who have looked on Picea magnifica as distinct from P. nobilis.

—— The Irish *Farmers' Gazette* states that Dr. MOORE has succeeded in establishing the BROOM RAPE OF THE SEA HOLLY on one or more of the species of Eryngo growing at Glasnevin; in size and appearance it is quite like the familiar Orobanche of the Clover.

—— Two curious instances of SUPERFICIAL RESEMBLANCE, or mimetic analogy, as it has been called, may be seen in the Royal Botanic Society, Edinburgh, in the shape of Potentilla alchemilloides, which is almost exactly like Alchemilla alpina, while Thalictrum tuberosum almost equally closely resembles a Parnassia.

—— BEDDING PANSIES deserve the favour that is shown them. In a recent visit to Edinburgh we were much struck with the lines of Pansies in the nursery of Messrs. DOWNIE & LAIRD, at West Coates. There were four lines, constituted of—1, Viola cornuta Blue Perfection; 2, Golden Perfection; 3, Blue King; 4, White Perfection; 5, Viola purpurea. In other cases beds were formed of a centre of Viola Blue Perfection, and an outside border of Golden Perpetual. A new seedling, called Admirable, deserves its name. It is a good flower, of a dark violet-purple colour, with a lighter centre.

—— We are requested to state, for the information of intending exhibitors at the METROPOLITAN FLORAL SOCIETY'S SHOW, at the Alexandra Palace, on Tuesday next, that should they wish to deposit their exhibits on Monday evening, a van will be at the Wood Green station at 8 o'clock, to convey them to the Palace, or, as there will be trains running direct to the Palace (High Level), they can take them in that way. On Tuesday morning there will be vans, on the arrival of the first train at Wood Green, to take them to the Palace. The High Level trains do not run at that early hour.

—— We are informed that Mr. PEARSON, of Chilwell, intends to offer the following PRIZES for GOLDEN QUEEN GRAPE, namely, £5, £2, and £1, for the best bunches of this new variety raised by him, to be exhibited, as hereafter to be announced, in the autumn of 1877.

—— Mr. ANTHONY WATERER has flowered a NEW HYBRID LILY, which we do not hesitate to designate as the finest and most beautiful of the Lilies which have yet appeared in our gardens. Noble and captivating as is the Lilium auratum, this novelty equals it in the size, and far excels it in the exquisite colouring of its flowers. From its appearance, we may suppose it to be the result of a cross between the true Lilium speciosum and Lilium auratum, partaking most of the colouring and character of the former. Though the plant is young, and at present only carries a solitary flower to a stem, yet the flower is magnificent! Imagine a blossom of the genuine high-coloured type of Lilium speciosum increased in size, so that the segments straightened out measure nearly 14 inches across, the petaline ones being 4 inches broad, and give to this grand flower the colouring and rich spotting of the plant just referred to—white, suffused with rich rosy crimson, and having deep crimson spots freely distributed over the coloured portion—and some idea may be formed of the splendid Lily, of which we purpose shortly to offer an illustration. To these noble proportions, and this charming colouring, it may be added that the scent is delightful, more delicate than that of Lilium auratum, and much more approaching the sweetness of Lilium speciosum. We have seldom seen a more magnificent flower.

—— At a meeting of subscribers to, and exhibitors at, the NATIONAL CARNATION and PICOTEE SOCIETY, held at the close of the first day's show, the treasurer, the Rev. F. D. HORNER, reported that, after defraying the expenses of the exhibition then held, there remained the sum of £14 to be carried on to next year's fund. Several extra subscriptions were announced, and there is every prospect that the exhibition fixed for August 11, 1876, will be one of

FIG. 53.—MR. WARNER'S VANDA HOUSE.

the best the Society has yet held, as the committee will be able to increase both the number and value of the prizes offered. Mr. E. S. DODWELL was elected President by acclamation; and it was determined to make a special effort to raise the Carnation and Picotee to something of its old pre-eminence in the north and midland districts. The Rev. F. D. HORNER is the Hon. Treasurer and Secretary.

—— We are informed that one of the fine old plants of AMERICAN ALOE (Agave americana variegata), so well known to visitors to the OXFORD BOTANIC GARDEN, is now flowering in that establishment—the first flower having expanded on the 16th instant. Indications of its blossoming were first observed on April 24 last, when the central leaves were bursting open, and the rate of growth from that date was so rapid as to render it necessary to remove the plant from the house in which it had been wintered on May 5, when its height was 12 feet 9 inches, and the plant measured from tip to tip of opposite leaves 12 feet 7½ inches. A temporary covering was provided for it, which was removed early in July, and it now stands on the lawn on the east side of the garden, near the Cherwell, fully exposed. From the ground level to the summit of the flower-stem it measures 23 feet 4 inches. It has twenty-three peduncles or branches, bearing on their extremity numerous clusters of sulphur-coloured flower-buds. Altogether the plant has a very stately appearance, although its leaves are already becoming flaccid and drooping. We believe this to be the first variegated American Aloe that has flowered in England. Can any correspondent tell us of another?

OLD BROMPTON, NOW SOUTH KENSINGTON.

WE propose recalling another visit to what was lately known as Old Brompton. Wending our way [on that occasion] from the head of the Grosvenor Canal, the site of which is now spanned by the iron ribs of the Victoria Station, we cross some of the land appertaining to Ebury Farm, to the king's private road, and so on to the elbow of the road which crossed the Tybourne brook, whose meanderings might be traced through its sedgy banks on the site of the present Cadogan Place.

From the partially-built Sloane Square, we turn down a narrow lane of rustic buildings till we reach the back of Colville's nursery gardens on the left, and Blackland's house on the right. The fields of Box Farm, and the open Chelsea Common are before us, and the present Marlborough Road, at that time a country lane, brings us to the Admiral Keppel Tea-gardens. Hence, by the narrow lane with the pleasant garden grounds and hedge-rows on either side of us, we arrive at Old Brompton, at the very spot where the South Kensington train now lands its passengers.

The long country ramble, occupying some half to three-quarters of an hour, has been pleasant enough. The birds carol in the air, or chirp in the hedgerows, and sweet odours fall upon the sense in the freshly-mown grass, or from the blossoms in the gardens. The general business of life was slower certainly then than at present, when the return-ticket is available in a quarter of an hour perchance, and the same business is transacted within the sixty minutes which in the old time would have occuped half a day.

We will not pause however to inquire if the general amenities of life have suffered by the change, or the artificial gained strength in our constitutions by that intimacy with the grim genius whose food is coal and water, whose pulsations are in the piston-rod, whose breath is steam, and whose scream is a lively imitation of sensation. We will defer moralising upon the abuse of the boon which genius gives to man, or it would bring us to the old old story of "Midas" over again. We will at present take things as we find them, and we are in the neighbourhood of the collection of the art treasures—on the very ground which but a few years since held the largest collection of natural growth and artificial culture in the country, the proprietors of which were Messrs. Loudon & Wise. When enjoying the well-cooked chop in the artistic grill-room of the South Kensington Museum, and whilst noticing the excellent arrangements and agreeable accessories to comfort and convenience, we are surprised at the small space of time that has passed since this site formed a portion of walled-in private grounds in the occupation of a private gentleman, although of public fame (Greenwood), the partner in the well-known firm of army agents and bankers, Messrs. Cox & Greenwood, Craig's Court, Charing Cross. It was here that the Duke of York and other celebrities of the times had been entertained.

From the year 1681, 56 acres of land, extending from the Kensington Road to the boundary of these private grounds in Old Brompton, were devoted to horticulture. Curiously enough, the present Horticultural Gardens of South Kensington occupy the site of those once maintained by London & Wise, whose collection of all sorts of trees and shrubs was spoken of by Evelyn with such eulogy, and whose artistic adornments at Kensington Gardens evoked the praise of Addison. The stock of plants and roots was so extensive, that, valued at only one penny each, it amounted to the sum of £40 000. It was in those gardens that the Gillyflower was cultivated to such perfection as to obtain for it the well-known name of the Brompton Stock. The sites of Trinity Church and Brompton Square were all market-grounds—in the time when Farren, Mrs. Faucit, John Reeve, and Yates (all inhabitants of this locality subsequently) were young people, for Miss O'Neill, Mrs. Siddons, and John Kemble had disappeared from the play-bills, and Kean and Young had occupied the attention of the town; nevertheless, the old names took precedence in the remembrance of the playgoer. But of Brompton Park Nursery, perhaps, more might be said than of any other in the kingdom. For 170 years it had flourished in all its beauty. It had been spoken of by two of the most renowned men of the time—men as amiable as excellent, and men of extensive power and genius. That half-mile of wall grew the finest of Vines, and they had thrown out tendrils to the soft summer air, and had withstood the winter frost undisturbed through all the stirring time of revolutionary action even before the weak and cruel simpleton James had been hurried unceremoniously from Whitehall by his son-in-law—even to the change of dynasty from the house of Stuart to that of Hanover—even to the period of the Great World's Fair in 1851, when the moral revolution in society became greater than any other which had preceded it.

To part with this old nursery was to part indeed with an old friend of many associations. Close adjacent was the nursery of Mr. Kirke, whose careful cultivation figures forth in many a number of the *Botanical Register*, published in the year 1815. The editor of that journal of horticulture was Sydenham Edwards, whose grounds were in great favour at the period, and occupied the space which the present Hospital for Consumption and Diseases of the Chest, with the streets adjacent, has long since covered. These grounds, which extended from the Fulham Road to Old Brompton, remained much the same till 1844, when the before-mentioned hospital was the first intimation of an altered site.

We must remain, however, in the Old Brompton Lane a little longer, so narrow at the Bell and Horns that you might fairly jump across it, with the Elms and Limes, and Poplars and Aspen boughs forming a green vista to look down from the hot and dusty Fulham Road. One mile from Hyde Park Corner in this suburb and you were shut away completely from the bustle and noise of the town, and had the sweet odours from the Strawberries in the early morning, as the women passed you with their baskets on their heads, from the neighbouring grounds.

That most agreeable novelist and master of literature, the late Lord Lytton, gives a very pretty picture of this suburban locality in his novel of *Godolphin*. Though slightly satirical, it was perhaps applicable to the period. "Lord Falconer rattled on, as they drove along the brilliant streets, through a thousand topics, of which Godolphin heard as much as he pleased; and Falconer was of that age and those spirits when a listener may be easily dispensed with. They arrived at a little villa at Brompton; there was a little garden around it, and a little bower in one corner, all kept excessively neat, and the outside of the house had just been painted white from top to bottom, and there was a verandah to the house; and the windows were plate-plass with mahogany sashes, only here and there a Gothic casement was stuck in by way of looking 'tasty,' and through one window on the ground floor the lights shining within showed crimson silk and gilded chairs, and all sorts of finery. Louis Quatorze in a nutshell! The reader knows the sort of house as well as if he had lived in it. Ladies of Fanny Millinger's turn of mind always chose the same kind of habitation. It is astonishing what a unanimity of taste they have; and young men about town call it 'taste' too, and imitate it in their own little *tusculums* in Chapel Street." "After having threaded a Gothic hall 4 feet by 8 feet, and an oval conservatory with a river god in the middle, the two visitors found themselves in the presence of Fanny Millinger."

The repose and seclusion of "Old Brompton" were especially well regarded by all those whose lives were passed before the stage lamps.

Pass we on, however, to the lane which led by a wicket-gate into Ramsay's Nursery, celebrated for the careful culture of the yellow Rose, before entering which, however, we must look at those quaint old Almshouses, in the time alluded to at a much lower level than the ground adjacent, but since completely obscured by their loftier surroundings. So altered is the site that we had some difficulty in identifying it. Nevertheless, there they were, some twelve months since, bringing as it were the past and present in strange proximity.

The houses of this charity of William Methwold, Esq., bequeathed by will bearing date February 28, 1652, have but very recently disappeared. It was a hospital for six poor women, such to be single, aged fifty years, and of good repute. Sixteen acres of land were settled upon the charity, and each alms-woman received £4 per annum. Difficulties occurring in fulfilling the will, the parish filed a bill in Chancery, July 17, 1758, to obtain payment of the pension, and the decree at this date was fully effected. Subsequently the charity was paid by the proprietor of the Hall House Estate.

They occupied three sides of a small quadrangular space, and, surrounded as they were with pleasant garden-grounds in the nook of a retired country lane, formed a pretty little rustic bit to look upon.

The homely and picturesque spot has passed away, like many another: the nightingale warbles here no longer; and the 16 acres of land are, doubtless, now of such a valuation as could never have been conceived, even in the wildest dream of William Methwold. It will not be amiss if one of these days we inquire as to the appropriation of the funds. *The Builder.*

THE CRYSTAL PALACE.

THE bedding-out season of 1875 will be remembered by most gardeners as a time full of sore trials and discouragements, so very unfavourable has the weather been for successful flower gardening. At the Crystal Palace, as at most other places, it has been a very difficult matter to get the plants put out into anything like their normal condition, but we are glad to be able to say the grounds now well repay the time that can be devoted to an inspection of them, and that, notwithstanding the severe battering which the plants received a fortnight ago. Under Mr. Thomson's able management the bedding-out at the Crystal Palace has risen out of the limbo of obscurity into which it had well night dropped during the last few years, and from the ample evidence of capability which is this year afforded we look forward hopefully to his keeping the bedding-out at Sydenham up to the high rank which it has taken in the Parks, and so add another floral shrine to the summer attractions in the metropolis.

Commencing our survey on the terrace we note that the chain beds which always used to be edged with the variegated Alysum, have this year a margin of Golden Feather Pyrethrum, by which their outline is boldly marked out; and the use of the Pyrethum has at the same time obviated the employment of Calceolarias (in the furnishing of a yellow colour), which cannot be depended upon. Every pair of circles in the chain series are filled with scarlet Pelargoniums, the variety used most largely being Lady Constance Grosvenor. The oblong beds are either filled with white flowered and pink Pelargoniums, or white variegated Pelargoniums mixed with Violas. The effect of this arrangement, as seen from the Palace above, is at once bold and effective.

The carpet beds bordering the half circular walk round the centre basins are coming into fine condition, and will be still further improved with a continuance of bright weather. Without the aid of diagrams it would be impossible for us to describe the beautiful combinations of colour which are here to be seen; but we must attempt to do some justice to a novel idea which has been carried out, we believe, for the first time in the history of carpet bedding, and which consists in the introduction of patterns of some half-dozen of the brighter coloured butterflies, set, as it were, in an elaborate framework of rich colouring. Of the butterflies so copied we may mention the large Blue Polyommatus Arion, the Purple Emperor, the Red Admiral, the Camberwell Beauty, the Swallow Tail, and the Peacock. The designs of the two last-named are given in the annexed illustrations (figs. 54 and 57.) In the case of the Swallow-tail Butterfly (fig. 54) the colours are wrought out with—A, Alternanthera versicolor; B, Pyrethrum Golden Feather; C, Alternanthera paronychioides; D, A. amœna; E, Lobelia pumila; F, Cerastium tomentosum; G, Lobelia Indigo Blue; H, Alternanthera amœna; J, A. versicolor; K, A. paronychioides; L, Tagetes signata pumila; M, Sedum glaucum; and N, Echeveria. The design of the Peacock Butterfly (fig. 57) is made up of—A, Alternanthera versicolor; B, A. amœna spectabilis; C, Lobelia pumila; D, Pyrethrum Golden Feather, and the oval spots on the upper wings with Cerastium tomentosum; E, Sedum glaucum; F, Mesembryanthemum cordifolium variegatum; G, Coleus; H, Pyrethrum; J, Lobelia Blue Beauty; K, Alternanthera paronychioides major; L, Echeveria. The designs were, we believe, furnished by a city gentleman learned in the law, and the manner in which they have been carried out reflects great credit upon Mr. Thomson; for though we do not hold them up as examples to be copied, we must speak to their

FIG. 54.—THE SWALLOW-TAIL BUTTERFLY, WORKED IN FLOWERS.

originality of conception; and it required no little judgment in the selection of appropriate plants. There are twelve of these carpet-beds altogether, those between the butterflies being furnished by Mr. Thomson's own patterns, which are at once chaste in design and admirably carried out.

Descending towards the Rosery we first pause to note what an admirable plant is Pelargonium Robert Fish for a ribbon border, and then stay at the bottom of the steps to admire a pair of irregular-shaped beds, composed of an outer margin of two rows of the Golden Feather Pyrethrum, followed inwards by two rows each of Viola Perfection, Pelargonium Shottesham Pet, and

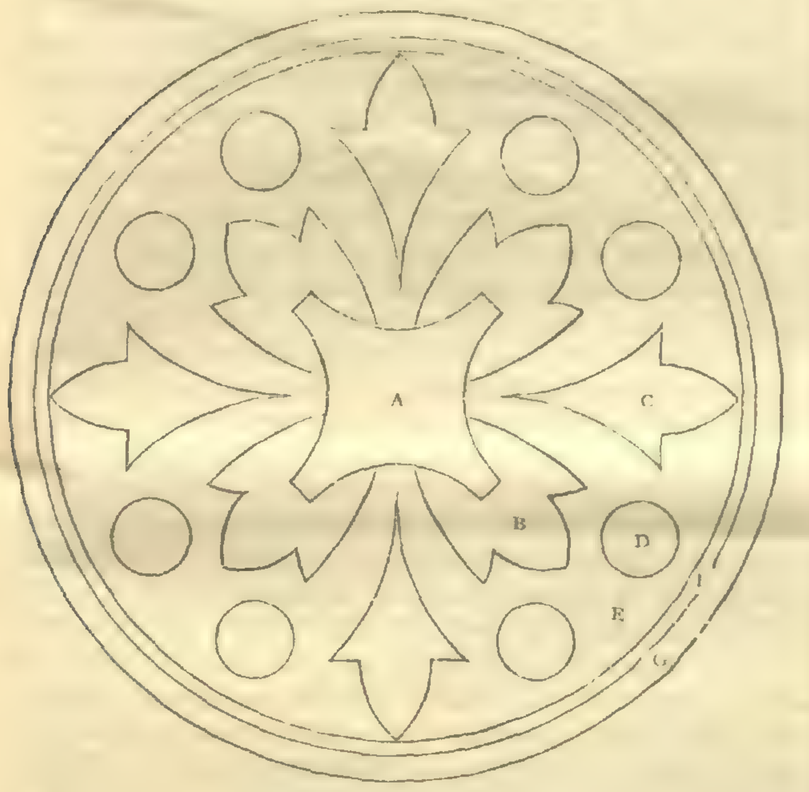


FIG. 55.—CARPET BED AT THE CRYSTAL PALACE.

Pelargonium Christine, with a centre of Pelargonium Waltham Seedling. Further on, to the left, we meet with the first attempt to introduce sub-tropical plants in the Palace grounds, and which has proved so successful in its small way as to ensure its repetition on a larger scale another season. The position selected is a well-sheltered nook between a large Elm tree and a raised mound covered with shrubs at the junction of two walks. The plants used are of the usual description—Cannas, Maize, Tobaccos, Eucalyptus, Ricinus, Coleus, &c., with a liberal admixture in the edgings of the Fishbone Thistle. Another plant well done here is Abutilon niveum, a much finer subject than A. Thompsoni for such work, having bolder foliage and much brighter variegation. Then, nearing the Rosery, there is one of the most simple yet attractive circular beds in the grounds; and which consists only of Gazania splendens, with three rings radiating from the centre, of Iresine Lindeni, the dark rich colour of which forms a striking contrast to the bright orange flowers of the Gazania. It has also the merit of lasting well, which is a great object.

The circular carpet beds around the Rosery are excellent examples of this style, and quite equal in merit to those which charmed the visitors to the Palace last year. The designs are original, and nearly all worth repeating. We cannot give the whole of them, but have selected a few for illustration, and two of them we give this week, leaving the others and the remainder of our notes for next week. Fig. 55 is both pretty as a pattern, and admirably composed as to colours. The plants used are:—A and C, Lobelia Blue King; B, Coleus; D, Alternanthera versicolor; E, Mesembryanthemum cordifolium variegatum; F, one row of Alternanthera magnifica and (G) of Echeveria secunda glauca. Fig. 56 has a groundwork of—A, Pyrethrum Golden Feather, and D, Alternanthera amabilis latifolia; B is Tagetes signata pumilla; C, Ivy-leaved Pelargonium Duke of Edinburgh; and E, Echeveria secunda glauca. Both of these beds are 12 feet over.

Reports of Societies.

Royal Horticultural: *August* 13.—A special general meeting of the Royal Horticultural Society was held on the above-named day, to receive from the Council a statement of the result of their negotiations with Her Majesty's Commissioners, and to consider, and, if they approved, to sanction the agreements provisionally entered into between the Corporations. There was a small attendance of Fellows. The Hon. and Rev. J. T. Boscawen presided, and the other members of Council present were:—Dr. Denny, Vice-Admiral Hornby, Mr. Henry Webb (Treasurer), Dr. Hogg (Secretary), Mr. W. B. Kellock, Mr. A. Grote, and Mr. William Haughton.

The CHAIRMAN, in opening the proceedings, said: I do not think it will be necessary to detain you long on the present occasion. What we have to do is to ask you to accept the report of the Council [see p. 205], and afterwards I will ask you to sanction the agreements we have entered into with Her Majesty's Commissioners. First of all I must read a letter we have received from our President, Lord Aberdare. The President, in his letter, says:—"I should not grudge the trouble of coming to London to attend your meeting, but that I have Lord Coleridge and other friends coming to see me on the 12th. The arrangements you have succeeded in making with Her Majesty's Commissioners are so advantageous that I cannot doubt they will recommend themselves to the members for adoption, without any adverse discussion. I hope, therefore, you will be able to dispense with my attendance, the inconvenience of which, at this moment, would be very great." I will now, continued the Chairman, read you the report of the Council.

Mr. GUEDALLA: We will take it as read.

The report was then taken as read.

The CHAIRMAN: Does any gentleman wish to make any remarks?

FIG. 56.—CARPET BED AT THE CRYSTAL PALACE.

A FELLOW: What is the amount of the debenture debt?

Mr. HAUGHTON: It is £50,000.

The ASSISTANT-SECRETARY then read the "heads of the proposed new agreement between the Commissioners for the Exhibition of 1851, and the Royal Horticultural Society." (See *Gardeners' Chronicle*, p. 205.) He also read the following:—

"*Proposed Supplemental Modifications of the Agreements between the Commissioners for the Exhibition of 1851 and the Royal Horticultural Society.*

"1. The Commissioners will permit the Society during its present term to occupy and use that portion of the

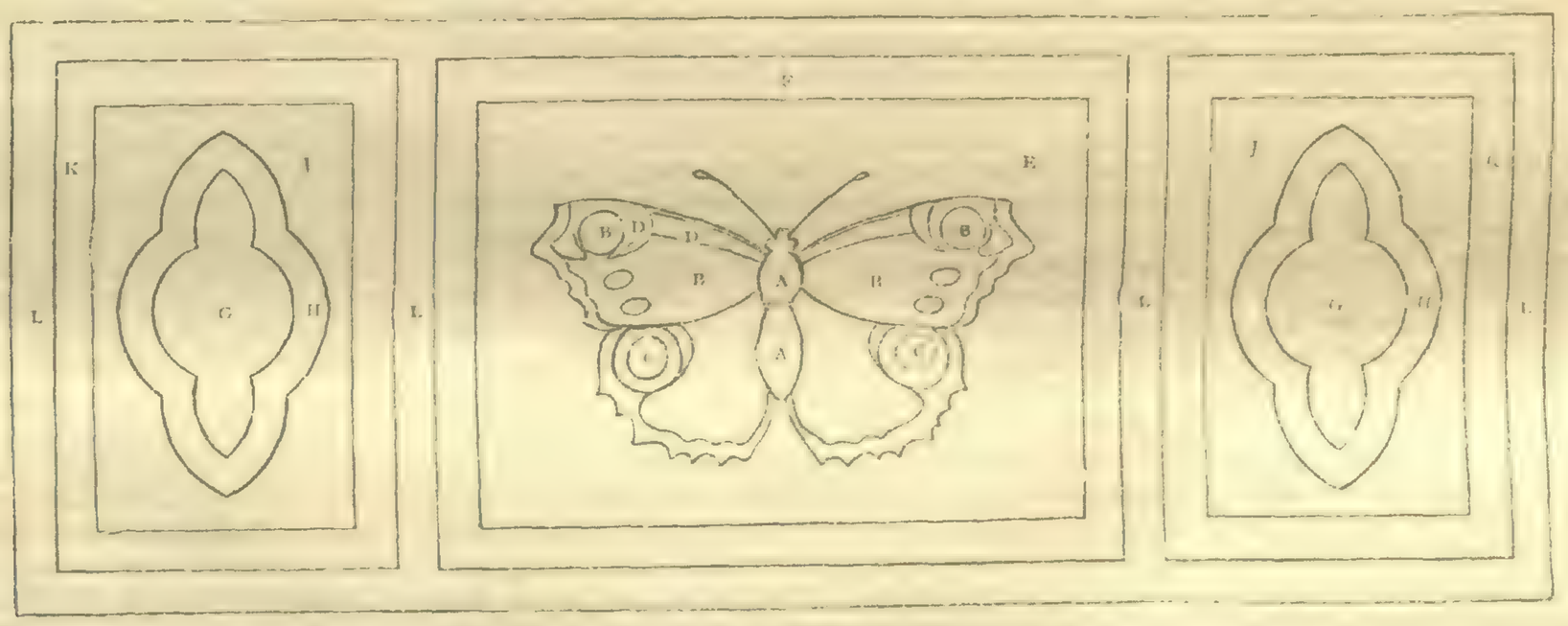


FIG. 57.—THE PEACOCK BUTTERFLY, WORKED IN FLOWERS.

'French Annexe' which on the plan (A.) hereto is coloured red.

"2. The Society will permit the Commissioners during such term to occupy and use that portion of the same 'Annexe' which on the said plan (A.) is coloured blue.

"3. The Commissioners may, when they please, put up a division or barrier between the said portions coloured red and blue.

"4. The Commissioners will permit the Society to occupy and use the garden, coloured green on the said plan (A.), attached to the said 'Annexe,' the Society keeping the same in proper order, and the Commissioners to give six months' notice from any day of their intention to resume possession of it without compensation.

"5. The Society will permit the Commissioners to make, maintain, and control, subject to a right of way on the part of the Society, the road shown on plan (B.) hereto and thereon coloured blue, and will also permit the Commissioners to remove the office marked (C.) on the same plan of the Society's Superintendent of Shows and to occupy and use to the absolute exclusion of the Society the land shown on the said plan and thereon crossed with black lines. The said road shall be so constructed as to ensure to the Society a sufficient and convenient access to the land lying between the north of the gardens and the said road, and so as not to interfere seriously with the enjoyment of the house now occupied by Mr. Dick; or, if in making such road it shall be found necessary or desirable so to interfere with the enjoyment of the said house, the Commissioners shall build another house equally convenient and suitable for the purposes for which the said house is now used, or shall make other sufficient compensation for the injury done thereto.

"6. The Commissioners will build and provide a convenient office and carpenters' shop in the positions marked on the said plan (B.), with the words 'office' and 'carpenters' shop.'

"7. Subject to joint use with visitors to other parts of the Commissioners' estate the Commissioners will permit the Society to use the orchard-house entrances at the north-east and north-west of the gardens, subject to six months' notice.

"8. Should the Commissioners desire to resume possession of the upper north-east and north-west quadrant arcades they shall give six months' notice to the Society, and make reasonable compensation for any actual loss which may be sustained by the Society in the removal or by the destruction of plants and fixtures.

"9. The Commissioners will give the Society an entrance on the north side of the gardens close to the Royal Albert Hall, subject to the rights of the Hall.

"10. The Society will not raise any question as to the right of the Commissioners or their lessees to occupy and use any buildings or structures now occupied or used by them or their lessees, which are partly or wholly built or erected on or over the Society's land."

The CHAIRMAN: We shall be glad now to hear any observation any Fellow wishes to make.

Mr. SHIRLEY HIBBERD observed that it was stated in one of the documents read that the income of the Society was to be raised to £10,000; now he wished to know whether the Council had any scheme to show in what way they proposed the income should be so raised? Unless the Fellows had the plans before them, it was impossible for them to understand the statements contained in the documents.

The CHAIRMAN: Mr. Haughton will show you our plan. We have had really no time to prepare an elaborate scheme for the increase of the Society's income. We have had but a very few weeks to come to terms with our landlords, and I think that is sufficient work to satisfy you at present. But before Christmas we shall be in a position to lay before you an elaborate scheme for the increase of the income of the Society.

Mr. HAUGHTON remarked that the plans were only settled a day or two previously, so that it was impossible at the present moment to have a number of copies ready. To have the agreements settled was the point upon which the Council worked. Respecting the question of time, he might say that the first meeting of the sub-committee appointed to confer with Her Majesty's Commissioners was held on the 13th of last month, and, as a week's notice of the meeting had to be given, he did not think the Fellows had much to complain of.

Mr. SHIRLEY HIBBERD said there was really no objection as to the hurried way in which the meeting had been called, but what he wanted to know was were the Fellows to swallow down the documents which had been placed before them without knowing what they really meant, and how it was proposed that they should be carried out?

Mr. HAUGHTON assured the meeting that every information in the possession of the Council upon these points would be given to the Fellows.

Mr. LIGGINS: That is all very well, but we have not had half-an-hour to look at—to examine some of these documents. How could the Fellows—how could that meeting, in so short a time, give to these, no doubt highly important documents, a calm and a fair consideration? They have had no plans submitted to them for consideration. They had not had, he might truly say, a quarter of an hour to look into these documents, and that, he thought, was a sound reason why the present meeting should be adjourned. He thought a Society which had thousands of members ought not to be barred by the action of a meeting like that, composed of scarcely fifty Fellows.

The CHAIRMAN: You are not in order; Mr. Hibberd is.

Mr. LIGGINS: Mr. Hibberd has waived his right in favour of me. We must all know that this is really not a meeting of the Society, which numbers thousands of persons who never heard of the propositions before us; and, moreover, a great number of those who comprise this meeting never knew anything of these propositions until they entered the room. This meeting does not consist of fifty persons, and I hope the Press will notice the fact. Is it reasonable that we should be called upon to confirm statements or agreements—call them what you like, which, to our surprise to-day, our so-called President has not had the opportunity of investigating? If these agreements were decided upon only the day before yesterday, Lord Aberdare must be as ignorant of their effect as we ourselves are. I think we ought to adjourn the meeting for six weeks.

The CHAIRMAN: If we adjourn the meeting we shall not have so many Fellows present as we have now. Now, one word as regards time, which I look upon as an all-essential element in this matter. We all feel that, unless we get into a position to pay our way, we must fall to pieces. But we wish to pay our debts, and to do that we must get money. It is really of vital importance that we should come to terms with our landlords. As to the short notice, you have got the very same notice as you had with respect to the first agreement; and we thought we should save you trouble by putting the whole matter before you when it was thoroughly sifted, so that you might be more satisfied.

Mr. SHIRLEY HIBBERD: I beg to propose a resolution. My reason for submitting a resolution is, that the case submitted to us now is of so indefinite a character so far as it appears advantageous to the Society, and so exceedingly definite where it appears disadvantageous to the Society, that we must really have time to consider it. You may say we are in debt and difficulty. Well, that is too well known—it is too notorious; but there is an old saying which it would be well to bear in mind—not to "jump out of the frying-pan into the fire." It seems to me, if we accept these agreements without giving to them mature consideration, we shall complete the ruin of the Society, which any one of us can see is imminent enough. Let us not pull down this institution about our ears because it appears somewhat weak. I should think, as regards the immediate wants of the Council, that if an appeal were made to the Fellows in a thoroughly candid manner, it would end in the realisation of some £4000 or £5000. I am prepared myself with a small subscription, and a gentleman who sits here, on a former occasion made a most liberal offer, and is, I believe, prepared to carry it out. But I am not prepared, and I believe he is not prepared, to throw money into some promiscuous box. You say this proposal laid before us is to redeem us from the difficulties under which we suffer. Well, I ask the meeting to look into these proposals, and see what they come to. Do the Commissioners take our debenture debt? No. Do they offer us any money payment? No; indeed they give us permission to borrow £7000.

Mr. GUEDALLA: That is, if we can.

Mr. SHIRLEY HIBBERD: Yes, and in three years—in fact, I was going to say that the agreement only delays for three years the swallowing up of the Society. I am sure no one would like to see this Society in a state of insolvency, but, for my part, I would sooner see it in a state of bankruptcy than see it dragged through the mire, week after week, as it is now being done, by asking us to sanction agreements we have not had time to consider. Here, indeed, is a case in which we are asked to take a cup of cold water, not knowing whether there is poison in it or not. Look to the condition of the agreements. The income of the Society is to be increased. That is the first proposal, but there is a condition hanging to it. It is not on the cards, but it is on the parchment. Our representatives do not tell us how the income of the Society is to be increased. They do not tell us whether the country Fellows will or will not have ten times as much to pay as they have now to pay. I do not charge the Council with anything of the sort, but I put the matter in this way to show you that we ought to know what is intended to be done in the way of raising the income of the Society. Let us have a schedule which will give us that information. I have no doubt the Council and the Commissioners in what they are doing are acting for what they consider the best, but at the same time it is well that we the Fellows should see and know what is going to be done—for this reason, whatever we do now will bind the whole Society. Now, I ask you to look at the clause in the agreements which says the Society shall not accept any more life compositions. Well now, as far as that goes our charter might as well be torn up. No more life Fellows indeed, without the consent of the Commissioners! That is subjugation with a vengeance. Look, again, at clause 8, which reads thus:—"Whilst the said clauses 6 and 7 remain in force the Society shall on the authorised bank holidays, or on such other days not exceeding five in number in any one year, as may be agreed upon by the Society and the Commissioners, admit the public to the South Kensington Gardens free, or at such charge as may be fixed by the Commissioners." Here, then, you are tied by the feet, and I can tell you you will be tied by the neck presently. The idea of asking us to give up our rights in this way is to me simply and perfectly ridiculous. It is not to be supposed that a body of men with ordinary intelligence will go blundering into business in this kind of way. But, after all, how is it possible we can decide upon these propositions when we have not had them in our hands half an hour? Now, just look at clause 5 of the "Proposed Supplemental Modifications." It says:—"The Society will permit the Commissioners to make, maintain, and control, subject to a right of way on the part of the Society, the road shown on plan B., &c., and will also permit the Commissioners to remove the office marked C. on the same plan of the Society's Superintendent of Shows, and to occupy and use, to the absolute exclusion of the Society, the land shown on the said plan," &c. Now, I object to that clause, as it shuts up every mode of access for plants to our exhibitions.

Mr. HAUGHTON explained that the clause is subject to a right of way.

Mr. SHIRLEY HIBBERD: Perhaps so, but if you carry a road next to Mr. Dick's house it will be impossible for you to get plants into your exhibitions. Well then, look at clause 10, which reads thus:—"The Society will not raise any question as to the right of the Commissioners or their lessees to occupy and use any buildings or structures now occupied or used by them or their lessees which are partly or wholly built or erected on or over the Society's land." Well, do you understand what that comes to? I believe it is as great a mystery as ever came before any society, that we should give up all our rights and that Her Majesty's Commissioners should go exactly where they please. Let them at once ask us to give up our garments and go through the world naked. They will ask for our plants next; they will ask, probably, for everything exhibited on our premises, and I am really and sincerely surprised that a body of men, respectable and responsible no doubt, and powerful as they themselves feel as the Commissioners are, should make such monstrous proposals to the Royal Horticultural Society and expect that Society to accept or receive them. It is with the utmost astonishment I see these proposals made. After all, I suppose two or three months must be expended in considering this matter—I mean considering it properly. Between poverty and disgrace there is a wide gulf. Well, let us bear poverty, for then we can still maintain our position—a position which is not so bad as it is represented—for, after all, a debt of a few thousand pounds is of very little consequence. But let us not at all events put up with disgrace. One very great difficulty in our way undoubtedly is, that Her Majesty's Commissioners are so exalted by the conciousness of their own strength and of our weakness, that they imagine they can impose any terms, however humiliating, upon us. I conclude by moving:—"That this meeting be adjourned for two months from the present time."

Mr. LIGGINS: Mr. Chairman, I beg to second the motion just made by my friend, Mr. Shirley Hibberd, and in doing so I must say I am astonished that a Council, not elected by ourselves, but rather, nearly all of them, appointed by each other, should come to us with such ridiculous propositions as those submitted to-day, without having the courtesy of letting us know in proper time what they were. They may be very good, but we have really no opportunity of knowing whether they are or not. I should be very sorry to give any vote to-day, because my Lord Aberdare says he hopes there will not be any opposition. That nobleman does not know the case himself. If he is the President of our Society, who appointed him? All I know of him is, that he is a very able ex-Minister of the Crown, and that he has—as we now discover—been pitchforked into this office of President of the Royal Horticultural Society; that he has been appointed by a Council—by gentlemen who have done nothing but put forth this ridiculous scheme. We would be stultifying ourselves and thousands of Fellows of the Society if we agreed to the proposals laid before us until we had proper time to consider and decide upon them. Let this meeting be adjourned until a larger number of Fellows come into it, and then it may be that "In a multitude of counsellors there is wisdom." Is there any imperative necessity for this good work being done so rapidly? Matters of this sort are generally arranged after mature consideration. We really have not the honour of knowing Lord Aberdare. He is a perfect stranger to us, and yet we are told from the chair that he is our President, and that he writes a letter stating Lord Coleridge and his country friends are about to visit him, and he can't come to us. And that applies to the 500 Fellows who usually fill

this room—not to the miserable number now present. Well, what is good for them is good for the President: they are not here—he is not here, and so we must adjourn. If I understand the matter rightly we are very much indebted for these arrangements between the Royal Horticultural Society and the Royal Commissioners to his Royal Highness the Prince of Wales, because I see in the *Times*—no mean authority—that the Prince of Wales presided at Marlborough House over a joint meeting of the Commissioners and of the Society.

The CHAIRMAN: I beg to correct you—the meeting was one of the Commissioners, solely.

Mr. LIGGINS: However that may have been, I find that Major-General Scott has got the whole credit for whatever has been done, but it should be remembered that this very same Major-General Scott and Sir Henry Cole were always opposed to the interests of the Society, and turned out a good Council.

The CHAIRMAN asked Mr. Liggins to keep to the question.

Mr. LIGGINS: I say it is the question. It is the merest justice to state that friendly feelings to this Society were expressed by General Scott, but, at the same time I am sure we are all glad that we have nothing to do with him or with Sir Henry Cole. It was the policy of these gentlemen which brought the Society to its present position. Now, look at the Council sitting at the board. They are all elected by each other—they are not elected by the Society at large. We really did not know who was the President of the Society. I heard a whisper that Lord Aberdare was to be the President, and it was very likely he was as good a man as could be got in England; but nine out of ten gentlemen here were not aware that Lord Aberdare was our President. Is it, under these circumstances, just that we should pledge ourselves to any arrangements so loosely placed before us—and especially when those arrangements are so extremely beneficial to Her Majesty's Commissioners? I do not think we have anything to do with the Commissioners, but to pay them what is justly due to them. I believe that all legal complications respecting legal documents will be a curse to the Society. At all events, I am quite sure that what takes place to-day will not give confidence to the public at large, or induce those to subscribe who might be inclined to help us out of our difficulties. But, will they do so when they find such complicated terms have been placed before us, and that we have not got time to consider them? I do not blame these gentlemen who have prepared these plans, because I am sure they have worked very hard to get the business into ship-shape for to-day. But that is not a reason why we should be satisfied. We have not had a reasonable time to consider whether we should adopt these agreements or not; and, as men of intelligence and men of business our only alternative is to adjourn the meeting to a future day. I beg to second the resolution.

Mr. GUEDALLA: Mr. Chairman: I agree with very much of what has been said by the two last speakers, yet I do not fall in with all their remarks, for I looked upon the appointment of the Council as a *fait accompli*, and, for my part, I shall give the Council every support. Still, at our last meeting, a new member of the Council told us that he had a plan cut-and-dry for the rescue of the Society from its difficulties, and that the Council would come down to-day and submit the plan to us. I may remark you have not stated the right you have acquired by the agreements. We are all aware you cannot obtain a much larger income than you have without resorting to artificial schemes, such as that of the skating rink. I think you have rashly entered into some arrangements or agreements by which you intend to raise your income to £10,000 a-year. For my own part, I do not see how that is to be accomplished. I must say I do not hold with the remarks made against General Scott, because I am sure he deserves our thanks. I did not believe in him having a seat at the Council, because I felt we were in a state of dependence while he was there. It is all very well to talk about getting £7000, but I am sure, unless you have some tangible security, it will be a difficult matter to get it.

Admiral HORNBY: I did not state at last meeting that I should be prepared to-day with a cut-and-dry plan to show how our income might be raised to £10,000. Still, I believe it can be raised to that amount.

Mr. GUEDALLA: Will you be good enough to say, have you any hope of raising the £7000?

Admiral HORNBY: I can tell you this, that a gentleman present has offered to lend us £5000.

Mr. GUEDALLA: I am sure we are all very glad to hear that, for I do not like underhand dealings. I like plans and arrangements which every one can comprehend.

The CHAIRMAN: Be good enough to keep to the agreements.

Mr. GUEDALLA said he should support the agreements.

Mr. BOHN said he was on the Council when the £50,000 was raised. He opposed the raising of it but Dr. Lindley, Sir Henry Cole, and others carried the day, and that £50,000 had been the source of all their misfortunes. When they had Chiswick Gardens they did not owe £10,000. He had offered to keep the gardens for £100 a month, and make them successful, but the Society had encountered every opposition at the hands of the Commissioners, and at last they had £50,000 tacked on to them. As to raising money on the security of the Society as it at present stood, he very much doubted if it could be done. He would lend the Society £10,000 to-morrow if they gave him security, but he did not like the security they offered at present. Having commented on the way in which the forty-guinea subscribers (of whom he was one) had been treated, Mr. Bohn said the Society had got into such a position that they were little else than the vassals of the Exhibition Commissioners, and, for himself, he should not vote one way or the other. He was sorry that, by a little mutual giving way much more had not been done for the interests of the Society.

The CHAIRMAN: I assure you we shall take the case of the forty-guinea subscribers into consideration in laying our scheme before you.

Mr. PINCHES: Mr. Chairmain, there are two propositions before us. The first is that of adjournment, because of the insufficient number of Fellows attending the meeting; and the second is that the meeting should be adjourned because the agreements have not been a sufficient length of time in our hands. I think, on the first ground, it would be idle to support the adjournment of the meeting. I am aware London is thinning rapidly, and no part of it more than that in which we are—South Kensington; and I am afraid, if we adjourn the meeting for two months, instead of having fifty Fellows we should not have five; upon that ground I shall not vote for adjournment. On the other hand I think gentlemen have much underrated the opportunities they have had of looking into these agreements. I really think with forty-eight hours before us it was quite possible to master these documents, and to come sufficiently near to the gist of the whole case. In considering this question I think we very often lose sight of the peculiar position in which the Commissioners stand. However much they may feel disposed to help the Society out of its difficulties they are, after all, dealing with a trust fund. Taking all these circumstances into account, and being very much better acquainted, by going through very voluminous documents, with the relative positions of the two bodies than most of the Fellows, I am very much inclined to think, however much we may wriggle and distort ourselves, and feel unutterable anguish at our position, we can't wriggle ourselves out of it. We have got into a mess—how can we get out of it? Fifteen or sixteen years ago we made a most unfortunate bargain, which in commercial circles was without a precedent. A sum of £50,000 was placed upon a lease of twenty-one years, which may be forfeited at any moment, and I understand the Commissioners repudiate any responsibility in regard to it.

Mr. HAUGHTON: They are bound to take the responsibility of half of it if they do not renew our lease—responsibility, say, to the amount of £20,000.

Mr. PINCHES: Well, we said we should pay the rental, but we have not paid more than twice; and if we do not pay it next year our lease is forfeited. How can we pay it? We can't pay our prizes, and how can we pay £2400 rent? That being our position, what is the use in talking of trifles? I say, "Cast the Commissioners overboard if you can, and float the Society by yourselves;" but, looking into the relations between yourselves and the Commissioners, I say such a thing is impossible, and that, whether you like it or not, you are bound in a sort of partnership. How are we to raise the £7000! It is certainly very pleasing to hear that £5000 is to be lent us by a gentleman.

Mr. BOHN: Yes, on interest.

Mr. PINCHES: And on some security, no doubt.

Admiral HORNBY: I shall explain about it.

Mr. PINCHES: In any case our rent is not paid. How can we pay it? The gentlemen who moved and seconded the motion for adjournment, appear very uneasy about the second paper, but it really seems to me to refer to details which are of no real moment. It is a sort of mutual accommodation—not, I hope, on the Collie system, and one that I think will tend to the favourable working of the Society. Then comes the question, "Can we raise our income to £10,000?" I think by raising the subscriptions from two guineas to three and in other ways it can be done. I think, on the whole, the terms come to are favourable. We are not in a position to dictate terms to the Commissioners, and I don't think we can do better than accept those we have now obtained.

Dr. MASTERS expressed his bitter disappointment at the report presented to the Fellows by the Council. It was no doubt a fact that they could not wriggle out of their engagements with Her Majesty's Commissioners. They were all, unfortunately, too well aware of that. It was all very well to have a dog tied up and a collar put upon his neck, but in this case, taking the Society as the animal, handcuffs, chains, and every conceivable kind of restrictive instruments were put upon him, so that the unfortunate dog couldn't even wag his tail. Under the tenth clause the Society could not get a housemaid to dust their windows, to sweep out their premises, or, in fact, do a single thing if it should please the Commissioners to forbid them.

Mr. HAUGHTON thought there was some misapprehension as to the tenth clause. It so happened, an agreement was entered into some time ago between the two corporations. The Commissioners had erected the towers over the orchard-house, also some buildings of minor importance, and one also of great importance—the communication between the Royal Albert Hall and the upper part of the conservatory. These they had always the use of, and it would be exceedingly dishonest in the Society to interfere with the enjoyment of them by the Commissioners now. The clause was simply to secure the Commissioners in the right of enjoyment of those structures. [In the agreement itself this should be definitely stated, and the indefinite wording of the "tenth clause" made clearer. EDS.]

Dr. MASTERS: I accept your explanation—I am bound to do so; but your explanation shows the necessity of adjourning the meeting. That clause may alter the complexion of the whole thing.

Mr. HAUGHTON: We shall be most happy to give any explanation, but we wish every Fellow who likes to do so, to express his opinion.

Dr. MASTERS: Well, I have expressed my objection.

Mr. BATEMAN thought it would be well if some of the gentlemen who were disposed to criticise the acts of the Council remembered that neither the present nor the last Council nor the Council before that were in any way responsible for the arrangements which had led to all these difficulties. If that were only borne in mind all acerbity and hard words would be felt to be out of place there. Looking at the reports of their recent meetings, he could say positively that they had acted very injuriously on the prospects of the Society. People hesitated to join a society which was in such a chronic state of commotion. He did not think any mere legal instruments would effectually help the Society out of its difficulties. As the late Lord Derby said with respect to the National Gallery dispute—that the worst decision was better than no decision at all—so, although there were some matters in the agreements he did not like, it was, he thought, better to adopt them than adjourn the meeting for two months. If they adjourned at all it should be for three months. He decidedly thought, from personal knowledge, that the constitution of the present Council had the right ring in it. They must not criticise too closely the terms of the agreements—indeed he could get over any but the tenth clause. He did not understand it, and before they were called upon to agree to it they ought to have a schedule attached so that they might know where they stood. With the exception of that tenth clause he should be prepared to give his assent to the arrangements come to with Her Majesty's Commissioners. He did not believe there was any definite motion before the meeting.

Mr. HIBBERD: Indeed there is.

The CHAIRMAN: Yes, there is a motion for the adjournment of the meeting.

Mr. DAVID WOOSTER referred to the sixth clause, viz., "The Society shall not accept any more life compositions without the written consent of the Commissioners." Mr. Wooster said he was under the impression that there was a clause in the charter which required the Council to set aside a certain portion of the life compositions to form a sinking-fund for the ultimate redemption of the debenture debt. There was another clause which enjoined the Council to reserve three-fifths of the earnings of the gardens after legitimate expenses were paid. Now, in common justice to the debenture-holders, if that clause remained, could they enter into an agreement to that effect? He had seen with great regret some of the acts of the Commissioners with respect to the Council. The access to the offices had been cut off, the room in which they were then met was a common passage room, so that they could not hear the speakers at the Wednesday meetings. He wished to know whether the Commissioners had any right to the upper arcades on the north-east and north-west part of the gardens, also what had become of the magnificent tent which was the property of the Society? It was, he thought, of the utmost importance that the Society should not get into any further difficulties, but smooth over those which at present existed.

The CHAIRMAN said he believed no compensation was paid by the Commissioners for the tent, but the Society used the canvas.

Mr. S. H. GODSON insisted that the accounts should be thoroughly sifted, and he had no hesitation in saying, that if they were, instead of having to borrow £7000, they would have in hand at the present moment more than that amount. Plenty of dust had been thrown in their eyes from time to time,

and he was not surprised that gentlemen were afraid of coming to that Society. He was satisfied, however, that if right were done the Society would be as solvent as any merchant in the City of London. He should support the proposition for an adjournment for three months.

The CHAIRMAN observed that they owed £1200 for prizes, and £950 amount of interest on debenture debt due in August.

Mr. SHIRLEY HIBBERD and Mr. LIGGINS said they were in favour of Mr. Godson's suggestion for a three months' adjournment.

Mr. BOHN asked what had become of the Society's property? What about the arcades?

Mr. HAUGHTON explained that they were built by the Commissioners, but the Society had a right of way, and the Commissioners proposed to let the Society have possession of them as long as the Commissioners did not themselves require them. They were constructed by the Commissioners with the permission of the Society, and the latter was allowed to retain the use of them so long as the Commissioners did not require them. The upper arcades belonged to the Society. He might say that their rights with regard to passage through the lower arcades under the old agreement were not in any way touched. As to the life compositions the Council felt that life compositions were a continual temptation to improper dealings. These life compositions, which ought to amount to a considerable sum, were now non-existent. The Council wished to protect the Society from the confusion created by the life compositions. The clause on this point was one the Commissioners would not insist upon, but it was the unanimous wish of the Council that it should be agreed to. He was sorry to say the finances of the Society were in a deplorable condition. They were obliged to wash their dirty linen in public, but the Council felt that they ought not to ask the indulgence of the Fellows because they had done nothing to bring about these difficulties; they came to them as an inheritance, and he might say the Council had worked hard during the last month to get the Society out of its difficulties.

Mr. LIGGINS asked whether it was not by the Council, on which General Scott and Sir Henry Cole were sitting, that the life-composition money was first misappropriated?

Mr. HAUGHTON said the question was rather irrelevant, but he should be happy to answer it if he could. The Society at the present moment was in great financial embarrassment. They had not paid their debenture interest, and the money in hand was insufficient for the purpose. The Council felt they ought not to allow the time to pass over without setting their house in order. The agreements gave them three years—take the matter as they liked—to do that, and by that time they would not find any one in a worse position than before, except indeed the Commissioners.

Mr. GODSON: And the debenture-holders.

Mr. HAUGHTON: No; but I will come to that. The arrangement will stave off the forfeiture which was staring them in the face—a forfeiture which would involve the actual confiscation of the interest of the debenture-holders. It would enable them to pay every farthing they owed except the debenture debt, and, at the end of three years, if the Commissioners put an end to the agreement, they must take the Society's debt on their own shoulders. He had the fullest confidence in the friendly intentions of the Commissioners towards the Society. The Commissioners had shown it in their negotiations with the Council; and certainly without the great personal exertions of General Scott in the interests of the Society the Council could not to-day have presented the agreements to the meeting. The consideration of time alone seemed conclusive against the motion for adjournment. He would remind the Fellows that as time had been going on the Society had been getting worse terms. As to the bank holidays he might remark that at present on certain days the public were admitted to the gardens at a charge of twopence. The Commissioners give the Society their credit, took the responsibility of the new debt, waived the forfeiture of the lease, and made the Society a present of £2400, due next year. In return for that, what did the Commissioners ask? That the Society should admit the public on bank holidays, as they were now admitted, at a charge of twopence, or "at such a charge as shall be approved by the Commissioners." The Commissioners believed a charge ought to be fixed, so as to prevent injury to the gardens. Then with respect to the agreement as to the access, it should be borne in mind that, by the existing agreement, the Commissioners had a right to stop up the way from Kensington Gore, and to give the Society another mode of access, and to stop it up, and give a fresh one from time to time as they pleased; that being so, the Society would be better off under the new than under the existing agreement. As regarded the tenth clause, the Commissioners would not have a right to go anywhere they could not go at present. They had got the places referred to at present, and had a moral right to enter them. They had been asked why they did not pay the Commissioners? Well, after what had passed in the room on recent occasions it appeared to him that question could not have been seriously put, but put to place the Council in a state of embarrassment. Every Fellow knew there was not the slightest hope of paying the Commissioners the £2400 next year, and that if it was not paid there would be forfeiture, which meant the destruction of the Society. He might remind the Fellows that before the Society came to the South Kensington Gardens its income from subscriptions never reached £3000.

Mr. BOHN: That was at Chiswick?

Mr. HAUGHTON: Yes.

Mr. BOHN: We did not want it.

Mr. HAUGHTON: The South Kensington Gardens bring us in a larger income than they take out of our pockets.

Mr. LIGGINS: That must be a mistake; if it were so we should not be in difficulties.

Mr. HAUGHTON went on to say a fine room had been provided for the Council and members.

Mr. PINCHES then moved, "That the report and agreements laid before the meeting be approved and sanctioned."

Mr. BATEMAN seconded the motion.

The CHAIRMAN then put the motion for adjournment as an amendment to that for the adoption of the report and approval of the agreements.

The amendment was lost, nine hands having been raised for it.

Mr. GODSON said he should like to move another amendment, to the effect that the Council be requested to issue a circular to all the Fellows asking for contributions towards next year's rent. He was prepared to give £25, and a friend of his would give at least £25.

The CHAIRMAN: Do I understand you to mean that we should send a begging letter to each Fellow?

Mr. GODSON said he meant a circular asking for contributions.

Admiral HORNBY thought their position was very disgraceful, as they were liable to be put into the County Court for a few pounds; but would they be putting themselves in a better position by sending round what the Chairman characterised as a "begging letter"?

Mr. LIGGINS thought it would be well if a circular was sent to the Fellows with respect to their subscriptions, which he believed fell due in January. Last January 1200 subscriptions were not paid. He should hope that in the coming year the disunions which had become necessary would be matters of the past. They must put their shoulders to the wheel to bring the Society round, and get the amount of money they required.

The motion for the adoption of the report and agreements was then put and carried, with two dissentients.

Admiral HORNBY remarked that in the early part of the proceedings allusion had been made to the fact that one of the lately-joined members of the Council said he had a scheme for raising the subscriptions. Now, he might say he thought some of the Fellows appeared to be a little hard upon the new Council. The members did not come upon it for their own pleasure, but with the honest wish to keep these gardens for the Royal Horticultural Society. He could say the Council had worked hard to bring about the arrangements with the Commissioners, and he meant so long as he had a seat at the Council board to do his best for the Society. He had looked into the question of how the position of the Society could be raised, and he felt sure if a proper appeal were made, especially to the people of the neighbourhood, and proper regulations were made, a large sum of money would be got together. He looked upon the transfer ticket system as very objectionable. He was a holder of a four-guinea ticket which lay generally in the drawer of his hall-table, and no less than five families called and made use of it. He had taken the trouble of looking into the *Court Guide*, and found that in Princes Gate and Princes Gardens about one hundred houses did not subscribe to the Society, and yet the children and the nurserymaids from these very houses used the gardens. His idea was to raise the money by not pressing too hardly on people. They had to consider the rights of those Fellows who had bought life compositions. They must deal fairly with these gentlemen. His own impression was it would be a far fairer and better way that a Fellow should pay two guineas a year to admit him to the gardens, the shows, and everything else, but that he should not bring other people with his ticket. If he had a small family—say only his wife and himself—let his wife become a Fellow like himself. But if a man had, say, three daughters, let the gentleman pay four or five guineas a year for a "house ticket." If he was told that was too high, he answered that people who lived in squares paid four or five guineas for a "house ticket," and had not the advantages of conservatories, covered arcades, shows, reading-rooms and bands. Another idea was that all gentlemen's gardeners who held certificates from their masters could become Associates at a guinea a year, to admit them to the shows; and in that way the Society would get some £500 or £600. If they had 4000 Fellows at two guineas and 400 "house tickets" at five guineas they would have more than the £10,000. As he had been mentioned as having a scheme, it would not be a bad thing to tell them what it was, whether bad or good. Accordingly, when they had a scheme cut-and-dry they would send a circular to all the Fellows, get them distributed amongst all seedsmen, and call upon the good people of Kensington, if they value the gardens, to put their hands in their pockets and pay for them. He was sure if the gardens were done away with the value of property in the neighbourhood would be very seriously depreciated, and the enjoyment of the people much interfered with. He believed, if the whole thing was done fairly—regard being had to the vested rights of every one, and if they did their best to enlarge the sphere of the horticultural gardens—they would be supported. He should gratefully receive any suggestions, which he would put before the Council. For many years the Society had been living up to what would be to any of them ruin—spending in 1875 what they expected to get in 1876. They would be able to borrow £5000 by the liberality of Mr. Freake, who was willing to accept the security of the Commissioners. Mr. Freake said he was delighted to do it. The prizes of 1874 were not paid, while the 1875 prizes were paid, and this was what had caused the actions. As to the hurried way in which this meeting was called he might say that if it had not been so called they could not have got the sanction of the meeting to the agreements by which at all events they would be able to borrow £5000 and free themselves from the debt of £1200, which was a stain and a stigma upon the Royal Horticultural Society.

The CHAIRMAN said he was very glad to hear so good a scheme.

Mr. PINCHES asked would it be promulgated before Christmas?

Admiral HORNBY: As soon as I get the consent of the Council I shall issue a circular stating the whole scheme.

On the motion of Mr. Liggins a vote of thanks was accorded to the Council for the excellent explanations that had been given.

The CHAIRMAN, in thanking the meeting, said Mr. Haughton had done all the head-work.—The meeting then closed.

August 18.—The Hon. and Rev. J. T. Boscawen in the chair. In the absence of the Rev. M. J. Berkeley, Dr. Masters announced the awards made by the committees, and called attention to several of the more remarkable plants shown. The Crotalaria Cunninghami, shown by Messrs. Veitch, was not a subject likely to take the eye of horticulturists, but it was of especial interest to botanists from the fact of its flowers being green, one of the very few instances of green flowers known. There was also a curious fact in connection with this plant, that when dried for the herbarium its flowers, contrary to the general rule, become of an even brighter metallic green hue. Artocarpus Cannoni was a purple-coloured-leaved variety of the common Bread-fruit; and another equally elegant but less highly-coloured form, Artocarpus laciniatus metallicus, was shown. There were almost as many varieties of the Bread-fruit as there were of Apples, but they were too large for cultivation in any but the largest houses—such as in the botanical gardens at Kew and Edinburgh. Dr. Masters then commented upon a singular malformation in some specimens of the common Willow Herb, which consisted of every single part of the flower being replaced by green leaves. He could strongly recommend this as a memorial plant, for, while in all probability nine-tenths of the memorial trees planted died, and were heard of no more, the Willow Herb, whether ill-grown or well-grown, thrived all the same, and could not be beaten as a memorial plant. Specimens of Rhododendrons making a second growth, and Berberis stenophylla flowering a second time, were next shown as an illustration of the effects of the heavy rains followed by heat; and some observations were made upon the rapidity of growth of the flower-stems of Tritoma uvaria, and on the general subject of the day and night growth of plants.

Mr. David Wooster stated, with reference to the Clianthus shown, that he had recently met a gentleman who had been travelling in Australia, and had been informed that the so-called Glory Pea grew in boggy situations, which in winter were covered with water. In spring the water dries up, and the Clianthus quickly comes out in all its glory. These bogs sometimes extend for miles in length, and the brilliant colours of the Clianthus are so dazzling that the traveller can scarcely bear to look upon them. With reference to the second growth of many trees and shrubs, Mr. Wooster remarked that in Kensington Gardens nearly every tree and shrub has started into second growth, and it was to be hoped that there would be a fine autumn to ripen the wood, or they would have no flowers next spring.

Floral Committee.—Dr. Denny in the chair. This was a small and unimportant meeting, such as is to be expected at this season. First-class Certificates were awarded to Messrs. James Veitch & Son for Masdevallia Davisii, a very striking novelty, the flowers not perhaps of the largest size, but of a pure lemon-yellow colour; and for Adiantum Luddemanniana, a curiously ramose crested form of Adiantum Capillus-Veneris. Messrs. Veitch & Son also received a Botanical Certificate for Crotalaria Cunninghami, an Australian plant, allied to Clianthus, with pubescent stems and leaves, and green striped flowers; and a Second-class Certificate for Artocarpus laciniatus metallicus, a handsome cut-leaved form of the Bread-fruit from the South Sea Islands. A broader leaved, and more richly coloured form—Artocarpus Cannoni—shown by Mr. Bull, gained a similar award. Should they prove adaptable for subtropical gardening, their introduction into commerce will be gladly welcomed, otherwise we do not see how their cultivation can become general for decorative purposes. Mr. Eckford, gr. to the Earl of Radnor, Coleshill, showed several seedling Verbenas, and obtained First-class Certificates for two, namely, George Brunning, of a rich deep violet-plum colour, with a large round white eye; and The King, pinkish magenta, with a white eye, shaded with crimson. The thanks of the committee were voted to M. Louis Vieveg, Wegeleben, near Quedlinburg, for cut flowers of Clianthus Dampieri "Deutsche Flagge," a variety differing from the original type in its white, red-striped keel. Mr. R. Dean, Ealing, showed a very fine form of Phlox Drummondi named splendens grandiflora, and several seedling Tropæolums. From Mr. Turner, Slough, came a stand of twenty-four Verbenas, and cut blooms of his new seedling Roses, the Rev. J. B. M. Camm and Miss Hassard; and Mr. W. Boivell, gr. to Sir H. W. Parker, Stawell House, Richmond, showed an Amaryllis, supposed to be a hybrid between A. Belladonna and Nerine sp., of a beautiful rosy pink colour, with orange-tinted base.

Fruit Committee.—H. Webb, Esq, in the chair. Mr. Tillery, Welbeck, sent fine and richly coloured examples of his new seedling Welbeck Nectarine; and Mr. William Paul contributed a small collection of early Apples and Pears, for which he received a vote of thanks. The new Japan Radish, "Daicon" was shown by Mr. R. Dean. The flesh is white and the flavour pungent, much resembling the Californian Radish, but the variety is said by the grower to be quite distinct.

National Carnation and Picotee: *August* 13.—The unsettled weather which preceded this exhibition for a few weeks, alternating as far as the northern districts were concerned between violent thunderstorms and a steady relentless downpour, to some extent exercised an injurious influence on this show, which nevertheless proved much better than was anticipated, and the growers of the Carnation and Picotee had much reason to congratulate themselves on the extent as well as the quality of the flowers displayed. Like the meetings of the Auricula and Tulip shows, it was held under the auspices of the Manchester Botanical and Horticultural Society at the Botanical Gardens, Old Trafford, the large glass conservatory having been prepared by Mr. Findlay for the purpose, and a long stage running down the middle of the building contained the flowers. A number of ornamental plants were tastefully grouped by Mr. Findlay (an excellent practical suggestion by the way); and Messrs. J. & W. Birkenhead contributed a number of very interesting Ferns, that were likewise appropriately displayed on the exhibition stage.

The Southern growers of this fine summer flower were unable to compete, their period of bloom being past. On the other hand, a few growers living in the more exposed parts of Lancashire could not show, owing to their plants not being yet in bloom, so difficult is it to fix on a date when both the Northern and Southern growers can compete together.

All the blooms shown in the classes for six and twelve flowers were shown on cards in ordinary Carnation boxes. In the classes for three and also for single blooms, the flowers were also on cards, but placed in glass bottles of one size and height. The boxes, &c., were all arranged in regular order; and the judging was conducted on the same satisfactory system as that adopted last year, namely, by an election at the show from among growers and florists then present. One of the principal judges was Mr. E. S. Dodwell, of Picotee renown, who was most unexpectedly present at the show, and whose reappearance was most cordially welcomed by all the florists present. There is reason to believe that Mr. Dodwell will again resort to his old and favourite pursuit of cultivating the flower with which his name was so long associated.

The leading class was for twelve Carnations and twelve Picotees, distinct, shown as one stand, and five prizes were awarded, six stands competing. The best was furnished by Mr. Thomas Bowers, Bradford, the flowers being distinguished by excellent form, freshness and life in colours, and purity of the ground. The varieties were Scarlet Bizarre Dreadnought (Daniels), and Sir J. Paxton (Eley). Crimson Bizarre, Lord Raglan (Bowers). Pink and Purple Bizarre, Falconbridge, and a seedling. Purple Flake, Squire Meynell (Brabbin), Premier (Milwood), and a seedling. Scarlet Flake, Clipper (Fletcher), fine petal, and exceedingly bright and telling in colour; Sportsman (Hedderley), very bright; and John Bayley (Dodwell). Rose Flake John Keet (Whitehead), very fine. Picotees—Red-edged: Mrs. Bowers (Bowers), William Summers (Simonite), Clara Brunette, and Mr. Dodwell (Turner). Purple-edged: Jessie (Turner), Mary (Simonite), Mrs. Bayley, Mrs. Saunders, and a seedling. Rose-edged: Rev. H. Matthews (Kirtland), and Empress Eugenie (Kirtland). 2d, Mr. Joseph Beswick, Chadderton, with C.B. Eccentric Jack (Wood), Warrior, and Captain Stott (Jackson). S.B. Admiral Curzon (Eason), and Lord Napier. R.F. Rose of Stapleford (Headley) and James Merryweather (Wood). P.F. Earl of Wilton (Holland), John Mastersbury, and Squire Meynell (Brabbier). S.F. Superb and Sportsman (Hedderley). Of Picotees—R.E. John Smith, very fine, and Rev. F. D. Horner. P.E. Ann Lord (Lord), Mrs. Summers (Simonite), Mary (Simonite), Mrs. Hanaford (Simonite), Mrs. Bayley, and Nymph. Rose E. Beauty of Plumstead (Norman), Edith Dombrain (Turner), Miss Wood (Wood), and Miss Lord (Lord). Mr. Jonathan Booth, Failsworth, was 3d, with C.B. Captain Stott, Lord Raglan, and Rifleman; S.B. True Briton and Admiral Curzon; P. and P.B. Falconbridge; R.F. Uncle Tom, James Merryweather, and Laura; S.F. Sportsman and a seedling; P.F. Lady Peel. Picotees — R E. Brunette, J. B. Bryant, Countess of Wilton, Mrs. Hornby, and William Summers; P.E. Medina, Alliance, and Ann Lord; Rose E. Mrs. Davies, Scarlet Queen, Beauty of Plumstead, and Miss Wood. 4th, Mr. B. Simonite, Sheffield, with fine seedling varieties of both Carnations and Picotees, with the exception of S.B. Admiral Curzon, and S.F. Sportsman. The best stand of twelve distinct Carnations was staged by Mr. G. Booth, and consisted of S.F. Annihilator, Sportsman, and James Cheetham; C.B. Rifleman, Lord Raglan, Graceless Tom and Falconbridge; S.B. True Briton and Admiral Curzon; P.F. Juno, R.F. Rose of Stapleford and Uncle Tom. 2d, Mr. J. Chadwick, Dunkinfield, with C.B. Warrior, Milton and a seedling; S.B. Garibaldi and a seedling; P.F. Squire Merrywell and Mayor of Nottingham; S.F. James Cheetham, John Battersby, and a seedling; R.F. John Keet and Queen Boadicea. 3d, Mr. J. F. Ashton, Hollinwood, with S.B. Lord Derby and Admiral Curzon; R.F. Queen Boadicea, James Merryweather, and John Keet; S.F. James Cheetham, Firebrand, Sportsman and William IV.; and P.F. Juno. Four stands competed here. The best six Carnations came from Mr. Robert Lord, Todmorden: they were unnamed. In all special competitions of this character the naming rule should be made absolute, and its non-observance visited with disqualification. 2d, Mr. J. Booth with S.B. Dreadnought, C.B. Captain Stott, S.F. Splendour and Sportsman, P.F. Ajax, and R.F. Uncle Tom. 3d, Mr. J. Chadwick, with C.B. Warrior, S.B. Garibaldi, P.F. Mayor of Nottingham, S.F. James Cheetham, R.F. John Keet, and a seedling S.B. Five stands of flowers competed in this class. In the class for three Carnations no less than eight stands were staged, and Mr. John Bayley, Manchester, was placed 1st with S.F. Annihilator, R.F. John Keet, and C.B. Warrior. 2d, Mr. R. Gorton, Eccles, with S.B. Mercury (Hextall), S.F. John Cheetham, and C.B. J. D. Hextall. 3d, Mr. Thomas Bowen, Bradford, with C.B. Lord Raglan, P.F. Squire Meynell, and R.F. John Keet.

In the classes for single blooms of Carnations, a considerable number of flowers were staged in each. The best S.B. was Admiral Curzon, shown by Mr. J. J. Ashton; 2d, Mr. Geo. Rudd, Bradford, with the same; 3d, Mr. Thomas Bowers, with Dreadnought. The best C.B. was Captain Stott, shown by Mr. John Beswick; 2d, Mr. Jos. Chadwick, with Lord Goderich; 3d, Mr. John Bayley, with Lord Raglan. The best S.F. was Sportsman, finely coloured, shown Mr. John Bayley; 2d, Mr. G. Rudd, with the same; 3d, Mr. J. Beswick, with Ivanhoe. In the case of the best R.F. John Keet, which was both finely and numerously shown, obtained all the awards, shown respectively by Mr. Geo. Rudd, Mr. R. Lord, and Mr. John Bayley. The best P.F. was Juno, shown by Mr. Samuel Cooper; 2d, Mr. Thos. Bowers, with Squire Meynell; 3d, Mr. Geo. Rudd, with the same.

The Picotee classes were, as a whole, much more largely filled than those for Carnations. In the class for twelve Picotees not less than eight stands competed, the 1st prize being taken by Mr. Thos. Mellor, Ashton-under-Lyne, with R.E. Mrs. Dodwell and Mrs. Hornby; P.E. Mrs. Summers, Norfolk Beauty, Alliance, Mary, and Ganymede; Rose E. Edith Dombrain, Scarlet Queen, Flower of the Day, Bertha, and Miss Wood—a good stand, containing some capital flowers. 2d, Mr. Robert Lord, Todmorden, with Rose E. Seedling No. 14, a heavy-edged flower of some promise; Miss Sewell, Miss Wood, and Mrs. Lord; P.E. Mrs. Summers, Seedling No. 14, Seedling No. 28, Acme, Ann Lord, and Nymph, as the most noticeable. 3d, Mr. John Bayley, whose best flowers were P.E. Ann Lord and Nymph, Rose E. Mrs. Lord, and Elise. The best six Picotees also came from Mr. Thos. Mellor, and consisted of R.E. Edith Dombrain and John Smith; P.E. Mary, Beauty of Norfolk, and Mrs. Summers; Rose E. Princess Alice. 2d, Mr. R. Gorton, with Red E. John Smith, P.E. Ann Lord; W.E. Mary, Norfolk Beauty, and Mrs. Lord; Rose E. Flower of the Day. 3d, Mr. R. Lord, with R.E. John Smith, P.E. Ann Lord, Seedling No. 24, and Annie, Rose E. Mrs. Lord and Cynthia. Seven collections of six Picotees were staged. In the class for three Picotees there were eight stands; the best came from Mr. Jno. Beswick, the varieties being P.E. Ann Lord and Mrs. Summers, and Rose E. Beauty of Plumstead; 2d, Mr. R. Lord, with Red E. Rev. F. D. Horner, P.E. Mrs. Summers, and Rose E. Mrs. Lord; 3d, Mr. R. Gorton, with P.E. Ann Lord and Norfolk Beauty, Rose E. Mrs. Lord.

The classes for single blooms of Picotees were well filled, not less than 118 flowers competing in the six. The best heavy red-edge was Princess of Wales, shown by Mr. S. Cooper; 2d, Mr. T. Mellor, with Exhibition; 3d, Mr. R. Gorton, with John Smith. Light red: 1st, Mr. B. Simonite, with a very promising seedling; 2d, Mr. Thomas Bowers, with Mrs. Bowers; 3d, Mr. John Booth, with William Summers. Heavy purple: 1st, Mr. B. Lord, with seedling No. 24; 2d, Mr. Thos. Mellor, with Norfolk Beauty; 3d, Mr. B. Simonite, with Mrs. Summers. Light purple: 1st, Mr. R. Gorton, with Mary; Mr. Joseph Chadwick and Mr. Thomas Mellor coming 2d and 3d with the same variety. Heavy rose: 1st, Mr. R. Lord, with Seedling No. 14; 2d, Mr. Thomas Mellor, with Scarlet Queen; 3rd, Mr. Joseph Chadwick, with Princess Alice. Light rose: 1st, Mr. Thomas Mellor, with Bertha; 2d, Mr. John Beswick, with Miss Wood; 3rd, Mr. John Booth, with the same.

The following selection may be taken as representing the very cream of the flowers staged on this occasion:—Carnations: C.B. Captain Stott (Jackson), Lord Raglan (Bowers), Eccentric Jack (Wood), Lord Goderich (Gill), and Lamplighter; S.B. Admiral Curzon (Eason), Sir J. Paxton (Eley), Lord Napier, Maze (Hextall), and Dreadnought (Daniels). R.F. James Merryweather (Wood), John Keet (Whitehead), and Rose of Stapelford (Headley). S.F. Clipper (Fletcher), Sportsman (Hedderley), John Bayley (Dodwell), Superb (Ingram), James Cheetham (Chadwick), Ivanhoe and Annihilator (Jackson). P.F. Premier (Milwood), seedling (Simonite), very promising; Mayor of Nottingham (Taylor), Earl of Wilton (Holland), and Juno (Baildon). P. and P.B. Rifleman (Wood), but generally classed with the C.B.'s. A very promising seedling R.F. was also shown by Mr. Thomas Bowers. Picotees: Rose E. Fanny Crossland (Simonite), a finely-shaped flower with medium edge; Edith Dombrain (Turner), Mrs. Lord (Lord), Beauty of Plumstead (Norman), Bertha, Miss Wood (Wood), Empress Eugenie (Kirtland), and Mrs. Allcroft (Turner). Red E. John Smith, Princess of Wales (Fellows), Mr. Dodwell (Turner), Brunette and William Summers (Simonite). Purple E. Mrs. Summers (Simonite), Norfolk Beauty (Fellowes), Ann Lord (Lord), and Mary (Simonite).

A First-class Certificate was awarded to Mr. Frederick Perkins, Regent Street, Leamington, for a large primrose-coloured Clove Carnation of fine shape; and the same award was made to Mr. Richard Dean, Ealing, W., for fine examples of his new Stock, Mauve Beauty. This exhibitor also set up bunches of flowers of about twenty varieties of the leading bedding Violas, which were much admired. Mr. Potts, The Gardens, Manley Hall, had a fine collection of fruit, including some splendid examples of Madresfield Court Grapes; and Mr. J. Broome, Didsbury, contributed cut flowers of Orchids, conspicuous among which was Cattleya gigas. (*From a Correspondent.*)

Coventry and Warwickshire Floral and Horticultural: *August* 17.—For the last twelve years this Society has held its summer meetings, by the kind permission of the Earl of Craven and Lord Leigh, alternately in the parks and gardens of Combe Abbey and Stoneleigh Abbey respectively. For the support of this Society and the encouragement of horticulture generally, we are proud to observe those noble lords show so exemplary and so philanthropic a spirit as to throw open the gates of their parks and private gardens on these occasions for the pleasure and enjoyment of the multitude. Long may such kindly feeling prevail between the working-classes and the Upper Ten Thousand. Than meetings such as these nothing tends better to beget kindly feelings on the one side, and a due appreciation of such kindnesses on the other. Therefore, for the cause of horticulture in this neighbourhood, and for the enjoyment

of the multitude generally, the thanks of all concerned are most especially due to the Earl of Craven and to Lord Leigh. Regarding the Society itself, it has been in existence for many years—more than we are aware of—with more or less success, tending very much to encourage and engender a taste for all things horticultural in the neighbourhood. Success in the culture of any specialty, and exertions in this direction are by the timely and encouraging awards of this Society fanned into enthusiasm, which has tended greatly to produce a love for and to elevate the cause of horticulture in this part of Warwickshire, arousing a keen competitive spirit in Coventry and neighbourhood, Kenilworth, Warwick, Leamington, Rugby, and other smaller towns and villages. Ample proof of this was very apparent at this meeting, in the extraordinary productions in every class to which competition was invited by a liberal and well-prepared schedule.

The great success of this Society lately arises wholly out of the very liberal returns of their Combe and Stoneleigh meetings, and which has this year induced the committee to offer some very liberal special prizes for fruit :—A prize of £10 for a collection of fruit, £5 for three bunches of black Grapes, and £5 for three bunches of white. The 1st prize of £10 for the best collection of eight dishes of fruit was cleverly won by Mr. Coleman, gr. to Lord Somers, Eastnor Park. His collection consisted of a good Smooth Cayenne Pine, excellent Black Hamburgh and Muscat Grapes, Peaches and Nectarines, Apricots, Plums, and a Melon. The 2d prize was awarded to Mr. Potts, gr. to R. N. Phillips, Esq., Welcombe Park. This collection consisted of very fine Hamburghs and Muscat Grapes, very fine Nectarines and Peaches, Plums, Melons, Figs, and Cherries. The 3d prize was awarded to Mr. Bannerman, gr. to Lord Bagot, Blithfield, whose collection consisted of a good Queen Pine-apple, Muscat and Hamburgh Grapes, Peaches, Nectarines, Apricots, Plums and Cherries. This prize brought seven competitors, all well represented. For the best three bunches of black Grapes, the 1st prize of £5 was awarded to Mr. Coleman, of Eastnor Park, with very nicely coloured Hamburghs; the 2d prize was awarded to Mr. Parks, gr. to James Marriott, of Coventry, who also had very good Hamburghs; and the 3d prize to Mr. Potts, of Welcombe. For the three bunches of white Grapes, the 1st prize of £5 was awarded to Mr. Bannerman, of Blithfield; the 2d to Mr. Goodacre, gr. to the Earl of Harrington, Elvaston Castle; and the 3d to Mr. Potts. The above formed the new element in the schedule of the Society, and which we hear is likely in future years to be repeated. This example, taken up by other societies in the midland counties, affords excellent opportunities for young gardeners to win their spurs without having to take their fruit all the way to London, to run the risk of obtaining a miserable 1st prize, such as hitherto has been offered by the London societies. The cold encouragement and still colder reception given to gardeners by officers of societies and others when in London is likely now throughout the country to produce some good fruit. This was a change much needed, for we ourselves have a lively recollection of the assumed airs and graces of the officers of those metropolitan societies, and we have specially to thank the horticultural press for so kindly giving publicity to the awards made at the meetings of the provincial societies.

The prizes in the plant department of this meeting was, as usual, well represented and well carried out, and are fully noticed by the local press. About 10,000 people visited the grounds, and we are pleased to be able to state that, with the exception of a good trampling to the croquet ground, which was tender in turf from the effects of recent rains, not a leaf, plant, or tree throughout the grounds was disturbed. (*From a Correspondent.*)

ROYAL VISIT TO SHEFFIELD.

THE people of Sheffield gave the Prince and Princess of Wales a splendid reception on Monday last. The fronts of houses were scrubbed and painted, and plants and flowers gave a new life to many otherwise dingy dwellings. The square in which is situate the seed shop of Messrs. Fisher, Holmes & Co. had at three points archways covered with bark, and covered from top to bottom with Ferns. They contrasted well with the great display of flags and banners everywhere about them. The mode in which Mr. John Wills had decorated the railway-station and the approach to the hotel, together with the waiting rooms set apart for the Prince and Princess of Wales, was indeed a great surprise to the people of Sheffield, who had never before seen anything like it. That in the course of a few days their smoke-blackened, dingy, and ugly station, should have been transformed into "a palace fit for fairy prince" was astonishing. The interior of the roof was painted soft grey, blue, and white, and the walls were draped with crimson cloth. Then came festoons of evergreens lavishly hung in the roof, with graceful curves extending in all directions. One bold waved line extended from one end to the other of the station wall, hanging just below the roof, and within each bend was a large medallion of flowers fringed with Fern fronds; while below the line, in each angle of the wreath, was a bold trophy formed of varicoloured flags. The line of floral bells suspended from the roof was one of the happiest features in these decorations. They were over thirty in number, and were suspended in a line from the roof by pendants of evergreens. Each bell was formed of two wire frames shaped as a bell; the larger one had a layer of green moss spread over its inner surface, and the other was placed within it, keeping the moss tight and secure. Fronds of Ferns were placed over the outer surface, and it was then coated with flowers—rings and bands of scarlet, white, and pink Zonal Pelargoniums being employed for the purpose. A portion of the inner surface of the bells was similarly decorated; and a tongue was suspended from each, formed of scarlet, pink, and blush flowers of Gladioli. The effect of this line of bells was very charming. Groups and banks of plants were introduced in various places, fringed with gay flowering plants in lines and masses; but whether the space filled was large or small, the graceful curved line was maintained. Huge Palms, Rhopalas, Dracænas, &c., mingled with smaller examples of the same, Crotons, &c., and relieved by an abundance of fine plants of Lilium auratum and L. speciosum, formed these groups. In the centre of the platform were three blocks of seats draped with crimson cloth, the centre one being in the form of half a circle. About a foot or so above the level of the platform there was a bank of green moss formed of Selaginella denticulata sloping upwards, with a narrow background of small Palms, and Crotons, and Fuchsia Sunray. Traced on the green moss was the sentence :—"Long live our noble Prince and Princess," the letters being formed of white Cloves. Large vases of flowering plants occupied piers at the extreme ends of the seats from the centre, and these were filled with flowering plants, margined with Hedera palmata. The platform was covered with blue carpeting with the Prince of Wales' plume in silver as a pattern. The corridor leading to the Victoria Station Hotel was ornamented with festoons of evergreens and medallions of flowers; and lined with groups of plants tastefully arranged. The reception rooms had the fireplaces and corners occupied with plants, tints of foliage blending with the hues of flowers; the mantelpiece had elegant Palms apparently growing out of a gently undulating bed of Selaginella denticulata, which was studded over with clusters of blossoms of Stephanotis floribunda, intermingled with those of Eucharis amazonica. The exit from the hotel was finely decorated with large groups of plants, and about the station yard were placed large standard Bays and Hollies in tubs, which greatly relieved its otherwise naked and exposed appearance.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, AUGUST 18, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Aug.	In.	In.	°	°	°	°	°	°			In.
12	29.63	—0.13	72.1	59.3	12.8	63.5	+ 1.3	59.7	88	S.: W.: WSW	0.12
13	29.66	—0.10	77.1	56.4	20.7	63.3	+ 1.1	58.3	84	S.W.: W.	0.02
14	29.89	+0.12	78.6	58.6	20.0	65.6	+ 3.6	57.1	75	S.: S.S.W.	0.00
15	30.02	+0.25	76.1	59.0	17.1	65.2	+ 3.5	59.9	81	S.W.	0.00
16	29.89	+0.11	86.2	59.4	26.8	71.8	+10.4	58.1	62	S.S.E.: S.	0.00
17	29.80	+0.02	83.0	62.6	20.4	71.4	+10.2	51.3	50	S.W.	0.00
18	29.91	+0.12	75.8	60.2	15.6	65.7	+ 4.7	52.8	63	WSW: W.: WNW	0.00
Mean	29.83	+0.06	78.4	59.3	19.1	66.6	+ 5.0	56.7	72	S.W.: W.	sum 0.14

Aug. 12.—Overcast, dull, occasional rain in morning. Fine and bright afterwards.
— 13.—A fine day, dull and cloudy at times. Little rain fell in early morning.
— 14.—A fine day, though cloudy at times.
— 15.—A very fine day.
— 16.—A fine clear day. Very hot.
— 17.—A very fine day, nearly cloudless. Hot.
— 18.—A fine warm day. Cloudy at intervals. Slight shower of rain at 6 P.M.

— During the week ending Saturday, August 14, in the vicinity of London, the reading of the barometer at the level of the sea increased from 30.04 inches at the beginning of the week to 30.07 inches by the morning of the 8th; decreased to 29.81 inches by the morning of the 9th; increased to 29.90 inches by the evening of the same day; decreased to 29.81 inches by the afternoon of the 10th; increased to 29.95 inches by the evening of the 11th; decreased to 29.76 inches by the afternoon of the 12th; and increased to 30.16 inches by the end of the week. The mean reading for the week was 29.92 inches, being 0.15 inch lower than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged from 72° on the 12th, to 78¾° on the 14th; the mean value for the week being 75¼°. The lowest temperatures of the air varied between 61¼° on the 11th, and 56½° on the 13th; with a mean for the week of 59°. The mean daily range of temperature in the week was 16½°; varying from 20¾° on the 10th and 13th, to 12¾° on the 12th.

The mean daily temperatures of the air and the departures from their respective averages were as follows :—8th, 66°, + 4°; 9th, 65°.4, + 3°.3; 10th, 64°.8, + 2°.7; 11th, 65°.1, + 2°.9; 12th, 63°.5, + 1°.3; 13th, 63°.3, + 1°.1; 14th, 65°.6, + 3°.6. The mean temperature for the week was 64°.8, being 2°.7 above the average of sixty years' opservations. The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 141° both on the 10th and 14th, on the 11th and 12th 127¼° was the highest reading. The lowest readings of a thermometer on grass, with its bulb exposed to to sky, were 54° and 55° on the 13th and 14th; on the 11th 59¼° was the lowest reading. The mean for the seven low readings was 55¾°. The direction of the wind was S.W., and its strength gentle. The weather during the week was fine, cloudy, and showery.

Rain fell on six days; the amount collected was 0.21 inch.

In England, the extreme high temperatures observed by day ranged between 79° at Sunderland, and 70° at Newcastle-on-Tyne, that at Blackheath being nearly the maximum, 78¾°; the general average all over the country was 74°. The extreme low temperatures observed by night varied from 56½° at Blackheath, Birmingham, and Leicester, to 50° at Newcastle-on-Tyne, the general average being 53¾°. The mean of the extreme ranges of temperature in the week was 20¼°, the greatest range being 26° at Sunderland, and the least 15¾°, at Truro and Liverpool. The mean high day temperatures varied between 76¼° at Cambridge and 66¼° at Bedford, with an average value of 70¾°. The mean low night temperatures ranged from 59½° at Birmingham to 52½° at Newcastle-on-Tyne, the general average being 56¾°. The mean daily range of temperature in the week was 14°, varying from 17¾° at Cambridge to 9½° at Truro.

The mean temperature of the air for the week was 62°, being 5½° higher than the value for the corresponding week in 1874. The highest mean, viz., 65½°, occurred at both Blackheath aud Cambridge; and the lowest, viz., 57¾°, at Newcastle-on-Tyne. Rain fell every day at most stations; the amounts were generally large, except at Blackheath and Cambridge, where the falls were both only a quarter of an inch. At other stations the amounts varied, from 3 inches at Nottingham and Newcastle-on-Tyne, to 1 inch at Bristol; the average fall over the country being 1½ inch. The weather during the week was tolerably fine, somewhat warmer than the preceding week, but showery. Thunderstorms occurred at one or other stations on the 9th, 10th, 12th, and 13th instant. On the 9th a fearful thunderstorm occurred at Lleyn, Carnarvonshire, doing considerable damage; on the same morning a violent thunderstorm passed over the West Riding of Yorkshire—in Bradford great darkness prevailed for nearly an hour, and rain fell in torrents, the flashes of lightning being very vivid. The rivers Hodder, Calder, and Ribble overflowed their banks and have done considerable damage. In the low-lying parts of Blackburn the mills, workshops and houses have been flooded, through the heavy rain that fell on the night of Sunday, the 8th inst.

In Scotland, the highest temperatures ranged from 73° at Dundee to 68° at Greenock. The lowest temperatures varied between 53¼° at Leith and 50° at Glasgow, the averages being 69½° and 52° respectively. The mean range of temperature in the week was 17½°. The mean temperature of the air for the week was 59°, being 2¾° higher than the value for the corresponding week in 1874. The highest mean was at Dundee, 59½°, and the lowest at Glasgow, 58¼°. Rain fell at Glasgow, Dundee, Aberdeen, Greenock, and Leith to the amount of half an inch nearly. The average fall over the country was four-tenths of an inch.

At Dublin the highest temperature was 74¼°, the lowest 48¼°, the mean 62°, and the fall of rain 1.37 inch.

JAMES GLAISHER.

Obituary.

Died, on August 15, in his sixty-seventh year, Mr. Thomas Taylor, of the firm of Webber & Co., Covent Garden Market. It is with great regret that we make this announcement, for in Mr. Taylor's death we have lost an old and valued contributor, and horticulture a most worthy devotee. Mr. Taylor has been connected with Covent Garden Market for over thirty years, and for more than twenty years has regularly furnished the market report for this journal. He was a prime mover in the formation, about the year 1854, of the British Pomological Society, and was a member of the Fruit and Vegetable Committee of the Royal Horticultural Society from the formation of that body, in 1858, down to a year or two ago, when he resigned, from inability to attend its meetings. He has been for many years a warm friend and supporter of the Gardeners' Royal Benevolent Institution, serving attentively on its committee of management, auditing its accounts, and materially contributing to the success of its annual festivals by liberal contributions of fruit.

The Villa Garden.

Fuchsias.—One of the most commonly grown of greenhouse plants for flowering during the summer is the Fuchsia; and no conservatory can be said to be complete without Fuchsias and Pelargoniums, because of their brightness and effectiveness. A few plants, if properly managed, can be made to yield a succession of flowers right up to the advent of winter.

Now it is not difficult to grow Fuchsias into nice plants, and have them well-bloomed at the same time: it is a simple and pleasant process, and, excepting the Zonal Pelargonium, perhaps there is no other plant that so well repays the cultivator for his outlay of labour. And where accommodation is limited, and but little time can be devoted to the garden, the Villa gardener naturally enough desires to have something that can, to some extent, take care of itself, provided it be not too long neglected.

Our Fuchsias now in flower may be appropriately divided into two batches—plants that flowered last year and were kept through the winter, and those grown from cuttings struck in early spring. By means of a little management the latter, which were the latest to come into flower, will continue in bloom till summer changes to the decay of autumn, and dying leaves lie thick in woodland ways.

We experienced some difficulty in keeping any of the former batch of plants in our unheated glass structure through the severest part of last winter. Those that passed through the ordeal of cold and frost unharmed broke into growth in early spring, as soon as they were freely watered; and with the first signs of growth the plants were taken out of the pots in which they had been wintered, a good deal of the soil was shaken from the roots, which were also trimmed, and the plants re-potted into 32-sized pots. They then had the cosiest part of the greenhouse, and throwing out young growths soon come into flower, and continued blooming till the middle of July, when the flowers were all plucked off and the plants encouraged to make lateral growths, which they are now doing; and these young growths will flower through September and October. Thus our first batch of Fuchsias will also discharge a second term of floral service.

No one can follow the pursuit of gardening according to the most elementary rules without coming into contact with small but valuable experiences that gardeners term "wrinkles." One of these "wrinkles" in relation to the culture of Fuchsias is, not to trouble with plants more than a year old or so. Plants of older growth, with old, well-ripened wood, require some artificial heat to induce them to break into growth early, which they do not do in a cold house, especially if there be the absence of solar heat. For the future—and we have commenced to do it this year—we shall put in cuttings early in August, and use these for the early bloom in the following spring. We have taken off some shoots of young growth, and inserted them round the sides of 60-pots, using some fine light sandy soil, and have placed them in a warm corner of the greenhouse, giving them some shade during the hottest portion of the day. These cuttings will soon strike root, and then they will be potted into 60-pots, and encouraged to make all the growth possible during the autumn. Water will be withheld at the approach of winter, and the wood hardened off by keeping the plants dry, with only sufficient moisture to keep them alive. Such plants will be excited to root-action much earlier in the spring than older plants, such as those above described.

Our second batch of Fuchsias is made up of plants struck in early spring, and shifted into large 60-pots, in which they came to us. They were then repotted in 48-sized pots, and the flowering-buds kept pinched off to encourage growth. They were again shifted into 32-pots, and generously treated, and now they are coming into fine bloom, and will improve every day. These also will come in well for early blooming next spring.

The following are our choicest varieties, and they represent a collection somewhat select, and well worthy of cultivation:—Avalanche, red tube and sepals, and dark double corolla; Noblesse, scarlet tube and sepals, and rich violet-purple double corolla; Victor, in the same way, but of great size; Victoria, red tube and sepals, indigo-purple corolla flaked with pale red, also double; Arabella Improved, Delight, Venus de Medici, Fair Maid, and Lustre, all fine single varieties, with white tube and sepals, and pink, carmine, and red corollas; Albo-coccinea, the tube red and sepals deeply edged with white, distinct and very pretty. In addition, such species as F. corymbiflora, F. fulgens, F. pumila, F. globosa, and F. microphylla. The group of species just named are very interesting indeed, and Villa gardeners who have a greenhouse should find room for the beautiful F. fulgens, which is really a superb Fuchsia. We saw it a few days ago in a small forecourt garden in one of the steep streets in Newport, Monmouthshire, growing luxuriantly and flowering freely.

Large Flowered Pelargoniums.—Cuttings of these should now be taken, if not already done, in order to have a supply of young plants for the following season. Our plants have been standing in the open air to ripen their growth before being cut down for cuttings; for it is important that the wood be thoroughly matured of which it is intended to make cuttings. Our cuttings have been pricked off into our cutting box, which is somewhat elevated under a north wall and well drained. They can also be inserted in 48-pots, putting eight or ten cuttings into a pot, and placing the pots on a shelf in the greenhouse. The cuttings are not long in making root, and when they begin to show they have struck root by making an upward growth they may be shifted singly into small 60-pots, using a soil made up of fibry yellow loam, plenty of leaf-mould and sand. Care must be taken that the pots be well drained. The pots can be safely wintered on a warm shelf in a greenhouse, or in any dry place that is moderately airy, and where frost will not harm the plants. If greenfly affects them during the winter, as it will plants that are kept close, a little soft soap and water will soon cleanse the leaves, or they may be fumigated with tobacco smoke, which will not only rid the plants of this pest, but slaughter the fly into the bargain.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Plant Stove.—The earliest lot of autumn and winter-flowering *Poinsettias*, *Thrysacanthus rutilans*, *Euphorbia Jacquiniæflora*, *Plumbago rosea*, *Eranthemum pulchellum*, and *Sericographis Ghiesbreghtii*, will by this time have filled their flowering pots with roots. It is not desirable to give such things as these, that are usually grown from cuttings struck every year, large pots, as they are neither handy, pleasing in appearance, nor conducive to the production of a quantity of bloom in proportion to the increased size. The proper course of treatment for some time now is to keep the plants with their heads all but touching the glass in a light house or pit, with as much air during the day as will induce a stout, short-jointed description of growth. Leave a little air on at nights when the weather is not cold, the object being now to get the plants as well ripened as possible; as proportionate with this will be their ability to produce flowers in quantity when the time comes for bringing them into bloom. Although there is no necessity for treating the subjects under consideration in a way to cause them, from this time forward, to make the greatest possible amount of growth, yet a moderate use of manure-water will be necessary to induce them to keep their bottom leaves in a green healthy condition: not only is it requisite to retain these for appearance, but also to enable the plants to produce their full complement of flowers, which, other things being equal, will be in proportion to the leaf power they possess.

On no account must plants that have fully filled their pots with roots be allowed to want for water, as through this they are sure to suffer in their leaves, much more than in the earlier stages of their growth. Any deficiency of water always has a tendency to encourage red-spider; should this pest make its appearance the affected plants should be immediately dipped in a weak solution of Gishurst—2 oz. to the gallon is strong enough to destroy the insects: with a tub sufficiently large to take the tops of the plants overhead a great number can be gone through in a few hours. Later struck stock of the above things that are now in full growth must be encouraged, by receiving all necessary attention, to enable them to complete it. Flowering stove plants that some time back were removed for decorative purposes to the conservatory—where in ordinary summers they can be kept so long as the weather is warm without receiving injury—will, during the present cool, dull season, require considerably more than ordinary care; for, although some days are hot, many of the nights are unseasonably cold, causing the necessity of keeping tender things well away from where air is admitted, as the effects of cold air are greatly intensified when it comes in a rapidly moving volume immediately upon the plants. Heat-requiring subjects are not so liable to injury from being in a much lower temperature than they will grow in for a short interval, such as an occasional cold night, if the intervening days are sufficiently warm to bring the atmosphere of the house they occupy up to a point sufficiently high to set the sap moving freely; but when we have several days in succession much cooler than the average summer weather, it is then that stove plants suffer the torpor produced by continued cold, evidently telling adversely upon them in a way that it does not if they get warmed up once in the twenty-four hours. When a considerable number of tender stove subjects are in the summer placed in the conservatory, and a spell of cold weather occurs, it is advisable then to use a little fire-heat; this will not only keep the plants from suffering permanent injury, but also prolong their flowering. The temperature need not be so much raised as to excite anything that does not require heat. During cool weather it is also necessary to give water very sparingly to stove plants in such situations, and what is used should be a temperature of 90°. This will be much more conducive to their well-being than if applied considerably cooler. Fine-leaved stove plants at this season used for conservatory decoration should also be sparingly supplied with moisture at the root. Most of these will bear to be kept drier than flowering subjects, as the latter are sometimes liable to drop their blooms if kept too dry. An exception to this kind of treatment must be made in the case of *Palms*, that will not bear to be so dry as many plants, or the leaves turn yellow—a condition from which it is not easy to bring them round. Now that *Anthurium Scherzerianum* is getting plentiful, and considering that it is so easily raised from seed, a number of this highly coloured Aroid should be grown wherever there is a conservatory to be kept gay. This plant does not require near so high a temperature to grow in as is usually employed, consequently it can be kept through the summer in an ordinary conservatory, where its bright red spathes, backed up by green foliage, are seen to advantage. If, as has before been advised, a good stock has been grown of *Æchmeas fulgens* and *discolor*, the persistent coral-red flowers of these will be now most effective for standing in front of taller plants, associated with such things as *Adiantum cuneatum* and *Lycopodium cæsium*—the latter grown in 8 or 9-inch pots, on which are placed small pyramidal wire trellises, a foot in height, filled with sphagnum, over which the *Lycopodium* is trained so as to cover the surface thickly; the effect of the red flowers contrasted with the green of the *Adiantums* and metallic hue of the *Lycopodiums*, is very good. *T. Baines.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—Flower beds will now be be covered with their summertide beauty, and every effort should be made to keep them as perfect as possible, to compensate in some way for the lateness of the display. With this end in view it will be necessary to go frequently over the plants to remove any dead or decaying leaves or flowers, and to trim, peg, or regulate the growth of such things as *Petunias*, *Verbenas*, &c. All seed-pods should be removed immediately they are formed, for if allowed to remain they tend greatly to the exhaustion of the plant and check the further formation of bloom. Any beds showing signs of exhaustion should have a thorough soaking of manure water, and be kept well supplied with this and clear water as occasion requires. In the case of *Pelargoniums*, except such as are grown for the beauty of their foliage, water should be rather sparingly given them, otherwise, as plants of that class having somewhat succulent stems produce much more bloom if kept rather on the dry side than they would if encouraged to make growth too freely, in all cases when water is given it should be in sufficient quantity to soak the whole of the soil as deep as the roots penetrate, and after this the beds should be left till they require it again. Such thorough waterings are far preferable to frequent dribblets, that are sure to bring the roots to the surface, where they soon perish. After watering, if the beds are not mulched, the Dutch hoe should be run over the surface or it will become encrusted and crack, thereby allowing the moisture to escape. Any defects in the present season's arrangements should be fully noted, that they may not be repeated again next year, and any alterations intended should now be decided on, so that an increased or diminished quantity of any

particular variety likely to be needed to carry out the contemplated alteration may at once be provided. No time should be lost in getting in the necessary stock of the different varieties of Pelargonium, so as to give time to get them thoroughly established before the winter sets in. In taking cuttings of these it will be necessary to exercise some little care to avoid making gaps and disfiguring the beds, but by a little judicious thinning their appearance may be considerably improved, and the flowering period greatly prolonged. Owing to the heavy rainfall during the greater part of July herbaceous *Phloxes* have been unusually fine, and this points to the necessity of planting such things in deep moist soil, and of giving them abundant supplies of water while developing their large heads of bloom. Choice varieties of these should now be propagated, either by division or cuttings, and such things as *Primroses*, *Daisies*, *Polyanthus*, *Forget-me-Nots*, *Gentians*, &c., may be readily increased in the same way. Considering the great beauty of the latter, it is much to be wondered at that it is not more frequently met with, forming, as it does, one of the most effective edgings for spring bedding that it is possible to have. The generality of flower seeds can always be purchased at such a cheap rate that it is seldom worth spending time to collect and dress the small quantities required in private establishments unless from any new or choice varieties, or such as may appear to be improved forms. Where it is desirable to save such as the above, or any that are of special interest, the plants must now be watched, and the seed-pods gathered as they come to maturity. *Roses* promise to be abundant and fine this autumn, but unfortunately mildew is generally very prevalent at that season, and means should be taken to arrest its progress the moment it makes its appearance, or it will be found to spread rapidly, and destroy the greater part of the bloom. Soot and sulphur dusted on while the trees are moist from the night dew is perhaps the best remedy, syringing the same off again after it has done its work, so as to thoroughly cleanse the foliage. Should dry weather continue, liberal supplies of manure-water will be necessary to assist them to make free growth. *Maréchal Niel*, *Cloth of Gold*, *Gloire de Dijon*, *Climbing Devoniensis*, and such-like varieties should now have all the old flowering wood cut out, and sufficient of the medium-sized young shoots laid in to replace them for flowering next season. All the above flower much better if treated in this way than they do if spurred or pruned closely in, which in their case only induces gross wood. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

THE ORCHARD HOUSE.—Where *Apricot* trees are grown in pots in this structure, they will generally by this time have ripened their crop of fruit, and as soon as this is all gathered the trees may with advantage be removed into the open air, and should be placed in a situation fully exposed to the influence of the sun, in order that their young wood and fruit spurs may be thoroughly ripened. They should also be well syringed every evening for some time, in order to thoroughly clean the foliage. It may also be advisable to cover up the pots with dry littery manure, or any similar material, to prevent rapid evaporation from the surface and sides of the pots. In some respects this is better than plunging the pots in the soil, which may, however, be done, only care should be taken to prevent the entrance of worms. The fruit of the *Fig* is generally produced progressively, and they are this season exceedingly abundant, so that it is necessary that the trees should be examined daily, as the fruit, if not gathered as soon as fairly ripe, begins to decay and soon becomes unfit for use. When the first crop of this fruit has been gathered, the foliage of the plants should be well cleaned, and to do this properly it may be necessary to use a sponge, together with a small portion of soft soap, and afterwards they should be well syringed several times, when they should be placed by themselves in the warmest part of the house. Or, if convenient, they may be placed in a separate structure, if such can for a time be devoted to them, where a somewhat genial temperature could be maintained, with a view to the ripening of a second crop of fruit. *Peaches* and *Nectarines* now becoming ripe must never be allowed to drop from the trees, even into a net, if this can possibly be avoided. Let an examination of all trees in pots or planted out take place at least daily, and remove carefully the ripe fruit with the hand; and as soon as the trees are cleared of their fruit, if grown in pots or tubs, they should be removed into the open air at once, and their foliage cleaned, &c., as has been already recommended in the case of the Apricot. In cases where the trees are planted out in prepared borders or beds of soil, and consequently cannot be turned into the open air, they must, however, as soon as the fruit is gathered from them, be repeatedly syringed, in order to free the foliage, &c., from the ova of red-spider, aphides, &c. Where *Pear trees* are grown in pots, a portion of them may now be placed in the open air, as this will be likely to improve the flavour of the fruit; and a portion of some kinds may also be placed behind a north wall, with the view of retarding the ripening process, and thereby considerably prolonging the season of particular varieties. It is always advisable to do this in the case of certain early sorts, which will only keep for a short time after they are ripe. Where the *Royal Muscadine* or other hardy variety of the Grape Vine is trained above the paths, or in any other suitable position, the fruit will now be nearly ripe, but will, at the same time, remain in good condition for a considerable length of time. But the fruit must be kept dry, so that syringing must in the case of the Vines be discontinued. The removal of a considerable portion of the potted trees from this house will afford increased space to others, which it may be necessary to retain for some time longer, such as the various late varieties of the *Peach* and *Nectarine*, *late Plums*, such as *Coe's Golden Drop*, also *Fig trees*, swelling off a second crop of fruit. Little pinching or stopping of shoots will now be necessary, although after this time gross shoots may occasionally develope themselves, and such may be stopped or removed at once, as may be thought best. All fruit trees, whether in pots or planted out, should be kept somewhat dry as their fruit approaches a ripened condition, without, however, withholding water altogether. Abundance of air should at the same time be given by night as well as by day, unless during the prevalence of high wind. Birds and insects must be excluded by the use of the hexagonal netting, or some other suitable material. *P. Grieve, Culford, Bury St. Edmunds.*

Answers to Correspondents.

FILBERTS: *H. & C.* The statement that Filberts will not bear fruit near the sea-side is not established by facts.

GREENHOUSE: *Amateur.* Should consult some of those who advertise in our columns, who would give an estimate of the cost. A low span-roofed house would be best, and for heating nothing is so good as a small hot-water apparatus.

LAWN MOWER: *W. W. M.* We know of no better machine than the first you mention, if it is only fairly treated.

NAMES OF PLANTS: *W. M. R.* 1, Dolichodeira tubiflora; 2, Celsia Arcturus; 3, Erigeron speciosum; 4, Achillea Ptarmica flore-pleno.—*W. Wilkin.* Gypsophila paniculata. — *R. M.* Aeranthus distichus.—*H. J. C.* Your Fern is very remarkable; please send it again when more advanced.—*R. B.* 1, Polemonium cœruleum, var. album; 2, Cassandra calyculata; 3, Verbascum Chaixii.—*B. G.* Olea europæa.—*P. H. G.* Dendrobium breviflorum, Lindl. — *R. G.* 1, Aster (§ Machæranthera) tanacetifolia; 2, Thelesperma scabiosoides. — *Hector.* 1, Mahemia pulchella; 2, Galeg aofficinalis. — *W. P.* Myoporum lactum. — *J. W. W.* Leaves only—they appear to be, 1, Virgilia lutea; 2, Syringa Josikæa.—*A. E. Y.* Apparently Allamanda Hendersoni, but the specimen gives no indication of the habit and foliage.—*S. B. D.* Eccremocarpus scabra. The Myosotis is in all probability M. sylvatica.

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time.

CATALOGUES RECEIVED.—Shepherd & Co. (Darling Nursery, and 423½, George Street, Sydney), Catalogue of Plants and Seeds. — Vilmorin, Andrieux & Co. (4, Quai de la Mégisserie, Paris), Catalogue of Flower Seeds, and also Catalogue of Bulbs, &c.—Shepherd & Co. (Darling Nursery), Special Wholesale Price List.—James Carter & Co. (237 and 238, High Holborn, London), Catalogue of Dutch Flower Roots, Plants, Roses, &c.—William Cutbush & Son (The Nurseries, Highgate, London), Catalogue of Bulbs, &c.—Peter S. Robertson & Co. (33, St. Andrew Square, Edinburgh), Descriptive Catalogue of Dutch Flower Roots. — Alfred Legerton (5, Aldgate, London), Wholesale Catalogue of Dutch and other Flower Roots.—Thomas Milner (102, Godwin Street, Bradford), Catalogue of Flower Roots, &c.

COMMUNICATIONS RECEIVED:—R. D.—W. E.—R. M.—E. R.—J. R. J.—W. A. J.—T. B.—W. W.—P. B. (thanks).—J. E. B.—J. R. P.—O. T.—J. F. R.—D. W. B.—J. C. & Son.—T. S.—D. T. F.—E. H. W.—C. E. F.—A. B. M.—A. W.

MARRIED.—On the 12th inst., at St. Botolph's, Bishopsgate, by the Rev. Wm. Rogers, M.A., Rector, WM. DAVIS PARNALL, of Bishopsgate Street, to MATILDA, youngest daughter of WM. L. GOAD, of Bishopsgate Street Within.

Markets.

COVENT GARDEN, *August* 19.

The choicest descriptions of fruit, &c., in the retail markets may be quoted as follows:—Oranges, 2*s.* doz.; Lemons, 1*s.* 6*d.* doz.; Figs, 3*s.* and 4*s.* doz.; Peaches (outdoor), 3*s.* to 6*s.* doz., (hothouse), 10*s.*, 15*s.*, and 20*s.* doz.; Apricots, 2*s.* to 4*s.* doz.; Plums (Green Gages, &c.), 1*s.* 6*d.* to 2*s.* per punnet; Pears (William), 2*s.*, 3*s.*, and 4*s.* doz.; Apples (Astrachan, &c.), 1*s.*, 2*s.*, and 3*s.* doz.; Grapes (black and white), 2*s.* to 6*s.* lb.; Melons, 3*s.*, 4*s.*, and 6*s.* each; Tomatos, 2*s.* to 3*s.* doz.; Mulberries, 1*s.* per punnet; and Pines, 5*s.* to 6*s.* lb.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	1 6	Lemons, per 100	8 0	12 0
Apricots, per doz.	0 9	2 0	Oranges, p. 100	10 0	20 0
Cherries, per lb.	0 6	1 6	Peaches, per doz.	2 0	15 0
Currants, red, ½-sieve	2 0	4 0	Pine-apples, p. lb.	2 0	5 0
— black, p. ½-sieve	3 6	5 0	Plums, per bushel	3 0	4 0
Figs, per doz.	1 0	3 0	Strawberries, per lb.	0 4	1 6
Grap per lb.	1 0	5 0	Walnuts, p. bush.	16 0	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Horse Radish, p. bun.	3 0	5 0
Aubergines, per doz.	4 0	..	Leeks, per bunch	0 2	0 4
Beans, French, per bushel	6 0	..	Lettuces, per score	1 0	..
— broad, per bushel	3 0	..	Mint, per bundle	0 4	..
— Scarlet Run., do.	5 0	..	Mushrooms, per pott.	1 0	2 0
Beet, per doz.	1 0	2 0	Onions, young, bun.	0 4	0 6
Cabbages, per doz.	1 0	2 0	Parsley, per bunch	0 4	..
Carrots, do.	0 6	..	Peas, per quart	10	1 0
Cauliflowers, p. doz.	2 0	..	Radishes, per bunch.	0 2	0 4
Celery, per bundle	1 6	2 0	— Spanish, doz.	1 0	..
Cucumbers, each	0 3	0 9	Shallots, per lb.	0 3	..
Endive, per doz.	1 0	2 0	Tomatos, per doz.	1 0	2 0
Herbs, per bunch	0 2	0 4	Turnips, per bundle.	0 8	..
			Veg. Marrows, doz.	1 0	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, 12 blooms	0 4	2 0	Myosotis, per bunch	0 4	0 9
— Clove, per doz	0 3	0 9	Pelargoniums, 12 spr.	0 6	1 6
— mixed, 12 bun.	3 0	9 0	— Zonal, do.	0 3	1 0
Cornflower, p. doz. bun.	3 0	6 0	Primula, dbl., p. bun.	0 9	1 6
Eschscholtzia, 12 bun.	3 0	6 0	Roses, indoor, p. doz.	2 0	6 0
Eucharis, per doz.	6 0	12 0	— outdoor, 12 bun.	3 0	9 0
Gardenia, per doz.	2 0	6 0	Spiræa, 12 sprays	1 0	3 0
Heliotropes, 12 spr.	0 6	1 0	Stephanotis, 12 sprays	3 0	6 0
Lilies, white, p. bun.	1 0	2 6	Stocks, 12 bun.	3 0	6 0
Mignonette, 12 bun.	3 0	6 0	Sweet Peas, 12 bunch.	2 0	6 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0	12 0	Hydrangeas, per doz.	9 0	24 0
Bouvardias, do.	9 0	18 0	Lilium lancif., p. doz.	12 0	60 0
Calceolarias, do.	6 0	18 0	Mignonette, do.	3 0	6 0
Cyperus, do.	6 0	12 0	Myrtles do.	3 0	9 0
Dracæna terminalis	30 0	60 0	Pelargoniums, dble., per doz.	4 0	12 0
— viridis, per doz.	12 0	24 0	— Scarlet, do.	3 0	9 0
Ficus elastica	1 6	7 6	Petunia, per doz.	6 0	9 0
Fuchsia, per doz.	3 0	18 0	Rhodanthe, do.	6 0	12 0
Gardenias, do.	12 0	60 0	Solanums, do.	6 0	18 0
Gladiolii, do.	9 0	18 0	Stock, do.	3 0	6 0
Heaths, in var., doz.	12 0	30 0			
Heliotrope, per doz.	6 0	12 0			

SEEDS.

LONDON: *Aug.* 19.—A good steady business is doing in agricultural seeds. Trifolium continues in steady request at full prices. A few lots of French seed have now appeared in our market. Clover and Trefoil seeds are held with much firmness, but for the moment no great quantities of either description are changing hands. Advices from New York indicate high prices for American seed. We have a fair sale for new Rye: a good many of the parcels come to hand in poor condition. More money is asked for winter Tares for future delivery; it is thought that the crop will be a short one. Good samples of Mustard and Rape seed are in brisk request and realise more money. Some transactions are taking place in new French and Italian. Canary seed keeps scarce and dear. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the fine weather had considerable influence. Millers evinced no desire to purchase Wheat in excess of their immediate requirements, and in the presence of liberal importations from abroad factors found it difficult to effect sales at a fall of 1*s.*, or indeed 2*s.* per qr. Some samples of new English Wheat were on offer, for which 56*s.*, 54*s.*, and 52*s.* was asked, the first figure applying to Talavera, and the two following to white and red of a different growth. Barley was somewhat lower. Malt had a slight downward tendency. Oats were about 6*d.* per qr. lower on the week. Maize without quotable alteration. Beans were steady, and previous rates were given for Peas. Flour was decidedly cheaper to sell.—Wednesday's market was dull and thinly attended. There was no further material change in Wheat, but there was more disposition to sell, and on the few sales effected buyers had some advantage. Barley had a drooping tendency, as also had malt, while rather less money was taken for Oats. Maize, Beans, and Peas were quoted as on Monday, and late rates were generally asked for flour.—Average prices of corn for the week ending August 14:—Wheat, 51*s.* 9*d.*; Barley, 34*s.* 11*d.*; Oats, 30*s.* 4*d.* For the corresponding week in last year: — Wheat, 58*s.*; Barley, 45*s.*; Oats, 30*s.* 6*d.*

HAY.

From Whitechapel we learn that there has been a fair supply of fodder, which changed hands steadily at, for Prime Clover, 100*s.* to 154*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 152*s.*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 50*s.* per load.—Cumberland Market quotations: Superior old meadow hay, 150*s.* to 160*s.*; inferior, 90*s.* to 120*s.*; new hay, 90*s.* to 140*s.*; superior old Clover, 160*s.* to 170*s.*; inferior, 110*s.* to 140*s.*; new Clover, 100*s.* to 150*s.*; and straw, 48*s.* to 52*s.* per load.

POTATOS.

The Borough and Spitalfields markets report the supplies of Potatos as considerable, but there was little, if any, improvement in the demand, and prices generally were flat. Round, 60*s.* to 80*s.*; kidneys, 90*s.* to 110*s.* per ton. Last week's imports into London consisted of 9 barrels from Dunkirk and 160 packages from Antwerp.

CONSERVATORY, HAMPTON COURT HOUSE.

DESIGNED AND ERECTED BY

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HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS, ETC.,

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Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.

FRESH SPHAGNUM, 10*s.* 6*d.* per sack.

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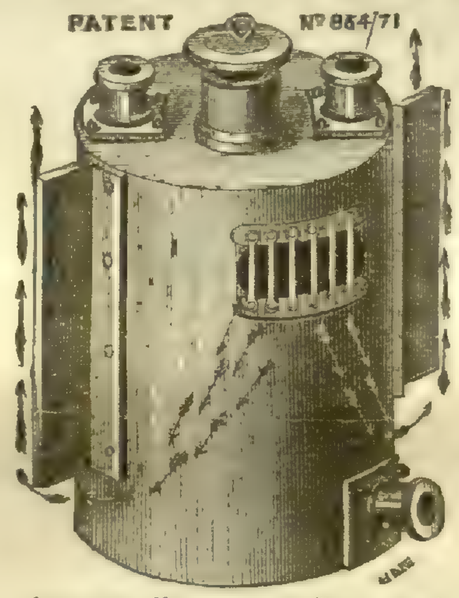

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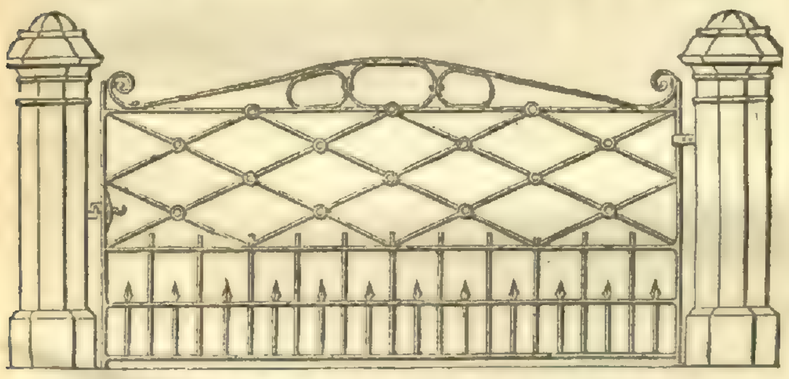

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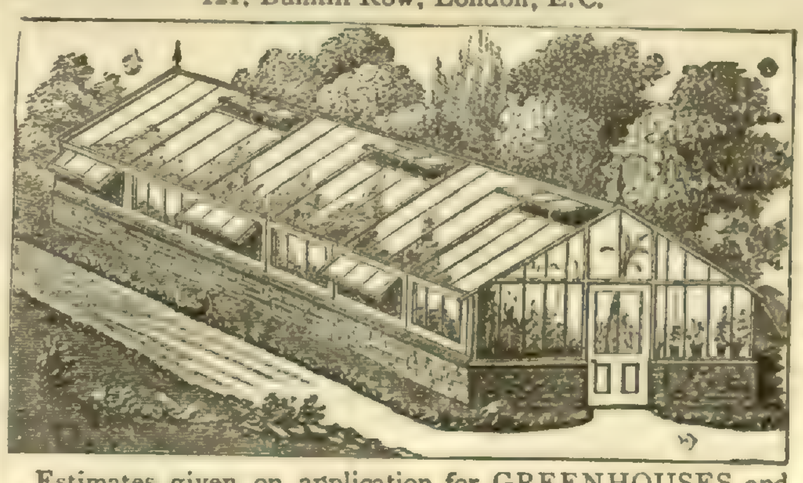

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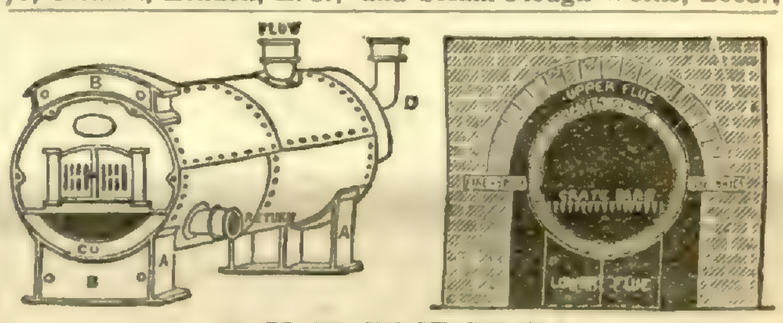

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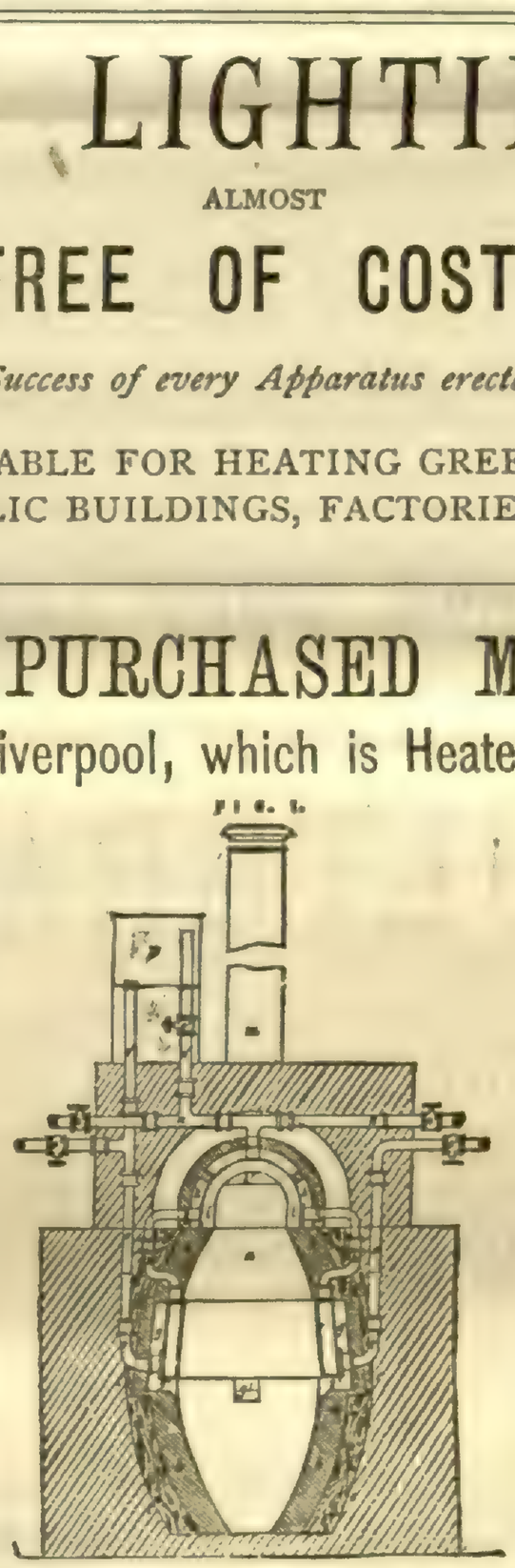

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THE

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Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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SALES BY AUCTION.

Extensive Consignments of First-class Dutch Bulbs of SUPERIOR QUALITY, for UNRESERVED SALE, lotted to suit the Trade and Private Buyers.

MESSRS. PROTHEROE AND MORRIS beg to call special attention to their WEEKLY SALES of the above, which will take place at the Mart, Tokenhouse Yard, City, E.C., every MONDAY, commencing September 6 and continuing till the latter end of December.

Catalogues (when ready) may be had of the Auctioneers, 98, Gracechurch Street, City, E.C.

N.B.—In order to insure a supply of the best quality of roots Messrs. P. & M. have personally visited the Farms in Holland, and have arranged to sell for those growers only who are willing to consign for sale the cream of their stock.

Long Cross, Chertsey.

CLEARANCE SALE of a Large and Beautiful PRIVATE COLLECTION of Choice, Hardy, HERBACEOUS, PERENNIAL, and BULBOUS PLANTS, admirably adapted for the permanent Ornamentation of Gardens, and covering four acres of land, comprising large quantities of Hepaticas, Double Primroses, and Alpine Auriculas in all the choicest and best varieties, and other Plants too numerous to mention. Also a quantity of FRUIT TREES and SHRUBS, 500 Dwarf ROSES, by name, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, on the Premises, Flutter's Hill, Long Cross, Chertsey, by order of Mr. H. Cooper (with reserve), in consequence of a change of residence, on WEDNESDAY, September 8, at 11 for 12 o'Clock precisely. On account of the number of Lots ample time will be allowed for clearance.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, Valuers, and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Tooting, S.W.

IMPORTANT SALE of extra STOVE and GREENHOUSE PLANTS, the whole of which are in a very healthy and thriving condition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. R. Parker to SELL by AUCTION without reserve, on the Premises, the Exotic Nursery, Tooting, Surrey, S.W., about fifteen minutes' walk from Balham and Tooting Railway Stations, on THURSDAY, September 9, at 11 for 12 o'Clock precisely, a large quantity of extra stock of choice STOVE and GREENHOUSE PLANTS, including Dracæna lineata, Anthurium Scherzerianum, Stephanotis, Phormium tenax and Colensoi variegatum, Yucca filamentosa variegata, Gardenias, Pandanus and Crotons in variety; a fine assortment of best named Camellias and Azalea indica, Epacris, a large number of selected Palms, choice and valuable Orchids, Adiantum farleyense, Platycerium grande, Davallia Moreana and aculeata, Gleichenias of sorts, and other exotic and hardy Ferns, together with some herbaceous and succulent plants, hardy climbers in pots, &c.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers as above.

Lea Bridge Road, E.

EXTENSIVE ANNUAL TRADE SALE of Fine Winter-Flowering HEATHS, EPACRIS, CYCLAMENS, TREE CARNATIONS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, without reserve, on the Premises, the Lea Bridge Road Nurseries, Lea Bridge Road, Leyton, Essex, E., on FRIDAY and SATURDAY, September 10 and 11, at 11 for 12 o'Clock precisely each day, about 30,000 Winter Blooming HEATHS, including all the best known and most approved kinds in cultivation, remarkably well-grown and thickly set with bloom-buds; fine EPACRIS of the choicest sorts; CYCLAMEN PERSICUM, AZALEA INDICA to name, CYTISUS FRAGRANS, and ATLEANA, Tea-scented ROSES in pots to name; a large stock of SOLANUM CAPSICASTRUM, full of berries; TREE CARNATIONS, ACACIA DRUMMONDII, and a quantity of MISCELLANEOUS GREENHOUSE PLANTS, including Phœnocomas, Aphelexis, Pimeleas, Boronias, &c.

May be viewed any day prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Estate Agents as above.

Tottenham, N.

GREAT SALE of STOVE and GREENHOUSE PLANTS. Important to the Trade and other Large Consumers.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Maller to SELL by AUCTION, without reserve, on the Premises, the Brunswick Nursery, Tottenham, N., Middlesex, opposite the White Hart Lane Station, Great Eastern Railway, on TUESDAY, September 14, at 11 o'Clock to the minute, 700 lots of unusually well-grown STOVE and GREENHOUSE PLANTS, consisting of many thousands of winter-blooming Heaths in fine thriving condition, and promising a profusion of flowers; remarkably well berried Solanum capsicastrum, fine Camellias and Azalea indica set with bloom-buds; Bouvardias of sorts, Acacias, well furnished, Adiantum cuneatum, A. farleyense, Eucharis amazonica, Ficus elastica, Epiphyllums in variety, Poinsettias, Daphne indica rubra, fine Cyclamens, Genistas, Fairy Roses, Double and Single Primulas and Cinerarias, Dracænas, Palms, &c.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers as above.

N.B. This sale will commence punctually at 11 o'Clock in consequence of the number of lots.

Catford, S.E.

CLEARANCE SALE of a small but valuable Collection of choice ORCHIDS, STOVE and GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Ed. B. Green, Esq., to SELL the above by AUCTION, without reserve (in consequence of a change of residence), on the Premises, Ravensbourne Park, Catford, within five minutes' walk of Catford Bridge Railway Station, on WEDNESDAY, September 15.

A more descriptive advertisement will shortly appear.

The Nursery, Elm Street, Walthamstow, E.

Important to the Trade and Private Buyers.

ANNUAL SALE of 10,000 Winter-blooming HEATHS, of splendid growth and well set; also CAMELLIAS, AZALEAS, ACACIAS, CYCLAMEN, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Preston to SELL the above STOCK by AUCTION, without reserve, on the Premises, on THURSDAY, September 16, at 11 for 12 o'Clock.

Full particulars will shortly appear.

Lee, S.E.—Fifth Annual Trade Sale.

PRELIMINARY NOTICE.

MESSRS. PROTHEROE AND MORRIS have been instructed by Mr. B. Maller to SELL by AUCTION, without reserve, on the Premises, the Burnt Ash Nursery, Lee, S.E., on WEDNESDAY, September 22, many thousands of particularly fine winter-blooming HEATHS, and numerous other choice GREENHOUSE PLANTS.

More detailed particulars will appear next week.

Preliminary Notice of

FORTHCOMING SALES of NURSERY STOCK by PROTHEROE AND MORRIS.

SEPTEMBER 28.—WALNUT TREE NURSERY, Green Lanes, Stoke Newington. By order of the Executors of the late John West, deceased. Clearance Sale of Greenhouses, Plants in pots, Nursery Stock, and Utensils in Trade.

OCTOBER 5.—THE NURSERY, Balham, S.W. By order of Mr. Young. Suplus Nursery Stock, Camellias, &c.

OCTOBER.—BRANCH NURSERY, Loughton, Essex. Three days' Sale. By order of Mr. W. Paul. A large quantity of well-grown Nursery Stock.

OCTOBER 27 and 28.—EXOTIC NURSERY, Tooting, S.W. By order of Mr. R. Parker. A considerable quantity of beautifully-grown Nursery Siock.

OCTOBER 27 and 28.—NORTHGATE NURSERY, Chichester. By order of Mr. D. Scott. A large and rich assortment of clean-grown Nursery Stock.

NOVEMBER 2, and following days.—At one of their BRANCH NURSERIES, Kingston-on-Thames. By order of Messrs. Jackson & Son. An extensive assortment of about 8 acres of fine Nursery Stock.

Date not yet fixed.—ASCOT. By order of the Executors of the lated Mr. John Standish, deceased. A very large quantity of Nursery Stock, Plants in pots, &c.

Date not yet fixed.—SUNNINGDALE NURSERY, Bagshot. By order of Mr. C. Noble. An immense quantity of beautifully-grown Nursery Stock.

Date not yet fixed.—At one of his BRANCH NURSERIES, Brixton. By order of Mr. J. Peed. The whole of the valuable Nursery Stock, land being required for building puposes.

Date not yet fixed.—NURSERY, Balham, close to the Balham Station. By order of Mr. Edwards. A quantity of Nursery Stock.

Catalogues, when ready, of any of the above Sales may be had on application to the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, Essex.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, August 30, at half-past 12 o'Clock precisely, an importation of PHALÆNOPSIS GRANDIFLORA (just received, in splendid condition), ODONTOGLOSSUMS, CATTLEYAS, ONCIDIUMS, &c., twenty cases of ORCHIDS, a few STOVE PLANTS, ARAUCARIA IMBRICATA SEED, &c.

On view the morning of Sale, and Catalogues had.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY, September 1 and 4, at half-past 12 o'Clock precisely each day, 1500 lots of choice HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, and other Bulbs, just arrived from Holland, in lots to suit the Trade and private buyers.

On view the morning of Sale, and Catalogues had.

Cambuslang, near Glasgow.

MESSRS. HUTCHISON AND DIXON will SELL by AUCTION, at Newton House, Cambuslang, near Glasgow, on FRIDAY, September 10, commencing at 11 o'Clock, the well-known Collection of GREENHOUSE and STOVE PLANTS, rare ORCHIDS, &c., that belonged to the late A. G. Kidston, Esq., and to be sold by order of his Executors. The Collection includes fine Azaleas, Camellias, Heaths, Tree and Specimen Ferns, also a large collection of rare Orchids. The plants are in the highest state of cultivation, and have always taken first honours when shown.

Catalogues can be had upon application to the Auctioneers, 7, West Nile Street, Glasgow.

Freehold, 28 miles S.W.

FOR SALE, a beautiful ESTATE of 250 acres, with elegant Swiss Villa and capital Stabling gravelly soil, fine views, and nearly a mile of frontage on the London Road; free from Tithe and Land Tax; two-thirds on mortgage. A Plot of about 50 acres, planted with fine evergreens, fruit, and other trees would be Sold separately; also a Plot of 25 acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot.

Reading.

TO be SOLD, with possession, a compact FREEHOLD PROPERTY, consisting of a Modern Residence surrounded by highly ornamental Grounds, large Walled Kitchen-garden well stocked with choice Fruit Trees, small Paddock, extensive and well-arranged Horticultural Buildings, Stabling for Four Horses, Coach-house, &c. The House contains large Drawing and Dining Rooms, each about 22 feet by 16; small Breakfast Room, Kitchen, Offices, and two W.C.'s on the ground floor; large Cellars in basement, five Bedrooms, and excellent Bath-room, with hot and cold water, on the first floor.

The Property is situated in the London Road, outside the Borough boundary, about 1 mile from the railway-stations, and near the river, the whole comprising between 3 and 4 acres.

Apply either to Messrs. DEBENHAM, TEWSON, AND FARMER, 80, Cheapside, London, E.C.; or to Mr. GEORGE LOVEJOY, London Street, Reading.

To Florists.—Walthamstow, Essex,

Within ten minutes' walk of two Railway Stations.

TO BE LET or SOLD, a FREEHOLD NURSERY GROUND, with two large Greenhouses, Pits, &c., and about half an acre of Land. Rental £50 per annum, or the Freehold to be sold for £750, in which case half the purchase-money may remain on mortgage. The whole has been recently put into repair. No stock to be taken to.

For further particulars and orders to view, apply to Mr. HOUGHTON, Solicitor, 15A, Saint Helen's Place, Bishopsgate Street, London, E.C.; or to Messrs. PROTHEROE AND MORRIS, Auctioneers, 98, Gracechurch Street, London, E.C.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

TO BE SOLD, from a Private Garden, one LEAN-TO HOUSE and Pit attached, 54 feet by 11 feet 9 inches by 9 feet 5 inches; one Pit 18 feet 2 inches by 11 feet 9 inches, by 7 feet, with 100 feet 4-inch pipe, two valves. Any reasonable offer will be taken. Further particulars by letter, addressed to

Mr. RHODES, 42, Cross Street, Finsbury, E.C.

GOVERNMENT EMIGRATION.

SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For passages and further information, apply to the AGENT-GENERAL, 3, Westminster Chambers, Victoria Street, S.W.

THE RIVERS' PROTECTION and MANURE COMPANY, LIMITED,

Offices—Wool Exchange, Coleman Street, E.C.,

MANUFACTURERS of NITRO-PHOSPHATIC MANURE.

Works—Page Green, Tottenham.

The Company is now prepared to offer this Manure, wholesale, at £3 10s. per ton, in bags at the Works. The constituents of the Manure, containing, as it does, a large quantity of nitrogenous organic matter, as well as Phosphate of Lime, render it a good fertiliser on any description of land, but especially valuable on light soils. Whilst the growth of vegetation is stimulated, the soil will be permanently enriched by the presence of 25 to 30 per cent. of organic matter. The price is fixed by its analytical value, and no charge is made for the nature of the manure and the organic matter it contains, although this, as agriculturists know, is a principal point, upon which the practical working value of a manure greatly depends. It is well known that Stable Manure is of much greater value to the farmer than its analysis would warrant, and in the same way the above fertiliser, whilst containing phosphoric acid and ammonia, whose analytical worth can be ascertained, contains likewise those excremental matters which are of such tried agricultural importance.

Letters to be addressed to JAMES A. RATFORD, Manager, at the Offices of the Company, or the Works, Tottenham.

HYACINTHS, CROCUS, TULIPS, ETC.

DICK RADCLYFFE & CO.'S

ILLUSTRATED

CATALOGUE

OF THE ABOVE

IS NOW READY:

will be forwarded

GRATIS and POST FREE

ON

APPLICATION.

HORTICULTURAL

REQUIREMENTS

OF

EVERY DESCRIPTION

KEPT

IN STOCK.

128 & 129, HIGH HOLBORN, W.C.

BEAUTIFUL WINTER AND SPRING FLOWERS.

Carter's

POPULAR COLLECTIONS OF BULBS.

For Conservatory and Window Decoration.

No. 1, 84*s*. No. 2, 63*s*. No. 3, 42*s*. No. 4, 21*s*. No. 5, 10*s*. 6*d*.

For the Conservatory and Open Ground.

No. 6, 84*s*. No. 7, 63*s*. No. 8, 42*s*. No. 9, 30*s*. No. 10., 15*s*.

For Planting in the Open Ground.

No. 11, 84*s*. No. 12, 63*s*. No. 13, 42*s*. No. 14, 21*s*. No. 15, 10*s*. 6*d*.

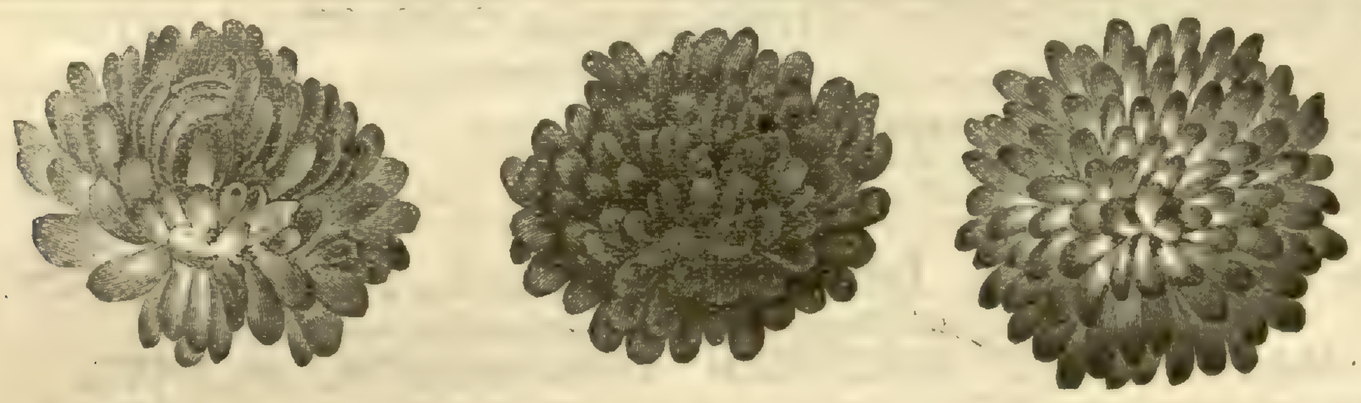
CONTAINING THE FINEST PICKED ROOTS.

For full Descriptions and Instructions for Cultivation, see

CARTER'S ILLUSTRATED AUTUMN CATATOGUE,

GRATIS AND POST FREE.

CARTERS' (The Queen's Seedsmen), 237 & 238, HIGH HOLBORN,
LONDON, W.C.



For Present Sowing we now offer, only in Sealed Packets:—

CINERARIA HYBRIDA FLORE-PLENO, fair quality as to doubleness, 20 Seeds, 3*s*.; 50 Seeds, 6*s*.; 100 Seeds, 10*s*.

CINERARIA HYBRIDA PLENISSIMA, of superior quality, sure to give every satisfaction, 20 Seeds, 6*s*.; 50 Seeds, 12*s*.; 100 Seeds, 20*s*.

CINERARIA HYBRIDA PLENISSIMA, plants from cuttings, of the very best varieties only, 6*s*. each, 60*s*. per dozen.

The usual allowance to the Trade.

HAAGE AND SCHMIDT, ERFURT, PRUSSIA.

Begonia incarnata.

M. SCHMITT, HORTICULTURIST, Lyons, has now on offer the new varieties of BEGONIA INCARNATA described by M. E. A. Carrière in the *Revue Horticole* (Paris) for April 16 last.

The Begonia incarnata was crossed by a tuberous-rooted Begonia, with a product of woody varieties like the typical species, whose colouring is most remarkable, and whose flowers are produced in succession, winter and spring, nearly continuously.

A CIRCULAR will be forwarded on application.

New Greenhouse Palm.

BRAHEA FILAMENTOSA (Wendland). —The Fan Palm of Lower California, called Arizona Palm in San Francisco; leaves palmatifid, divisions numerous, set with whitish filaments; leaf-stalks rather long, with brownish yellow prickles. The greatest merits of this Palm, besides its graceful habit, are the hardiness and the rapidity of its growth. The first specimens, planted by our correspondent three years ago as young plants in his garden near San Francisco, are now fine large plants, 5 feet high, having some resemblance to Chamærops Fortunei. Though it freezes there nearly every winter they have not suffered the least from cold, whereas the Corypha australis, planted out under the same conditions, were killed by the frost. It would follow from this fact that this new Palm will be quite hardy in the South of Europe, and most likely in the sheltered parts of England.

A figure of the plant will be published shortly.

Price of yonng seedlings, transplanted, of one to two leaves now, two to three leaves later in the autumn, £5 per 100, 15*s*. per dozen.

HAAGE AND SCHMIDT, Nurserymen, Erfurt, Prussia.

COCOA-NUT FIBRE REFUSE, for Gardening Purposes, at all seasons of the year, as supplied by H. WRIGHT to

His Royal Highness the Prince of Wales,
His Imperial Majesty the Emperor of Prussia,
The Earl of Powis,
The Right Hon. the Viscount Eversley,
The Right Hon. Lord Otho Fitzgerald,
Colonel Loyd Lindsay, M.P.,
Colonel North, M.P.,
Messrs. Veitch & Sons, Royal Exotic Nursery, Chelsea, S.W.,
W. Bull, Esq., Establishment for New and Rare Plants, Chelsea, S.W.,
J. Wills, Esq., Florist to the Queen and Royal Family,
Messrs. Ewing & Co., Norwich,
Messrs. Cranston & Mayos, Hereford,
Messrs. Dickson & Sons, Chester,
Mr. E. Cooling, Derby,
Herr Schmidt, Erfurt, Prussia, &c.

Delivered free within six miles or on to rail; 20 bushels, 6*s*. 8*d*.; 50 for 12*s*. 6*d*.; truck load, 45*s*.

HENRY WRIGHT, Fibre Manufacturer, 81, Bishopsgate Street Without, London, E.C.

PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17*s*. per ton.

W. TARRY, "Golden Farmer," Bagshot, Surrey.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.

BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s*. 6*d*. each.

FRESH SPHAGNUM, 10*s*. 6*d*. per sack.

WALKER AND CO., Farnborough Station, Hants.

SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6*s*. Supplied to Seedsmen and Chemists.

Prepared by JOHN KILINER, Wortley, near Sheffield.

HUGH LOW & CO.

HAVE PLEASURE IN INFORMING THEIR FRIENDS AND THE PUBLIC THAT THEIR

STOCK OF WINTER AND SPRING FLOWERING PLANTS

Is this season unusually extensive in quantity and fine in quality, and well worth the notice of intending purchasers, who are very cordially invited to an inspection of the Plants, which comprise amongst other things:—

Many Thousands of ERICA HYEMALIS, of various sizes.
Many Thousands of ERICA CAFFRA.
Many Thousands of ERICA GRACILIS.
Many Thousands of ERICA WILMOREA.
Many Thousands of ERICAS of the best varieties, including—alopecuroides, colorans, persoluta alba, Cavendishi, Spenceri, Regerminans, perspicua nana, ventricosa in variety, hybrida, Sindryana, Wilmorea, grandinosa, melanthera, barbata major, rubens, verticillata major, &c.
Many Thousands of Hard-wooded ERICAS, in numerous fine varieties.
Many Thousands of EPACRIS, in numerous varieties.
Many Thousands of GENISTAS.
Many Thousands of AZALEA INDICA, in variety.
Many Thousands of CAMELLIAS, with flower-buds, various sizes.
Many Thousands of SOLANUMS, well berried, splendid stuff, many of unusual size.
Many Thousands of BOUVARDIAS, red and white, all strong bushy plants, of blooming size.
Many Thousands of EPIPHYLLUMS, in varieties.
Many Thousands of TREE CARNATIONS, of flowering size.
Many Thousands of CYCLAMEN PERSICUM, fine varieties, unusually strong.
Many Thousands of the best GREENHOUSE PLANTS, such as Chorozemas, Aphelexis, Genetyllis, Dillwynias, Acacias, Statices, Polygalas, Boronias, Pimeleas, Jasminums.

Also on hand, a very large Stock of

ORNAMENTAL FOLIAGE and DECORATIVE PLANTS, PALMS, DRACÆNAS, FICUS ELASTICA, &c.

FERNS—Many thousands of the most approved kinds.

ORCHIDS.

The stock of these is very large and healthy, contained in Ten Houses, each of considerable size.

Dendrobiums, Cattleyas, Odontoglossums, Phalænopsis, Cypripediums, Lælias, Saccolabiums, Oncidiums, &c., can be seen in large quantities, very extensive importations having been made during the season.

CLAPTON NURSERY, LONDON, E.

FRESH IMPORTED

DUTCH FLOWER ROOTS.

Sutton & Sons

Are now receiving their Consignment in fine condition.

How to Grow Flower Roots Successfully,

SEE

SUTTON'S AUTUMN CATALOGUE OF SPRING FLOWERING BULBS.

Beautifully illustrated, and containing complete cultural instructions.

Gratis and post free on application.

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other DUTCH ROOTS, in fine condition. Early orders are requested. CATALOGUES free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

B. S. WILLIAMS'

CHOICE

SEEDS for PRESENT SOWING.

	Per packet.—s.	d.
CYCLAMEN PERSICUM, Williams' superb strain, 1s. 6d., 2s. 6d., 3s. 6d. and	5	0
„ „ GIGANTEUM, new	5	0
CALCEOLARIA, Williams' superb strain, 1s. 6d., 2s. 6d., 3s. 6d. and	5	0
CARNATION, from choicest double flowers	1	6
FERN, saved from a splendid collection of greenhouse varieties	1	0
„ saved from a splendid collection of stove varieties..	1	0
GLOXINIA, from finest erect varieties	1	6
„ from finest drooping varieties	1	6
MYOSOTIS DISSITIFLORA	1	0
PANSY, from choice show varieties .. 1s. and	2	6
PICOTÉE, from choice stage flowers	1	6
PRIMULA, Prince Arthur, new double .. 2s. 6d. and	5	0
SILENE PENDULA COMPACTA	1	0
„ „ „ ALBA	1	0
CABBAGE, Williams' Early Nonsuch .. per pkt.	1	0
„ East or West Ham .. .. .. per oz.	0	6
CUCUMBER, Telegraph, Woolley's Improved, per pkt.	1	6
LETTUCE, Cos, Williams' Victoria .. .. „	1	0
„ „ Bath, black-seed .. .. .. per oz.	1	0
„ „ Cabbage, hardy white Dutch .. .. .. „	1	6
„ „ immense hardy green .. .. .. „	1	6
ONION, Tripoli, Giant Rocca .. .. .. „	1	0
„ „ white Italian .. .. „	1	0
„ „ Queen .. .. „	1	6
SPINACH, Prickly or Winter .. .. per qrt.	1	6
TURNIP, Chirk Castle, black-stone .. per oz.	0	6
„ Red Globe .. .. „	0	6

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED THEIR

ANNUAL SUPPLY OF HYACINTHS AND OTHER BULBOUS ROOTS

from Holland, and are pleased to say that they are in splendid condition.

James Veitch & Sons were awarded the following Prizes for Hyacinths, &c., AT THE SPRING EXHIBITIONS:—

1st Prize for 50 Hyacinths, distinct sorts, Royal Horticultural Society, March 18, 1874.
1st „ 18 „ „ „ „ „
1st „ 6 „ new varieties „ „ „
1st „ 12 pots Tulips, in 6 varieties „ „ „
1st „ Collection of Crocus „ „ „
Extra Prize for Group of Hyacinths, Narciss, and Tulips „ „
1st Prize for 12 Hyacinths, distinct sorts, Royal Botanic Society, March 25.
1st „ 12 pots Tulips, in variety „ „ „
Extra Prize for Collection of Hyacinths „ „ „
Extra „ Group of Hyacinths, Tulips and Narciss, Liverpool Horticultural Society.
Cultural Certificate for Group of Hyacinths, Tulips, and Narciss, Manchester Botanical Society.

In addition to the above 26 First and Extra Prizes for Hyacinths and Tulips were awarded to J. VEITCH & SONS *at the Metropolitan Spring Exhibitions of* 1871, '72 *and* '73.

JAMES VEITCH & SONS have also had the pleasure of supplying to the Commissioners of Her Majesty's Works the Hyacinths, Tulips, and Crocuses for the decoration of Hyde Park during the last four seasons.

Catalogues, Illustrated with upwards of Sixty Woodcuts, are now ready, and will be forwarded, Post Free, on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

TREE FERNS.

THE LARGEST AND BEST STOCK IN EUROPE.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above; also of his

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

HORTICULTURE IN ALL ITS BRANCHES.

THE PINE-APPLE NURSERY COMPANY,

MAIDA VALE, EDGWARE ROAD, LONDON, W.,

NURSERYMEN AND SEEDSMEN,

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SATURDAY, AUGUST 28, 1875.

CAMOMILE.

"The Camomile, the more it is trodden on the faster it grows."
Henry IV., pt. 1, act ii., sc. 4.

IN the works of many of the older dramatists, and in none more conspicuously than those of Shakspeare, we shall find indications, neither few nor uncertain, of the views which were popular at the time they were written—views upon almost every subject, sacred or profane. So notably is this the case with him whom it was at one time fashionable to call "the Bard of Avon" that volumes have been written upon the incidental references to one set of subjects or another which occur in his works. In natural history alone we have already *The Birds of Shakspeare*, *Skakspeare's Garden*, and *The Folklore of Shakspeare*; and specialists are familiar with other volumes of a similar stamp and origin. It is only from such sources that we can gain anything like a true picture of the tone of thought which prevailed at a time when newspapers were not invented and books were scarce; and the observant mind will gather from the casual remarks in an old play many details regarding the lives of those for whom it was originally written and enacted.

The line which stands at the head of this paper is one of those in which Shakspeare avails himself of a familiar idea regarding a common plant as an illustration of, or rather in apposition to, a fact which he wishes to express. "Though the Camomile," he says, "the more it is trodden on the faster it grows, yet youth, the more it is wasted the sooner it wears." This idea that Camomile is benefited by being trodden upon was evidently general in Shakspeare's time, and is alluded to by many writers of the same period. Lily, in his *Euphues*, expresses the notion in almost the same words:—"The Camomile, the more it is trodden and pressed down the more it spreadeth." The author of *The More the Merrier* (1608), writes:—

"The Camomile shall teach thee patience,
Which thriveth best when trodden most upon;"

and Greene, in his play of *Philomela*, adopts the belief in a somewhat altered form, when he says, "The Camomill, the more it is trodden the sweeter smell it yieldeth." This last quotation expresses the real facts of the case far more accurately than those preceding it; any one who has walked across a gravelly heath will remember that the presence of the Camomile is first "borne in" upon him by the pleasant aromatic odour which has been elicited from it by his passing footsteps.

As a garden plant of the Elizabethan period, Camomile was well known. The walks in the kitchen and herb gardens were often carpeted with it: and in old-fashioned gardens such walks may still be seen, having remained, it may be, through two or three centuries. Banks of it were used as seats, and a favourite remedy for headache was to lie down on a bed of Camomile. Camomile tea even yet holds its place in domestic medicine; and Camomile flowers are among the herbs cultivated, though in no very large quantity, in the herb-grounds at Mitcham. It is usually what is called the "double" variety that is grown for the chemists—that is, a variety in which, as is usual in so-called "double" Composites, the central tubular florets are all or nearly all converted into ligulate florets. In *Pharmacographia* we read that in 1864 about 55 acres of land were devoted at Mitcham to the growth of Camomiles, the yield being reckoned at 4 cwt. per acre. The dried flowers of English-grown Camomile fetch a high price in the market, their usual value being about £9 per hundredweight, which is twice or three times as much as that of foreign grown heads. This double form, which is very pretty, was in general cultivation in the sixteenth century. In the work already quoted it is stated that the Camomile flowers found in commerce are never those of the wild plant; we have, however, seen the latter collected for use in domestic rustic practice.

As to the real usefulness of Camomile some doubt may reasonably exist. As a tonic and stomachic it probably possesses a certain amount of importance, but its virtues do not meet with the same amount of recognition now-a-days as was extended to them a century or two back. Langham, in his *Garden of Health*, gives no fewer than sixty-one cases in which Camomile may be advantageously employed—usually, it must be admitted, in conjunction with so many other ingredients that it must be somewhat uncertain to which the merit of the cure wrought should be attributed. Some of the sixty-one examples are also decidedly vague—*e.g.*, "56. There is no medicine more usual amongst men than Camomile for all griefs;" and "60. No man can tell all the virtues thereof." More recent writers have stated that an infusion of Camomile flowers, taken just before going to bed, is a preventive of nightmare.

The folklore of the Camomile, beyond that which formed the text of this little paper, is not extensive. The virtues of Camomile tea are esteemed in some parts of Europe as well as among ourselves; in certain German districts the flowers are used like those of the Daisy in love-divinations; and in East Prussia wreaths of it are made upon Midsummer Day, and hung up in houses as a protection against storms. *B. M.*

New Garden Plants.

MASDEVALLIA REICHENBACHIANA, *Endr.**

This interesting Masdevallia one might introduce as belonging to the Coriacea group, provided one does not think it better to make of it a new group, on account of its funnel-shaped tube, narrowed at base, very slender tails, and thin texture. Its tube and tails are whitish, with a blood-red hinder-part in the typical variety. There are others with radiating blood-red lines, others which are nearly black. At least no Costa Rica species is so rich in variety, as my materials prove. The flower is up to 2 inches long. It will no doubt produce such variations as to not correspond with my diagnosis, and then some inexperienced writer may regard my diagnosis "a mistake," as M. Andre did in the case of Masdevallia polysticta. The beautiful plant now before me was discovered in Costa Rica by my late friend Endres, and was named by him. It has recently flowered with the Rev. Mr. Norman, Whitchurch Rectory, Edgware, London. *H. G. Rchb. f.*

RESTREPIA DAYANA, *n. sp.*

This is a lovely little gem, growing in rather dense tufts. The stems are equal to, or even a little longer than the leaves. I think it is well known that those relative dimensions are of very high value in the case of the Restrepias. The three superior sheaths are broad, depressed, triangular; the others (generally five to seven, mostly six) are narrow and deeply mottled with very numerous blackish spots. The leaf itself is of very strong texture, roundish acute, nearly heart-shaped at its base. The lovely shining flowers were generally produced one after the other. They have filiform clavate petals, and a similar superior sepal. The two inferior sepals form one broad body, bifid at the apex, yellowish and brown, while the petals and

* *Masdevallia Reichenbachiana*, Endr. - Dense cæspitosa: foliis a basi bene angustis spatulatis acutiusculis apice tridentatis, per dorsum carinalis; pedunculis folia æquantibus seu superantibus usque triflora (later chronicis?); bracteis oblongis retusis aristatis, floribus ampio infundibulatis, sepalo summo basi breviter triangulo caudato; sepalis lateralibus longe triangulis multi brevius caudatis; tepalis stipitatis oblongis apice bilobis, infra supra stipitem (ungua) abrupte obtusangulis; labello ligulato oblongo basi sul cordato antice acuto crenulato denticulata; carinis geminis subparallelis; columna apice acuta.—*Masdevallia Reichenbachiana*, Endres in litt.: Folia obscure viridia. Pedunculi angulati (quomodo non liquet). Flores flavo albidi dorso hæmatochroi. Varietates plurimæ occurrunt et quoad colorem et quoad caudarum longitudinem.

superior sepal are of a shining violet-brown. The lip is ligulate, broader at the base, and on each side has a falcate auricula; it is yellow, beautifully mottled with purple. These flowers are just as pretty and almost equal to those of R. xanthophthalma, which would appear identical if the stems and leaves were not totally distinct. The plant is a discovery of the late M. Endres in Costa Rica, where it grows at an altitude of 3000 feet, but is very scarce. We possess it in a good state in the Hamburgh Botanic Garden. Mr. Day being a very enthusiastic lover of Restrepias, as I understand from his most recent letters, it is to me a most agreeable satisfaction to adorn the lovely gem with his name, which sounds so well to us altogether. *H. G. Rchb. f.*

MASDEVALLIA CHIMÆRA.

In M. Roezl's remarks on this plant, in your last issue (p. 233), he says M. Linden's and Mr. W. G. Smith's plants are not his. As to M. Linden's plant it is well known to be M. Nycterinia. At present I will not speak about Mr. Smith's plant, illustrated in this journal (*Gardeners' Chronicle*, 1875, vol. i., p. 41), perhaps not on a very reduced scale. Dr. Hooker's plant in the *Botanical Magazine* and that of my *Xenia Orchidacea*, tab. 185, are all one and the same. If there has been any mistake in naming it thus, I take all responsibility on myself for it, declaring that those gentlemen have relied on me, the author of M. Chimæra of Choco.

My first materials of M. Roezl's Choco plant were one dry flower, and a perhaps lean sketch of M. Roezl's, representing a five (or four?—the upper one is not clear) flowered raceme, with rather narrow leaves, as I believe they are not to be seen in the Choco plant. If they are rightly represented, then I am wrong in relying on their dimensions. M. Ortgies had written on the sketch from M. Roezl's letter, "with black hairs on yellow ground, lip golden-yellow, flower-stalks with 4—5 flowers;" that was all I had. It was not quite unsatisfactory to begin with, for there was no critical species known then.

Later M. Linden sent me M. Wallis' sketches, but no specimen. I named the plant M. Chimæra, since it fully agreed with M. Roezl's, excepting that the flower was shorter, more triangular, and with a far less number of smaller blotches. I wish my readers to remember that these sketches, often made under the least comfortable circumstances, very seldom prove to be minutely correct, very often they are dreadful caricatures, and it is extremely dangerous to name them, since mistakes are quite unavoidable. I could not then even know whether the shortness of sepals was constant in this second plant. Then M. Wallis was so good as to collect flowers for me at various instances, and one or two such were given me by Mr. H. Veitch. I was struck, indeed, by their being constantly shorter and broader in the triangular body of their sepals. M. Patin sent the same, also with seed-pods.

When I spent a few delightful days, full of Orchid talk and chat, with Messrs. Roezl and Endres at Hamburgh, the first brought me four flowers of his Choco plant, but no leaf. Mr. Bull presented me with five flowers, equal to those of M. Wallis, and from the same source, gathered by his excellent collector, Mr. Shuttleworth. It gives me much pleasure to thank Mr. Bull for his having induced his travellers to dry reasonable specimens, viz., several inflorescences in lieu of a single miserable flower, often even despoiled of its lip and column, from the carelessness with which it has been preserved.

A short time ago M. Ortgies sent me a splendid flower and three leaves, collected by Messrs. Klaboch. The peduncles showed scars of four flowers.

I had much talk about the plant with M. Wallis, who often repeated, also by letter, "this is one of the most difficult and polymorphous plants, quite ready to make you great sorrows." It rather appears M. Wallis had in vain tried to separate different species between the splendid things, sketches and flowers of which are among my papers. At least one may prove distinct when better materials appear. M. Roezl's chief arguments for distinction and his remarks are these:—

1. Flower-stalk 2 feet long, black, very thin and hard. The plant produces 3—6 flowers on a stem.

2. The prolonged sepals are 10—12 inches long and very narrow.

3. The slipper-shaped lip is white.

4. The yellow spots in the purple sepals are very large, and the latter thickly covered with hair.

5. Those that have been flowered belong to quite a different group, and a class of which his memory counts at least fifteen varieties.

I will now give my remarks from the authentic materials at hand.

1. Flower-stalk in M. Klaboch's plant green, in M. Roezl's whitish red with dark spots. I never saw more than one flower developed on a stalk. Mr. Day discovered how in Masdevallia Nycterinia flowers develope one after the other, there being no vestige to be seen of the second when the first expands. M. Roezl would do well "to lift the mist and veil" that surrounds the grand question, so very weighty for the paying orchidist before he parts with his bank-notes, whether, in enthusiastic anticipation, from seeing the scars of the flowers, he believes there appeared so many flowers at once, or whether he can give his word that he really saw the flowers developed at one time. As to me, I am quite ready to fully believe in it after having seen it in Europe. The length of the flower-stalk may have an average extension, but we know that recently introduced plants, the most shy travellers, as are the Masdevallias, very often begin with short peduncles.

2. No dry sepal of the typical Choco plant at hand reaches 6 Berlin inches. The sketch in my papers has them 1 and 1½ inch long. A sketch in M. Van Houtte's possession shows them 9 inches long, which looks much gayer and very provoking.

3. The slipper was stated in the first letter to be golden-yellow, now white: that may be subject to variations.

4. There are no yellow spots on purplish sepals in any of Messrs. Roezl's or Klaboch's specimens, but the ground colour is yellowish, and there are very numerous often confluent dark spots on its surface, far more numerous than in the plants of Messrs. Wallis and Shuttleworth (flowered by Messrs. Wrigley and Bull). One might as well call a Bengal tiger black with reddish-yellow stripes. A sketch illustrating such an inversion—blackish purplish with yellow dots—is, or was, in M. Van Houtte's hands. It also represents quite narrow leaves, as are to be seen in M. Wallis' plant. It is to be remembered that M. Ortgies wrote from M. Roezl's original letter, "with black hairs on yellow ground." Are such variations possible? Or is there some higher development in the play?

5. Finally, the question about specific differences is very difficult to be solved. For some time it has been clear the things would be distinguished by name, but whether they are climatic variations, sub-species, or variations from soil, or really distinct such as what we regard as species, I did not nor do I pretend to decide. It speaks against the distinction, that the internal organs, sepals, lip, and column are quite the same, while they afford good marks of distinction in the species standing near it. There are two characters to be found, perhaps constant; the leaves are broader in the Choco Chimæra, at least in that of Messrs. Klaboch, and the sepals do not pass over abruptly, but much by-the-bye in the tails. The opposite is the case in the Wallisio-Patinia-Shuttleworthian plant. I think it is but fair to name the second, should it even prove eventually but a subspecies, which I do not quite believe, in honour of its keen collector, Wallisii, as I long since had intended to do, and as is proved by my having named a small thing, discovered by Mr. Wallis, Gustavi, not Wallisii, as I should otherwise have done. I add the short diagnoses in Latin:* they are very short, for there is nothing to be said on the inner organs, as far as I yet know.

The moral of the whole is, that both Messrs. Wallis and Roezl would do well to dry good and rich materials, in order to have their plants named in future. Garden botany is becoming increasingly difficult, since the botanist must be prepared with an answer at once, in the interests of trade. Let it not become nearly impossible by the habit of certain collectors, of scarcely drying a little bit, not even a whole flower! And then you may be urged to describe it from a frightful caricature of a sketch; and even if it proves good, you can scarcely know it is so in the beginning. *H. G. Rchb. f.*

CLUNY CASTLE, ABERDEENSHIRE.

This is a magnificent pile, owned and inhabited by John Gordon, Esq., one of the largest landed proprietors in the North of Scotland. It is one of those substantial castellated piles built of granite which Aberdeen in its modern architectural residences is somewhat famous for. If it has a fault at all it is in its site being upon a low level of the estate, and hence it is not so commanding in its prospects. Surrounded as it is by plantations distinguished by age, and confronted by breadths of grass and lawn as green as emerald and as soft as down to the tread, it has a special importance to the tourist who, like ourselves, is permitted to walk within, the eye lingering on the beautiful green base, and catching the contour of the colossal specimens which have been planted by those who have gone long ago—reminding us by comparison that the weeping skies of the North, notwithstanding their temporary discomfort so far as pleasing scenery is concerned, are ever to be preferred in autumn to the sultry sunny South, where the greenery of the grass has to give way to a parching solar influence, and the very trees and shrubs seem panting for want of water supply. Such a climate as this seems particularly favourable for many of the handsome growing Conifers. The Wellingtonia gigantea, for instance, was 20 feet high in many specimens, sweeping the grass in the amplitude of its branches, and rising up cone-like without a flaw. Here, too, the Picea nobilis is not only robust and perfect in symmetry, but the moist climate seems most favourable for developing that splendid glaucous hue which is so particularly captivating. Then the Picea lasiocarpa is equally grand in symmetry—if anything more clothed in the density of its branches; and the peculiar twist of the leaves gives it an importance as an individual which many of its compeers cannot lay claim to. The Albert Spruce is equally at home here, and all the Picea tribe, with the exception of Pinsapo and cephalonica, revels in the highest luxuriance. How it is that these fellows should not raise their heads so freely it is difficult to tell; sure it is that they assume more of the shrub than the tree form, and no amount of coaxing, by using Mr. M'Nab's knife, can influence them to any good purpose. We regret that the time at our disposal did not permit us to see the coniferous groups ranged along the plantations of the estate, but we can quite understand that they will show a bold front, and become distinguished with years. That style of plantation suits the writer's idea better than the grouping the novelties into pinetum form, for, depend upon it, many of these Silver Firs will become in time landmarks in the more favourite sites, and will doubtless, along with the Crimean Silver Fir, become valuable for their timber qualities. The deciduous group, now in beautiful foliage, is at all times interesting, and although we don't see the weight of timber here that we do in Perthshire—at Dunkeld, at Scone, at Glamis, or at Meikleour, for instance—there is sufficient age and size to impart dignity to the landscape. The Sycamore, the Oak, the Beech, the Ash, the Larch, the "Scotch," the Birch, and the Lime are pre-eminently the trees of this part of Aberdeenshire, and they have their eccentric habits, too. One fellow in particular deserves special notice—an aged Lime springing from the ground with five trunks, each sufficient to form a good tree in itself; two of the trunks have come away together for a foot from the ground, then separated, not joined like Siamese twins, for about 4 to 5 feet up, then joined again; and so complete is this natural fusion that, but for the limbs below, no one could tell there had been a junction. Bound up they are for better for worse, and not a flaw from trunk to the highest branch is discernible. This, although not quite unprecedented, is by no means common, and it would be interesting to have a woodcut of it for illustrative purposes.

Wending our way through tangled masses of Fern deeply overshadowed with branches and foliage, over a neat rustic bridge spanning the rivulet, by the name of "Tone," we come upon the garden—and a very snug garden it is, too, in most admirable keeping, the grass, and the "verges," and the walks being without a flaw. The gravel is not too rough to impose upon lame feet or "corns," and the sense of walking is in the completest sense comfortable.

The garden, then, is bounded on the outer side by ornamental borders ribboned with flowers, showing to great advantage from the regularity of contour and variety of colour of the articles used. Pelargoniums and Calceolarias, and Violas and Verbenas, and variegated grasses and other plants in suitable variety, are made use of, from the newest to the oldest favourites. We are always particularly pleased with Mangles' Variegated Pelargonium. It is by no means stiff in the outline of foliage, in habit, or in form of flower; it is about the best as an individual that can be selected for flower-garden work, and here it is, quite first-rate; and so is the old Melindres Verbena, the soft colour of the flower and the truss foliage rendering it quite an indispensable item in good flower gardening. The Violas are very beautiful, but too stiff—too much like those wretchedly formed bouquets that none but the collier lass would care to carry about with her. Elegance with ease is the requisite. One feels quite relieved to see a bit of the arching-leaved variegated grass set down among stiff, starchy, formal bedders. The best flowering Pelargoniums were Master Christine and Crystal Palace Gem, the colours being good.

What adds to the beauty of bedding is its adjuncts—a sweep of lawn as a base for earth-beds to spring from, where Roses and Gladioli, and some such plants, although occasionally out of flower, break the monotony. Here they appeared to be a first-rate variety, although the recent floods of rain had toned down their blaze. Then again the Clematis—the indispensable Clematis — covering walls and climbing artifices of all kinds, gives an additional charm. No one

* *Masdevallia Chimæra*, Rchb. f.—Foliis ab angusta basi lato cuneato oblongis usque ultra duos pollices latis, obtuse acutis; sepalis triangulis angustis in caudas sensim acuminatis.
Masdevallia Wallisii, Rchb. f.—Foliis ab angusta basi ligulatis acutis; sepalis brevius latiusque triangulis subito abrupteque in caudas extensis Masdevallia Chimæra, Rchb. f., Xenia, 185, 186; Hook. Bot. Mag. 6152; W. G. Smith, in *Gardeners' Chronicle*.

yet, notwithstanding the novelties that face us, seems half fit to match the famous Jackmanni for outdoor decoration. It is free, beautiful in colour, superb in size, and when strongly grown of excellent form. Hanging in tangled masses it is lovely and admirable—gigantic companion in blue to the scarlet Tropæolum speciosum. But a parley to this sort of descriptive work.

Let us glance into the houses: they seem useful—three Peach cases on one side and three on the other, with a couple of span-roofed houses running north and south, with semi-octagonal fronts, separated from each other by a couple of large vineries. The Nectarines were good, and the Peaches, particularly an old Noblesse tree, seemed to be bearing far beyond its usual rate—for it is a shy fellow—and noble fruit it bore. Vines were planted some time ago and grown on the extension principle, the chief being Hamburghs, Muscats, Black Prince, Golden Champion, and the Duke; all were fair table fruit, the Champion finishing well, but pointing out that it was ready for cutting. The Muscat on its own roots was not so strong, nor bore so fine fruit as the Muscat grafted on the Black Prince. This is curious enough, and shows that it is not easy to account for Vine vagaries. One might have supposed that it would have been much finer on the Hamburgh, or on some other strong stock of good hardy habit—but who knows?

The plant-houses were well filled with a variety of good useful plants for decorative work, comprising such as are used for hall and also those for table decoration. Many of the groups were large, such as Dicksonia antarctica, the chaffy-rachised Cyathea princeps, the elegant Seaforthia elegans, the perforated leathery-leaved Philodendron. These, combined with fine Marantas—the Veitchiana, for instance; the charming, richly-tinted Castor-oil plant (Ricinus Gibsoni), the great-leaved Brugmansia, with dozens of its trumpet-shaped, pale-coloured flowers, long enough to hold a "hieland gill;" the handsome-growing Araucaria excelsa, and such formal-habited plants as the Mexican Agave, and other plants, draped above with Lygodium scandens—made up quite a picture of Fern-like beauty, the barren fronds particularly being more than elegant. This and the Lycopodium cæsium arboreum, climbing in pleasing wildness above, and overhead Passifloras and Tacsonias and Allamandas, full of beauteous efflorescence, made one quite pleased to linger over the stove, which from its heat and moisture usually drives sightseers fast through it. Nor was the corresponding cooler or temperate house one whit less interesting; the Lapageria was over one's head, with hundreds on hundreds of its crimson tubular flowers, and many plants suitable for various purposes about a garden, were growing in good style.

To keep up these houses there are sets of low-roofed pits furnished with Azaleas, with Gloxinias, Achimenes, and greenhouse and stove plants of all kinds, including some very well grown Orchids, such as Dendrobium Farmeri, Aerides odoratum, Angræcum eburneum, some nice bits of Cattleyas, and a good, very good indeed, Calanthe veratrifolia shining with health—occasionally treated, as Mr. McDonald informed us, to liquid manure. There was a capital seedling feathery Cockscomb which had its rosy crimson plumed inflorescence developed in grand style—a very suitable thing for late summer decoration indoors.

The whole place seemed to us to be very well appointed, and it was pleasing to notice that Mr. Gordon has provided for the comforts of his head gardener, in a way that many would do well to copy, in building a substantial roomy cottage adjoining the garden. Mr. Alexander McDonald, the gardener, seems to be well worthy of it. *J. A. M.*

FRUIT PRODUCTS OF EGYPT.

In the last part of the *Belgique Horticole* M. Delchevalerie gives some interesting statistics of fruit growing as an industry in Egypt. Apricots are largely grown, the annual produce being estimated at 2500 tons. There are about 60,000 trees in the gardens of Cairo. The price of small fruit in the Cairo market varies from 1*s.* 8*d.* to 2*s.* 1*d.* per kilogramme (nearly 2¼ lb.). Apricots are largely consumed, fresh in summer and variously preserved for winter use. Almonds are grown for home consumption, and eaten fresh, but none are dried for exportation. There are nearly 10,000 trees in Cairo, chiefly of the sweet variety. The Banana is extensively cultivated, upwards of 100,000 plants are raised in the gardens of Cairo and its vicinity. In sheltered places it produces excellent fruit, which always fetches a good price. The Chinese Banana, Musa sinensis, introduced by the writer, in 1868, is beginning to find favour. The stem of this species does not exceed a yard in height, and its enormous spadices bear as many as 200 small fruit. The fruit of Balanites ægyptiaca is highly esteemed, but it does not come to perfection at Cairo, and is brought from the Upper Nile. The Baobab is occasionally sold in the markets of Cairo. A large tree of it, forty years old, in the gardens of Ibrahim Pacha, has not yet fruited. The Carob, Ceratonia Siliqua, is very little cultivated, there are scarcely a hundred large trees of it in all Egypt; each tree will produce about three quintals. Cherries are grown as a curiosity, but are useless for production. Large quantities are brought by the steam packets. The Date is cultivated in all parts of Egypt, and it is indigenous, forming immense forests in some districts. The number of cultivated trees is estimated at 4,000,000, and the total crop reaches 15,000,000 quintals. The varieties of Dates sold fresh in the market are Balah ayany (yellow Date) and Balah am'haat (red honey Date). The variety called Bourlasy is a large fruit brought from the sea coast. Among the most esteemed varieties of dried Dates sold in the markets during the winter and spring are Ibrahim Dates (Balah ibrimy), Sultan Date (Balah sultani), Date of Life (Balah aomry), &c. From July till November fresh Dates are plentiful, consisting of varieties ripening at different seasons. Jujubes abound in a semi-wild state, but the fruit of the ordinary kind (Zizyphus spina-Christi) is only esteemed by the Arabs. The fruit of Z. sativa is superior, and the Jujube paste of commerce is prepared from it. Mulberry trees are grown exclusively for the fruit, although sericulture might be profitably conducted. The Papaw is a very prolific and well flavoured fruit in Egypt, but it is not yet generally cultivated. Several varieties of Peach are grown on a large scale, and the fruit is excellent. A clingstone variety of good flavour, resembling the Pêche-a-Vigne of the South of France, is the principal one in the markets of Cairo. A variety with yellow flesh and the violet Nectarine are also grown. The total crop in Egypt is calculated at 15,000 quintals. Pears and Apples, although largely planted to test their qualities, are a failure, as they are tasteless, and the former very gritty. Tamarinds thrive and mature fruit in the neighbourhood of Cairo, but it is not equal in quality to that brought down the river from Soudan, &c. The culture of the Grape Vine at the present day is limited to the production of dessert fruit, and of that not sufficient is grown for home consumption. The Muscat of Alexandria is the principal variety grown. Of the Orange family, the Lemon, Sweet Orange, Bitter Orange, Malta Orange Behl (Ægle Marmelos), Citron, &c., are cultivated on a sufficiently large scale to supply home wants; and, indeed, Oranges are exported in considerable quantities to the islands of the Archipelago. The fruit of the Bitter Orange is used in the preparation of sauces, and the flowers for making orange-flower water. The Sycamore Fig—Ficus Sycomorus—is the largest tree in Egypt, and of which there are some most venerable specimens in existence, dating, according to popular legends, from the time of the flight into Egypt of Joseph and Mary with the infant Jesus. At all events, there are many of great antiquity, and they continue to bear fruit, which is greatly relished by the Arabs. It is estimated that about 15,000 trees have been planted along the roads and about the reservoirs. Several varieties of the common Fig are likewise cultivated for their fruit, which is principally consumed in a fresh state in the country. The number of trees is put at about 500,000, and the annual crop at 20,000 quintals.

The Pomegranate produces about a million fruit annually. It is eaten fresh, and a purified syrup manufactured from it is refreshing and astringent. The Pine may be grown in the open air with slight protection from cold in winter, and shading from the sun in summer, but the fruit is almost flavourless. The Sweet Sop (Anona squamosa), the Mango (Mangifera indica), the Rose Apple (Jambosa vulgaris), the Guava (Psidium spp.), and various other tropical fruits, are grown on a small scale, and mature their fruits. The Olive is an object of special care, and there is an independent market for the fruit at Cairo. The annual yield is given as 1000 tons. The Japanese Medlar (Eriobotrya japonica) and the Quince both furnish a large quantity of fruit, that makes a capital marmalade. Opuntia vulgaris is employed for hedges, the crop of fruit collected annually is returned as 500 tons.

The foregoing extracts from an article of considerable length will give some idea of the products and capabilities of a country that is generally regarded as being unproductive. Much of what has already been achieved is due to the enlightened encouragement of the Khedive, who employs skilful European gardeners.

GREENHOUSE PLANTS.—XXIII.

THEIR CULTURE AND MANAGEMENT.

Statices.—Amongst the whole family of greenhouse plants there are probably none more useful or worthy of cultivation than these, whether for general decorative purposes or for exhibition. There are several points required to make up the properties essential to a really useful flowering plant. It should be moderately easy to grow, and of free blooming habit—if the flowers last long all the better; it should neither be very slow in growth, nor so free as to outstrip reasonable bounds in a comparatively short time. Greenhouse Statices possess these qualities to an extent that few other plants can boast of; hence their increased popularity. The varieties under consideration bear flowers of a dry paper-like texture, and may almost come under the description of Everlastings. The leaves are large—in some of the varieties from 8 to 12 inches in length, by 4 or 5 in breadth. The wood is somewhat soft for a considerable period after it is formed, and until the time when it becomes bare of leaves, which the bottom parts of the branches do as the points of the shoots extend, after which it gets very hard. The flowers of the different varieties here treated of are produced in large bunches, on stout woody stems, and have a calyx varying in colour from blue to pale lilac, which gives a lively and novel appearance, and a white corolla, which latter soon perishes, while the calyx is long-enduring.

The time of flowering varies considerably, according to the treatment the plants receive, but most of the kinds under notice throw up their principal blooming stems early in the spring, and continue through the season as they grow to push additional flowers, that keep on until autumn. The individual blooms, if not allowed to get wet nor placed in a moist atmosphere, last good on the plants for two or three months; if cut when newly opened, and dried quickly, they lose little of their colour, and may be used in vases for room decoration many months, or even years, if kept under a shade free from damp.

Statices enjoy a little closer atmosphere than most greenhouse plants, and do not like full exposure to the sun, their broad leathery leaves offering a considerable evaporating surface; if too much exposed to its influence they assume a bronze-like, sickly appearance, and become a prey to red-spider, but, on the other hand, they must by no means be kept too confined, with little air, or far from the light, or they will not succeed. In winter they require more warmth than most greenhouse plants, and should be kept in a night temperature of about 45°. It is scarcely necessary to say that they must never be placed out in the open air, as it is needful to do with many things in the summer in order to insure their growth being fully matured, as the flowers are produced from the young growth as it is formed. The usual method of propagation is by cuttings made from the small side shoots, which are produced on the principal branches. These, taken off with a heel and inserted singly in small pots in a moderate bottom-heat, will root; but, like most things of a similar nature, must not be kept too close, or the atmosphere of the striking-frame too moist, or they will be liable to damp off.

S. profusa is by far the best variety for general purposes; it has a free-flowering and compact bushy habit. We will suppose the plants to be of the usual trade size, in 5 or 6-inch pots. In selecting them choose such as have been properly managed by early stopping, so that they may have several breaks not more than 3 or 4 inches above the surface of the soil, for if they have been allowed to run up high there is no means of getting the lower branches down to keep the base of the plant well furnished, for the shoots are stiff, and until they have extended considerably, which it takes years for them to do, there is difficulty in bending them. Reject any that have been too long confined in small pots, for the plant is a remarkably free rooter, and unless it is moved on as the roots require space, it gets into a stunted condition, in which case a newly struck cutting would be better, and with liberal treatment progress at a rate that would leave a pot-bound plant behind. If they are procured in autumn, place them for the winter where they can be kept about 6° or 8° warmer than ordinary greenhouse stock, but do not subject them to stove temperature; if they can be accommodated with a shelf near the roof all the better, as the more light they receive in such a situation the stouter and stronger will they grow: so treated the roots will be fully active through the winter, the heads of the plants also making growth—a condition essential to the well-being of all the varieties in every stage of their existence, from a cutting up to the largest size they are capable of being grown to.

If Statices are treated in the winter so as to induce a total cessation of growth, or rest as it is generally termed, by being kept in a low temperature, not only is there loss of time in getting them up to a useful size, but they are much injured thereby, such usage inducing a stunted condition, and the growth for the ensuing season's flower is not made by the time it should be. This will be looked upon as the opposite of sound practice by those who act on the principle of resting all plants through the winter in something like a uniform manner, yet it is this indiscriminate treatment of things collectively, that is the cause of many growers not succeeding with quantities of subjects they attempt to cultivate. There are quantities of plants, and these Statices are amongst the number, that do not need rest in the ordinary acceptance of

the term; by this it must not be understood that it would be advisable or possible, with a view to health in either these or other things of similar nature, to keep them on growing through the dormant season at a rate such as they do in summer, but they require to be kept moving even in the winter much more than many plants do, or success will only be partial. By the beginning of March plants managed as above directed, will be in a fit state for moving into pots 3 inches larger. They do the best in good yellow turfy loam, not broken too fine; nothing being added to it except enough sand to keep it in a healthy, porous condition, yet it should be borne in mind that these, and the generality of other greenhouse subjects which are not intended to have, at any future time, even a portion of their soil removed by shaking out, need a greater amount of sand incorporated with the material they are grown in, than things that can bear a certain part to be removed and replaced by fresh; otherwise, as the fibrous matter contained in the soil becomes decomposed, the whole mass gets too adhesive for water to drain through it freely, and afford a healthy medium for the roots to penetrate.

Statices require much more water than many occupants of the greenhouse, consequently they must be well drained. In potting, make the new soil quite firm, and place them for a week or two where they will be a little close; do not give too much water until the roots enter the new soil, but this advice, as applied to these plants compared with many that have been already treated of, must be accepted in a qualified sense, as the subjects under notice should never be allowed to get so dry as necessary for the well-being of many hard-wooded things. Keep them near the light, but away from cold currents, and as the sun gets more powerful they will require a slight shade during the middle of the day, but never let it stay on longer than needful. Throughout the summer, syringe them overhead in the afternoons, getting well under the leaves to keep down spider, which, if allowed to establish itself, will soon do serious harm. They will continuously through spring and summer keep throwing up flower-stems, which this first season it is advisable to remove as soon as they make their appearance. The nature of the plant's growth does not admit of stopping, as in most things, neither is it necessary, for every flower that is made divides in two the point of the shoot whence it springs, and by this means the plant, as growth proceeds, gets fully furnished. In the hot summer weather they will make more progress stood upon a bed of ashes or similar material than upon a dry shelf, as if not placed on some medium that can supply a moderate amount of moisture around them they suffer more than most things, as from the natural structure of the leaves evaporation is very great. As autumn approaches discontinue the use of the syringe and give plenty of air. Winter them as advised the previous season, and if they throw up any flowers before spring remove them as they appear. In March again pot on, this time giving a 4-inch shift, using the soil a little more lumpy, and treating them this season as in the previous every way except that where it is desirable to get the plants on in size without delay they may be allowed to flower, as they will now be very useful for decorative purposes in the conservatory or elsewhere. When in bloom they must not be syringed, as the least moisture will cause the flowers to damp, but when used in this way whilst young they should not be kept so long out of the growing house or pit, neither must the successional flowers that will from time to time make their appearance be allowed to remain or they will seriously interfere with the growth. As the shoots lengthen sufficiently bring them down a little towards the rim of the pot, for this purpose a few sticks will be required. The shoots are very liable to split out from the point from whence they spring if much bent; to prevent this they should be secured by a ligature of bast bound round the point of juncture, which should remain on for a short time after they are trained. Give similar treatment through the summer, autumn, and winter, as before advised. In spring pot about the same time, giving again a 3 or 4-inch shift; the plants will this summer, if all goes well, make nice half specimens, and should be allowed to flower until midsummer, after which remove all the blooms upon them, as also all that push after this time through the autumn, and encourage growth by attending to them as up to this point directed.

In potting the following spring they will require 18-inch pots; in these they may remain for two years, giving them weak applications of manure-water once-a-week through the summer, when they are again to be moved into pots a size larger; they can be kept in these for several years by a liberal use of liquid manure—this will sustain them in a vigorous healthy state, and is in many ways preferable to the use of very large pots. They may now be allowed to flower all through the summer. None of the varieties are liable to go off suddenly, but it is well to keep a few young plants in hand to take the place of the larger ones as they get worn out. In respect to insects most of those that infest pot plants will live upon them, especially aphides, thrips, and red-spider, all of which soon do serious mischief if allowed to remain undisturbed; the two former can be destroyed by fumigation, the latter is best kept down by a liberal use of the syringe, and if much affected give a good washing of Gishurst, 2 oz. to the gallon.

S. brassicæfolia is a larger-leaved kind than the preceding, and is not so spreading in habit. It is a good, useful, decorative plant, requiring similar treatment.

S. Halfordii is a still larger-leaved variety, and much more upright grower; the flower-stems are not produced in such profusion, but are bigger and more branching.

S. imbricata is a strong-growing, free-flowering sort, with a somewhat upright habit. All these require similar treatment to S. profusa as to soil, temperature, water, and shade, but do not want much training further than just keeping the branches a little open, as they do not bear being much bent; but the flowering-shoots whilst young and pliable should be regularly tied out, so as to form neat, shapely heads. Treat for insects as in the case of the first-named variety. *T. Baines.*

FRUIT GROWING IN THE UNITED STATES.

THE following notes, from a recent report on the trade of San Francisco, will be read with interest. Fruit, it is said, will always be one of the staple products of California, the climate being adapted to the growth of both semi-tropical descriptions and those belonging to a more temperate climate. In Los Angelos, and adjoining counties, Orange and Lemon trees have been planted for many years, but not until lately in very large quantities. In the interior of the State these fruits can be grown quite as well as in the extreme South, it being only necessary to select a suitable soil and a somewhat sheltered position. The receipts in San Francisco from the South last year consisted of 4,544,000 Oranges, and 500,000 Lemons. During the past two years there have been planted an immense number of trees, the produce of which in seven or eight years will probably be equal to the requirements of the whole Pacific States and territories; but there seems to be no reason why, ultimately, the whole of the United States should not be supplied from this State, and as New York usually imports from the Mediterranean about 110,000,000 Oranges, and a nearly equal quantity of Lemons, of an invoice value of over half a million sterling, besides a considerable quantity from the West Indies, the trade must become of some importance. By the time the production is brought beyond the requirements of the coast a southern railroad will have been completed, in all probability running through the heart of the semi-tropical fruit-bearing districts, and it is reasonable to suppose that the growers, with the advantage of railway communication to the large markets of the country, will be able to compete successfully with the European fruit, which suffers a loss of 25 to 30 per cent. on the voyage. An important matter, also, in favour of American growth is that freight by the railway is paid on weight and not on measurement. Orange and Lemon orchards are at present a source of actual wealth to the owners, the produce of each tree netting from 30*s.* to 60*s.* Fifty trees or more are planted to the acre, and the yield of a ten-year-old tree will be 800 to 1000 Oranges, increasing with age to 2000, or even more. Walnuts, Almonds, Figs, and Olives grow luxuriantly over a large portion of the State, and agriculturists who have had the means and the foresight to plant these trees some years ago, are now reaping a rich harvest therefrom.

The product of the Vine during 1874 exceeded that of any previous year, and the estimates of the manufacture of wine vary from 8,000,000 to 10,000,000 gallons. There would be a good demand for Europe, if large orders for any particular class of wine could be executed, but the quality of the wine of the different vineyards varies so much that it has been found very difficult to procure a large quantity of any special character, except that made from the old Mission Grape. The exports by sea during the year amounted to nearly 600,000 gallons and 5400 cases, and by railway as much more was sent.

The profits of a vineyard favourably situated are large when the Vines once begin to bear fruit. From a six-year-old vineyard of the Mission Grape the profit will vary from £20 to £40 per acre. The price for the common Grape is usually about £4 per ton, when sold in quantity to the manufacturers of wine; the better quality commands £5 to £5 10*s.* per ton. The wine from the Mission Grape sells for about 2*s.* per gallon, delivered on board ship or at the railway terminus. A large trade has lately arisen in the curing of fruits, which continues to increase. A process called the "Alden" process has been found to be well adapted to the drying of all kinds of fruit, so that the day is probably not far distant when every farmer who has an orchard of any size will realise the advantage of having a drying-house attached to his establishment. Last year a good deal of the fruit which was being dried in the open air was spoiled by an unusually early rain. Some of the Currants and Raisins sent to the San Francisco market have been equal to the best imported, and as there is scarcely a limit to the quantity of Grapes and other fruits that can be grown in the State, San Francisco ought, with the abundance of labour (Chinese) well suited for the work connected with it, to be able before long to compete with the Mediterranean, and other parts of the world from whence the United States now draw supplies of an invoice value of over £2,000,000. The quantity of dried fruits sent into the city of San Francisco last year amounted to about 850,000 lb.

In Portland also large quantities of fruit and vegetables are grown. Cabbages and Cucumbers are very extensively produced for pickling purposes; and in fruit culture greater interest is taken than ever. Apples are grown of a very superior quality, and orchards are being formed in increasing numbers. It is estimated that the annual value of orchard produce in Maine reaches to some 1,000,000 dols., and this value is increasing. *F.*

THE SPANISH BROOM AS A TEXTILE PLANT.

THE Spanish Broom (Spartium junceum), which is so well known in shrubberies for its ornamental character, has long had a reputation as a fibrous plant; the ancient Greeks are said to have used the fibre prepared from it for making into cloth and cordage, and the pliant twigs or branches they formed into baskets. Its use by the inhabitants of the Tuscan Maremma as a textile plant dates, it is said, from about the middle of the sixteenth century, at which period the fibre was commonly spun into yarn for the manufacture of a coarse kind of cloth. In more recent times, indeed to the present day, the plant is systematically used by the peasantry in many parts of Southern Europe for a similar purpose, being cultivated often on stony and poor soils where scarcely any other plant will grow. The fabrics are mostly made for home use and not for exportation, consequently the supply has far exceeded the demand, and the cuttings of the Broom are largely used for fuel for heating brick-kilns. So long ago as 1785 M. Broussonet recommended, in his *Mémoires d'Agriculture*, the proper cultivation of this plant for textile purposes, but until recently its use has never been developed beyond the domestic requirements of the peasantry around whose homes it thrives. Latterly, however, it has occupied a great deal of attention in Italy, with the view of making it of real commercial value. A Signor Vecchietti has patented a process of preparing the fibre, and at Casciana, a small town about 10 miles from Pontedera, on the Leghorn and Florence Railway, a range of suitable buildings has been erected for the purpose not only of turning out the fibre on a large scale, but also for the manufacture of cloth and other fabrics, cordage, &c. Long experience, backed up with the almost immemorial custom of the peasantry, proves that the best way of treating the plants is by rotting the stems in natural thermal water, the most perfect type of which is found at Casciana, a place long famous for its baths. Two different methods, however, are employed for separating the fibre—one called the natural process, which consists in soaking the stems for four or five days in the waters of the Casciana mineral springs, which have a temperature of 26° Reaumur; the other is called the chemical process, and consists in mixing other ingredients of small cost with the Casciana water: by this process the fibres of the Broom are thoroughly separated from the ligneous portion in the space of three hours. The British Vice-Consul at Leghorn, reporting on this new industry in that neighbourhood, and quoting from a prospectus of a company formed for working the fibre, says that it is capable of almost indefinite subdivision, "and hence it is suitable for the finest fabrics; it retains heat, and may, therefore, supply the place of wool. It is a good absorbent, and takes the most delicate dyes with the same facility as do animal textile materials. It successfully resists the action of acids and of salt water without undergoing any change or losing its tenacity, as has been satisfactorily proved by its immersion for a whole month in dilute sulphuric acid, &c. Its strength is one-third greater than that of Hemp, and it is 13 per cent. lighter; so that with 15 per cent. less of raw material a rope may be obtained, the relative strength of which, compared with one made of Hemp, is as three to two. The price paid to the country people per ton for Broom, delivered at the works, is 50 lire (about £2 sterling), and throughout the neighbouring districts they are rapidly becoming alive to the value of a plant hitherto used chiefly for fuel, which they now find can be made commercially productive."

Some facts connected with the cultivation of the Spartium as a textile plant and of its preparation, as

practised in the neighbourhood of Cahières, near Clermont, Herault, which were first published by the Lyons Society of Industrial Sciences, are given in the report from whence the above extract is taken. In these notes it is recommended that, in making a plantation for the cultivation of Broom, the site to be selected should be a hill-side, where the ground is of little value, and whereon dwarf Oak, Scrub, Heather, &c., prevail. The plant is hardy, and requires little or no care. The seed is sown in winter and, to defray the trifling cost of preparation of the land a crop of Teasels is raised at the same time, the Broom plant being left to itself for three years without any sort of culture beyond an occasional thinning out. For the purpose of extracting the fibre the young shoots are preferred to the older ones, and are cut in February or March. The twigs are collected in small bundles and placed on the ground to dry, when dry these bundles are collected together and stored away for future use. The first damp day is taken advantage of for beating the twigs, which is done with a mallet, sufficient force being used to flatten without breaking them. After this they are placed in a stream for half a day, till thoroughly soaked, when they are taken out and laid upon a bed composed of Fern, straw, or chopped Box, and finally covered with a layer of a similar material, upon which a sufficient weight of stones is placed to keep the whole secure, and protect the twigs from the sun and air, and at the same time they are kept damp by frequent watering, which is continued for about eight days, when the bundles are taken out, washed, and the twigs beaten on flat stones till the fibres are separated. The fibre is bleached by the action of the sun, and when finally combed is white and silky in appearance. A great deal of stress is laid on the manner of maceration, or rotting of the stems, as practised at Cahières. Its effect is said to be "not at all the same as that produced on Hemp when immersed in running or stagnant water, nor does the process consist merely in exposure to dew or rain. The Broom is placed in such conditions that a rapid fermentation takes place, and in a short time the superfluous portions of the plant, which from its toughness would probably long resist the usual methods, are eliminated." As we have before stated, the plant is also largely used for fuel, as well as for fodder for goats and sheep.

BRITISH GARDENERS—XXIV.

PETER GRIEVE.

WHILE the cultivation of the Pelargonium continues the name of Peter Grieve will be a household word amongst gardeners and those interested in gardening, for to him we owe those beautiful coloured-leaved sorts, of which Mrs. Pollock is the type, and which have for some years attracted so much notice, either as greenhouse or bedding plants.

Mr. Grieve was born in December, 1812, at Allanton, a village on the eastern borders of Scotland, situated at the confluence of the White Adder and the Black Adder, two of the lower tributaries of the river Tweed. He received his earliest instructions in gardening in the gardens of Black Adder House, then the seat of Thomas Boswell, Esq., under his father, who was for many years head gardener there. Employment was subsequently procured for him in the then, as now, extensive nursery establishment of the Messrs. Dicksons & Co., of Edinburgh, where he remained for upwards of a year, and was afterwards for nearly a year in the gardens of Dalhousie Castle, the seat of the Earl of Dalhousie. From that place he went as foreman to Mr. Thomas Bruce, in the gardens of Castle Craig, in Peeblesshire, the residence of Sir Thomas Gibson Carmichael, Bart., where he remained one year and left, on being promised admittance into the Royal Botanic Gardens at Edinburgh. He was employed in the various departments of that establishment, for nearly three years under Mr. William M'Nab, father of the present curator; and left to take the situation of foreman to Mr. Barron, at Elvaston Castle, near Derby, the well known seat of the Earl of Harrington.

"After being there two years," he writes, "I accepted the situation of gardener to J. G. D. Butler Danvers, Esq., afterwards Earl of Lanesborough, at his English seat of Swithland Hall, near Leicester, and remained there nearly seven years. Early in the year 1847 I engaged with my present respected employer, the Rev. E. R. Benyon, of Culford Hall, near Bury St. Edmunds.

"I have for a long time taken great interest in the improvement of the various races of cultivated fruits, vegetables, and flowers; and with this object in view I have conducted many experiments—many of which have not been rewarded with the desired results, although in some few instances this has been the case. Notably I may mention the production of Petunias bearing double flowers. The first step, however, in this direction was made on the Continent, where M. Schmitt, of Lyons, in France, introduced a semi-double white variety of little merit, which was named Imperialis. This, with dark-flowered single sorts, I used as parents, and the result in this instance was beyond my expectation. Two of my earliest seedlings, named General Havelock and Antigone, were figured in the first volume of the *Illustrated Bouquet*, by the Messrs. Henderson, of St. John's Wood; and as large, well-formed double flowers they have scarcely been surpassed by any subsequent variety.

"I was also successful in originating the now well-known and extensive family of ornamental-foliaged plants known as the Golden Tricolor, or Variegated Zonal Pelargonium. For some time much interest was taken in these plants by horticulturists and, I may say, by the public in general; and on my exhibiting a small collection of them at South Kensington in May, 1867, the Royal Horticultural Society awarded me the Silver Flora Medal for the production of them. During the same year, when the Society held its first provincial show at Bury St. Edmunds, the county cup, as it was called, was offered for the best twelve seedlings of these plants. This offer brought to the show several collections, many raisers being by this time in the field, and I was fortunate enough to gain the much-coveted cup.

"Some few years after this several admirers of these plants in London and elsewhere thought proper to offer money prizes for the best essays on their production and cultivation, and regarding these plants, as I did, with something of paternal feeling, I of course felt in duty bound, as it were, to enter the

lists. Some seven or more essays were sent in, and were read at South Kensington, and I was the fortunate winner of the first prize.

"I have never, as it has happened, been placed in a position to exhibit horticultural productions to any extent. The only evidence, therefore, of my success, or otherwise, as a cultivator has been furnished by the gardens which I have to some extent remodelled, and which I have managed to the best of my ability," —we may also add, most successfully, as will be in the recollection of the numerous horticulturists who visited Culford Hall Gardens at the time of the Royal Horticultural Society's provincial show at Bury St. Edmunds.

NORTH AMERICAN MAPLES.

WE take the following from the *Monthly Report of the American Department of Agriculture*:—

Maples are very justly considered to be among the most valuable and ornamental of forest-trees. They are natives of north temperate latitudes, none being found in countries south of the equator, nor in the torrid zone. They are confined to North America, Europe, and the temperate parts of Asia. Two of the European species have been introduced into cultivation to some extent in this country. These are the Norway Maple, Acer platanoides, and the Sycamore Maple, Acer Pseudo-platanus. A few other foreign species are occasionally found in public and private gardens, but the Maples of our own country furnish a very interesting variety, to which the lovers of good trees would do well to give more attention. The North American Maples are divided, as to range, into first, the Maples of the eastern portion of the continent; and, second, those of the Rocky Mountain region and the western coast. The eastern species are five, and the western four.

1. The Hard or Sugar Maple, Acer saccharinum, which has its home principally in Canada, New York, and the New England States, sparingly following the Alleghany Mountains as far as Georgia, and west of the Alleghanies occurring on many of the tributaries of the Mississippi. It is one of our largest forest trees, attaining a height of 50 to 80 feet. The sugar-yielding nature of its sap is well-known. Its wood for many purposes of manufacture and for fuel is unequalled. When grown in open ground it forms a broad-based, round-topped head of dense, dark foliage, clean, and usually free from insect depredations, and, taken all in all, probably stands at the head of American ornamental trees, at least for the Northern States. It is of slow growth, and requires care in transplanting and until it becomes well established, after which it will richly repay all the labour bestowed upon it. There is a variety of this species, called Black Maple, said to be so-called from a darker colour of the foliage, which differs slightly in the form and pubescence of the leaves, but not sufficiently so to constitute a distinct species.

2. The White or Silver-leaved Maple, Acer dasycarpum.—This tree is found generally at lower altitudes than the Sugar Maple. It occurs on the borders of rivers, rather sparingly in the New England States, more frequently in the southern and western districts. It forms rather a low trunk, which divides into a great many long branches, with a very graceful, spreading habit. In favourable situations it attains a large size. The under surface of the leaves is of a pale silvery-white colour, and contrasts beautifully with the rich green of the upper surface, especially when tossed by the breeze. It blooms profusely early in the spring, before the appearance of the leaves, and its large, broad-winged fruit ripens and drops when the leaves are fully developed. It is easily cultivated and grows rapidly, and hence is one of our most popular shade-trees. It is, however, liable to some objections; the long, slender growth of the limbs renders them liable to be broken by storms, and by snow and sleet in the winter, and in some districts a borer has caused great loss by injuries to the trunk.

3. The Red or Soft Maple, Acer rubrum.—This has a somewhat wider range of growth than, perhaps, any other species, being found from Maine to Louisiana. It grows in low, rich soil; and on the swampy borders of the large rivers of the South and West it is especially flourishing, attaining a great size. Although less vigorous on high lands, it yet maintains a healthy growth. It does not grow as rapidly as the Silver Maple, but the wood is harder and finer-grained, and the form of the tree closer and more compact. The twigs and flowers are of a deep red colour. It flowers and matures its seeds in early spring; they are only about half as large as those of the White Maple, and ripen at about the same time. The leaves are smaller and less divided than those of the white, and, like them, are silvery or whitish on the under surface. As an ornamental tree, it will probably be found more durable and satisfactory than the Silver-leaved Maple.

4. The Striped Maple or Moose-wood, Acer pennsylvanicum.—This is a small tree, seldom attaining a height of 20 feet, but is well adapted for planting in yards and shrubberies. Its native situation is in mountainous districts, particularly New England, New York, and in the Alleghanies to Georgia. The bark is smooth and light green, mingled with longitudinal blackish stripes. The leaves are large for the size of the tree, with a rounded or heart-shaped base, and spreading into three nearly equal short lobes. The fruit hangs in loose and graceful clusters, and, like that of the Sugar Maple, is not ripe until autumn.

5. The Mountain Maple, Acer spicatum.—This species has much the same range of growth as the preceding. It is a smaller tree, seldom attaining a height of over 8 or 10 feet, being of a bushy habit. The leaves are similar in form to those of the striped Maple, but smaller and more coarsely toothed on the margin. The tree or shrub is quite ornamental, and deserving of cultivation. It becomes more vigorous and grows larger when grafted on the larger species.

6. The Rocky Mountain or Currant Maple, Acer glabrum, Tor., Acer tripartitum, Nutt.—This is a small bushy Maple, growing from 4 to 10 feet high, first occurring in the mountains of Colorado, thence extending southward to New Mexico and Arizona, and westward to Nevada and California. It has small, smooth, roundish, three-lobed or three-parted leaves, somewhat resembling those of a Currant. It generally produces an abundance of fruit, which is about the size of that of the Red Maple. It would make quite an ornamental shrub, and is deserving of cultivation.

7. The Large-toothed Maple, Acer grandidentatum.—This species is found in the mountains of Nevada, thence extending northward to Oregon. It is a small

tree, of slim growth, commonly 20 feet high, but sometimes attaining a height of 30 or 40 feet, and 1 foot diameter of trunk. The leaves are similar in shape to those of the hard Maple, but smaller and usually somewhat downy even when old. The fruit is of medium size, with broad and somewhat spreading wings.

8. The Round-leaved Maple, Acer circinatum.—This tree is common in the forests of Oregon and Northern California. It does not have the upright growth of other Maples, but grows in clumps, several trunks springing from one root, and spreading out in a broad curve, the long, slender branches often arching to the ground, where they take root, and form tangled clumps which offer serious impediment to travel in the woods in which they occur. It seldom attains a greater diameter of trunk than 5 or 6 inches, and a height of from 15 to 40 feet. The wood is hard, heavy, and fine-grained. The leaves have about seven principal ribs, spreading out fan-like from the base to the circumference, united together more than half way, and terminating in about seven narrow lobes.

9. The Great-leaved Maple, Acer macrophyllum.—This is a native of California and Oregon. In the latter State it appears to attain its greatest magnitude, reaching, according to Nuttall, a height of 50 to 90 feet, and a circumference of trunk of 8 to 16 feet. Like the Sugar Maple, it abounds in a sugary sap, which, however, has not been utilised. Its wood is close-grained, hard, and shows freely those peculiar undulations of the grain which are called Curled and Bird's-eye Maple. The leaves are large, not unfrequently a foot long, and deeply palmately five-lobed. The flowers are rather conspicuous, of a yellowish colour, in drooping racemes, and somewhat fragrant. When in bloom it presents a very attractive appearance. The fruit or seed-carpels are larger than those of any other American Maple, and are covered even when ripe with strong, stiff hairs, and hang late upon the tree in conspicuous drooping racemes. This species has been introduced into England, and there makes a fine ornamental tree. It is a pity that it is so little known in this portion of the United States.

TRADE PRODUCTS OF LEH.

UNDER the above title Dr. Aitchison has compiled a book which has recently been published in Calcutta, and though it is not confined exclusively to the natural products of Leh or the surrounding country, but indiscriminate trade terms for all kinds of commercial produce are arranged alphabetically with those which come more within our province, yet so many curious facts are recorded on the natural resources of this somewhat remote part of the East, that we prefer to treat of them here rather than to confine ourselves to a few remarks under the head of book notices. By the use of the term trade products many articles are included which find their way into Leh from various parts of India, or through Leh into Lhassa, &c. Thus, there are some interesting facts connected with the Tea trade, from which we learn that some years back Tea was one of the large trade articles that passed through Leh from Yarkand for Ladak, Kashmir, and Himalayan India. "There was once," Dr. Aitchison says, quoting from *Shaw's High Tartary*, "a form of brick Tea called Kullacha, the bricks made in lengths of 6 feet, imported direct from China to Yarkand. Four of these long bricks made a horse-load, two being carried on either side. This was a very coarse kind of tea, and never was imported into Leh." At the present time Tea is imported into Leh, firstly from India, and secondly from Lhassa. That from India is either Indian produce, chiefly from Palampore, or the produce of China, *vid* Calcutta or Bombay. Further on we read:—"The great mart in the Punjaub for the purchase of 'seaboard' Tea by Yarkandi traders is Amritsur, and green Tea is that which is purchased by them. Lately, Tea in the form of balls, the size of a man's fist, has been greatly sought after for supplying the poorer classes in Yarkand. This is a regularly manufactured article of refuse, called in the trade "gola cha." Whether any of it comes direct from China I do not know, but there can be no doubt as to its being put up in this form both in Calcutta and Amritsur. A good deal of the Tea in the Amritsur market comes from Bombay. Tea, when in the form of bricks, is much more easily transported than that packed loosely. I do not understand why the Indian Tea merchants do not make up the Tea for the Central Asia market in the form of bricks. This could easily be done, and would, I believe, prove a great protection to its quality in transport."

All kinds of Tea in Ladak, even the cheapest, command prices beyond the reach of the Bhotes, consequently numerous vegetable products more easily attainable are used as substitutes, the principal one being the bark of the common Yew (Taxus baccata), which thus forms an article of import into Leh from Kashmir and Kallu. Specimens of the bark collected by Dr. Aitchison in the Leh market have been sent to the Kew museum, where they are now exhibited.

In Yarkand green Tea is preferred by the natives before black. Tea is taken by them in the early morning, and is drunk with sugar and milk, ginger preserve being sometimes added. A weak infusion without either sugar or milk is partaken of freely during the day. Of the Yarkandi's manner of drinking tea Dr. Aitchison says:—"It seems to be with them a common custom not to mix the sugar with the tea, but, firstly placing a piece of sugar in the mouth, they drink the tea over this. The Bhotes, on the other hand, make a regular soup of their tea, mixing it up with butter, flour, the dried flesh of Apricots, and salt called 'phuli,' occasionally adding sugar. What I tasted of it," says the author, "had it not possessed an excess of phuli (salt) I could not have recognised from good chocolate. But this was given me in the house of a well-to-do landholder. I can fancy that churned in the houses of the poor it is a very nasty concoction." In Kashmir the natives drink their tea in the form of a decoction, in which they mix numerous spices.

The Pomegranate (Punica Granatum) grows profusely in Yarkand, where it is known by the name of Assar, and produces very large fruits with a thin rind. They are rarely imported from Yarkand to Leh, but Dr. Aitchison says he has seen at the latter place a Pomegranate quite as large as a child's head that had come from Turkestan. With regard to Charras, or Churrus, the resin obtained from the Hemp plant (Cannabis sativa), and so much used in India as a narcotic, we are told that it is produced very largely in Yarkand, and quantities are sent from thence into Leh. The plant grows from 8 to 10 feet high, and is an annual crop, requiring to be freely watered. It used to be grown in open fields in large quantities, but its cultivation is prohibited by the present ruler of Yarkand, consequently the plants are now grown only in single rows round fields of other crops, to avoid observation as much as possible, and a consequent breach of the law. The best Churrus is produced from the flower of the plant, and the product of each farm, which is never very great, is made up in the shape of small balls, which are collected from the several farms by middle-men. The best Churrus is kept in the original ball, but the inferior kinds are made up into bundles, and often very largely adulterated, chiefly with the mealy part of the fruit of an Elæagnus, probably E. hortensis, specimens of which, sent by Dr. Aitchison, are in the Museum at Kew. The very finest Churrus is produced in Karmak, near Yung Hissar, and this all goes in the shape of balls to Bukhara and Kokan. The produce of Postgraum and Kurgilik is of inferior quality, that from the last-named place having the worst reputation both for the actual quality of the resin itself, as well as for the extent of its adulteration. It appears that no Churrus of really good quality ever goes to Leh. Dr. Aitchison says what he saw was considered by traders as but third-rate, and from their description of what good Churrus is, together with what he saw at different times, he could well understand it to be a "solid, oily, clay-like mass, of a dark greenish-brown tint, with a strong, pungent, aromatic odour of an unpleasant nature, which, when broken, has much the appearance of the fracture of good oil-cake." This description of Churrus agrees perfectly with some fine specimens in the Kew Museum, where three qualities are exhibited, sent many years since from Yarkand by Colonel Strachey. Another and a distinct form, also contained in the above collection, and received from Nepal, has the appearance of a compact mass of dark resin which has been compressed in a mould while in a plastic or semi-fluid state. In continuation of this subject, an account of which is given at p. 494 of Fluckiger and Hanbury's *Pharmacographia*, we quote Dr. Aitchison's own words. He says:—

"Owing to the oleo-resinous tenacity of its particles, good Churrus should not separate easily, but if much exposed to dry heat, as in the Punjaub, it rapidly deteriorates, losing its essential oil, its particles become less coherent, and it gradually becomes more like dry mud in consistency, as well as much lighter in weight; where it has already been adulterated, these changes take place much more rapidly. The high prices given for this poison in India induce adulteration and fraud to be largely resorted to. Nearly all the Churrus that reaches Leh is exported to India, a very little to Kashmir, and still less, for the first time during 1872, to Changthau. It is packed up in coarse cloth firstly, and then has a raw hide carefully sewn over the mass; each package is oblong, and usually has a portion of the cloth at each corner left out so as to act as handles for lifting the load, and weighs 60 seers or 120 lb. Two of these form a Yarkand horse-load, and owing to their solidity and heaviness they are often recovered, when by accident they fall into a hill torrent, being too heavy to be carried away by the stream."

"Upon entering British territory all Churrus has to be taken to the nearest magistrate, before whom it is weighed and sealed, a certificate of the weight being given to the owner, who is responsible for its weight being the same as that entered in the certificate, and for the seals remaining uninjured. The trader can only sell legally to a licensed wholesale purchaser, who has obtained his license in the following way, viz., by purchasing it at a public Government auction, the money thus produced by the sale being credited to the revenue as part of the Abkair tax.

"Before leaving the district the trader must obtain a permit from the magistrate, allowing him to take the Churrus to the special mart to which he wishes to go *en route* to which his Churrus is liable to be examined should any suspicion arise of its having been tampered with.

"Taking into consideration that the growing and collecting of this noxious poison costs little trouble or labour in the country where it is produced, and the enormous profit it gives to the merchant conveying it to India, as well as to the wholesale dealers who have the monopoly of its sale, I would strongly urge upon the authorities the desirability of placing such an extremely heavy import duty upon it that it would ensure the nearly total extinction of the Chinese trade, more especially when we come to consider the evils produced by its use upon those who either eat or smoke it, as I believe half the insanity of the Sikhs in the Punjaub is due to this poison, and many of the crimes which they have committed can be traced back to its influence. So little do persons know what they are doing when affected by it, that to my knowledge a European, who for amusement took a small dose given to him by a servant, was found the next day wandering about a military cantonment, some 30 miles from his own home, with his clothes all torn, leading a horse, totally unconscious of how he had come there, or where he was. Had this man committed any crime during the period of his oblivion it would have been impossible to have saved him from the law, and certainly under those circumstances no one would have credited his story. No criminal act having been committed, his story was at once believed. Many similar cases occur, with the addition of a criminal act, for which the individual has suffered the extreme penalty of the law. In one case, assuredly, to my knowledge, a man was hanged for the murder of his intended wife and mother, which was committed while he was under the baneful influence of Churrus."

Passing on to a subject of a widely different character, that of the manufacture of paper, a subject that has attracted considerable attention on account of the softness and tenacity of Indian papers, which are largely made from the bark of Daphne papyracea—a plant the bark of which has been credited with producing the so-called India proof-paper, but which has lately been shown to be a Chinese manufacture from young Bamboos—we learn that no paper is now made in Ladak. All that is required for use there is imported from the surrounding countries of Turkestan, Kashmir, India, &c. At one time, when paper fetched a higher price in these countries, Ladak used to make its own paper from the bark of the roots of Astragalus strictus. All the paper in Lhassa seems to be made from this material, which, from the specimens sent to Kew by Dr. Aitchison, would appear to make excellent paper. A sample of the bark I sent at the time to Mr. John Evans, of Nash Mills, Hemel Hempsted, who reported upon it favourably as a paper material, the great objection to it being the dust contained in the outer portion. In its rough state it would probably realise about £7 per ton, but cleaned it might be worth about double that sum; but even at this rate it could not be imported into Europe. "The cost of carriage from Leh to Amritsur would be always more than that." "It might, however," Dr. Aitchison says, "be worth the while of the Kashmir merchants importing it as far as Gundarbal—their great paper factory. There is certainly one great objection to its being exported from Ladak soil. On those arid hills are few plants, and this is one of the few that yield grazing," so that if it were collected for exportation the little grazing there is would be considerably diminished.

Dr. Aitchison endorses what Royle said so far back as 1839 in advocating the introduction of the North American Sugar Maple (Acer saccharinum) into the valleys and slopes of the Himalaya, but considers it would also be of great benefit to the people in many parts of Kashmir and Ladak. *John R. Jackson, Kew.*

CELERY, ITS CULTURE AND CHARACTERISTICS.

CELERY takes rank amongst the most popular of salad plants, though its use as such cannot be said to be of very great antiquity; even though the genus from whence it is derived, and indeed the identical species, has been long noted, and often praised for its highly meritorious medicinal properties. The species is to be found growing in a wild state abundantly in the marshy districts of Essex and Kent—particularly around the Isle of Thanet—and elsewhere. The names originally given to this particular species, in Britain, were variously "Smallage," "Water Parsley," and "Marsh Parsley"—the shop, or Latin herbalists' name having always been the true generic one belonging to the family generally, viz., Apium—sometimes Apium palustre, as belonging to the water;

"a water plant," and closely allied to Parsley; and being by ancient writers confounded therewith. Now, however, Parsley proper belongs to the genera Petroselinum, and a very necessary and proper distinction is confirmed.

Referring for a moment to its ancient history, it may be mentioned that Pliny remarks that Smallage possesses a peculiar virtue against the biting of venomous spiders. Reference is made to it also, and in some instances plates are given, in such old works as Robert Morison's *Historia Plantarum universalis Oxoniensis*, published 1680; in *Caspari Bauhini Pinax et Prodromus*, published 1671; *Jacobi Peteveri Herbarium Britannicum*, published 1702, and many other old authorities—the chief virtues attributed by such old writers being variously as follows:—1, an antidote to "the yellow jaunders"; 2, "it cureth ulcers of the mouth"; 3, "leaves boiled in hog's grease cureth whitlows, and proud-flesh formations generally," &c. We possess no reliable data as to the name "Smallage," and can only surmise that it may have originated from its known quickness of growth, or its attainment of a large size at a small age!

Historically, we are open to believe that the plant remained uncultivated and totally unheeded, save for its medicinal properties, until late in the seventeenth century, as we find no reference to the name Celery until about that date. The specific name, graveolens (Apium graveolens), or strong-smelling, we find for the first time in the *Flora Cantabrigiensis*, published in 1785. Perhaps this is not greatly to be wondered at, when it is considered that it always had the character of being (as found growing wild in ditches) a highly poisonous plant—a character not unfrequently given to Umbelliferous species—and more particularly such as grow in low marshy districts, which are known to assimilate and store up deleterious narcotic properties. It is a known and readily admitted fact, however, that even marsh plants, grown upon a hill, change their narcotic principles, and become possessed of more aromatic virtues; hence it is that Celery becomes wholesome to a degree, which is increased by the singular practice of blanching its leaf-stalks previous to use, whether in a raw or cooked state. A variety known as Celeriac, a Turnip-rooted form, is much appreciated by many; and a so-called Turkish variety is said to be more esteemed, according to old data, than our own indigenous Apium graveolens.

In regard to culture we need say but little concerning Celeriac, other than that it requires to be raised in beds from seeds somewhat early, in the same way as the ordinary varieties, which we shall deal with presently. It has subsequently to be planted out on to thoroughly good rich ground, and requires no earthing-up, though it should be very frequently hoed round, to prevent side shoots from forming, as they often will do, to the detriment of the size and quality of the crop.

Turning our attention to purely cultural considerations in connection with ordinary Celery it may be said that the whole *modus operandi* is of the simplest kind, providing that three primary considerations are kept in view. These are:—1, the quickest possible growth; after being planted in trenches; 2, entire freedom from "running," or bolting, which gives in effect piped and indifferently flavoured produce; and 3, perfect and complete blanching. With these aims in view we proceed to study the shortest road to their attainment.

Where a very early supply is required it will be necessary to sow a limited quantity of seed between the 20th and the end of February, and this sowing should consist of a dwarf white variety. It is important that a limited sowing only should be made at this time, as early sowings are invariably given to "bolting," if kept long unused after about the month of September. Subsequently the sowing for the permanent crop should be made in the month of March, from the 1st to the 12th of the month. In the case of old seed (and Celery seed will keep and germinate indefinitely) the sowing should be made at the first date or even a little earlier, as it generally takes much longer to germinate than seeds that are quite new. Where room can be spared it is highly advantageous to sow but thinly, as when too thick sowings are made the young plants become drawn and over attenuated during their infancy, and rarely succeed so well as when capable of starting with proper or natural strength and robustness. Personally we always resort to the practice, when sowing Celery seeds, of blowing the smaller, lighter seeds, out of the sample, believing that the finer and larger the individual seeds are, so relatively will they be capable of producing a stronger progeny.

The seedlings thrive best in deep pans or boxes, which have been well crocked, so as to insure a good drainage, and filled with a very rich compost, fully a third of which should be well decayed leaf-mould. As soon as the seeds have germinated it will assist their growth greatly if the pans or boxes are placed where a moderate amount of bottom-heat can be given, insuring them at the same time an abundance of air and a very plentiful supply of water. Immediately they show the least symptoms of crowding they should be thinned out or transplanted into other pans, &c., where they can perfect a more sturdy growth than it would be possible for them to do if permitted to remain in their original seed pans. As they advance in growth they must be gradually inured more and more to the external air during all mild periods, and be so treated until they have again become unduly crowded. At this time—which, in so far as the main crop is concerned, will be about the beginning of the month of May—a bed must be made up for them, either in a pit proper or upon a sheltered sunny aspect, whereon they can be again transplanted at goodly distances apart, and where they can remain until such time as they are planted out into the trenches. This bed, wherever it be, should be formed of fermenting materials, sufficient in quantity to afford a moderate bottom-heat of 70° or 80° only. Upon the fermenting materials, which for convenience may be placed in a trench dug in the ground, a layer of good rich soil and manure in about equal parts should be placed to the depth of about 6 inches or more. On this transplant the seedlings in rows 3 or 4 inches apart all ways. Water them well in, and subsequently shade them effectually until such time as they take hold of the ground, and are capable of withstanding the full force and influence of the outer air.

Where a pit or frame cannot be spared for Celery, a temporary protection should be formed of hurdles or woodwork, covered in turn by mats, &c., until such time as the plants have obtained a good hold, and no further danger from frost is anticipated. The only subsequent attention until the final transplanting takes place, will be to afford them constantly abundant periodical root-waterings, aided by good superficial waterings occasionally according to the weather.

The next operation consists in the forming of trenches and transplanting the seedlings so prepared therein. The trenches formed for the earlier crops should be deeper than for subsequent plantings, and they need not be so wide besides, from the fact that they will need to be as cool at the roots as possible in the former case, and will not require moulding up nearly so much as the more permanent crops require.

The trenches for the first planting should be 8 or 9 inches in depth, and from 4 to 4½ feet apart at the outer edges. Those which are made at a later date should decrease in depth an inch or two at every later or separate planting, whilst the width between the trenches of such as are to stand through the winter might be gradually increased up to 5 feet. Another method is employed by some culturists, viz., growing duplicate, or triple rows in one and the same trench; for which purpose the trench requires to be in the latter case from 4½ to 4¾ feet wide and 9 or 10 inches in depth. The whole of the soil is moved on to either side in equal proportions, and a thorough good coating of manure is placed in the trench and well dug in. This being done, if the weather is very dry it is well to let the whole receive a thorough good watering with rich liquid manure, if possible, and then to lie for a day or two to somewhat settle and bind together, when the plants are carefully planted therein in rows, about ten to twelve inches apart, the plants being about seven inches asunder in the rows. After planting, another good soaking of clear water is immediately given to settle the soil well around them.

The after attentions required during the subsequent months, and until such time as the earthing-up process commences, consists primarily of thorough periodical soakings made alternately with pure and strong manure water, and frequent hoeings or stirrings of the soil in the trenches on either side of the plants after a real growth has taken place, and to be repeated a second time if necessary, following a subsequent free growth. All the smaller ripened or outgrown leaves and side suckers should be carefully removed from around the base of each plant. When following the last operation of this kind an inch or two of soil should be worked down from the sides of the trenches evenly over the roots and around the plants. The various successional crops should, from this time forward, be treated systematically, the earlier one being moulded up as quickly as the plants, being of sufficient size, will admit of it, and accordingly as the crop is required for use, whether in August, September, or October. Owing to various causes the Celery supply is demanded during the former month, and must therefore be forthcoming. We are open to confess, however, that the real nutty characteristic flavour of good Celery rarely exists, if at all, until long and frosty nights occur in the natural order of dates.

The permanent earthing-up of any crop should not be undertaken at less than two distinct operations, following the preliminary soiling already suggested. To perform the earthing-up process successfully, care is needful not to crowd the soil in bulk or masses too lumpy, or in huge spadefuls up to, around, and against the plants. Hence a period ought to be chosen when the soil is in the best possible working order, and it should be chopped down from the trench sides a little at a time, and broken up as small and as fine as possible.

At the final earthing-up of any row—and this should always be done where possible five or six weeks before the supply is needed for use—it will be necessary to place the soil very closely and firmly around the plants where it meets their apices at the top of each mound, otherwise the air may get in and travel down the leaf-stalks so as to deter them from blanching as expeditiously as they otherwise would do. It should be understood, however, that the necessary compression of the soil, as suggested here, need not be followed out in any case other than at the final earthing-up. Following the earlier supplies, the second or main crop must have the mounds formed thicker and larger, the better to ward off the severe frosty weather, should such ensue. We should, however, except a row or two of later sown or trench-planted-plants, which, being smaller in size and needed for later use, should be more or less exposed to the air, in view of retaining them in a stationary condition until the early spring months, at which time a little more soil may be placed to them. It may be well to remark here a fact, as being somewhat apposite to the above, that Celery does not, or will not keep indefinitely after it has once become blanched. Being in a purely artificial state, it soon becomes rotten if an attempt is made to retain it beyond a moderate limit.

Should a frosty period occur, some form of litter must be placed along the apices of the rows, to ensure the plants immunity therefrom, as even if the trenches be very thick and safe against such, it will often travel down the leaf-stalks, to the great destruction of the crop, particularly from the keeping point of view. One remark we deem worthy of making in conclusion, which is, never, where it can anyhow be avoided, dig up the produce until immediately before it is needed for use, as to do so is to reduce its tenderness quite 40 per cent. *William Earley, Valentines.*

PLANT GOSSIP.

The Meadow Saffron, Colchicum autumnale, is well known to be a virulent poison, but fortunately it is nowhere in this country very abundant. In some parts of Germany it is otherwise, and it is reported to be often fatal to cattle, and in grazing districts is a serious evil. It is a difficult task to eradicate bulbous plants, but a writer in the *Hamburger Gartenzeitung* states, that if not allowed to seed the Meadow Saffron will die out in about seven years, and therefore recommends early mowing as the most practicable mode of destroying it. This practice would doubtless tend to discourage the growth of the plant; but we fear a much longer period would elapse before it finally disappeared, if, indeed, it is not capable of perpetuating itself from its bulbs. A high price is still given for the seeds for medicinal purposes; and it appears, too, that it is used by some German brewers to adulterate their beer; but the detection of this abominable crime is visited with a very heavy fine.

—— Gardeners and garden lovers on the look-out for a good herbaceous plant should inquire for Morina Wallichiana. It is not so often seen as its merits demand. Its foliage, though much smaller, reminds one of an Acanthus, and the elegant pink flowers are borne on a slender stem, well thrown up beyond the leaves.

—— It is often difficult to get plants to do well under the Shade of Trees. We lately saw the difficulty overcome in a very satisfactory manner in the garden of Miss Hope, of Wardie Lodge, near Edinburgh, where the plant used was Saxifraga umbrosa, or an allied species, which formed a perfect carpet under the trees. It is occasionally cut over, which induces the plants to throw out offsets, and keeps them of a neat habit.

—— Kœlreuteria paniculata is a handsome ornamental deciduous tree of small dimensions that is not so generally planted as it deserves to be. In its picturesque irregular habit of growth, in its foliage, and in its flowers, it offers attractions of a high order. Although more than a century has elapsed since its introduction, and almost every nurseryman of note includes it in his catalogue, it is very seldom seen in old establishments, and less frequently planted in new ones. Doubtless many persons would call it ugly, for the very same reason that others admire it, namely, its irregular growth. To persons having an eye only for trees of symmetrical growth, we should recommend neither this nor the still more quaint Cercis Siliquastrum. The leaves of Kœlreuteria are about a foot long, unequally pinnate, with irregularly lobed and toothed leaflets of different sizes, and in June or July the tree is adorned with large erect panicles of showy yellow flowers at the ends of the branches. These are succeeded by curious bladder-like seed-vessels. It is perfectly hardy, and attains a height of about

20 feet; but it is of slow growth, as are most trees of irregular growth that we can call to mind at the present moment. It is a native of North China, and recently a closely allied tree, Xanthoceras sorbifolia, has been introduced from the same region. This has leaves resembling those of the Mountain Ash, and white flowers with a purple eye.

—— Among hardy flowering shrubs few are more effective at the present time than the DOUBLE-FLOWERED VARIETY OF RUBUS DISCOLOR, with very numerous narrow rose-pink petals. The foliage of this Bramble is very handsome, being of a dark green above, and light, almost glaucous green beneath. Trained up a stake, or allowed to ramble over other shrubs in the wilderness, it is very attractive, when covered with its long spikes of flowers. The same thing is sometimes called Rubus fruticosus flore-roseo-pleno.

—— The following CACTI are reported as hardy in Ghent, Belgium, and should therefore prove so in this country:— Opuntia bicolor, O. Rafinesqui, Echinocactus viridiflorus, and Echinocereus phœniceus. O. Rafinesqui has proved hardy in various parts of the kingdom, under favourable conditions, but the long lists of Cactaceæ reported from time to time as hardy, have dwindled away to almost nothing.

—— The origin of that finely variegated and useful decorative FUCHSIA SUNRAY, which is believed by many to have originated as a sport, shows that it was a seedling. It was raised from the variegated Cloth of Gold, fertilised with pollen from a single Fuchsia having a white tube and sepals and a red corolla, by Mr. George Rudd, Undercliffe, Bradford, who has also produced some fine Fuchsias, which have been named and put into commerce. Several seedlings came from the cross, but Mr. Rudd observed a spot of white on a leaf of one of them, and finding it to be a promise of variegation, he, in the autumn, cut the plant back to this particular leaf. The following spring it broke into the beautiful variegated form it has never lost. Mr. Rudd is now blooming some very promising hybrids obtained from F. fulgens, F. corymbiflora, and others, some of which will no doubt be heard of in course of time.

—— We never saw the MOUNTAIN ASH more beautiful than it is this season, never so heavily laden with its large clusters of scarlet fruit. It is a handsome tree at all seasons of the year, in foliage and in flower, as well as in fruit. This and its congener the White Beam should not be forgotten in forming an ornamental plantation, especially as they will both succeed on a great variety of soils.

MR. FRASER'S NURSERY.

MR. JOHN FRASER'S extensive nursery at Leyton, supplemented by some 70 or 80 acres of forest land at Woodford, is one of those in which general nursery stock is grown in large quantities. Thus we meet with extensive breaks, embracing quarter after quarter, of the different hardy fruit trees, as Apples, Pears, Plums, Cherries, Peaches, and Nectarines, &c.; quantities of the more useful forest and ornamental trees and shrubs; Rhododendrons and other American plants in considerable numbers, and flourishing admirably; Roses, standard, dwarf, worked, and on their own bottoms, in quarters and in pots, by thousands; Ivies in pots, a very extensive and choice collection; besides the various other descriptions of stock which are looked for in establishments of any pretension. The indoor department is equally comprehensive, for besides a good general collection of stove and greenhouse plants, there is house after house of prime young Indian Azaleas, neat, stocky, healthy plants, nicely set with bloom; and thousand after thousand of the best winter-flowering Heaths, just grown up to blooming size. In one house we saw a Lapageria, bearing its curious oblong nipple-pointed fruits by the score; in another a good general collection of Heaths; and in another quite a little stock of the pretty variegated variety of Daphne indica called elegantissima, and which was certificated by the Floral Committee in 1870.

Our object in visiting this nursery was, however, not so much with the view of looking at such subjects as the foregoing, important as they are from the commercial point of view, but knowing Mr. Fraser to be a grower of Continental novelties among the hardier classes of florist's flowers, such as Phloxes, Pentstemons, &c., we went to see what were the most interesting productions of this class he was now cultivating. Some of the newest sorts were not yet advanced to a blooming state, but we found several worthy of being noted, and without regard to their special novelty we will here record the names of such sorts as appeared to us specially worthy of commendation.

Among Phloxes were many fine and brilliant sorts, namely, Coccinea, a bright but dark carmine-crimson; White Lady, the best of the whites in the decussata section; Menotti, lilac with white eye, very distinct; Lothair, light salmony scarlet with dark eye; Madame Cuillard, bright salmon with dark eye; Madame A. Dumesnil, white with purple eye; Madame Maissonneuve, white with crimson eye, and somewhat flushed; Rivière, fine salmon-scarlet with dark eye; Mademoiselle Hermine de Turenne, purple-crimson; Madame Durenne, lilac with broad dark purple centre; M. Guldenschuch, rosy pink with dark eye; Mademoiselle Marie Saison, white with purple eye; Coquette du Parc de Neuilly, white with bright purple eye; Resplendent, carmine-scarlet; Madame Godfrey, bright purple; Eugénie Imer, white with delicately-tinted purple eye; Mons. Jigne, rosy salmon with dark eye; Comtesse du Turenne, white with delicate purple eye, a very chaste-looking flower.

The most striking of the Pentstemons flowering at the time of our visit were—Le Grand Patriote, very purple; Helvetie, white, with pale purple edge, very distinct; De Candolle, purple, with white tube; Courage and Madame Clement, both veiny rose; and Alger, a smaller flower, but remarkable for its purple tube and crimson face to the limb segments. Of new Pelargoniums we specially noted Vicomte de Nadaillac, a scarlet semi-nosegay, with very large trusses; and Auguste Fabre, a fine rosy pink.

Verbenas, which we seldom meet with now in bedding arrangements, though they are so varied and so richly coloured, Mr. Fraser seems to nurture as one might any other "unprotected" object, and our attention was particularly called to some German varieties, which seem to have inherent vigour of constitution, such as our English varieties once had, but which many of them now seem to lack—a fact which may, perhaps, account for the general neglect into which they have fallen. Some of the most distinct-coloured of them are the following, which are worth a trial as bedding plants:— Baron von Bookheim, bronzy scarlet; Rudolph Brandt, purple, with white eye, somewhat recalling the fine old bedding plant of yore, Lantana Selloana; Moritz Schulz, deep claret, with small white eye; Baron von Apraxine, rich violet; Hofgartner Noak, rosy pink, pale scarlet eye; Baronin von Paussinger, rose with crimson eye; Alemaine, deep rose-pink with white eye; Theodor Emmel, light vermilion, with white eye; Paul Vas, deep scarlet with dark eye; La Loire, maroon with white eye; Gruss van Strassburg, orange-scarlet with large white eye; and, finally, an English sort called Lady of Lorne, blush with an amber-tinted eye.

Two new Heliotropes in the collection entirely supersede all others which have come under our notice. The lighter coloured of the two, named Surpass Guascoi, is in fact far in advance of any other sort. It is strong-growing, of erect habit, with very large corymbs of flowers which open of a lilac colour, and fade off to a French white, so that it belongs to the light-coloured series; these corymbs are often as much as 6 inches across, with an angular outline, the individual flowers being large, and the trusses very freely produced, and furnishing an abundant succession. M. Sement differs in being of spreading habit, and in having flowers of a dark-reddish purple, freely produced, in moderate-sized trusses. It is the best of the dark-coloured varieties.

KNIPHOFIA MACOWANI.

WE are indebted to the kindness of Mr. Green, the Botanical Nursery, Holmesdale Road, Reigate, for the opportunity of figuring this charming addition to the genus Kniphofia. The plant (fig. 59) was raised by Mr. Green from seeds sent from South Africa to W. W. Saunders, Esq., by Mr. Macowan. It subsequently flowered in Mr. Green's nursery for the first time in England in September last, and on the following 7th of October it was shown before the Floral Committee, and gained the highest award that body could make to it—a First-class Certificate. It has also been figured in the *Botanical Magazine*, tab. 6167, from whence we extract the following description, from the pen of Dr. Hooker.

"Root of stout fibres. Stem as thick as the thumb at the base, clothed with the rigid fibrous nerves of the old leaves. Leaves 1 to 1½ foot long, suberect, one third of an inch broad at the base, narrow subulate, strongly keeled, triangular at the back, deeply grooved, margin strongly toothed, tips flattish. Scape as long as the leaves or longer, slender, cylindric, with one subulate bract or none. Raceme 3 to 5 inches long, cylindric-ovoid. Bracts one quarter of an inch long, ovate-lanceolate, acuminate, white, membranous. Flowers very shortly pedicelled, deflexed, yellowish passing into bright orange-red; tube nearly cylindric, rounded at the base, not contracted above the ovary, slightly narrowed from the lower third to the throat; segments one-twelfth of an inch long, rounded, spreading.

As a low-growing plant for the front portion of a flower border, or for pot-culture, this dwarf-habited species of Kniphofia will prove to be an acquisition.

Foreign Correspondence.

THE BALEARIC ISLANDS.—In a report on the trade of the Balearic Islands Mr. Consul Bidwell gives an interesting account of the Olive tree and of the gathering of the fruits for the extraction of the oil, from which we take the following particulars. It seems that very few, if any, Olives are produced in the Island of Minorca. In the districts of Inca and Palma, however, the largest results are obtained. In the latter about one in every six hectares of land under cultivation is devoted to Olive growth. The manufacture of oil, therefore, in these islands is of very great importance, and might, it is said, easily be increased. In all situations where the ground beneath the Olive trees is capable of cultivation, the practice is invariably followed.

The Olive tree originally grows wild in the mountain land in these islands as a shrub, producing a fruit which gives no oil. When brought under cultivation grafting is practised. "The ancient historians of Majorca recount that in olden times the Olive was unknown in these islands, and that the art of grafting was taught to the islanders by the Carthaginians. By the appearance, however, of some of the enormous and ancient-looking Olive trees one sees now in Majorca one would be tempted to believe that their existence dates as far back as the period to which the historian refers. We once ourselves," says Mr. Bidwell, "asked an intelligent Majorcan farmer how old he thought some of these trees were, and his answer was, 'I believe they may well date from the time of the Flood.' It is a remarkable feature in the growth of these magnificent trees that one seldom or never sees two alike. Almost all, in the course of time, assume most grotesque forms, and upon old trees, whose trunks are rent open and torn into half a dozen shreds, one often sees the finest crop of fruit; while in Majorca they have in some places attained proportions which remind one of the forest. We have more than once walked round such trees, the rent trunk of which would now require the outstretched arms of half-a-dozen men to encircle; whilst one doubts, from the wild growth of these trunks, whether the branches proceed from one tree or from two or three congregated together."

The finest virgin oil known in commerce is pressed from the fruit with great care and without the aid of heat; other qualities are obtained by the application of heat and of greater pressure. The quality of virgin oil produced in the Balearic Islands is excellent, but the quantity is very insignificant. Samples shown at the International Exhibition at Vienna gained prizes, but the care required to produce such oil is not often exercised. All the oil that can be squeezed out of the Olives by means of the antiquated machinery still in use is generally poured into one common tank, and left to clarify as best it may; or, at most, the Olives are roughly sorted, the inferior ones being made into oil for the soap boilers. The fruit, whether ripe, over-ripe, half green, or wholly rotten, or whether it may have been knocked down by the beaters' canes, or beaten down by the wind and rain in stormy weather, and trodden under foot, is too commonly all picked up about one time by the women and children who are employed at the gathering season. It is then, after being sorted or not, as the case may be, crushed under the millstone, and the oil drawn by the application of boiling water. The refuse of the Olives, after the last crushing, apparently still containing a good deal of oil, is used for keeping up the fires for boiling the water. More magnificent Olive trees, or a finer kind of fruit than those grown in these islands are, it is said, probably nowhere to be found, "but the oil, from being unrefined, is often acrid in taste, and inferior to that of other countries. The Olive crop of 1874 was a very inferior one, both as regards quality and quantity, and the oil of this season is dearer than it has been for many years past."

THE FARM.

POULTRY: GEESE.—The management of geese for trade purposes, or on a large scale, is so well described in various poultry manuals of good authority that it requires no further comment, but for amateurs with only a small extent of ground a few hints may be acceptable as to the method of rearing what, without some care, is such a disagreeable and vociferous inmate as sometimes to be almost intolerable.

Where the object is merely to secure a few birds as an occasional variety for the home table, the hints apparently intended to be ironically conveyed in the old adage are worth bearing in mind—

"At Candlemas Day, good housewives' geese lay;
At St. Valentine, your geese lay, and mine:"

as, besides other reasons which will suggest themselves at once to poultry-keepers, it is not desirable that the sitting of the goose should take place just in the

coldest weather, and also it is better for the goslings (and infinitely more convenient for those who have the care of them) that the hatching should be when they may safely be allowed to go out on the grass in the fresh air during part of the day, rather than when they must be protected from snow, and fed entirely on what is provided for them. This is a point, however, on which opinions differ, but looking (where only the common management of farmyards or gentlemen's homesteads is concerned) at the usually greater success of the later broods, it seems to point to the season when some degree of warmth has returned as being the most desirable; and as far as my own experience goes, I would let the first sittings be as late as the circumstances of the case permitted, and would put aside the two or three first eggs laid by each goose as less likely to hatch properly than the others.

For domestic supply one gander, and three, but at the most not more than four, geese would probably be ample; and the amateur should be careful to select for his stock, to begin with, birds which he can be certain have succeeded well before. The goose lays and sits well for many successive years, consequently it is of no importance to have her in her first youth, and the trouble or rather greater expense of selecting the whole set as known birds will be well repaid in saving future disappointment.

When the goose is about to lay, a nest should be made for her in the place where she is wished to sit, and if possible it is well to let her choose her own locality, but always with some limit both to the bird's and also the dairywoman's selection. Probably Mansie Wauch's goose, that was made "a laimeter for life" by being shot in the leg through the side of the best washing-tub, was not a mere flight of fancy, and a disused milk-pan or shallow tub, or box well filled with straw, and with a turf at the bottom, is no bad arrangement for a nest. The goose, or the eggs, can be easily got at for anything that has to be done, and by placing the whole affair in a shed with a door the goose may be made to lay as desired by being always kept in till the egg has been produced.

Sometimes the nests are arranged side by side, each in a little wooden pen in a covered shed; but where the goose takes a fancy to lay in some properly secured place close to a pond this is the best of all. She then will probably go off the nest daily without requiring to be disturbed, and, after taking her swim and the food, which should be placed conveniently for her, will return to the eggs in good time, and give them their proper moisture from the water adhering to her feathers; and when hatching time comes the young will probably be disclosed without difficulty, and may be put in safety with their mother without the commotion incident to the first hatch, where a whole row of geese, and the gander, are all expectation of the important event, and desirous of bestowing their united escort on the first arrivals, to the entire neglect of their own proper affairs.

Where the geese must necessarily be set in a pen a good-sized freshly cut turf is beneficial, placed under the straw of which the nest is composed, as some approach to a natural arrangement, and the geese should be seen off their nest for their food and bath, and back again, regularly. The period of incubation is twenty-nine days, and though it is said by a good authority that, from the strength of the goslings, they do not require as much caution in helping from the shell as other poultry, still, if possible, this matter is best left to Nature, and, if done at all, should be performed as gently as possible; and for the comfort of the operator it is as well to carry the egg out of sight of the aggrieved parents.

During the period of incubation, the tempers of the geese are apt to be exceedingly troublesome to all who come in contact with the birds, and if they are in any way afraid of their charges, and of the gander, who, as matter of course, mounts guard during the whole period, in the most aggressive mood possible, the matter becomes so intolerable that it is as well to instil proper behaviour to begin with. Once catching the gander by the throat, and giving him a gentle shaking, lowers his dignity, and will probably have the best effect, and save much of the perpetual skirmishing and ear-splitting disturbances too common where order is not insisted on throughout.

When the goslings are hatched, they may be turned out daily on the grass if the weather is sufficiently mild, the mother geese being confined under coops. For this purposes, old china crates answer excellently, being roomy and airy, and also not too heavy to be movable from place to place so as to afford a new centre of clean pasturage to the young goslings. This confinement is desirable at first, as, if the old geese are allowed their liberty, they will go at once to the water, and the young, not being strong enough for prolonged swimming, will be apt to suffer, and not unlikely be taken with an attack of cramp and lost. The goslings, however, after the first few days, should be allowed water to dabble in, set in shallow pans and with any chill taken off, and if well supplied with plenty of proper food will probably thrive without drawbacks.

The diet especially recommended at first, after the period immediately succeeding hatching, when food is unnecessary, is of something soft, as curd, bread-crumbs, boiled Rice, boiled Potatos, barley-meal-and-water stirred into a thick but still fluid mass, &c., and

FIG. 59.—KNIPHOFIA MACOWANI; FLOWER NAT. SIZE, SECTION OF LEAF ENLARGED.

if a run on turf out-of-doors should not be procurable a turf or two brought in for them to pluck at, and often renewed, is very desirable; a little milk, too, might often do a deal of good, but, as with other poultry, a variety of food, and everything given clean and fresh, is almost sure to bring on the young flock fast and well.

If it can be managed the old geese should have a daily swim, as preserving them in health also aids the progress of the brood, and where there are only the kind of large puddles of water at hand so often met with on open commons, the whole flock may soon be allowed to enjoy themselves at discretion, as these mere spots of water, where exposed to the sun, are of a safe warmth, and are generally easy of access. The chill water of large pools in the early spring is prejudicial to the tender young birds, and the means of getting off them often altogether unsuited to their powers. The getting on is apt to be simplified by tumbling headlong in, and although not ornamental, nor mentioned by grave authorities, a light tin bowl (with a few holes pierced in it to let the water through), placed on a long, light wooden handle, is a most useful instrument for scooping stray members of the flock off the water with. There is no end to the attempts at driving them off when they get frightened as well as helpless, and a few gentle well aimed sweeps are of the greatest service, and, carefully applied, may save much injury and rough treatment to the tender birds.

With the coming of the pen feathers all beauty vanishes from the goslings, they grow rapidly, and require little but an eye to their safety and plentiful supplies of food. For the staple, barley-meal moistened with water so as to form a kind of dough, crumbling into small lumps when thrown down, answers well, with an addition of spare boiled vegetables, such as Potatos, Cabbage, or, in fact, almost any similar scraps; and when they are older, and on a good grazing ground, with the run of a farmyard and all the rough vegetable refuse often thrown there from neighbouring garden operations, the daily supply of barley-meal may be discontinued, except for fattening, and their share of the whole Barley or Oats thrown to the other fowls will be sufficient. If the geese cannot be allowed a fresh run on grass, they should be supplied with uncooked vegetables occasionally, such as refuse Cabbages, Turnip-tops, or anything similar, to pluck to pieces; and for all but the young goslings the run of the pig-troughs which are set out in the yard is highly beneficial; they should, of course, be kept out of the styes, where they would probably be injured by the pigs. With the growth of the goslings comes the great difficulty in goose-keeping to the amateur with limited space—the *dirt and the noise*. The shed where the flock sleep at night can, of course, be daily cleaned; but the birds perpetually return to the yard, or wherever they have their meals, in search of more food, and the impossibility of keeping either the ground, or the water, or anything in fact that the geese can reach, moderately clean, is unpleasant in itself, and, if fowls also are kept, exceedingly bad for the young chickens.

The annoyance from the noise is a matter of taste, but even where there is no special dislike to it, the full blast of discordant sound with which the whole flock trumpet out any special event (and their causes of remark are of pretty frequent recurrence) is far from pleasant to most ears.

In Holinshed's *Chronicle*, vol. i., p. 375, mention is made of the presence of geese being thought desirable in cattle pastures, from its effects on the grass acting as a preservative to the cattle from various diseases; but though then kept occasionally in such numbers as to be led out regularly in the morning by a goose-herd with a rattle of paper or parchment, they appear to have been mainly grown for the use of their feathers, not as an article of food.

As a night shelter, a simple lean-to shed with water-tight roof (built against a wall) of wooden bars, placed sufficiently near to exclude vermin, answers well; any shed, however, which is sufficiently roomy and airy will serve the purpose; but these two matters require especial attention from the bulky nature of the birds. A good padlock also to the door, not procured in the immediate neighbourhood, is in some cases a very necessary precaution.

If the shed is of masonry, there should be openings near the top to take off the foul and over-heated air, and if of open bars it should be boarded for about 3 feet from the ground to keep out draughts. The floor may be smoothly paved or even simply of earth, if this is not allowed to be sodden into mud by water being thrown over it, and a few bundles of straw thrown down for the birds to nestle in will keep them comfortable under ordinary circumstances. Great attention, however, should be paid to cleanliness, or the state of the shed is apt almost directly to become perfectly disgusting; and the evenness of the floor also should be carefully attended to, as rough pavement or loose stones are likely to cause injury to the feet of the geese, to which, from their size and the weight of the body to be supported, they are somewhat liable, though generally speaking the birds are remarkably free from disease. *O.*

Natural History.

SEXTON BEETLES.—The various kinds of beetles, commonly known as scavenger beetles, which find at once their employment and subsistence in the removal of dead and refuse animal matter, even in our temperate climate, play an important part in natural economy, and though a large proportion of them, from the localities of their labours, are too uninviting for general observation of their habits, yet the genus known as the sexton beetles (Necrophori) which carry on their operations by the interment of the small animal which is to form the future food of their larvæ, may be studied with pleasure by the most fastidious.

This genus includes about seven species, varying from about half an inch to an inch and a quarter in length, some black, or almost entirely so, some with orange or red bands across the wing cases, and distinguishable by their elongate bodies, short and strong legs, head with distinct neck and four-leaved club to the antennæ, and elytra abruptly truncated, so as to leave the tip of the abdomen exposed.

In warm and sunny weather these beetles may often be found by turning over any small bird or animal lying dead, where the ground is too hard to allow of the beetle's strength removing it beneath the surface; and when needed for observation they may be attracted by laying a sparrow, mouse, or similar small creature in an exposed situation on some soft patch of soil, such as a common garden flower border.

The work of burying has been stated to commence by digging a trench at some distance, so as to form a circle round the centre of operations, and then an inner one, the beetle's head forming the labourer's shovel for the operations, but in the instances I have seen myself the work has been simply carried on from below. In the case of a sparrow laid on some soft earth, a pair of sexton beetles soon took possession, and worked the earth so far from beneath it that by the gradual removal of what was below, and the rise of the bank round it, the bird was from half to three-quarters covered with soil, but, save what might be guessed by the movements of the body nothing here was noticeable of the method of operations. In the case of a shrew-mouse, with only a single Necrophorus to perform the task, the progress showed more plainly. In about two hours from the commencement of operations the mouse had become a little sunk in the ground, and by watching the movements of the earth the beetle could be traced running galleries or rather forcing its way in different directions through the soil so as to form a softened or honeycombed area behind the mouse (that is to say at one extremity) of about the size and shape of the little animal, the beetle occasionally varying its labours by drawing the mouse towards the prepared ground or driving galleries in the neighbourhood.

The unassisted last labours got on but slowly, as if the beetle might require an occasional rest, and the mouse's coat showed a considerable degree of force applied, as on raising it the hair was lying about in locks, and a large patch laid bare. On the following morning the mouse had been completely buried beneath the soil, the disturbed surface being relaid so completely like the earth round (excepting in the presence of a small hole about as large round as a common drawing-pencil), as to give no signs of what was beneath. The depth of interment appears variable, being given as sometimes as much as a foot, but this probably depends on various circumstances—as the softness of the soil, the size of the object, and other matters.

The burying instinct and attraction to putrid scents appear to exist in the Necrophori quite irrespective of their own amount of wants or capabilities of work. Some putrid pheasants' eggs placed in an attic with the window slightly open, were followed by the appearance of one of these beetles, though the eggs, if whole, or containing matter, if broken, in burying would be unavailable for the future larvæ; and Prof. Westwood (in his *Introduction to the Classification of Insects*, vol. i., p. 138) mentions the four beetles confined by Gleditsch as interring four frogs, three small birds, two fishes, and one mole, besides two grasshoppers, the entrails of a fish, and two pieces of liver, in the course of fifty days—a mass far beyond anything requisite for larval provision connected with the beetles burying it.

The unpleasant smell of the sexton beetles is striking (though it is stated not to exist on their first development), and the animal undergoing burying seems, as far as I have noticed, to change much more rapidly than under common circumstances, possibly the action being reciprocal. The fluid ejected from the mouth of the beetle, tainted by its putrid food, may probably hasten the decomposition of the prey, which in its turn adds to the disgusting smell of the beetle which feeds upon it.

The buried body forms the place of deposit of the eggs and the food of the larvæ of the beetles which have interred it, the larvæ being spindle-shaped with a scaly head and plate on each segment, and furnished with some strong spines, the legs short and weak, and the length of the grubs as much as an inch and a half. The pupal change takes place in a cell underground.

The study of the life history of these beetles is, from their scent and means of subsistence, repulsive in its early stages to those who have no special object in the observation; but the developed beetles are handsome objects, and useful in putting small annoyances beneath the surface, and the method and precision of their burying operations are well worth observation. *O.*

ADDERS SWALLOWING THEIR YOUNG.—Some few months ago I stated in the *Gardeners' Chronicle* that there were plenty of respectable persons in this district who had been eye-witnesses to the fact. As the thing seemed to be doubted, I directly offered five shillings for the first one here who would bring me an adder in the state described. This morning the head gamekeeper, who has been on the estate for nearly sixty years, and well known for his veracity, brought to my office an adder and her young, six in number, which he killed yesterday amongst some Fern in the park. He heard the old one utter a hiss, and felt certain he saw the tail of a young one just disappearing down her throat, but not being quite sure, he opened the mother, when out ran the young, which he picked up and placed in a bag, but they died during the night. I now send up the old one and her young—not as a positive proof, because my instructions were to kill the old one and tie up her mouth, thus securing the young till they reach you, which the gamekeeper does not doubt he will be able to do during this summer or autumn. *Joseph Rust, Eridge Castle, Tunbridge Wells.*

Florists' Flowers.

ZINNIAS.—These have been so much improved of late years that it is somewhat surprising they are not more cultivated. The double varieties are quite equal in fulness of petal and form of flower to any Aster or Marigold, while for vivid colouring and general effect they put in the shade either of the above, or indeed any other annuals with which I am acquainted. A bed we have here, 10 feet wide by 25 feet long, is perfectly dazzling to look on, containing as it does almost every shade of colour imaginable. The plants were planted out the first week in June, in rows a foot apart and 6 or 8 inches from plant to plant. I may here remark, that to grow them really fine a foot is quite near enough together, but in planting at 6 or 8 inches I had in view the removal of any single varieties that might show themselves. Few of these made their appearance, and the bed is now one mass of bloom and the admiration of all who see it. I may add, that the plants are from imported seed obtained through Messrs. Veitch, and although I have grown Zinnias for some years they are the best I ever had. I was hopeful last season of having an extraordinarily fine strain, by selecting for seed the largest and best of all the double varieties, but to my great surprise and disappointment nearly the whole turned out singles and were the worst lot I ever grew.

Those who have only seen Zinnias in clumps of two or three, or in small beds, can have no idea of the gorgeous display they make when planted in large masses like the above. Zinnias are rather gross feeders, and to grow them large and fine they require very liberal cultivation. The beds intended for them should be trenched at least 1 foot 6 inches deep, and during the operation plenty of thoroughly decomposed dung should be worked in. Being natives of Peru they are somewhat tender, and should not be sown too soon in the spring. The middle of May is sufficiently early, as they grow rapidly and are fit for planting out in about three weeks after the time they are sown. The seed should be sown in pans or boxes in light vegetable soil, which should be placed in gentle heat till they germinate, and the moment this takes place much care is necessary to keep them from becoming drawn, which they soon do if not pricked out thinly and placed close to the glass, where they can have plenty of light and air.

As soon as sufficiently established and properly hardened, advantage should be taken of a dull day to transfer them to the bed previously prepared for them. A good watering will then be necessary to settle the soil about their roots, and a few Laurel or other evergreen branches stuck thinly between the rows will be of great assistance in giving them a start. They delight in plenty of sunshine and warmth, and a spot should be chosen to grow them where they can be favoured in that respect. Very little labour or attention is required after planting, beyond keeping the bed free from weeds, as, on account of the stiff nature of their stems, the flowers are borne erect, so that they do not require staking or supports of any kind. Should extra fine flowers be aimed at for exhibition or other purposes, the beds should be mulched over with short rotten manure, and during dry weather plentiful supplies of water must be given them. There is nothing in the whole range of annuals that can at all compare with them for brilliancy and general usefulness, and if treated as above they will afford a display of choice flowers from the end of June till destroyed by the autumn frosts. *J. Sheppard.*

Apiary.

Bee-keepers' Notes.—I did not wish to sound the alarm until I heard complaints from practical gardeners, who are jealous when any attacks are made upon their table-fruits, but I observe in the *Gardeners' Chronicle*, August 21, Mr. Miller most justly complains about bees eating and destroying his Peaches and Apricots. Other seasons wasps have been our worst enemies, but they are scarce in many parts of the country. I attribute this scarcity to the fact that a large quantity of the queen wasps, especially those hybernating in thatch, were destroyed during the severe frosts which prevailed last winter. It is well known to all thoughtful bee-keepers that their stocks are now, in most cases, in a starving condition; therefore we do not wonder at their attacking all kinds of ripe and mellow fruits. When the honey harvest has been plentiful the bees never seek fruits; we should therefore look with leniency upon and forgive them if possible though we have our remedy, let us protect the fruit, or gather them as quickly as they show signs of ripening, for without doubt much valuable fruit will be destroyed unless this plan be adopted.

Another Enemy.—We were not aware until recently that dragon-flies destroyed bees. Standing in the garden of a friend, who possesses a large apiary, we observed several large dragon-flies flying rapidly about. "Watch that fellow," sharply spoke our friend. We did watch, and saw him catch several bees, as they were returning home heavily laden, and bear them to a large chestnut tree, where he speedily destroyed them, and returned to the slaughter again. This was repeated several times, we confess to our astonishment and wonder. The garden was close to a marshy tract of land—this may perhaps account for the appearance of the enemy, as we never noticed them near our own apiary.

Is the Blackbeetle an Enemy?—During the past damp weather we noticed underneath one of our bee-stands three holes, somewhat like those made by mice but scarcely so large. One evening about twilight, as several of the stragglers were making towards the hive, evidently quite tired and weary, two of them missed the entrance and dropped to the ground. No sooner did they touch the soil than they were quick as thought conveyed down the holes which we had previously observed. Not liking this destruction, and feeling sympathy for the worn-out or tired bees, we procured a shovel, determined to unearth the thief and murderer whatever it was; for the bees had disappeared too rapidly for us to make out the nature of the depredator. Digging down a few inches we found a blackbeetle or cockroach—it was injured with the shovel, but we believe it to have been the former insect. However, we have kept a strict watch since, and when we observe these sly burrows we pour down a few drops of carbolic acid, which not only destroys the inmate but renders the home for a long time tenantless.

Work for September.—The bees are now on the alert collecting the last remains of the honey harvest from the numerous autumnal flowers, chiefly the Compositæ. We have before pointed out the fact that unless they are now liberally fed many stocks will be lost; they should at least be carefully examined, or, what will be best, if you know the actual weight of of the hives, weigh them, and if you believe they do not contain 20 lb. of honey they should be fed. Remember, it will be too late to do this in a few weeks, because when paralysed with cold they are unable to take in the food if they be ever so willing to do so.

If you intend to build up new stocks from condemned or driven bees, first build up a few bars with old comb: you will succeed with little difficulty. The bees will rapidly store sufficient syrup in the cells for their winter supply, but when they are compelled to to make new combs, it is a slow process so late in the season. Make the entrance to the hives small, so that about three bees can pass and repass each other; this advice is needful just now: you have a dreadful enemy to contend against in the shape of wasps, but they are powerless when your stocks are aided in defence. We witnessed the destruction of a fine apiary a few years since solely by wasps, so that in October every stock was destroyed. In some villages wasps are more numerous than in others, but in any case to be "forewarned is to be forearmed." Other enemies may creep inside the hive, such as mice, honey-moth, &c., but make the entrance small and you need not fear a host of them. *R.*

Forestry.

The New Pine Disease in the North of Scotland.—In the beginning of August, 1874, I visited a large plantation in one of the northern counties of Scotland. The trees were about eight years of age, and composed chiefly of true native Scots Fir. The plantation was on the slope of a high hill, with an exposure to the south-east, and at an elevation of from 7 to 1000 feet above the sea. The trees were then all healthy, and had made vigorous growths. About the 22d of the next month I had again to visit that same plantation, and was astonished to find some 30 acres or so very different from what it was on my former visit. The Scots Firs on this spot, and on one or two other patches, had all the leaves or "needles" of a brown colour, and quite shrivelled; solitary trees were to be found quite free and with their usual colour, while those surrounding them were more or less affected. I examined them minutely, but found no trace of insect or beetle to cause such disaster. I might here mention that the disease, or whatever it was, was only on the growths of 1874, and that the west side of the plant, as a general rule, was most touched.

Fearing that it might cause the death of the plants, I felt anxious about it, and this season have watched them with interest. They were a little later in growing than those unaffected, but have made wonderfully good shoots, some of them growing 18 inches, but now (August 9) the same thing is making its appearance immediately after the growth is completed. The first thing to be seen is a small pinkish spot, about a quarter of an inch from the point of the leaf (on the inside of the leaf), and this gradually extends like a cancer both ways till the leaf gets quite red and dies to within half an inch of the stem. I do not suppose it can arise from anything in the soil, as plants on both damp and dry ground are affected alike.

Perhaps some of your readers may have seen this before and be able to tell what occasions it, or if it is likely to kill the trees. *Observer.*

Notices of Books.

Bamboo, considered as a Paper-making Material; *with Remarks upon its Cultivation and Treatment.* By Thomas Routledge. London: E. & F. N. Spon. Pp. 40.

Few matters connected with the utilisation of waste products have occupied more attention than the supply of material for paper making; everything that is capable of being beaten into pulp and afterwards hardened has been recommended as a saving for rags. Esparto, straw, and wood pulp are amongst the regular trade materials for paper making, and latterly we drew attention (at vol. ii., pp. 129 and 237, 1874) to the use of the plants of Zizania aquatica in America for the manufacture of paper on a very large scale. The paper question is one that affects the whole civilised world, and consequently the application of new materials has been almost as much discussed in America and Australia as in England and Europe generally. The paper demand is not, like most others, subject to the vagaries of fashion; it is continuous and increasing with the diffusion of population and knowledge, and therefore every new material that is capable of supplying a constant and never-failing demand, is a great advantage not only to us but to posterity. In the introduction of Esparto—one of the most useful substitutes for rags—it was thought a constant supply would be ensured, but authentic information tells us that the supply in some of the Spanish districts is falling short, and that in the course of a few years it will fail altogether. In Algeria, however, large tracts of land are covered with it, which it is to be hoped will be properly husbanded.

There can be no doubt of the utility of the Bamboo as a paper material, and it is with the view of bringing it more generally to notice that this pamphlet has been written. We have heard a good deal about the uses of Bamboo lately, and one of its most interesting applications was in the preparation of fibre for textile purposes. That a strong and soft fibre can be obtained has been sufficiently demonstrated, but whether at a remunerative price, to compete with other more easily-prepared fibres, seems to us questionable. Mr. Routledge shows that for the successful conversion of Bamboo stems into "paper stock" it is necessary to cut them down when young, while they are still in a fleshy or succulent state. In this state "a very mild system of treatment in successive weak alkaline baths, at atmospheric pressure only, suffices to decompose and render soluble the mucilaginous and other extractive compounds, combined naturally with the fibrous tissue of the plant, so that they may be readily eliminated, or separated therefrom, by subsequent washing, leaving the residuary fibres pure and free." Of course, to supply Bamboo paper-stock to the European market at anything like a remunerative price, it would be necessary to import it in the form of half stuff, in order to lessen the cost of freight. Mr. Routledge, therefore, proposes the establishment of works on the Bamboo plantation. Such a plantation once established, he says, "a systematical and regular cropping or cutting would ensue, the stems being all cut down simultaneously, by sections or beds, in regular succession; numerous croppings annually would thus be obtained, and, when necessary, fresh beds would be formed, the older growth being available for fuel for the manufactory." The mucilaginous and other extractive constituents (which, the author says, amount to 40 per cent.) abstracted from the stems in the course of manufacturing the half-stuff, would be returned to the soil in the form of fluid manure. With the details of preparation described by Mr. Routledge we have not space to deal; but it will suffice to say that the paper-stock or half-stuff so made can be kept for an indefinite period of time without injury, requiring merely soaking and bleaching when received by the paper-maker. The author does well to refer the reader of his pamphlet to General Munro's monograph of the Bambusaceæ in the twenty-fifth volume of the *Transactions of the Linnæan Society*, for we fear the botanical portion of the subject, if undertaken by him, would have been somewhat mutilated, judging from his description of Esparto, which, as most of our readers well know, is the Macrochloa tenacissima, Kth., a true grass, belonging to the tribe Stipæ. It is described in the pamphlet under consideration as "a wild grass (or, botanically speaking, a sedge);" and again, in an enumeration of fibrous plants, Esparto, "Diss," and other "sedges" are spoken of—Diss being also a grass (Ampelodesmos tenax). Nor is the spelling of the scientific names of the plants much more accurate. Thus we have Crotolaria juncea for Crotalaria; Adansonia digitatis—the Boabab tree, for A. digitata, the Baobab tree; Brussonetia for Broussonetia, &c. The free use of capitals for trivial names, and the abundant use of inverted commas, are characteristics not often seen in a well-printed book.

—— Under the title of *Palmæ Australasicæ* Messrs. H. Wendland and O. Drude have published a synopsis of all the Australian Palms in a recent part of the *Linnæa*. A complete history of all the Palms hitherto found in that remarkable country could not be otherwise than interesting; but although we have the greatest confidence in the chief author's knowledge of his subject, we cannot forbear expressing our regret that he has considered it desirable to create so large a number of new genera. In the list, which we give below, many old friends may still be recognised by their specific names, but these must not in all cases be taken for granted. The distribution of Australian Palms is very peculiar, and the range of most of the species is very narrow. The number of species known to Brown was only six; Mueller, in 1855 (*Fragmenta*), enumerates twelve, and there are twenty-six, including Cocos, described in the present paper, namely, twenty-two from the mainland and four from Lord Howe's Islands. The headquarters of Palms are in Arnhem's Land; and Gregory reports having observed one species, 40 feet in height, on the north-west coast, in about 22° S. lat., which is the highest latitude in which they have been found on that coast. On the eastern coast, Livistona australis reaches 35° S., or, according to Mueller (*loc. sit.*), 37° 30′, in the neighbourhood of the Snowy River, with a trunk 80 feet high. Nearly all are found within a short distance of the sea, the climate of the interior and south-west being too dry for them. There are three regions recognised by the authors of the paper before us, and as the species are not very numerous we may give the list in full. Region 1, tropical, including: Calamus australis, C. caryotoides, C. radicalis, Saccospadix australasicus, Kentia acuminata, Hydriastele Wendlandiana, Ptychosperma elegans, Archontophœnix Alexandræ, A. Cunninghamiana, A. Veitchii, A. Capitis-Yorkii, Saguerus australasicus, Caryota Alberti, Livistona inermis, L. humilis, L. Ramsayi, L. Leichardtii, L. Muelleri, Licuala Muelleri, and Cocos nucifera. Region 2, south-east, containing: Calamus Muelleri, Linospadix monostachyos, Ptychosperma elegans, Archontophœnix Alexandræ, A. Cunninghamiana, Livistona australis. Region 3, insular (Lord Howe's Islands): Grisebachia Belmoreana, G. Forsteriana, Hedyscepe canterburyana, and Clinostigma Mooreana. The enumeration of Australian Palms is preceded by a "*Dissertatio de Arecinarum generibus gerontogæis*," in which several other new genera are described.

HORTICULTURAL EXHIBITIONS, 1875.

SEPTEMBER.

7.—Crystal Palace. Autumn Exhibition of Fruit and Flowers.
7.—Littleover Horticultural Society's Exhibition. Sec., Mr. B. Toft.
8.—Glasgow and West of Scotland Horticultural Society. Autumn Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
8 and 9.—Brighton and Sussex Horticultural Society's Show. Sec., Edward Carpenter.
11.—Lee and Blackheath Horticultural Society's Exhibition of Cottagers' Produce. Sec., C. Helmer, 5, Boone's Road, Lee.
11.—Thornton Heath Public Hall: Show of Flowers, Fruits, and Vegetables.
13 and 14.—Carnation Show at the Botanical Gardens, Old Trafford, Manchester.
15 and 16.—Royal Caledonian Society. International Fruit and Flower Show in Edinburgh. Sec., J. Stewart, 5, Alva Street, Edinburgh.
15 and 16.—Stamford Floral and Horticultural Society's Exhibition in Burghley Park. Hon. Secs., Messrs. Johnson and Laxton.
23.—Royal Horticultural Society of Aberdeen; Autumn Show. Sec., A. J. Rennie, 123½ Union Street.

OCTOBER.

6.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees. Fungus Show.

NOVEMBER.

10.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE
Gardeners' Chronicle.
SATURDAY, AUGUST 28, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Aug. 30 { Sale of Imported Orchids, at Stevens' Rooms.
TUESDAY, Aug. 31 { Sale of a Collection of Minerals, at Stevens' Rooms.
WEDNESDAY, Sept. 1 { Royal Horticultural Society: Meeting of the Fruit and Floral Committees, at 11 A.M. Dahlia Show. Sale of Dutch Bulbs, at Stevens' Rooms.
THURSDAY, Sept. 2 { Fruit Show at the Alexandra Palace (three days).
SATURDAY, Sept. 4 — Sale of Dutch Bulbs, at Stevens' Rooms.

IN the *Journal of the Royal Institution of Cornwall* we find a paper on the CLIMATE OF CORNWALL, which is of interest from the share that favoured county, or sundry portions of it, have in furnishing early vegetables to the London markets. The author of the paper is Dr. C. BARHAM, and his principal object is to show the considerable difference that exists between the lowest night temperature indicated by a registering thermometer placed on a stand, and that noted on one placed on the grass and radiating freely. For cultural purposes the latter is generally the more important element to be considered, and the paper before us shows this clearly. An ordinary minimum thermometer, placed in a shed or stand at some distance from the ground, does not indicate the lowest temperature at the surface. When the sky is clear, as remarked by Dr. BARHAM, the temperature of the grass will be from 5°—10° lower, sometimes more than that indicated by the protected and sheltered thermometer. It is just these additional degrees of cold that destroy tender plants. We have not space to give the details which Dr. BARHAM, aided by his meteorological friends, has accumulated. Suffice it to say that they amply confirm, as indeed they would be expected to do, the statement before made. At Helston the greatest differences observed between the registers of a thermometer placed on the top of the Box edging in the garden and one on the stand have been noted, as follows:—1863, 12°; 1864, 10°; 1865, 6°; 1866, 7°; 1867, 8°; 1869, 12°; 1870, 10°; 1871, 8°; 1872, 10°; 1873, 12°.

From observations at 200 feet above the sea, made near Truro, we cite the following figures:

	Dec. 28, 1873.	Jan. 31.	Feb. 7.	Mar. 12.	April 6.	May 9.
	°	°	°	°	°	°
Thermometer 6 inches above grass	24	26	26	18	26	26
,, 3 feet above grass..	25	27	27	20	27	27
,, against N.E. wall..	36	37	38	31	38	37

Similar results were observed inland at Bodmin, and at other places in the county. At Penjerrick differences reaching to 15° and 17° have been noticed. These figures are remarkable; not less so are the low points which, as stated in the memoir before us, have been observed in this garden, so famous for the remarkable plants grown in it, as noticed at various times in our columns. The following figures relate to Penjerrick:—

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	°	°	°	°	°	°	°	°	°	°	°	°
Extreme minimum 4 feet above the ground	23	28	32	29	40	42	48	50	42	36	32	32
Extreme minimum on the ground	16	20	26	20	3	35	42	42	38	26	22	22

The radiation from the surface depends also to a large extent on the nature of the surface; thus, according to Mr. GLAISHER, if long grass be considered as 1000, garden mould is only 472, sand 454, stone 390, and gravel 288. The rate of cooling, however, will naturally depend on the extent to which the soil has been heated in the previous day. On this point we transfer to our pages the brief summary made by Dr. BARHAM of some researches carried out by Mr. WHITLEY many years ago near Truro, and recorded in the *Journal of the Bath and West of England Society*:—

"Four pits, about 2 feet deep and 2 wide, were dug in good healthy garden loam. The first was filled with pure fine siliceous sand, the second with garden loam, the third with yellow clay from the clay-slate, the fourth with well-worked peat. The bulb of the thermometers was placed 4 inches below the surface, in the centre of each pit, and another thermometer was placed in the same manner under the turf of the short grass of the lawn. The thermometers were read in the morning when the temperature of the soil was lowest, and again in the evening when it was highest. The table has been deduced from all the observations, and is the result of about 5000 readings of the thermometers. The record extends from April, 1852, to August, 1853. The garden loam showed a power of receiving and retaining heat superior to that of any other naked soil. Siliceous sand did not come up to the expectations formed of it. Clay maintained a bad pre-eminence for coldness, but improved by the good drainage in the second year. The temperature of the peat was nearly equal to the garden loam, although naturally wet and cold."

It will be of interest also to append notes of Dr. BARHAM'S own observations:—

"As illustrative of the several seasons, I may give the results for November in the former year, and for February, April, and August in the latter:—

Months.	Temperature of Air.			Siliceous Sand.			Garden Loam.			Clay.			Peat.			Grass.			Rain in Inches.
	Mean Max.	Mean Min.	Mean.	Mean Max.	Mean Min.	Mean.	Mean Max.	Mean Min.	Mean.	Mean Max.	Mean Min.	Mean.	Mean Max.	Mean Min.	Mean.	Mean Max.	Mean Min.	Mean.	
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
November	56.3	45.5	50.9	50.2	48.1	49.1	51.2	49.2	50.2	51.2	48.1	46.1	51.2	49.2	50.2	53.1	51.3	52.2	11.6
February	43.2	30.9	37.0	36.1	33.1	34.6	38.2	35.4	36.8	37.8	34.3	36.0	38.3	36.5	37.4	42.2	39.4	40.8	3.2
April	57.3	44.7	50.5	52 6	47.3	50.0	53.6	48.0	50.8	53.1	46.7	49.9	53.4	48.4	50.8	55.0	51.0	53.0	4.0
August	69.2	51.7	60.5	65.8	59.2	62.5	67.4	60.4	63.9	65.0	59.0	62.0	65.6	60 1	62.8	71.7	64.5	68.1	2.7

"In the winter months the mean temperature of the air was about 2° higher than that of the soil (excepting under the grass, which was very high throughout). The daily range of the air was 10°, that of the soil 2°. The mean maximum of the air was 6° higher than that of the soil, and the mean minimum of the air 2° lower than the soil. The temperature of the soil gradually approximated to that of the air until April, when the amount of heat in both was the same.

"In the summer months these conditions became reversed. The mean temperature of the soil in July and August was 3° or 4° higher than the air, the retention of the heat of the sunshine by the soil during the night being to that extent more than equivalent to the higher temperature of the air in the day. The grass was hotter in both.

"The relative amount of heat received and retained by the different kinds of soil—a matter of great moment—may be readily inferred from the table."

We cannot find space for the tables illustrative of the effects of shelter as afforded by muslin, straw, matting, &c., but the following table and Dr. BARHAM'S summing up are so extremely interesting to growers that we make no scruple to avail ourselves of them in this place.

"The following record of a few observations made by Mr. WHITLEY, at Penarth, near Truro, 200 feet above mean sea level, shows the effect of a slight covering of straw over large Broccoli plants during a period of hoar-frost. The thermometer amid the Broccoli was on a level with the heart of the plants.

Date.	In stand 4½ feet above surface.	Fully open 4½ feet above surface.	On the Grass.	On worked soil.	Under Broccoli Plants.	Remarks.
1873.	°	°	°	°	°	
Dec. 10	32.0	31.5	22.5	27.0	32.5	Hoar frost.
,, 11	35.0	35.0	29.0	32.0	37.0	Do., but less.
,, 12	31.0	29.0	23.0	26.5	32.0	Do.
,, 13	33.0	31.5	25.5	28.5	33.3	Do., less.
,, 14	41.0	38.0	38.0	38.0	39.0	No frost.
Mean ..	34.4	33.0	27.6	30.4	34.9	

"It may, then, be stated as a general result from the observations here recorded that, in the climate of Cornwall, the soil covered with vegetation will be from 8° to 10° warmer in sharp frosts, if screened from the sky by straw matting or other moderately thin material spread over it, 3 or 4 feet from the ground, than if left unprotected. This is a difference of the utmost importance in those parts of the country in which early vegetables are grown, which lie chiefly along the southern coast, where the minimum on the stand rarely falls below 25°. That degree of cold would seldom be destructive if the air is at all still; but a depression of temperature to 15° or sometimes lower by radiation might, *per se*, seriously imperil the crop; and it is usually a night or two of this degree of depression, united with wind, that causes the blight by which the hopes of the season and many thousands of pounds are lost. A further benefit resulting from shelter is the prevention of the deposit of dew, and at times of hail and sleet, the evaporation from which further chills the plant, and abstracts its heat in a way more pernicious than the action of the same degree of dry cold. Snow a few inches thick constitutes in itself, while it lasts, an effectual shelter; but frost supervening on its thaw renders it often a delusive one.

"Another element of great moment in relation to the effect of temperature is the movement of the air. The blight caused by a local draught of icy wind may be frequently traced in well defined lines from a gap in a north-eastern hedge along the rows of early plants. In a still frost, the conditions are similar to those illustrated by Mr. Whitley's Broccoli, the leaves preventing radiation from the soil, and the specific heat of the vegetable being retained around it; but a high wind robs it of both protecting influences with every blast. So much is this the case that the placing of wattled hurdles or other effective screens, about 4 feet high, on the north and east sides of a tender crop, in rows 20 or 30 feet apart, must be recommended as a preservative measure even more important than the provision of horizontal covering. It would also entail no very heavy charge, whilst it would furnish a framework from which straw matting, or other sheltering material, might be readily spread over the whole or any more delicate portion of the plants. It is not, however, for me to point out in what precise manner, or with what materials, the object in view may be most readily and cheaply attained; particulars varying in different localities, and on which the practical knowledge of the grower and market gardener is greatly superior to mine. My purpose has been to state some of the meteorological facts and principles which may guide the cultivator, leaving their application in his hands.

"I may add, as the result of observations continued through a long series of years, that in the more intense frosts associated with a settled wind from the east, the temperature of the night is at Truro about 10° lower than at Penzance, and at Penzance 10° lower than at Scilly. It has not come to my knowledge that the early Potatos or Broccoli have ever been materially blighted in the islands by the light frosts to which alone they are exposed; and shelter such as has been suggested will just prevent the surface temperature at Penzance from falling below what it is naturally and without shelter at Scilly. This rule may be probably extended to various sheltered spots on the south-western coast. The extension of the use of glass will enlarge the area for the culture of delicate plants and fruits; but shelter will still be important, for if the glass is transparent it will only lessen the cooling power of radiation to the extent of 2° or 3°; the effects of this in lowering the day temperature are, however, diminished through the retention of heat by the body of air enclosed within the frames.

"Much might be said on the influences of the cold caused by this radiation into space on the health of persons exposed to it, the more delicate especially, but it is not within my scope to touch on medical topics. It

ay, however, be suggested that the umbrella will serve t times for protection against some ten extra degrees of rost, as it does against the sun and rain."

We learn from our representative at Cologne hat the Great International Horticultural Exhibition in that city, which opened on the 24th inst., is, after all, but a second-rate affair. Amongst the more prominent of the exhibits are the Nepenthes of Messrs. Veitch & Sons, of Chelsea; the Crotons of Mr. Williams, of Holloway; and the Palms of M. Linden and of M. Le Monnier.

—— Our illustration (fig. 60), which has been copied from a photograph handed to us for engraving by Mr. Shuttleworth, of Chelsea, who recently collected for Mr. Bull in South America, represents a splendid group of Cocos nucifera, planted near the military establishment at Port Royal, Jamaica, which has a fine effect on the sea-board line. Mr. Shuttleworth was informed, when recently there, that the nuts are much superior in quality when grown as these are—on or near the coast—to those grown inland. The whitewash, as shown in the illustration, is to guard the stems from the ravages of beetles, &c., and to Europeans it has a very curious effect at first sight. Some of the single specimens that are planted near the harbour of Kingston are really most beautiful.

—— A striking instance of the relative Mildness of the climate of Orkney was lately given us by a correspondent who assured us he had met with plants of Veronica decussata near the sea in those islands, no less than 7 feet in height. The plant can only be considered as half hardy near London, but by the south coast it does well, though we have never seen it attain such dimensions as those above cited.

—— Herr Rostafinski has published in the Polish language a most important monograph, little known in this country, on the Myxomycetes, or as he terms them, with De Bary, Mycetozoa, as combining the characters of the vegetable and animal kingdom, though distinct from either. We are happy to state that he is now in England examining the species contained in our Herbaria, with a view to give in a more generally accessible form the result of his long-continued study of one of the most interesting members of the organic world. *M. J. B.*

—— The heavy storms that broke over Nottingham and Manchester on the 11th and 12th inst. discharged so much water that great damage has been done to many gardens. At the Chilwell Nurseries, Nottingham, the contents of the paths were washed on to the lawn and deposited there in large heaps, and there were traces where the water had rushed across Rhododendron beds with the force of a rapid stream. A fernery, occupying a somewhat low position, was nearly buried with the soil washed down by the rain.

—— An inspection of the Vineries at the Chilwell Nurseries, Nottingham, shows that Mr. Pearson's new Grape, Golden Queen, is now to be seen in fine condition. One Vine is bearing eighteen splendid bunches, and the shape of bunch and berry may be best described as that of a white Madresfield Court. The bunches are large and handsome in shape, the berries of fine average size, and now that they are colouring take a most piquant Muscat flavour. The habit is vigorous, and it is undoubtedly a free setter. It promises to make a fine exhibition Grape. Dr. Hogg is a white round Grape, the bunch of good size, and handsome in appearance. It has the peculiar flavour of the Duchess of Buccleuch. Mrs. Pearson is a later Grape, fine in bunch, but not so rich in colour as Golden Queen, and appears to have none of the Frontignan character about it. The Chilwell Alicante produces an enormous bunch, and appears to colour well. The vigorous growth of all these new Grapes raised at Chilwell cannot fail to strike any one who examines them. The Madresfield Court, growing under the same conditions as the foregoing varieties, was much cracked in the berry—scarcely one but had this flaw. It is certainly remarkable what a different appearance this Grape presents under the hands of various cultivators. Mr. Pearson stated that it always cracks with him; a day or two after Mr. J. Potts, Manley Hall Gardens, Manchester, was exhibiting it in splendid condition in that city, and commending it in the highest terms. One of the horticultural sights at Chilwell is a house of Vines in 13-inch pots, for planting out next autmun or spring. The canes are all trained to upright stakes, and they are in the most perfect condition. The house is 100 feet in length by 80 feet in width.

—— The plates in the July number of the *Gartenflora* represent Bilbergia Quesneliana, a species with rosy bracts and blue flowers; the variety minor of Erythronium giganteum, and Odontoglossum Pescatorei.

—— From the *Bulletin d'Arboriculture* for the present month we hear of the death of a Ghent nurseryman well known in this country, especially by Fern lovers; we allude to M. Adolphe Stelzner, the raiser of several supposed hybrid Gymnogrammas. According to our contemporary, Stelzner was born at Arnstadt, in Thuringia. He studied at the University of Göttingen, where he devoted himself specially to vegetable physiology and systematic botany. He travelled subsequently in Germany, Russia, England, and France, and in 1857 entered the establishment of M. Van Houtte. In 1862 he entered into business on his own account, turning his attention specially to Ferns. Stelzner was only forty-five years of age.

—— According to the *Monthly Report of the Department of Agriculture* (American) for July—with a copy of which we have been favoured—the average Wages for Farm Labourers in the United States

Fig. 60.—Port Royal, Kingston Harbour, Jamaica.

in 1866 was 15½ dollars a month with board, showing an increase in one generation of 72 per cent. At the same time, the average rate without board was from 26—28 dollars according to the State, making about 336 dollars per annum. At the same time it was computed that the English labourer was not getting more than 182 dollars a-year. Since that period the rate of wages in the States for farm labour has greatly declined, so that, taking the whole country, "the average price of farm labour with board" is now 12 dollars 40 cents (per month)—a decline of nearly 22 per cent. since 1869.

—— The ACCLIMATISATION OF CAOUTCHOUC TREES IN BOURBON is now being tried. As in many other countries, the original forests have been carelessly and wastefully destroyed, and now the question is how to cover some portion of the ground again with wood. Several species of Eucalyptus are being largely planted, but the authorities appear to be alive to the fact that Gum trees should be supplemented by some others of more direct benefit to man. This attempt, according to the *Journal of the French Acclimatisation Society*, is still in its earliest infancy. The indigenous Asclepiad, Cryptostegia madagascariensis, is being largely raised, as this plant begins to yield a return the first season.

—— From some of the reports of the American Department of Agriculture we learn that the POTATO CROP is generally below average in the States. In many places the Colorado beetle has done much mischief, but in other places that pest is kept in check by Paris green. The fruit crops were affected by late frosts and the severity of the winter. Apples are below the average in almost all the States. Peaches suffered still more severely than Apples from spring frosts. Strawberries have yielded a fair average crop.

—— A recent London improvement of some importance has been carried out in the Marylebone Road, a short distance from the Baker Street station of the Metropolitan Railway. The old ugly dead wall that used to be the road frontage of the MARYLEBONE WORKHOUSE has been removed, and in its place a light boarded fence has been erected, but placed some feet farther back. The fence has been covered with Ivy, which is making a vigorous growth, and will soon entirely cover it; and the space between the wooden fence and a light iron palisading which skirts the roadway is now occupied by a flower border gaily planted, and a gravelled walk the whole length of it. The bright and cheerful appearance thus presented contrasts in a remarkable manner with the condition of things before the wall was removed.

—— In the report of the American Department of Agriculture for July is a memorandum on the effects of COAL GAS on plants, by Mr. MCMURTRIE, in which he demonstrates, what unfortunately was well known before, the ill effects of gas on the leaves and health of plants. Mr. MCMURTRIE is apparently not conversant with the report on this subject made by Professor MORREN, of Liège, and contained in the *Proceedings of the Botanical Congress of London* in 1866.

—— Among other PLANTS IN FLOWER on the rockwork AT KEW are the following:—Aconitum heterophyllum, with dull purplish flowers, but of much interest from being in extensive use as a tonic throughout Northern India, under the name of Atees or Atis. Patrinia mucronata, a pretty dwarf plant, with yellow flowers, allied to Valerian. Linaria triornithophora, one of the most ornamental of the Toad-flaxes, and L. heterophylla, with a multitude of narrow green leaves and brownish flowers. Diuris elongata, an Australian terrestrial Orchid, with grassy leaves and slender stems about 8 inches high, bearing a few rose-spotted flowers, the lateral sepals of which are narrow and very long. Houstonia cœrulea, a most diminutive and rare alpine with azure-blue star-like flowers. Erpetion reniforme, which is really a Viola, and one of the prettiest, but in want of the spur. Gladiolus purpureo-auratus, a fine new species, figured for the first time in 1872. Asteriscus maritimus, a showy dwarf Composite with large yellow capitula. Didiscus cœruleus, a beautiful blue flowered umbelliferous annual from Australia, used also with good effect for conservatory decoration. The tuberous Begonias are very handsome, and prove a great attraction to visitors. Of the varieties now in flower the best are:—rosæflora alba, Dr. Masters, Vesuvius, Ensign, Chelsoni, Agate, and Sedeni.

—— Nurserymen are frequently blamed for giving PROVISIONAL NAMES TO their NEW PLANTS, which, by-the-bye, they could not very well sell without names; but botanists themselves are, after all, the greatest offenders in this respect, and we can find no reasonable excuse for the numerous synonyms that arise from this cause. Of course, many of these synonyms are not so easily avoided, because different botanists entertain such very diverse opinions regarding the value of certain characters for founding species and genera. A remarkable illustration of this is afforded by the enumeration of Australian Palms in a recent number of the *Linnæa*, which we notice in another place. For some reason or other nearly all of them have received new names, and, though we do not think it probable that several of the new genera will be generally accepted by botanists, it may be useful to horticulturists to indicate some of the principal changes. Thus, Areca monostachya becomes Linospadix monostachyos, Kentia australis = Saccospadix australasicus, K. Belmoreana = Grisebachia Belmoreana, K. canterburyana = Hedyscepe canterburyana, K. Forsteriana = Grisebachia Forsteriana, K. Moorei = Clinostigma Mooreana, Ptychosperma Alexandræ = Archontophœnix Alexandræ, P. Cunninghami = Arch. Cunninghamiana. The authors of these changes consider it necessary to say something in justification of the course they have taken, quoting BLUME's defence on a similar occasion, and perhaps some of them were almost imperative in a scientific arrangement. Meanwhile, however, we would counsel horticulturists to retain the old names until it is known what the authors of the *Flora Australiensis* will do.

—— An enumeration of the PALMS in the celebrated collection at HERRENHAUSEN, under the direction of M. HERMANN WENDLAND, just commenced in the *Hamburger Gartenzeitung*, brings the total number up to nearly 450 species and varieties. Most of the plants, of course, must be small, for the Palm-house is not half the size of several others in existence; but the figures show what an enthusiastic collector may effect. It is gratifying that this fine collection is still kept together notwithstanding the political changes that have taken place in Germany.

—— At the adjourned meeting of horticulturists, held at the "Criterion," Regent Circus, W., on Friday, the 20th inst., to consider the desirability of holding an INTERNATIONAL HORTICULTURAL EXHIBITION IN LONDON in 1877, it was proposed by Mr. R. DEAN, and seconded by Mr. GEORGE PAUL—"That a committee be appointed to draw up a memorial to the Council of the Royal Horticultural Society, and procure signatures to the same, requesting the Council to take steps for ascertaining the general feeling of horticulturists as to the advisability of holding an International Horticultural Exhibition in London in 1877." This was carried unanimously; and on the proposition of Mr. SIMPSON, Manchester, seconded by Mr. A. ROGER, the following gentlemen were elected to serve as the committee:—Mr. YOUNG, Mr. TURNER, Mr. T. ROLLISSON, and Mr. G. PAUL.

—— The IMPORTS OF BOXWOOD from ports in the Black Sea have been decreasing for some years past, and we now learn from Trebizond that only 4000 cwt. were shipped during the past year against 25,000 to 30,000 in previous years. This decrease is attributable to the mode of levying the forest dues which has lately been enforced in the province—that is, to tax the wood at the port of shipment, where, owing to the cost of transport, it is much more valuable than in the forest. This tax diminishes to a minimum the profits obtainable on the sale of the wood, and, indeed, almost amounts to a prohibition of its export.

—— We have received from Mr. SWAN, the Gardens, Oakley, Fallowfield, near Manchester, two cut spikes, bearing six flowers each, of the lovely DENDROBIUM CHRYSOTIS. The number of spikes on the plant from which the above were cut was seventeen, and many of them bore six flowers each, while the total number of flowers perfect at the same time was seventy-two. Our correspondent may well say his plant has been very beautiful and much admired.

—— In the subtropical garden at Battersea Park Mr. ROGER has successfully tried the AMORPHOPHALLUS RIVIERI as a summer bedding plant. The plants are arranged on the outside of a circular bed of Grevillea robusta, and are carpeted underneath with Pelargonium Crystal Palace Gem, and Alternantheras. The effect is striking.

—— M. DE LANESSAN, as reported in the *Belgique Horticole*, has been trying some experiments on the absorption of water by leaves through their surface. Single leaves and branches were weighed and then allowed to wither, again weighed and plunged into water, care being taken that the extremity of the branch or petiole was excluded from the water. The result showed a considerable gain over the withered state, but the gain never brought the total weight in excess of the original fresh weight. The period of immersion was varied, and the weight taken at different times, from which it appeared that the rate of absorption was very slow. After removing the specimens from water they were carefully dried with bibulous paper and before a fire, even to the extent of permitting a little evaporation from the tissues. To control these experiments, fresh branches were weighed and immediately placed in water, and after having been immersed for some time they were again weighed, and the result was no perceptible gain. The loss and gain amounted to 4.85 grammes—about 75 grains.

JAPANESE EDIBLES.

THE use of Cordiceps sinensis as an article of food in China, referred to at p. 342 of the *Gardeners' Chronicle* for March 14, brings to our mind some of the peculiarities of Japanese edibles, a large series of which were exhibited in the Japan court of the International Exhibition at South Kensington in 1873, and the vegetable portion was afterwards presented to the Kew Museum, where the specimens are now exhibited in their respective natural orders. The collection is very varied, and numbers some 178 specimens. The Leguminosæ furnish a large proportion, the seeds of several varieties of Phaseolus—known as red, black and white Beans, according to their colour—forming a prominent and important article of food, for, besides being sold in their natural state, that is, simply dried like Haricots, they are ground into a fine meal which is prepared in a variety of ways for table. Cakes prepared from this meal are in the collection, also a peculiar kind of preparation in long thin strips like isinglass. The cakes are about 2 inches square and half an inch thick; they have the appearance of having been compressed in moulds by heavy pressure and simply dried, perhaps without artificial heat. Both these cakes and the isinglass-like preparation are of a dull yellow-ochre colour. Beans there are also preserved in sugar and others candied or crystallised; these are probably also species of Phaseolus, but their distinguishing characters are lost in their preparation. Phaseolus Mungo is a species or perhaps, more properly, a variety, which is largely cultivated in India and China for the sake of its small edible seeds, of which there is a green and a black variety. Several varieties are also cultivated of the Soy Bean, Soja hispida or Glycine Soja, the produce of a hairy herbaceous plant with yellow or violet-coloured papilionaceous flowers and a small pod containing from two to five seeds, very similar in appearance to the common garden Pea and varying as much in size. These seeds are largely used by the Japanese for making the sauce called by them Sooja and better known to us as Soy. Not much seems to be known about the preparation of this sauce, but it is said to be made by boiling the Beans in water with an equal quantity of Wheat or Barley, and after leaving it to ferment for three months and adding salt and more water, to strain and bottle it, when it is ready for use. It is a favourite ingredient in many of the native Japanese and Chinese dishes, and its use is said to greatly help digestion. Besides their use in the preparation of the sauce, the Beans are consumed in immense quantities as a vegetable, simply boiled or cooked in various ways.

Rice, of course, enters very largely into Japanese food products, specimens of which are shown, as also Rice starch, meal, &c., of different qualities; Barley, Wheat, and Millet are also included, a specimen of the latter being shown simply cleaned of its husk, and exhibiting small white granules, very similar to, but much smaller than, the smallest Tapioca. Buckwheat, the seeds of Fagopyrum esculentum, is too well known to need more than a passing mention to say that it is included by the Japanese as a food plant.

Amongst other fruits and seeds not to be classed with pulse or grain occurs the Chestnut (Castanea vulgaris), the seeds of which are shown of three distinct sizes, the smallest about the size of a small kidney Bean, and the largest about as big round as a penny. These are all devoid of their outer husk. In many parts of the world the acorns of the indigenous Oaks form an article of food, one of the most remarkable being certainly the Chinese Quercus cornea which is less astringent than most Acorns, indeed it somewhat resembles the Walnut in flavour. Q. cuspidata is one of the edible species of Japan. It is not unusual in Continental Europe to see the fruits of the Apricot dried and so preserved for use at a time when the fresh fruits are not obtainable; in Syria they are even rolled out, after the stones have been abstracted, into a thin pasty sheet, from which can be cut pieces of any size required. In Japan the fruits are simply dried, when they have a shrivelled appearance, somewhat like a French Plum. An important fruit, and one of which numerous varieties are known in India, China, and Japan, is the Jujube (Zizyphus Jujuba). These varieties are characterised chiefly by the shape, size, and colour of their fruits, the most common form of which somewhat resembles the Cornelian Cherry (Cornus mascula). These fruits have an agreeable, sweetish flavour, and are much esteemed for dessert purposes. Under the name of Japonicas the fruits of Z. sinensis are occasionally seen in Covent Garden Market, while in the countries bordering on the Mediterranean those of Z. vulgaris are commonly eaten both in a fresh and dried state.

Turning to the Ebenaceæ we find one well known fruit, the Kaki of the Chinese—Diospyros Kaki. The tree is cultivated in India, China, and Japan, in each country the fruit being grown for the sake of its finely-flavoured pulp, which is not unlike that of a Plum. It is of a reddish colour when ripe, and in size and

shape is very much like those of an ordinary Apple. The Japanese eat them freshly gathered, dried in the sun, or preserved in sugar; treated in this last way they are very nice, when freshly done, but apt to get tough or leathery by keeping.

The little order, Myricaceæ, which contains several economic plants of interest, such as those species of Myrica the small fruits of which yield such large quantities of wax as to be worth collecting for candle-making in their native countries, furnish in Japan an edible fruit. This fruit, which is that of Myrica Nagi, has an agreeable sub-acid flavour, and is eaten both in its raw state and when cooked. The plant is cultivated entirely for the sake of its fruit.

Melons, Ginger, and other products which ordinarily occur in tropical countries are, of course, included amongst those of Japan, but we will pass on to the consideration of those seeds which are of an oleaginous nature, and which are used chiefly for the sake of their oils. Foremost amongst these is the Sesamum indicum, two varieties of which, the black and the white, are included in the collection. This plant belongs to the order Pedaliaceæ, and is an annual herb, with a small quadrangular, oblong, two-valved and two-celled capsular fruit, each cell containing a number of small flattened seeds. These seeds contain an immense quantity of oil of a superior quality, which is expressed and used not only in cookery but for a variety of other purposes, indeed it is said to be often substituted for and mixed with Olive oil, as well as with oil of Almonds. The seeds are, moreover, used as food, after the expression of the oil. The plant is very generally cultivated in most warm countries for the sake of the oil.

Amongst other oleaginous seeds may be mentioned the Sasanqua of the Japanese (Camellia Casanqua), a tree or shrub sometimes cultivated in English gardens, and very similar in appearance to the well known Camellia japonica. It is found in many parts of China and Japan, and the seeds, which are irregularly three-sided, about the size of a Hazel-nut, are largely collected for the purpose of expressing the oil, which is of a clear bright yellow colour, and is much used for culinary purposes. To obtain the oil the seeds are first crushed and then boiled, and submitted to heavy pressure. The Walnut (Juglans regia), which grows abundantly in Kashmir, Nepal, and in other parts of India, where the fruits are largely used, is grown also in Japan, where they form, likewise, an important article of consumption, quantities being eaten in a raw state. Large quantities are also used for making a kind of confection, by cracking and removing the shell without breaking the kernel, which is afterwards coated with white sugar, thus making an attractive and agreeable sweetmeat. The Walnut also furnishes a bland oil, used for domestic purposes. Another plant, the seeds of which are very oily, is the Torreya nucifera, a small evergreen tree or shrub belonging to the natural order Taxaceæ. The fruits are drupaceous, each containing a single seed, with a hard, bony, brown-coloured shell, very similar both in shape and appearance to the seeds of Carya olivæformis, quantities of which were at one time to be seen in shop windows in London under the name of Japan Walnuts. Though the oil of the Torreya is valuable for cooking purposes, the kernel of the seed itself is said to be too astringent to be agreeable. The other seeds valued specially for their oils are Poppy, Rape, Mustard, and Hemp.

Turning now to farinaceous substances, other than those referred to as being produced from seeds or grains, we find one or two curiosities. Thus, from the rhizome of Pteris aquilina is prepared a fine white starch-like flour, but how it is prepared we are not told, nor have we any information as to the mode of preparing for table the young unopened fronds of the same Fern, which are included in this remarkable collection. Another plant, singular in its application in the preparation of a meal or starch, is the Erythronium dens canis, a Liliaceous plant, native of southern Europe and temperate Asia. The starch is very white, and similar in appearance to fine Rice starch. The Sweet Potato (Batatas edulis), a rambling or twining plant, with pale purple Convolvulus-like flowers, is said to be originally a native of Brazil, from whence it was introduced into Spain, about the middle of the sixteenth century, large quantities of the tuberous roots being sent both from Spain and the Canary Islands to this country. At the present time the plant is cultivated in considerable quantities in most tropical and sub-tropical countries, and in smaller quantities even in Southern Europe. In the Southern States of America the plant is considered a very valuable food crop. The tubers are eaten either roasted or boiled, or grated and made into puddings; sago is also manufactured from them and largely used, besides which, on the plantations, they furnish a large quantity of food for cattle. Several varieties are known, some with white tubers and others with red; they also vary much in size, the average weight being from 3 lb. to 4 lb. each, but in tropical countries they sometimes weigh as much as 50 lb. The flour, as prepared by the Japanese, is very fine and white. Another very white starch in the collection is labelled as being prepared from Pueraria tuberosa, a twining Leguminous plant, native of the Himalayas. It has, as its specific name indicates, large tuberous roots. In India cataplasms are made from these roots, used by the natives to reduce swollen joints. Its use as a food plant is not mentioned in any book to which we have referred.

The Taro, Caladium esculentum, or Colocasia esculenta, an Aroideous plant largely cultivated throughout the tropics for the sake of the rootstocks, which furnish such a quantity of starch as to be a staple article of diet in many countries, seems also to be grown in Japan for the sake of its stems, specimens of which, dried and tied in bundles, are exhibited.

Two other remarkable food products are the seeds of Perilla ocymoides and the fruits of Quadriala lanceolata, about which no information is given, further than that they are included in a food collection. The first is an East Indian Labiate plant, and the second is now referred by Bentham and Hooker, in their *Genera Plantarum*, to a species of Buckleya, natural order Santalaceæ. The fruits are small, somewhat resembling a shuttlecock, being crowned with four spreading wings; they are apparently very oleaginous, and have a similar flavour to a Walnut.

Amongst lichens one specimen only occurs, which appears to be a species of Gyrophora, much resembling the Tripe de Roche, a black, disagreeable-looking lichen, which, though containing a strong bitter principle, has, nevertheless, nourishing properties, and has saved the lives of arctic travellers. The fungi are interesting, two new species occurring amongst them, provisionally named by Mr. Berkeley Agaricus (Pleuropus) russaticeps and Hydnum asperatum. The other species is Hirneola (Exidia) rufa.

The seaweeds, also, are interesting, showing, as these preparations do, what can be done with these too generally neglected plants, and showing, also, the great ingenuity of the Japanese in their manipulation. Thus, for instance, a quantity of small curled pieces, closely resembling black tea, proves upon examination to be a species of Gigartina, or Chondrus. In the same way some very thin sheets, of entirely uniform thickness, very smooth on both surfaces, and measuring a foot or two in length, by 6 or 8 inches in width, of a dark purple colour, are prepared from a species of Porphyra, or Nostoc. Another form in which this prepared seaweed seems to appear in the market is in small pieces, evidently stamped out of these sheets, in the forms of flowers, leaves, and other devices. Porphyra vulgaris furnishes cakes of a reddish purple colour, while from Gelidium corneum a fine thread-like substance, looking like tangled thread or cotton, of a bright red colour, is prepared; from this species also is produced a variety of products of a gelatinous character, some in long straight pieces, others in irregular masses or bundles of various colours, such as red, white, blue, and green, having to the eye a very attractive appearance, but probably not suited to the taste of a European. We have not, however, been tempted to try the flavour of these, but some other less easily determined articles of food and confectionary we attempted to solve by the sense of taste, which, however, was not easily effected, and resulted only in confirming our previous opinion that all the preparations looked better than they really were. *J.*

THE FRUITS OF PALESTINE.

The extent of Palestine is not in any way commensurate with the important place which it has occupied in sacred and profane history. Not larger in area than Wales, and diversified in like manner with mountains, lakes, rivers, and plains of great fertility, it formed a kind of neutral ground between Assyria and Egypt. The only road by which the two great rivals of the ancient world could approach one another—by which alone Egypt could get to Assyria, and Assyria to Egypt—lay along the broad flat strip of coast which formed the maritime portion of the Holy Land, and thence by the plain of the Lebanon to the Euphrates. Thus it became the convenient arena on which in succeeding ages the hostile Powers who disputed for the empire of the East, fought their battles; and here the armies of France, England, and Germany contended with the hosts of Saladin. But amongst the recesses of the many woody hills and intricate valleys we may not unreasonably presume that there are villages whose inhabitants have lived on from age to age undisturbed by the invasions which have successively visited the more open and accessible parts of the country. The description given in the Scriptures as the "land flowing with milk and honey," leads at first glance to the supposition that if Moses wished to reconcile the Jews to the territory on which they were about to enter, and to extinguish any lurking desire on their part to return to the flesh-pots of Egypt he would represent the "promised land" under the most favourable colours. Upon the whole, however, in spite of statements made to the contrary his description is substantially correct. In antiquity Judea was very carefully cultivated, and notwithstanding the great density of the population under Solomon it is said to have exported considerable quantities of corn. Nowhere upon a similar limited space are there a greater number of ruined cities to be seen, and the vestiges of terraces upon the declivities still remain which were covered with plantations of Figs, Vines and Olives. On some of the hills the terraces have been repaired and reconstructed, and these contain plantations of Olives or Figs, sometimes with and sometimes without vineyards, surrounded by rough stone walls and with the watch towers at the corners, so frequently mentioned in the parables. We have it upon the authority of Tacitus, that in his time it was particularly celebrated for its Palm trees, which in fact were the emblem of the country, and the aromatic plants that grew in the uncultivated parts furnished the wild bees with the honey which they stored in the hollows of roots and trees. This great abundance is confirmed subsequently by Maundrell, who states that the smell from the honey and wax in many such places was as strong as if one had been in an apiary. The Grape, Fig, Pomegranate, Olive, Date, Apple, and Almond, complete the list of recorded fruits, but there have been added, Oranges, Lemons, Citrons, Pears, Peaches, Apricots, Plums, Quinces, Bananas, Prickly Pears, and many smaller berries and fruits, none of which are once named in the Bible. It is not, however, possible to form any estimate of the state of the country in antiquity from the condition in which we find it at the present day, seeing that for centuries it has been subjected to every species of oppression.

The soil of the plains is exceedingly fertile, but these are mostly deserted, whilst the rocky ridges of the mountains, more particularly of the Lebanon, evince an excessive care in their cultivation that betokens the industrious character of the inhabitants, and shows what the country might become were it once rid of the baneful influence of the Turkish Government. In the Lebanon almost every male inhabitant is a small proprietor, and in the neighbourhood of Beyrout there are a great number of land-holders, who for the most part cultivate the white Mulberry tree. Large proprietors are few, except among the Emirs, some of whom have extensive estates, which they either cultivate on their own account, or let out to farming tenants. The Mulberry tree flourishes on the coast and through the more fertile parts of the Lebanon range, where attention to the culture under French supervision has made this an important article of export. The Mulberry plants are set in rows 6 or 8 feet apart; they are cut off at a corresponding height, and suffered to retain only the fresh twigs. The arrangement generally made with the peasantry is to allow them one-fourth part of the silk for taking care of the worms and reeling off the cocoons, the landowner providing the leaves, which are gathered by the peasantry. He also erects the sheds in which the cocoons are kept, which are simple reed enclosures without any roof. The oil harvest has of late years been considerably improved, and its quantity augmented by the introduction of oil presses from France.

The western or coast portion of Palestine is mountainous, while the more inland portion, or that to the east of the Orontes and Damascus, is mostly flat, the mountains running north and south, parallel with the Mediterranean. Both the Lebanon and anti-Lebanon give out numerous lateral spurs, some of the former extending so as to project, like Mount Carmel, in bold headlands on the coasts. These subordinate ranges are far the most fertile portions of the mountain system. Coelo-syria, though fertile itself, is enclosed between precipitous and barren heights. The mountains which surround the Dead Sea, and those to the west of the Jordan, are arid, stony, and full of precipices and caverns, and have a melancholy, desolate appearance, harmonising well with that of the desert with which they are bounded. The coast line is watered by numerous small streams falling into the Mediterranean, which contributes greatly to fertilise the land, but of these none are navigable. The largest lake is the Dead Sea; the next in size is that of Tiberias or Gennesareth, the theatre of some of the most remarkable miracles. This lake is said to be longer and finer than any of our own in Cumberland and Westmoreland, whilst in picturesque beauty it approaches nearest to the Lake of Lugano in Italy.

Owing to the great difference of elevation and exposure, the greatest dissimilarity prevails with regard to the temperature. Upon the whole, however, Palestine may be said to possess two climates, one very hot, which is that of the coast and the interior plains, such as those of Baalbec, Antioch, Tripoli, Gaza; and the other, or that of the mountains, at least at a certain height, temperate, and similar to that of France. In most parts the occurrence of the rainy seasons, as well as the quantity of rain which falls, are very variable. The winter in the plains is so moderate that the Orange, Date, Banana, and other delicate trees flourish in the open air, and it appears

equally extraordinary and picturesque to the European at Tripoli to behold under his windows, in the month of January, Orange trees loaded with fruit while the lofty summits of Lebanon are seen covered with ice and snow. In the descriptive language of the Arabian poets, the Lebanon bears winter upon his head, spring upon his shoulders, and autumn on his brow, while summer lies sleeping at his feet. *E. T. B.*

(*To be continued.*)

Home Correspondence.

Cheiranthus Marshallii.—I have seen some notices of the Cheiranthus Marshallii in the *Gardeners' Chronicle* of late, and as I suspect few know of the real origin of the plant, I subjoin the history of it from the *Gardeners' Magazine of Botany* of June 15, 1850:—

"The subject of our plate is a very interesting and remarkable plant, said to be a hybrid between Cheiranthus ochroleucus and Erysimum Peroffskianum; and it does undoubtedly exhibit a combination of the characters of the two plants. In the form of the envelopes of the flower, and in the forked glands, which appear to represent abortive stamens, completing the circle of four with the two shorter ones, it agrees much more closely with Erysimum than with Cheiranthus; but in the seeds we find the peculiar character which belongs to the Cheiranthus as one of the pleurorhizous tribe, that the radicle is applied against the edges or sides of the cotyledons, while in Erysimum the radicle is folded on to the back of one of the cotyledons. This, therefore, appears to be a very remarkable case of hybridation, occurring not merely between plants of different genera, which is already exceptional to the ordinary rule, but between genera in which there is a most important difference in the seeds. It deserves careful investigation, and the further history of the ripe seeds (which we have not had an opportunity of examining) should be carefully observed." Initialed A. H. [which letters stand for Arthur Henfrey.] Then follows "History, &c.—This very beautiful plant was raised by Mr. John Marshall, of Linnburn. It was obtained, as we are informed, by fertilising the dwarf primrose-coloured Cheiranthus ochroleucus with the deep orange Erysimum Peroffskianum, and in appearance is exactly intermediate between these very distinct-looking plants. Mr. Marshall 'was led to cross the Cheiranthus ochroleucus, in consequence of the difficulty of getting seeds from it; the few seeds which resulted from this fertilisation were sown in the open border in 1846, and the plants first bloomed in 1847,' one of them proving to be the variety now figured. From the same batch of seeds three other varieties were obtained, one like ochroleucus, and the others with orange-coloured flowers. One of these orange-flowered sorts was lost; the other, which is much like Marshallii, grows 18 inches high, but neither the truss nor the flowers are so large as in that variety. Mr. Marshall has also bloomed four plants raised from Marshallii, all slightly different in colour, height, and foliage, but inferior to their parent. At Linnburn the plant flowers about the latter end of May in the open air. The stock of this charming variety is now in the possession of Mr. R. M. Stark, of the Edgehill Nursery, Edinburgh. The fresh flowers are very agreeably violet-scented, blended with a little of the fragrance of the Primrose."

My brother was a very enthusiastic florist, and for three years that I lived with him at Linnburn every spare minute we devoted to hybridising and raising seedling Pansies, Calceolarias, Fuchsias, &c.; and having no idea of turning them to a commercial profit, he gave them away to any one who fancied them, and I believe the Cheiranthus was the only seedling he ever sold, and he disposed of it for a very modest sum. He left Linnburn, near Edinburgh, I think, in 1851, to take charge at Dun, near Montrose, and died near Meigle in the beginning of August, 1872. *James Marshall, Montrose.*

Bees Feeding on Apricots.—I, for one, can bear testimony that Mr. Miller's bee fruit "forage" is not an isolated case, as here, and also in the gardens of Sir G. R. Phillips, Bart., Weston House, 9 miles distant, I observed about three days ago that scores of bees, in company with but a very few wasps, had begun to attack the Apricots. In charity, however, I am compelled to confess that further investigation proved they appeared to pay their devoirs only to such fruit as had begun to decay or crack, resulting from the previous wet weather. Especially so was it the case with the fruit on a heavily-laden large tree here of that fine variety, the Peach Apricot; and the same may be said of the desirable but comparatively little known early variety, the Angoumois Hâtive, a delicious and highly-coloured skinned fruit. Like Mr. Miller, I do not recollect such an onslaught before by the bees. Doubtless a lack of some honey-producing flowers this season has caused them thus to seek food, for which, however, they ought to be forgiven and not begrudged, considering that it may not all be lost, but refunded in the shape of honey; whereas, if instead the fruit had been consumed by those voracious and unremunerative pests, the wasps, the loss would be *in toto*. *W. Gardiner, Lower Eatington Park Gardens, Stratford-on-Avon.*

The Potato Disease.—I purposed to say something in relation to this all-absorbing topic later on, when some ideas yet rather crude had taken a more defined form, but I cannot allow Mr. Fish's paper on this matter (see p. 196) to pass without a few words of comment. I have striven to extract from it his special points of argument, and the first would appear to be that "as the tuber is proved to be the home of the resting-spore, so should the fungus be attacked at that stage." I confess that I have not yet heard it shown or proved that the seed tuber is the winter home of the resting-spore, and think it to be altogether improbable. Mr. W. G. Smith stated that his discoveries so far led him to believe that after the Peronospora had done its work it returned to the earth until again called forth in due season. But need this matter be one open to doubt? If the resting-spore can be discovered by means of the microscope in affected tubers, cannot the same means ascertain whether it exists in the sound tuber, and whether it is on the outside of the tuber or inside?—as, if the latter, no amount of steeping can cure it, and if the former, it is only too probable that what would kill the resting-spore would also kill the growth germs of the tuber. When Mr. Fish advises the use of soot in which to store Potatos, he forgets that that remedy has been tried without avail in years past. Besides, if the resting-spore exists on the seed tuber, how is it that it is not forced into active existence in pits of Potatos where a mass of tubers are often both damp and heated? How is it that it does not affect forced Potatos, or any grown under glass?—and how is it that under any circumstances and conditions of weather it seldom developes itself until the middle of July? Then Mr. Fish advises, as another preventive, "the burning of the haulm;" but the haulm in the state when first attacked by the disease is practically incombustible, and can only be made good for the fire by drying it, and whilst that process was being adopted the fungus might be spread goodness knows where. It would be possible to burn or "incremate" a few rods of haulm, but when the growth of acres is in question the thing becomes clearly impracticable. Has it been conclusively proved that after the fungus has done its worst in the haulm, causing vegetable disease and decay, it does not die also? This position will, of course, be disputed, and it will be said that if it did so die how is a succeeding year's crop of fungus produced. That necessarily carries us back to the year 1844, when the disease first became manifest, and I have a right to ask, "from whence did the Peronospora then come?" and is it not fair to assume that where it then came from it is probable it has also come from in succeeding years. Mr. Smith's discovery of the resting-spores was made under very exceptional circumstances, as the peculiar form of the disease, as manifested in the Early Rose and other American kinds, was not a common form, and may not appear again for many years. It is specially worthy of note that these resting-spores were only found in diseased matter and not in any instance on or in healthy matter. Then Mr. Fish advises the purification of the soil. Well, if the soil be the winter home of the resting-spore, is it not possible for microscopists to discover its presence there? But if this be the case, how is it that soil that has produced a very diseased crop one year will produce a clean one the next?—as such has been my experience. On the other hand, how is it explained that Potatos grown in a piece of land broken up last winter, and which had been pasture for fifty years at least, and perhaps had never been broken up, should produce tubers and haulm just as diseased as were those in soil where Potatos had been grown now five years in succession? Nay, in this latter case I had but very little disease indeed, although two years since the Potatos in that same ground were very bad.. The anti-Peronospora plants is a charming idea, but how came Mr. Fish to overlook the celebrated Eucalyptus? Is not the Fever Tree worth trying? Finally, Mr. Fish advises early lifting. Well, the question is, At what stage? It is no use locking the stable after the horse is stolen, says an old proverb, and it is quite as useless to lift tubers to save them if once affected. I set to work directly the disease was apparent and lifted fifty bushels of a first early kind, storing them as thinly as possible on a dry floor in an airy shed. When lifted every tuber was apparently sound, but now I have had them handpicked I find one-third are diseased. What have I gained by early lifting? The crops grown close by, and now being got up are no worse and in some cases not so bad, whilst I have the satisfaction of knowing that what I now gather up are all sound. I have just heard of an instance where a lot of Myatt's were lifted before a spot of disease was seen on the leaf—the best sent to market and the remainder kept for seed—and yet of these many are now diseased. I do not favour the theory that it is well to lift Potatos for seed before the skins are set. Such tubers never keep so well, neither can they be expected to do so; moreover, tubers thus prematurely lifted invariably start into growth early in the winter, and make most troublesome and unsatisfactory seed. It is a fact that no Potatos produce a stronger or more robust growth than those that have been through oversight left in the ground altogether, so that it is evident the nearer in our treatment of seed we can approach to Nature the better. We are only on the threshold of this subject, and it will take much patient inquiry before it can be fairly mastered. Were it the "North Pole," Government would long since have voted a munificent sum for its discovery, but as it is only the Potato disease, inquiry into that can be left to local or disintegrated action. Mr. Smith is worthily trying to do something, and it is most satisfactory to know that he realises how little he has yet discovered that can be of value to the cultivator. Let us hope that his labours may eventually be fully rewarded. *Alex. Dean.*

—— The Potato disease spreads rapidly, the leaves being now quite brown, and the stalks dying off. It is too early to judge of the effect on the crop, very few in this neighbourhood being lifted. I have for several years pulled a few haulms on the first appearance of brown spots by putting one foot each side and close to them, and we have invariably found the tubers to be comparatively free from disease when lifted, which would be in about a fortnight after pulling the haulms. We have had some heavy thunderstorms lately, which appears to add greatly to the rapid spread of the disease. *Wm. Emery, Kilkea Castle, August* 14.

Rhynchospermum jasminoides.—There is a plant of this well known creeper against Sir Howard Elphinstone's hut in the South Camp, Aldershot, which has stood two winters quite unprotected and is now blooming freely. Have any of your correspondents proved it to be hardy elsewhere, and may it not prove to be a valuable hardy evergreen creeper generally, if not planted in wet cold situations? *H. H.*

Cowbane.—In answer to Mr. Dod's query (p. 235) as to the circumstances under which Cicuta virosa "deserves its name," they would appear to exist when the plant is in a young state. Sir J. E. Smith, in the *English Flora*, says, it "is a very fatal plant to horned cattle, if they happen to meet with it before it rises out of the water, in which state only they will eat the young leaves." In *English Botany* he says, "It grows in ditches and the margins of rivers, always under water when young, in which situation cows and bullocks, to which animals it is a deadly poison, sometimes by mistake eat it." The name Cowbane does not appear in any of our older authors, but was first published by Withering; and "Water Hemlock," as the Cicuta is also called in modern books, was by Gerarde and Parkinson applied to Œnanthe Phellandrium, and is now-a-days in popular use most frequently bestowed upon Œ. crocata. It would be interesting to ascertain positively whether Cicuta virosa is eaten by cows. Mr. Dod says, it "appears to be cropped" by them; but in the Cheshire "pits," where I have seen it growing, often in some quantity, it always seemed to me to have been avoided by them; at any rate its leaves and flowering-stems had attained great height and luxuriance. It seems to be not uncommon in Mid-Cheshire, and is an extremely handsome, albeit dangerous, plant. Withering says:—"Early in the spring, when it grows in the water, cows often eat it and are killed by it; but as the summer advances, and its scent becomes stronger, they carefully avoid it. Though a certain and fatal poison to cows, goats devour it greedily and with impunity. Horses and sheep eat it with safety." The probability that Withering was the author of the name Cowbane, is increased by the fact that he is also the first to publish that of Horsebane for Œnanthe Phellandrium, which had been supposed to be similarly injurious to horses. In America the name Cowbane is applied to a species of Cicuta (C. maculata), which is even more virulent than our British species, and also to another poisonous umbellifer, Archemora rigida. Linnæus, in the *Flora Japonica*, and in his *Tour in Lapland*, gives many interesting details as to the disastrous effect produced by the Cicuta upon cattle. He attributes their eating it in the spring chiefly to two causes: first, that the cattle are then greedy after green herbs, and less discriminating than at a later period of the year; and secondly, that the odour of the plant in a young state is less perceptible—"for I am persuaded," he says, "that later in the year they can distinguish this plant by the smell alone." As to its fatal effects upon man, the following extract from the *Treasury of Botany* may be given:—"In April, 1857, two farmers' sons were found paralysed and speechless close to a ditch where they had been working. Assistance was soon

rendered, but the poor fellows shortly expired. A quantity of the Water Hemlock grew in the ditch where they had been employed. A piece of the root was subsequently found, with the marks of teeth in it, near to where the men lay, and another piece of the root was discovered in the pocket of one of them, so that there can be no doubt that they were poisoned by eating the root of this plant in mistake for some other." *B. M.*

Bees and the Fruit.—In our orchard here we have not noticed that the honey-bee breaks into ripe fruit; but after the rain, when a large portion of the Bigarreau Cherries became cracked, the bees came down in such numbers as to be a nuisance to the gatherers. They likewise applied themselves to the split Gooseberries, which seemed to intoxicate some of them. A few are now engaged with the Plums. Wasps are not numerous, and they are devoting their attention mainly to the Pears, occasional fruit of which we find full of them. A gentleman who has resided in Syria informs me that the honey-bee applies itself to the Figs, which have an intoxicating effect likewise. *H. Havelock, Abbey Wood.*

Judging at Flower Shows.—In reply to your correspondent's query as to the discretionary power of judges at flower shows to refuse or reduce a prize to second or third: all would of course depend on the wording of the schedule. There is generally, and I think very properly, a clause in most well drawn schedules empowering the judges to reduce or withhold a prize altogether from any productions they may consider of insufficient merit to entitle them to the highest or any other award. Exhibitors are supposed to conform to the rules of the various societies as drawn up in their schedules, and judges, in making the awards, are bound to follow out the wording of the same to the very letter, and not to have any crotchets of their own. If prizes are offered for the best of any particular production, and there should only be a single entry, the exhibitor would be entitled to the highest award, however inferior his productions might be, unless there should be a clause in the schedule empowering the judges to withhold the same; and unless it is so stated the judges have clearly no option in the matter but to award the prize to the best. In drawing up schedules the wording should be very carefully considered, as anything indefinite or vague is sure to lead to disappointment, and places both exhibitors and judges in an awkward position. If exhibitors were allowed to snatch a prize for an inferior article simply because there may not be any competition, the moral effect would be bad, and therefore I am of opinion that all schedules should confer the necessary discretionary power to withhold or reduce a prize according to merit. Flower shows have done much for the advancement of horticulture by training the public taste and stimulating growers to make fresh efforts to excel and win prizes, and the judges' mark of bad or second-rate stamps the production, and raises the standard of excellence, leading to renewed effort. As to adjudication, there appears to be no recognised method of performing it, and it would be well if some standard, such as is recognised by florists, could be established. With plants or cut flowers a good cultivator can generally decide almost at a glance which is the most meritorious collection, and, as a rule, only such men as are known to be good cultivators are chosen to adjudicate. In judging fruit there are so many points to be considered, and flavour holds such an important part that with some judges other qualities are frequently almost entirely ignored, and one sometimes has the mortification of seeing large magnificently coloured Grapes or Peaches passed over, and small, inferior looking ones placed before them on account of being, perhaps, a day or two forwarder as to ripeness. With large collections of fruit it is simply impossible that any two men can taste some two or three hundred dishes of fruit and decide justly by flavour. If such fruits as Grapes, Peaches, and Nectarines are well up in colour and finish they are far more meritorious and more presentable than small shrivelled productions that may be slightly better flavoured from excessive ripeness. Even with Melons, that are generally considered so uncertain as to flavour as to render it necessary to cut the whole before giving the awards, a good grower and judge of these would be able to make more satisfactory awards without the use of a knife, as then he has other senses to guide him without trusting entirely to taste. There are certain finishing marks about these and other fruits that are not to be mistaken, and it is rarely necessary to disfigure collections of fruit by cutting them about for the purpose of tasting, any more than it is in the case of Onions and other vegetables. *J. S.*

Bedding-out at the Crystal Palace.—The designs which we have selected for representation this week will be found below in figs. 61, 62. The first-named (fig. 61) is one of the circles round the Rosery, which, it will be remembered, is 12 feet over. The centre, A, is filled with Pyrethrum Golden Feather; B, Coleus; C, Ivy-leaved Pelargonium Duke of Edinburgh; D, Alternanthera paronychioides major; E, Lobelia Blue King; F, Alternanthera paronychioides; and G, Echeveria secunda glauca. The pattern is rather complicated for the size, but the planting has been very well carried out, and a telling bed is the result. Fig. 62 represents a section of the sloping bed which surrounds the Rosery, and which is planted the same all round. A is an inner band of the silver variegated Pelargonium Shottesham Pet; B, pink flowered Pelargoniums Cleopatra and Christine alternately; C, crimson scarlet Pelargonium Waltham Seedling; D, festoon of Pelargonium Shottesham Pet; E, Coleus Verschaffelti; F, Lobelias Blue Beauty and Blue King; G, Pyrethrum Golden Feather; H, Alternanthera paronychioides; J, Cerastium tomentosum; K, Echeveria secunda glauca. Also near the Rose mounds there is a very striking bed, composed of a groundwork of Verbena Sportsman, mixed with Pelargonium Shottesham Pet, the flowers of which are picked off; and another singularly effective combination is of Purple King Verbena, mixed with Cineraria maritima compacta. The latter plant is a gem, and for evenness of growth and neatness of habit must drive the Centaureas out of the field. The characters of many Pelargoniums have altered so much this season that it is scarcely safe to pass very positive opinions as to the merits of some of them, but from the general experience this summer we can state that Cleopatra, as a pink, is vastly superior to the old Christine.

Fig. 61.—CARPET BED AT THE CRYSTAL PALACE.

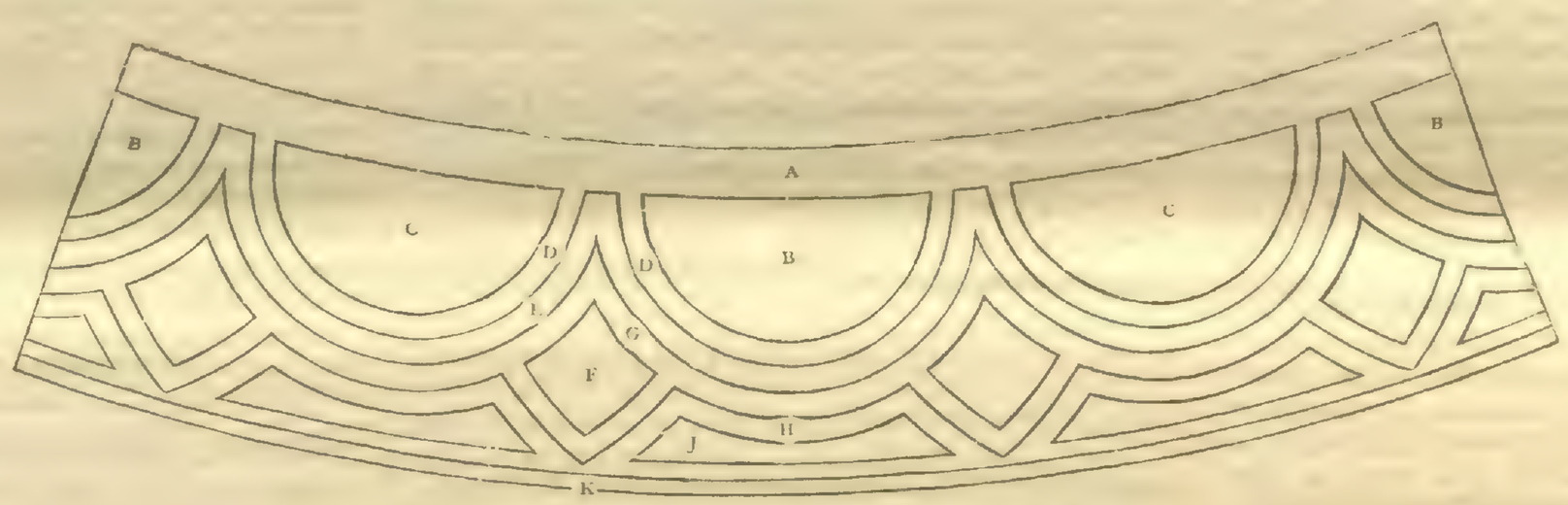


Fig. 62.—PLAN OF BEDDING-OUT ROUND THE ROSERY AT THE CRYSTAL PALACE.

A Very Fine Tulip Tree.—In answer to A. Mesham, there is in Lord Llanerton's grounds, Woolbeding, near Midhurst, Sussex, "a very fine Tulip tree," which was acknowledged by the late Sir Wm. Hooker to be the finest specimen in the kingdom; and it certainly is a magnificent tree, being one mass of foliage from its summit to the ground. Its measurements in 1871 were as follows:—Height, 91 feet 5 inches; girth at 3 feet from the ground, 17 feet 2 inches; circumference round the branches, 79 yards. It is in perfect health, and has doubtless increased somewhat in size since the above measurements were taken. *Geo. Chorley, Coaster's Nursery, Midhurst, Sussex.*

Fruit and Flowers versus Charity.—I make no apology for asking you to insert this letter in the *Gardeners' Chronicle*, knowing, as I do, your willingness and desire at all times to give publicity to any gardening matter which has a tendency to benefit the public, and especially those of it whom this letter concerns, namely, the poor and afflicted in our hospitals, asylums, and refuges. For a long time I have thought that the scheme I am about to mention need only to be known to the wealthy and charitably disposed to be acted upon. I doubt not but that the same thought has occurred to many others, and I could have wished that some one else better able than I am would have given expression to it. The idea is this. That a quantity of ground (say an acre more or less) should be set apart for the exclusive use of charities such as the above, and that some good-sized vineries should be built upon it. From three such vineries Grapes could be cut the whole year through, and Strawberries forced from April until they were ripe out-of-doors, and if in addition to the vineries a few glass pits were put up, cut flowers, flowering plants in pots, and Ferns could be grown in large quantities. The other portion of the ground could be planted with Apples, Pears, Plums, Cherries, Strawberries, and any other hardy fruit which was thought desirable, and hardy perennial and annual plants might be grown almost to any number either in pots to be used for embellishing the rooms, or in borders to be used as cut flowers. I am convinced that there are scores of benevolent and large hearted gentlemen in this country who, if the idea was to occur to them, would immediately act upon it regardless of expense. Where land is not over dear, such a place could be bought and furnished for about £2000, and a further annual endowment of £300 would be ample to meet working and other incidental expenses. In making this suggestion I am not losing sight or undervaluing the great, and in some degree successful, efforts which have lately been made to supply our hospitals, &c., with flowers. To those contributors I am sure the thanks of all right-minded men are due. But the advantage of such a place as I have mentioned over any chance contribution must be patent to all, however liberal, in so far that the supplies could be had regularly, winter and summer, and, moreover, the patients would have the pleasure and satisfaction to know that the fruit and flowers came from their "own garden." It would not be necessary for such a place to be near any particular institution or town; indeed, the most suitable place would be in the country, near any gentleman's seat that felt disposed to establish one, where he could have the pleasure and satisfaction of daily witnessing the result of his thoughtful benevolence. It is needless for me to say what a blessing such places would be if we had one in connection with every hospital in the land, and not the least to the founders of such institutions. *T. O.*

The Prince of Wales Plum.—In a market garden at Bedfont, where the Prince of Wales Plum is largely grown as standards, fine young trees, having heads some 9 feet through, and which have borne a large crop of fruit this season, are dying off in the same way that Mr. Francis Dancer complains of in his garden at Chiswick. This sudden decay has commonly been attributed to the effect of late spring frosts on the young growth, but during the last spring there were no late frosts to injure the young wood.

Probably the cause will have to be looked for in another direction, and must at present be classed, with the sudden decay in the Apricot, as one amongst Nature's mysteries. *D.*

Lilium auratum at Colchester.—We have a splendid show of Lilium auratum just now (indeed, we have had for the last three weeks, and it is likely to last as long again) in two pieces of ground, containing about 20,000. We are obliged to cut the flowers by hundreds every day to prevent the boys from getting over and stealing the blooms and damaging the plants. We have sent you by train this evening a box of cut blooms of our selected varieties, also a bloom each of Lilium auratum rubro-pictum, and Lilium auratum virginale. The former is the one sold under the name of "rubro-vittatum" by some, but the crimson band in rubro-vittatum true extends to the base of each petal, entirely replacing the golden band; the virginale is a grand variety, and very scarce even in Japan. *The New Plant and Bulb Company.* [Where, as in this case, the forms are so numerous that scarcely two are alike, it is useless to think of naming them. A few of those sent were good forms. EDS.]

Dutch Catalogues.—There is an old saying that "Fools rush in where angels fear to tread." For years "the trade" has studiously and severely let the obstreperous Dutchman alone, hoping that at last a comparative few only would know of their terms and existence, when all at once that unhappy friend, "H. W. W.," starts up, draws everybody's attention to them, and advertises them more effectually than any amount of advertising on their part could ever hope to do. "H. W. W." is at once disingenuous and illogical. He says:—"A wholesale firm in London solicit, by their traveller, orders from country nurserymen. Not pleased with that, the traveller calls upon gardeners at the same place for orders for the same article. The country nurseryman hears about it, and his order is stopped," &c. "H. W. W." seems to think this method of selling to "the trade" and selling to gardeners most reprehensible. I have never in all my life seen a more transparent absurdity, or one more in direct antagonism to the plainest facts. For example, Mr. Cannell sends out his new Fuchsias every year, and the trade take them up. This does not prevent him from offering the identical articles to every amateur and gardener in the country, either as plants, rooted cuttings, or even cuttings. The same with Turner's Pelargoniums, Bull's new plants, Paul & Son's Roses, Laing's Pelargoniums, *et hoc omne*; they are offered to every one, in their catalogues and in advertisements generally, followed with the magic words "*the usual discount to the trade.*" These words simply mean that the plants, seeds, tubers, &c., are offered to every one, nurserymen included, but that these latter get a discount off. Now the extraordinary conduct of these Dutchmen, upon which "H. W. W." by implication so severely animadverts, and which rouses his wrath to the Cassandra pitch, is just the rule of the entire trade here. They (the Dutchmen) offer their bulbs to "the trade" and gardeners alike, and they fulfil orders from both in all respects the same, but to the nurserymen they would and do allow "the usual discount off." "H. W. W.'s" threat of "the trade" here stopping their orders is very rich, and, as the Germans say, laughter-provoking. He does not follow his threat to the bitter end, nor show the dread catastrophe that would then ensue were Britannia to be even for a single season disconsolate, being bereft of her darling bulbs. She (Britannia) would in these extraordinary circumstances no doubt do the best she could by importing direct from the growers herself, and might by-and-bye find that "the trade," at least in this particular branch, could be done perfectly well without, whilst the nurserymen on the other hand would discover that by their little "huff" they had managed to spite their face by cutting off their nose. "H. W. W.," however, purposely or otherwise, improperly narrows the area of the question by coming down upon the Duch bulb growers alone. Why does he not solemnly warn the German seed houses, the great Belgian plant nurseries, the French Gladioli and Rose growers, the frequent bulb and plant auctions, &c., for their interference with "trade" rights, customs, and profits? The fact is, "H. W. W." takes a strictly partial view of the matter, with which the general public may well be pardoned for disagreeing. No doubt that resource of all stout Protectionists, an Act of Parliament, might be agitated for, to prevent all these enterprising foreigners from invading vested interests, or putting their profane fingers in the sacred trade pie; but it would be of no use when got, and would not advance the interests of horticulture one whit: in fact the reverse. I have now imported both bulbs and plants direct for ten years, and it must be confessed that the prices are very considerably lower abroad, whilst the quality is fully above the average, as I took care to do business only with well-known houses of repute. The journey is, no doubt, somewhat long, but the packing is splendid, which is more than can be said for the wrapping at home. In conclusion I may state that I consider horticulture must take a much more prominent position than it has ever done in the national life. The cost of the strong drink consumed last year very nearly amounted to the total rental of all the land in the country. Not only has that immense sum of money been thrown away, but thousands of lives and tens of thousands of constitutions have been ruined by it. Horticulture, music, reading, &c., are the true antidotes for these extraordinary evils, supplying, as they do, proper pleasure and amusements of a healthful and improving kind, of never-ending variety and interest. I am, therefore, delighted when I observe a promise of cheap books, music, or flowers, even supposing it should in its advent tread upon a few trade corns. *W. A.*

—— It is certainly high time that Englishmen, in the bulb trade more especially, took the matter of Dutch flower-root dealers, or merchants, into due consideration. It is well known that the entire Dutch bulb export trade is in the hands of a comparatively small number of Dutchmen. The whole list of exporters' names might be written on one's hand—I mean those merchants who travel annually to England, Russia, Germany, France, and America, soliciting orders from the trade, and some of whom are the very men who send catalogues to gardeners and private gentlemen. They come to this country and take good orders for twenty-five, fifty, one hundred, or five hundred more kinds; yet no sooner do they reach home than they send out their retail catalogues, and, it sometimes happens, to one's next-door neighbour. If they, the Dutch merchants, do not know what legitimate business is, we, as interested more particularly in the trade, ought to exact from them business-like habits. There are, I know, hundreds of flower-root growers, perhaps thousands, in and round the district of Haarlem, but they simply grow them and sell them to their fellow countrymen; they know nothing about sending bulbs to other countries, much less catalogues. If the large wholesale dealers in this country would take this unbusiness-like act of some of the few well known exporters from Holland into serious consideration, they would find all the retail houses willing to co-operate with them in putting pressure, if needed, on unbusiness-like traders. If it looks unreasonable and unlike business to a gardener and a private gentleman there ought to be no difficulty in making a Dutchman understand the absurdity and lack of judgment and good sense in the matter. The Dutchman may say, But English houses issue wholesale and retail catalogues, too. So they may, but they are not so selfish as to tell you that you will get better or cheaper supplied by dealing direct in the neighbourhood of the City, or the West End, either in Leadenhall Street, or the Barbican. The retail price is the same at the merchant's as at the retailer's. Again, the Dutch merchant may say, I was a merchant with a wholesale trade, and I bought of another Dutchman a retail business. This is a question. Perhaps it was a very small wholesale business, partly lost for lack of a business-like course of action. What I say is that it is unfair to give the buyer of 100*s.* worth of goods the same advantage as the buyer of £100 worth of goods. Take into consideration the expenses of the man who retails to the small buyer, allow him the same advantage as wholesale houses in any way of business in this and other countries, sell all good articles, and all as near as possible at the same price. The profits of the Dutch exporters are well known, from statistics, to be so good that they can well afford to leave the English retail bulb trade to Englishmen. *An Old Traveller in Holland, who Knows Something about Bulbs.*

The Snowflake Potato.—Having noticed some remarks respecting the extraordinary fertility of the Snowflake Potato, I think it may not be uninteresting to your readers to know that 1 lb. of seed which I purchased in the spring has produced 69 lb. This is certainly a wonderful produce, and is unequalled in this neighbourhood, and, I think, will bear favourable comparison with any previous reports. *C. Turner, Gr. to H. Beevor, Esq., Blyth, Worksop, Notts.*

Reports of Societies.

Alexandra District Floral and Horticultural: *August 21.*—The headquarters of this society are at Penge, just below the Crystal Palace, and it was formed about 1868, this being the seventh annual show. One of its principal supporters was the late Mr. Tom Hood, and the memory of this genial kindly member of the *literati* is held in great respect among the members, and his presence at the annual gathering much missed.

The Alexandra district, as it is termed, consists of some 160 or 170 cottages or villas, inhabited by pretty-well-to-do members of the working classes, while there are a considerable sprinkling of cottages and small residences in the neighbourhood. Year after year the exhibition extends, and the general character of the exhibits improves; and were Beckenham and one or two other adjoining parishes included in the Society's operations the Society could be made a very influential one. The show ground is a small field near to Penge station, conveniently situated, and tents were arranged round it. The classes were generally small, that is, not requiring more than two or three plants, except in a few special cases. In addition to the money prizes offered by the Society there were a considerable number of special prizes given by the residents of the districts, and among them it was pleasant to see "Tom Hood's Prize" continued, in the form of a book given by the editor of *Fun*.

Plants consisted of Pelargoniums, variously represented, but all more or less vigorously grown; Petunias, Coleus, Fuchsias, Lilium tigrinum, L. speciosum, Hydrangeas, Asters, Sedum Fabarium, Ferns, Campanula Barrellieri, &c. Some of these bore unmistakable signs of window culture, others were no doubt grown in small glass structures and cold frames. In most of the classes there was a spirited competition, and the judges had their work to do in some instances in adjusting the awards.

Cut flowers were represented by Asters, Roses, Dahlias, Stocks, Pansies, Verbenas, Hollyhocks, Antirrhinums, and other flowers generally grown in cottage and villa gardens. Generally speaking they were tastefully displayed and set off to the best advantage. There were classes for bouquets—in one the competition was restricted to ladies only—and as the bouquets were made up of ordinary garden flowers, scarlet and yellow hues greatly preponderated. There were hanging floral decorations, one of the most conspicuous being a huge cross; table decorations, floral designs, collections of wild flowers by children, &c. In all these classes special prizes were given, generally useful articles or books.

Fruit was represented by Apples, on the whole very good; Pears, out-door Grapes, Gooseberries, &c., but as there were but few classes it was only a small part of the exhibition.

On the other hand the display of vegetables was very extensive; and there must be a good soil about Penge, judging from the quality of many of the examples shown. Sir C. H. Miles, Bart., M.P., one of the members for West Kent, offered as a special prize an excellent dinner service for the best collection of vegetables in eight varieties, and no less than eighteen collections were staged; and so good were many of the exhibits that the judges awarded three extra prizes in addition to those offered in the schedule. Cabbage, Peas, Potatos, dwarf and runner Kidney Beans, Carrots, Parsnips, Onions, &c., were all well shown. Special prizes were offered by Mr. J. G. Talbot, M.P., for twelve kidney and also for twelve round Potatos, and in the former case thirty dishes were staged, and in the latter, sixteen. The leading prize for a collection of Potatos was half-a-dozen port wine, and nine competitors contended for the possession of the ruby liquid. Mr. Peter McKinlay, the treasurer, offered good money prizes for four dishes of Potatos, distinct, nine tubers of each, and eleven were staged—the best lot, and very good indeed they were, coming from Mr. Denyer, a ganger on the London, Chatham and Dover Railway. The sorts were Late Rose, Snowflake, Emperor, and Headley's Nonpareil. In the other classes were good examples of Paterson's Victoria, Regent, Rector of Woodstock and Vermont Beauty, rounds; Model, Early Rose, Early King, &c., kidneys.

A very interesting group of plants was staged by Mr. W. Evans, Royal Nursery, Penge. This consisted mainly of Pelargoniums and Coleus; among the former were capitally grown and flowered examples of Fred. Genge, De Lesseps, Acme, Pearson's Matilda (a pretty pink), Harry Turner, Henry King, Wellington, Colonel Holden, President Thiers, Cerise (very pretty), Alice Spencer, Corsair, &c.

During the afternoon the prizes were distributed by Mr. J. G. Talbot, M.P. (*From a Correspondent.*)

Reading Horticultural: *Aug.* 19.—For some reason or other there was a marked falling off in the plant classes on this occasion, owing to several of the usual exhibitors not having brought their plants, and the turf-banks looked a little naked in consequence. Perhaps the untoward season had something to do with it also.

A group of ten fine-foliaged plants, shown by Mr. J. Applin, gr. to H. A. Simons, Esq., Reading, were in such splendid condition as to merit a place in any exhibition. The group comprised Latania borbonica, Pandanus elegantissimus, Ananassa sativa variegata, Alocasia Jenningsii (finely marked), Dracæna australis, Maranta zebrina, Phœnix reclinata, Cissus discolor, Pandanus javanicus variegatus, and Alocasia metallica. They well deserved double the amount of the 1st prize awarded to them. Groups of four plants were nicely shown, the 1st prize going to Mr. G. Parham, gr. to G. May, Esq., who had a good Maranta Vanden Heckei, with a large number of erect, finely-marked leaves; Cocos Weddelliana, Anthurium magnificum, with large and finely-marked leaves; and Latania borbonica. 2d, Mr. H. Elliott, with good examples of Croton variegatus, Alocasia

macrorhiza variegata, Cyanophyllum spectandum, and Croton angustifolius.

Mr. J. Applin staged the only group of ten stove and greenhouse Ferns, good medium-sized, well grown and developed plants. The leading plants were Davallia dissecta, Alsophila excelsa, A. australis, Dicksonia antarctica, Blechnum corcovadense, Thamnopteris australasica, Adiantum trapeziforme, and A. formosum. Hardy Ferns are generally well shown at Reading, and on this occasion one good group in particular was staged.

Stove and greenhouse plants in groups of eight were represented by one set only, from Mr. J. F. Mould, nurseryman, Devizes. The judges not deeming them worthy of the prize of £5 withheld it, and gave them the 2d prize. They consisted of a large and fairly bloomed but ungainly-looking Allamanda Schottii; three small but nicely-bloomed Ericas, Bougainvillea glabra, a very poor lot of Ixoras, a small Statice, &c. Groups of four were better shown, the 1st prize going to Mr. G. Parham, who had a well grown and effective plant of Lantana Le Grenadier, Allamanda Schottii, Vinca rosea, and V. rosea alba. Mr. J. Applin was 2d, among his plants being a good example of Lapageria rosea. Lilies were nicely shown; the specimens large, well-flowered, and effective. Mr. G. Pile, gr. to J. J. Wheble, Esq., had the best examples—varieties of L. speciosum; 2d, Messrs. Phippen & Robinson, nurserymen, Reading, with examples of Lilium tigrinum flore-pleno. Achimenes, well grown and flowered, came from Mr. J. Miller, gr. to R. Attenborough, Esq., Whiteley Grove, the best being Ambrose Verschaffelt, longiflora major, Meteor, and Mauve Queen. Bedding Pelargoniums, Fuchsias, Balsams, Cockscombs, &c., were also shown, and on the whole well, but they did not call for special remark. Phloxes in pots were well done, large, well-bloomed specimens being staged by Messrs. Phippen & Robinson.

Variegated Pelargoniums were well shown, the plants nicely grown and grandly coloured. Particularly was this true of the best half-dozen, staged by Mr. J. F. Mould, the large bold leaves being marked finely and distinctly. The varieties were Peter Grieve, Humming-bird, Sophia Cusack, Lady Cullum, extra fine; Queen Victoria, and Maréchal McMahon, one of the Gold and Bronze type. Mr. J. Ashby, gr. to W. Fanning, Esq., was 2d, with well grown plants, including some nice Silver Tricolors, but they lacked the fine leaf development that characterised Mr. Mould's plants. Several other exhibitors competed in this class.

Cut flowers, though not largely, were yet well shown. A fine stand of twenty-four show Dahlias, as well as of twelve fancy Dahlias, came from Mr. J. Walker, Thame, and the 1st prizes were awarded in each instance. Of the former the following were in fine character:—A. Cramond, James Service, Queen of Yellows, Grand Sultan, James Cocker, Vice-President, Fire King, Rev. Dr. Moffat, Caroline Tetterell, Flora Wyatt, and Peri. Mr. Walker was also 1st with twenty-four fine Hollyhocks, and twelve spikes of Gladioli; among them a yellow seedling of some promise. Mr. Mould had cut Gladioli also. Asters, quilled, flat-petalled, and crown-flowered, were nicely shown; and there were some good Roses and Verbenas also. There were also collections of twenty-four and twelve bunches of miscellaneous cut flowers, and the character of the exhibits appears to have changed from the obvious intention of the original framers of the schedule, as it is now a struggle between some rather indifferent bouquet makers, whose main object appears to be to make up something that will sell at the close of the show. There were table decorations also, those made from wild flowers having the best pretensions to artistic skill; also bridal bouquets and button-holes.

In the fruit classes there was a remarkable show of Grapes; perhaps a finer lot, taken altogether, has not been before produced this season. The best collection of eight dishes of fruit was staged by Mr. J. Tegg, gr. to J. Walter, Esq., M.P., Bearwood, and consisted of Black Hamburgh and Buckland Sweetwater Grapes, the last very fine; Kirke's Plum, Victory of Bath Melon, Queen Pine, Royal Ascot Peaches, Shipley Apricot, and Morello Cherries. 2d, Mr. C. Howe, The Gardens, Benham Court, Newbury, who had fine Black Hamburgh Grapes, Queen Pine, Royal George Peaches, and Elruge Nectarine. 3d, Mr. J. Higgs, The Gardens, Caversham Park, whose best dishes were Foster's Seedling Grapes, Pitmaston Orange Nectarine, Moor Park Apricot, and Black Marseilles Fig. The best four dishes came from Mr. A. Bridgeman, gr. to T. Somers Cocks, Esq., Great Marlow, and consisted of Royal George Peaches, Moor Park Apricots, Jargonelle Pears, and Green Gage Plums, all in fine condition. 2d, Mr. T. Lockie, gr. to Lord Otho Fitzgerald, Oakley Court, Windsor, who had Noblesse Peaches, Elruge Nectarines, a Melon, and Washington Plums. Several collections competed in this class. No less than thirteen dishes were staged in the class for three dishes of Black Hamburgh Grapes, and there was not an indifferent one among them. The 1st prize went to Mr. J. Ashby, gr. to W. Fanning, Esq., with three large and finely developed bunches, full sized in berry, well coloured, and carrying a beautiful bloom; 2d, Mr. T. Robinson, Royal I. E. College, Englefield Green; 3d, Mr. Noah Kneller, gr. to W. S. Portal, Esq., Malshanger Park, Basingstoke; 4th, Mr. J. C. Higgs, Caversham Park Gardens. The best dish of any other black Grape was some very fine Madresfield Court Muscat from Mr. J. Atkins, gr. to Col. Loyd Lindsay, M.P., Lockinge Park, Wantage. Lady Downe's was well shown by Mr. G. Parham, and Black Prince by Mr. J. Hawes. Of white Grapes, the best three dishes of Muscat of Alexandra came also from Mr. Ashby; Mr. Wells, of Winkfield, 2d; and Mr. Feist, gr. to R. J. Ashton, Esq., Englefield Green, 3d. The last were beautifully coloured examples, but rather small in bunch and berry. There were not less than seven dishes of Muscats. The best dish of any other white Grape was Buckland Sweetwater, from Mr. N. Kneller, Malshanger Park Gardens, and finer examples one could scarcely wish to see. The bunches were very large, handsome in shape; the berries of great size, and beautifully coloured. Mr. Kneller always grows this Grape to the best advantage, and he well maintained his reputation on this occasion. In fact, judging from the quality of the Grapes shown at Reading, the present generation of Grape growers will be quite equal to any that has preceded it. Mr. J. Atkins, Lockinge, was 2d, with Foster's Seedling; 3d, Mr. J. Wells, with Golden Hamburgh. White and Golden Frontignan were also well exhibited.

Peaches were numerously shown, the leading varieties being Stirling Castle, Royal George, Bellegarde, and Sulhamstead. Nectarines were represented by good examples of Elruge, Violette Hâtive, and Pitmaston Orange; Apricots generally by Moor Park, and they were finely and numerously shown. The same remark applies to Plums, there being classes for three and also for single dishes. There were good examples of Kirke's, Jefferson's, Prince of Wales, Goliath, Washington, Green Gage, and Victoria. Figs, Melons, Apples, both dessert and culinary, were also well shown.

The same remark applies to vegetables, which are always well done round Reading, and, as usual, were numerously shown.

The silver cup given by Messrs. Sutton & Sons for three sorts of Cucumbers and three of Melons, a brace of each required, was won by the only exhibitor, Mr. T. Lockie, gr. to Lord Otho Fitzgerald. The Cucumbers were Marquis of Lorne, Masterpiece, in the way of Telegraph, but with slight white spines; and Duke of Connaught, a short Cucumber after the type of Monro's Duke of Edinburgh, but not so deep in colour. The Melons were Horticultural Prize, green-flesh, Hero of Bath, scarlet-flesh, and Colston Bassett Seedling, white-flesh. (*From a Correspondent.*)

Stroud Horticultural: This Society held its annual show recently in the beautiful grounds of Stratford Park, the residence of R. Hastings, Esq., which is situated westward from, but near the town of Stroud. The Society is fortunate in being able to hold its exhibitions in a spot such as this, which not only presents the advantage of being sufficiently close to the town, but the interesting features of the place and its surroundings contribute much towards the success of the show. The well kept grounds, studded with fine trees and shrubs, plenty of room, and the pleasing views of the neighbouring picturesque scenery, for which this district is justly celebrated, are in every way well adapted for a successful floral gathering. Those who look upon these exhibitions from a purely horticultural point of view may feel satisfied with the respective excellence of the objects displayed, but the attendance of the public is quite as much influenced by the attractions of the place in which such shows are held, as by the merits of the productions. This is a subject that does not always meet with the consideration it deserves from the promoters of exhibitions, yet that such is needful at the present time must be evident to all who give the subject consideration. Almost every town in the country now has a horticultural society, whose shows are carried out on a scale that necessitates the expenditure of much larger sums than in times past, and which, to make them financially successful, demand a corresponding increase in the attendance of visitors: there is no better means of securing this than by selecting for them the most attractive sites.

Large flowering stove and greenhouse plants were shown well and full of bloom, with a more than usual absence of those that have done duty oftener than is conducive to their freshness, and which, if present in only small numbers, detract much from the appearance of those they are associated with. Variegated and fine-leaved subjects were in force, both as to numbers, size, and general condition. There are many of the old school of plant-growers who even yet lament the introduction of fine-leaved plants into favour, yet what would be the appearance without them, not alone of the exhibition stage, but the home conservatory, where they constitute a grand and important feature in themselves, and also greatly improve the effect of the flowering things intermixed with them? Cut flowers were a very important feature, and occupied a considerable space in one of the large tents. Gladioli, Asters (the latter in great quantities and faultless condition), Dahlias, and Roses were well represented. Of Grapes, Peaches, Nectarines, and Apricots, there was a considerable display, whilst the more hardy kinds of fruit, consisting of Pears, Apples, and Plums, were very plentifully produced.

In the tent devoted to cottagers' productions, one noticeable feature was the marked superiority of the vegetables here over those shown by the gentlemen's gardeners, and this, moreover, where vegetables receive quite their full share of encouragement. This was not observable alone in a few of the competing collections, but all through the classes. Were proof needed of the encouragement given at these exhibitions acting as a powerful incentive to induce cottagers and allotment-holders to make the most of their gardens, this fact would go far to prove it.

The following embrace a few of the principal classes:—Nine stove and greenhouse plants, in flower: The competition here was very close betwixt Mr. Heath and Mr. Cypher, both of Cheltenham, the prizes being in the order named. The former had, in a very good group, a grand Lapageria rosea, large and well flowered; Dipladenia amabilis, beautifully coloured; Allamanda nobilis, the fine late-blooming Heath, retorta major, an excellent Clerodendron Balfourianum, just at its best; and the yellow-flowered Cassia corymbosa, a plant not often shown, but when, as in this case, covered with healthy foliage and plenty of bloom, anything but despisable. Mr. Cypher had, amongst others, the singularly twisted petalled Gloriosa superba, Statice Gilbertii, a remarkably free flowering deep coloured (blue) variety, in all probability the next best representative of the family to S. profusa, and even superior to it for autumn blooming. For twelve foliage plants Mr. Heath was also 1st, showing an exceedingly fine dozen, in which was a good Cupania filicifolia, Eurya japonica variegata, well coloured; Chamærops excelsa vera, Crotons Weismanni and pictus. Mr. Cypher was a good 2d; in his lot were the fine Palms Geonoma pumila and Cocos Weddelliana, Pandanus Vandermeerschii, the best of the Screw Pines, and a highly coloured Croton longifolius variegatus. 3d, T. A. Stoughton, Esq., his best being Musa Ensete, Acanthophœnix crinita, and Phormium tenax variegatum. Six foliage plants: 1st, Col. Kingscote; 2d, A. J. Stanton, Esq., M.P. Three foliage plants: 1st, T. A. Stoughton, Esq., in whose group was a beautifully coloured young Croton undulatus; 2d, Col. Kingscote. Nine exotic Ferns: 1st, Col. Kingscote, as also for six, showing in good form Davallia Mooreana, Adiantum farleyense, and Gleichenia dicarpa; T. A. Stoughton, Esq., 2d, with larger plants but not equal in condition.

Cut Flowers.—Twelve varieties of Asters: 1st, Mr. D. Bloodworth; 2d, Captain Chaplin; 3d, Mr. A. Apperley. Twelve Dahlias: 1st, Mr. D. Bloodworth; 2d, Mrs. Browne. Twelve Gladioli: 1st, Captain Chaplin. Six Gladioli: 1st, Captain Chaplin; 2d, Mr. D. Bloodworth; 3d, Mr. A. J. Stanton. Twelve Roses: 1st, Mr. D. Bloodworth; 2d, Captain Chaplin; 3d. Mr. A. B. Winterbotham. Six Roses: 1st, Mr. S. S. Marling; 2d, Mr. H. Holloway; 3d, Mr. J. T. Stanton. Three vases of cut flowers for the dinner-table: 1st, Mr. A. J. Stanton.

Fruit.—Four bunches of Grapes, distinct varieties: 1st, Mr. W. J. Stanton. Two bunches black Grapes: 1st, Mr. W. J. Stanton; 2d, Colonel Kingscote; 3d, Mr. G. Holloway. Two bunches white Grapes: 1st, Mr. T. A. Stoughton; 2d, Mr. G. Holloway; 3d, Colonel Kingscote. Dish of Peaches: 1st, Miss Isaacke. Dish of Nectarines: 1st, Mr. A. B. Winterbotham. Apricots: 1st, Captain Chaplin. Plums (collection of six varieties): 1st, Mrs. Browne. Apples (six varieties): 1st, Mr. E. J. D. Paul. Pears (six varieties): 1st, Mr. J. Gainer. (*From a Correspondent.*)

Metropolitan Floral: *August* 24 and 25.—The annnal exhibition of this Society was held on Tuesday and Wednesday last, at the Alexandra Palace, but it was a poor affair, and calls for no special comment at our hands. It was too early for the best blooms, and as a consequence few things were shown in anything like first-rate condition. The largest classes were those for Dahlias and Asters, the latter flower being represented in considerable numbers, but, as a rule, in very inferior condition. The leading prize-winners were Mr. J. Walker, Thame; Mr. J. Morgan, gr. to Major Scott, Wray Park, Reigate; Mr. James Betteridge, Chipping Norton; and Mr. R. Anderson, Ann Street, Bethnal Green. Mr. Keynes was the only exhibitor of really good Dahlias, winning the 1st prizes for forty-eight, and for twenty-four Fancies with very good collections for the time. Mr. J. Walker, Thame, had the best twenty-four amongst nurserymen, while Mr. G. H. Fewkes, Tyburn, Erdington, Birmingham, held a corresponding position in the amateurs' class for the same number. Mr.

H. Glasscock, Bishop Stortford, had the best twelve. Hollyhocks were exceedingly poor, and especially the cut spikes. Mr. W. Chater had the only blooms possessing any quality at all. There was a fair display of Gladiolus as to numbers, but when the collection and prize groups shown by Messrs. Kelway & Son, and the 1st prize groups staged by Mr. J. Douglas and the Rev. H. H. Dombrain, had been examined, the remainder would not stand comparison. The Zinnias were also a very uneven lot, and by no means commendable; but of twenty-four Roses shown by Messrs. Paul & Son it would be impossible to speak too highly, so fine in development, so clean and so fresh were the blooms put up. Mr. Keynes was a commendable 2d in the same class. Several Certificates were awarded.

The Villa Garden.

INSECT PESTS.—Wasps and flies are just now very troublesome to fruit cultivators. Mr. Cramb, of Tortworth Court Gardens, once said that "Nothing in creation is without a special purpose, and wasps are useful, but what we complain of is their excess." He was undoubtedly right, but there happens to be an excess of wasps this year, and war to the knife must be waged against them. There are some who say that a severe winter like that of 1874-75 is very destructive of insects; and it was generally remarked during the spring that there were few queen wasps to be met with. The first is no doubt a hap-hazard statement, not warranted by facts; the second but illustrated a somewhat limited experience. Gardeners are found making sad complaint of the damage wasps are doing to their fruit crops, especially in the drier parts of the country; and their depredations are made quite irrespective of geographical distinctions or class in society; the cottage and palace garden alike being the scene of their ravages.

Netting as a protection for the fruit is a costly process, and the best hexagon netting has failed to keep out the wasps. Gardeners say that they have known them eat their way through the netting, so strong is their regard for the sugary juices of the fruit. The best means of mitigating the evil is to hang up in the branches of the fruit trees, bottles of some saccharine liquid, with mouths wide enough to admit of the free ingress of the wasps. Many will go into them, and meet instant death. The contents should be changed every three days or so, as the fresher the liquid the more attractive is it to the marauders. Another wise thing to do is to gather ripening fruit two or three days before it is fully ripe, for the wasps and flies both invariably attack the ripest and most luscious examples; and it will consummate the ripening process even after being removed from the trees. Some of the fruit growers round London, who send Plums to Manchester, Liverpool, Glasgow, &c., gather them a few days before they are fully ripe, and during the journey they become quite ripe. We have gathered Pears, especially the Windsor and Jargonelle, Green Gage and Orleans Plums, Apricots, Peaches, &c., before being perfectly ripe, and by keeping them in a dry airy room, or on the shelf of a greenhouse, they soon became quite fit for table.

Ants are also causing us much trouble, especially in the case of pyramid and bush fruit trees; and particularly are they troublesome in the case of Plums. Many of our neighbours are similarly circumstanced, and they view with much concern the daily robberies they appear powerless to prevent. The ants find their way instinctively to the extremities of the branches in quest of the ripest fruits, and a number of them carrying on a persistent attack soon renders unfit for table many a promising specimen. We have found a ring of fresh soot placed round the stem of the tree serve to keep the ants in check; but it needs constant renewal. It should be finely powdered soot, and they do not appear to like it. We tried the half-circular small zinc troughs, filled with water, and placed round the stem of a tree, resting them on the soil, but it was of no avail, for they tunnelled under the troughs, and, reaching the stem, soon clambered up. Failing soot, some treacle may be smeared over the tree stem, but it soon dries, and really, we fear, aggravates the evil to some extent, for we found that it acted as a decoy to wasps and bees and flies innumerable.

In the case of wall trees it is much more difficult to originate preventible means, for they not only ascend to the branches by the main trunk of the tree, but by the wall also. In this case war must be carried into their haunts, which should be sought out and deluged with boiling water. When at Dalkeith Mr. William Thomson once found them very troublesome in the case of Figs growing in pots. The moment the fruit began to ripen, and crack or open at the end, the ants entered, and devoured the interior, leaving nothing but the skin. The only plan Mr. Thomson found successful in the way of keeping them in check was to catch them and kill them, and he accomplished this by placing saucers partly filled with treacle where the ants most abounded. They gather rapidly to devour the treacle, but all become immersed in it, where they soon perish. If the treacle is thick its consistency can be reduced by mixing water with it. Another method he adopted was to cut sponges into pieces the size of an ordinary Apple, dip them in treacle and water, and lay them where the ants can most readily get at them—amongst the branches of the trees. They instantly fill every cell of the sponges to eat the treacle; and when in the midst of their repast he passed along the house with a water-pot, in which there was boiling water, into which the sponges with their numerous inhabitants were dropped. The sponges were then washed, re-dipped in the treacle, and again set as traps. The ants soon become reduced in numbers if this course is persisted in. This may serve to furnish some hints to those whose fruit is being attacked in the open ground, and enable them to apply similar remedies.

The green-fly is now very much infesting our Apple trees, and completely covering the points of the shoots, causing the leaves to curl and take on a very unhappy looking appearance. We find it prevail in gardens situate, like our own, on the gravel, and where, notwithstanding the great amount of rain that has fallen, the trees are beginning to feel the effects of the dry weather. Our remedy is Fowler's insecticide, and a solution is made in a small brown pan, just enough to cover the points of the branches when inserted in the liquid, and by shaking the shoot backwards and forwards in it a little while, the enemy is dislodged in numbers, and any that remain on it are as good as dead. A solution of soft soap and sulphur will answer the purpose also; or the fly can be brushed off with a camel's-hair brush, but in this case they are not destroyed.

POTATOS.—The work of lifting Potatos should now be proceeded with, if not already accomplished. In small gardens they are lifted as they are eaten, and where the space devoted to Potatos is circumscribed they do not last a great while. All medium early varieties had better be lifted and carefully looked over, picking out the diseased tubers, and then separating the bad from the good. When the disease shows itself in a somewhat virulent form, as it has done this season, it enables the cultivator to distinguish between bad and good. Instead of storing them away at once, we recommend that they be formed in good-sized heaps on the ground where they were dug, and covered with soil for a month or so, if the ground can be spared, and looked through again before they are stored away.

On the cleared ground obtained by lifting the Potatos can be sown some Turnip seed, such as Beck's Improved Snowball, a good one for the late crop, because it turns in so readily; and a portion of the ground can be prepared for some spring Cabbage, winter Lettuce, &c. Let the ground be dug deeply, and beaten well to pieces, and it will carry very good Cabbage and Lettuce. Late-planted Celery should be encouraged to grow by frequent waterings during dry weather. Once get it to start well, and it will make rapid headway after it has been earthed-up a time or two.

Law Notes.

CAUTION TO CARELESS DRIVERS.—CLARK *v.* JOHNSTON.—This was an action brought in the Shoreditch County Court on the 25th inst. in which the plaintiff, a cab proprietor of Shoreditch, sued the defendant, a market gardener of Stamford Hill, to recover the sum of £15, being compensation for damage received in consequence of the negligent conduct of the defendant's driver. Mr. Warner Sleigh appeared as counsel for the defendant, and Mr. Lee as counsel for the plaintiff. The plaintiff said that on June 3 last he was walking his cab in the Navarino Road, when he saw the defendant's cart in front of him, and the reins of the horse loose. The driver of the defendant's cart caught hold of the reins and pulled the wrong one, which caused the cart to swerve to such an extent as to damage the plaintiff's horse, causing him the loss now sued for. The items were £5 for detriment to the horse, £2 for veterinary surgeon's bill, and £8 for the loss he had sustained by the illness of his horse. Edward Wheeler was called, who said he saw the accident, and was of opinion that the driver in the cart was asleep, and hearing something approach, woke up and pulled the wrong rein, and in doing so severely injured the plaintiff's horse. At this stage of the case Mr. Warner Sleigh said as his client had no witnesses to call as to the accident itself, he would, therefore, acknowledge that the accident had taken place, his client's driver being very tired in consequence of waiting in and returning from Covent Garden Market. He would, therefore, admit the accident, but contended that the charges for compensation were excessive. Mr. W. Harrold, a veterinary surgeon, was called, who said the horse was originally worth £25, but was now only worth £20. After Mr. Sleigh had cross-examined the witness at considerable length, the learned Judge said that as this was merely a question of amount, he thought that he should satisfy the justice of the case by allowing £5 for damage done to the horse, £2 for the veterinary surgeon's fee, and £4 for loss sustained by the illness to plaintiff's horse. Judgment would, therefore, be in favour of the plaintiff for £11, with costs. The Judge cautioned the defendant as to the danger of employing such young and inexperienced drivers.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, AUGUST 25, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Aug.	In.	In.	°	°	°	°	°	°			In.
19	29.98	+0.19	71.8	55.8	16.0	61.3	+ 0.4	55.2	80	S.W.: S.	0.38
20	30.05	+0.25	74.8	54.4	20.4	61.6	+ 0.8	56.8	84	E.: S.E.	0.00
21	30.16	+0.36	75.0	55.1	19.9	63.3	+ 2.6	51.7	66	S.W.: W.	0.00
22	30.08	+0.27	74.0	55.6	18.4	63.9	+ 3.2	50.2	61	S.W.	0.00
23	29.89	+0.07	74.6	50.8	23.8	61.6	+ 0.9	51.2	69	S.S.E.: S.: S.W.	0.00
24	29.72	−0.11	72.5	54.1	18.4	61.8	+ 1.2	50.7	68	S.W.: S.	0.00
25	29.72	−0.11	72.4	53.4	19.0	61.9	+ 1.4	52.8	72	S.W.	0.00
Mean	30.09	+0.13	73.6	54.2	19.4	62.2	+ 1.5	52.7	71	S.W.	0.38

Aug. 19.—A fine day. Fog in morning. Rain after 7.30 P.M.
— 20.—A very fine warm day.
— 21.—A fine partially cloudy day.
— 22.—A fine bright day,
— 23.—Very fine, light clouds, and warm throughout.
— 24.—A fine but somewhat dull day.
— 25.—Fine, but cloudy and dull at times.

—— During the week ending Saturday, August 21, in the neighbourhood of London the reading of the barometer at the level of the sea increased from 30.16 inches at the beginning of the week to 30.21 inches by about noon on the 15th; decreased to 30.01 inches by the afternoon of the 17th; increased to 30.20 inches by the morning of the 19th; decreased to 30.15 inches by the afternoon of the same day; increased to 30.37 inches by the morning of the 21st; and was 30.32 inches at the end of the week. The mean reading for the week was 30.17 inches, 0.25 inch above that of the preceding week. The highest temperatures of the air at 4 feet above the ground ranged between 86¼° on the 16th and 71¾° on the 19th, the mean for the week being 77½°. The lowest temperatures of the air varied from 62½° on the 17th to 54½° on the 20th; the mean value for the week was 58°. The mean daily range of temperature in the week was 19½°, the greatest range being 26¾° on the 16th, and the least 15½° on the 18th. The mean daily temperatures of the air were as follows:—15th, 65°.2; 16th, 71°.8; 17th, 71°.4; 18th, 65°.7; 19th, 61°.3; 20th, 61°.6; 21st, 63°.3; and the departures in excess of their respective averages were:—3°.5, 10°.4, 10°.2, 4°.7, 0°.4, 0°.8, 2°.6. The mean temperature for the week was 65°.8, being 4°.7 higher than the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 155¼° and 144° on the 16th and 17th; on the 19th the reading did not rise higher than 108½°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 50¼° and 50¾°, on the 20th and 21st. On the 17th the reading did not go below 60°. The mean for the several low readings was 52°.

The direction of the wind was S.W., and its strength gentle.

The weather during the week was very fine, bright, warm, and the sky nearly cloudless.

Rain fell on one day; the amount collected was 0.38 inch.

In England the extreme high day temperatures ranged from 88° at Cambridge to 73° at Newcastle-on-Tyne, the general average all over the country being 81¾°. The extreme low night temperatures ranged between 54½° at Blackheath and 43¼° at Bristol, with an average value of 48¾°. The mean of the extreme ranges of temperature in the week was 33°, the greatest range being 39½° at Nottingham and Bristol, and the least 20¾° at Liverpool. The mean high day temperatures varied between 81½° at Cambridge and 68¼° at Liverpool, with a general average of 74¼°. The mean low night temperatures varied

from 58¼° at Blackheath to 52½° at Bristol, the general average being 55°.

The mean daily range of temperature in the week was 19¼°, varying from 25½° at Cambridge to 11½° at Liverpool. The mean temperature of the air for the week was 63°, being 2° higher than the value for the corresponding week in 1874. The highest occurred at Cambridge, 67° ; and the lowest at Newcastle-on-Tyne, 60°.

The amounts of rain measured during the week were small ; they, however, varied from four-tenths of an inch at Blackheath to one-hundredth of an inch at Leicester, Liverpool, and Cambridge. The average fall over the country was one-tenth of an inch.

The weather during the week was very fine and warm.

In Scotland the highest temperatures ranged from 77° at Dundee to 70° at Paisley. The lowest temperatures varied between 50° at Greenock and 41° at Perth, their averages being 73° and 45½° respectively. The mean range of temperature in the week was 27½°. The mean temperature of the air for the week was 61½°, being 2¼° higher than the value for the corresponding week in 1874. The highest happened at Dundee, 63° ; and the lowest at Paisley, 60¼°. Rain fell at Greenock to the amount of 1½ inch nearly, but at Leith one-tenth of an inch only was recorded. The average fall over the country was three-quarters of an inch nearly.

At Dublin the highest temperature was 75½°, the lowest 45°, the mean 62¾°, and the rainfall 0.01 inch.

JAMES GLAISHER.

Variorum.

Improvement of Waste Lands.—An experiment, attended with gratifying results, has been tried in Cornwall, where upwards of 200 acres of the Connor Downs have been reclaimed by the Cornish miners. The land was leased to the men for ninety-nine years at a yearly rent of half-a-crown an acre, quite as much, if not more, than the property had formerly brought in to the owner. The size of the holdings varied from 3 to 10 acres, and by degrees the workmen have transformed what was before nothing better than waste common land into a thriving and pleasant garden. Most of the miners have built houses and outbuildings for themselves on the plots, and nearly all are prospering, happy, and contented. The land has been tilled by the spade, after mine hours were over, and sand and sea-weed have been found to act as a capital manure. Wheat and Potatos are the principal crop, but all vegetables are grown. Nearly every leaseholder keeps a cow and a pig, whilst a few keep a pony or donkey and cart. The experiment has operated most beneficially in improving the status and the health and morals of the miners. It is now suggested that the great mine and land owners in the North of England should follow this excellent example, as there are thousands of acres of poor and unprofitable land on and about the surface of mines ; and the steady workman once transformed into a leaseholder, with a house and land of his own, would become a happy, clean, and sober man. *Builder.*

The Victoria-house at Chatsworth.—It was here the writer had the pleasure of seeing this most magnificent of aquatic plants expand its first giant cup, in November, 1849, at which time a pleasing scene was enacted, when Annie, the youngest daughter of Sir Joseph Paxton, dressed as a fairy, stood upon one of the immense round leaves. This incident called forth the following lines from the pen of the late Douglas Jerrold :—

"On unbent leaf, in fairy guise
Reflected in the water,
Beloved, admired by hearts and eyes,
Stands Annie, Paxton's daughter.

Accept a wish, my little maid,
Begotten at the minute,
That scenes so bright may never fade,
You still the fairy in it.

That all your life, nor care, nor grief,
May load the winged hours
With weight to bend a Lily's leaf,
But all around be flowers."

Weekly Dispatch.

Cereus grandiflorus.—Few plants are more effective or thoroughly interesting than the showiest Cacti, and of the family none are more curious or beautiful than the trailing Cereuses. The finest specimen Cactus I have ever seen was that of the beautiful Cereus grandiflorus, which I saw a week since at Penddyffryn, near Penmaenmawr, the seat of Mrs. Darbishire. It had 168 fully expanded blooms, and was growing at the end of a plant stove, trained to a trellis about 10 feet square. It had, as soon as the buds were visible, been partly untwined in a careful manner, and the flowering branches distributed all over the plant ; so that the flowers, which were 8 or nine inches across when open, had plenty of room, and the whole specimen was as regularly "furnished" as a well-bloomed Azalea. The flowers began to slowly open about 6 P.M., their beautiful golden sepals gradually relaxing and exposing the pearly white petals and silky anthers, but not until near midnight were the blooms well developed. Candles were then brought, and the effect was too beautiful to admit of an adequate description being given. Scores of blooms were cut and given to the visitors, who had flocked from far and near for the occasion, which might safely have been announced as "positively for one night only," although numerous buds remained to open at different times at the back of the trellis. By 2 o'clock in the morning the flowers began to look "groggy," and at 6 o'clock—well—the worthy clergyman could not have found a better subject that Sabbath morning than the flower he was admiring so much the night before, and what a subject for the coming Eistedfodd !—"Serious thoughts on a Cereus, and the mutability of all things mundane." *S., in the "Gardeners' Magazine."*

Distilling Perfumes from Wild Flowers.—The otto of Lavender, Patchouli, and Bergamot, can be extracted by distilling the flowers with water, with the steam of which the volatile matter passes over and is condensed—the otto of more delicately-scented flowers, being easily decomposed, would be destroyed by the heat in the process of distillation. Put the flowers in warm alcohol, add fresh flowers till the spirit is sufficiently scented, or adopt the process called "enflowering." Procure square frames, about 3 inches deep, glazed with a piece of glass like an ordinary window-sash, with a very deep edge and without cross-bars. Cover the glass with a layer of purified fat or lard, ¼ inch thick, then sprinkle the fresh gathered flowers on the fat ; treat several frames in this way—place them one on the other in a pile, add fresh flowers as often as possible, the spent ones being thrown away ; continue this as long as you can procure the flowers ; remove the scented fat, and place it in a zinc tube closed with a stop having slits in it ; press a piston on the fat, which will drive it through the stop in a ribbon form, thus giving a large surface to the fat ; place these ribbons in pure alcohol not less than 60 over proof ; the otto will be withdrawn from the fat and remain in solution in the spirit. This process is mostly adopted for extracting the otto of Jasmine, Rose, Acacia, Violet, &c. By carefully melting the fat it makes a capital pomade for the hair, it having still a small quantity of the otto in it. *Nap, in "English Mechanic."*

The Apple-tree Aphis.—Probably no blight is more destructive than the one which attacks the trunk and branches of the Apple tree, and which is readily known by its down-like appearance. Its effects are seen in the excrescences which appear on the limbs of the trees, and also by the unhealthy look of the trees themselves. The garden which I at present hold contains a number of espalier and dwarf Apple trees. Most of them have been sadly injured by these aphides, and last autumn I made experiments hoping to save the trees, and if possible eradicate the blight. I commenced by treating it with various substances under the microscope. I found that solutions containing water were all repelled by the downy covering of their bodies and produced no result—this led me to try the effect of petroleum, such as is burnt in lamps ; I noticed that it immediately diffused itself amongst the insects—they perished, and their eggs appeared to become disorganised. I then applied petroleum by means of a house-painter's brush to all the infested trees of the garden excepting one. The result, as observed this year, has been satisfactory. The trees are almost entirely free from the blight with the exception of the one which received no petroleum. This tree has a very unhealthy appearance : its trunk and branches are thickly covered with the blight, and its strength has been so much exhausted that the Apples are small and only eight new shoots have been thrown out—moreover, several of its branches have withered and appear to be dead. The application of petroleum in the manner recommended may not be new : it is so, however, to those in this part of Devonshire to whom I have communicated the circumstance. I hope it may be tried elsewhere, and the results reported in the columns of the *English Mechanic.* A few ounces of the oil will suffice for a large number of trees, as the least touch with the brush causes it to spread in every direction, and especially in those parts where it is probably most required—viz., into the fissures of the trunk and branches, in which, no doubt, the insects or their eggs survive the severest winters. I believe that if the trees were annually examined at the beginning of summer and during the autumn, and the blight destroyed in the way suggested, one cause of trouble and loss to gardeners who cultivate choice Apples would be easily and entirely overcome. Syringing with tobacco water and other similar compounds cannot properly destroy this blight, in consequence of the repulsive power of its downy secretion. I was in hopes that petroleum would have been equally useful in destroying the aphides of the Rose tree, but although it immediately kills the blight it causes the tender shoots to droop and wither. *A. A. Mantell, M.D., in the "English Mechanic."*

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

Greenhouse Hard-wooded Plants. — All young plants that are being grown on for specimens should at this time be gone over, regulating their shoots and putting them in proper shape. It is necessary to do this before the growing season is too far advanced for the leaves to regain their natural position after tying. It is an evidence of negligence when the leaves of newly-trained plants are, many of them, the wrong side up, through the effects of the shoots being allowed to hang about until the leaf-stalks had become so far matured and hardened that they could not turn to the light after the position of the shoots had been altered by training. It is time to lay in a sufficient stock of the different potting soils to serve for the next twelve months. The present, for several reasons, is by far the best time in the year for this work. The fibrous roots of the various grasses and Ferns, which are such an essential element in the composition of potting-soil, either peat or loam, are now in the best condition for putting together in the usual way. The season's growth of these is so far matured as to give much more lasting powers to soil obtained now than such as has been got together in the spring. It is also much better for being stacked when comparatively dry. Another advantage is, that at this season it is much lighter, through the absence of water, as compared with its condition in this respect, after the usual autumn rains have fallen. This is a consideration in carriage where soils have to be moved some distance. In respect to sand for potting purposes, this may be looked upon as merely a mechanical agent necessary for keeping the soil in a porous, healthy state. It is not essential to success that sand should be procured from this or that particular source. I have often seen plant growers go to the expense of getting their potting sand from places scores of miles distant, when equally as goon a material existed almost at their doors. All that is requisite is that it should be free from mineral impregnation, especially iron, or other impurities, sharp and not largely composed of dusty particles. When it is too fine it generally has a disposition to cause the soil with which it is mixed to cake and exclude air ; where it is dusty in this way it should be washed in a good-sized tub, placed under a tap kept running, at the same time keeping it stirred. In this way the dust will be carried off with the water as it overflows. In many parts of the country the rivers and brooks are so impregnated with impurities that it is not safe to use sand from them to anything but the commonest plants, even if ever so much labour has been bestowed upon washing it.

Heaths.—If there happens to be a trace of mildew on these at the time they are turned out-of-doors, it usually does not make further progress, but in such seasons as the present, with a great amount of humidity in the air, it will sometimes keep on spreading, and do serious harm if not checked, especially with soft-growing kinds, such as *E. hyemalis, propendens*, and similar varieties. Look over the plants to see that the parasite does not spread upon them. When Heaths are out in the open air it is not advisable to dust any that may be thus affected with flowers of sulphur as recommended when they are under glass, as wind and rain convey it down to the soil, where, if it gets to the roots in quantity, it is liable to cause death. For this reason it is safer to apply sulphur-water. In preparing this, to each gallon add 2 oz. of flowers of sulphur, allowing it to remain for two or three days before use, stirring it well up several times before using. Allow the sulphur to settle, and pour the water off quite clear. With this syringe the plants over-head thoroughly, laying them down on their sides so as not to let the water get to the soil. If they are placed over a trough or other vessel large enough to catch it, a few gallons will suffice for a considerable number. Even where Heaths are grown in houses of the best possible construction for their requirements, and unremitting attention paid to their wants, mildew will from time to time make its appearance, and nothing short of continued watchfulness to check it as soon as it shows can keep these plants from getting into that bare, denuded-of-leaves condition that spoils their looks, and which can never afterwards be remedied.

Soft-wooded Greenhouse Plants. — Now cut down the latest-flowered *Pelargoniums*, as advised for the earlier plants, letting the soil get dry previously. It is well to at once put them in a pit or frame, as they should not be allowed much water until after they have broke

fresh shoots. The earliest cut down plants will by this time be ready for shaking out; it is not well to let their young shoots get too far advanced before repotting, or the disturbance and reduction of their roots will cause many of them to stop growing altogether. Do not have the ball too dry at the time of repotting, as, if so, it is liable to bring too many of the roots away by adhering fast to them. Old plants that are as large as required may have half their roots cut away; any that are small, and that it is desirable to grow on larger, do not need to have so much removed. If soil has not been prepared for them in the usual manner by adding a good quantity of manure at the time it was laid together, it must be well enriched before using, but whatever is used in this way should have lain exposed sufficiently to destroy worms and sweeten it; run it through a half-inch sieve—one-sixth in bulk to the loam will be enough—and mix evenly altogether. Pelargoniums do not require so much sand as many things, and can scarcely be potted too firmly. After potting move them to a light pit or house, where they can be damped with the syringe every afternoon, giving them plenty of air. *T. Baines.*

FRUIT HOUSES.

PINES.—At about this period of the year it will be necessary where the course of treatment as indicated in this Calendar has been pursued to effect a rearrangement of the plants which were started as suckers last autumn, because many of the free fruiting kinds will now have fruit swelling off. These should be separated from the others, as those plants which are not now in that condition will by this time have completed their growth and will more readily start into fruit at the required time, if subjected to a more liberal scale of airing during the next five or six weeks, than if kept growing in a confined state of atmospheric moisture; therefore take advantage of favourable occasions to ventilate liberally—scarcely too much air can be afforded, when the temperature of the house exceeds 80°. Let 80° be the mean at the roots also, and to other plants likewise which have well-established roots, and about 90° to those plants which may have been recently potted, and when the roots have not yet taken hold of the fresh material. The use of shading on all Pine plants excepting rootless suckers should now be discontinued. When fruit is swelling off, keep the air moderately supplied with moisture, and give a chink of air at the apex of the house early in the morning, in order to dispel superfluous moisture before the sun's rays come directly in contact with the fruit. Ripe fruits which are required to be kept should be removed to a shady house, where they can obtain an abundant supply of fresh air. *Geo. T. Miles, Wycombe Abbey.*

MELONS.—It is presumed that the last batch is now turned out and is just beginning to run. Preserve the leader till it reaches the trelliswork, when, at the option of the cultivator, it may be nipped out and made to form two leaders, or it may be retained and allowed to advance two-thirds of its distance before it is removed; meanwhile, remove at least every alternate lateral directly they can be nipped out, and maintain a warm and moist atmosphere. In pits and frames the last batch are nicely setting their fruits in a dry atmosphere. The weather has lately been all that could be desired to accelerate this end. Earth up directly the fruits begin to swell off, previously placing a little lime round the collars, and give copious doses of water this weather. Keep the growths fairly thin from henceforth, and shade only for about a couple of hours at mid-day. Gradually withhold water at the root and atmospheric moisture from those plants ripening their fruit, and remember what has been previously advised in regard to prolonging the season of supply. *Melons* are particularly good in flavour just now, consequent on strong sun-heat. Strive to maintain a clean growth and sound collars to the end. Keep a sharp eye for cracked fruits, the remedy for which has been many times pointed out. If red-spider be troublesome this weather—and it is with me—apply the remedy suggested in this week's Cucumber Calendar, which is very effectual if persisted in, other conditions being favourable. Plants growing in boxes are watered twice a-day just now. *Thos. Simpson, Chelmsford, August 24.*

FIGS.—In the earliest Fig-house the trees will now be ripening their wood, and watering may be discontinued. The earliest forced trees in pots, if placed out-of-doors, will sometimes make roots out of the bottom of the pots, and they should be cut off, as they will only induce a late growth in the shoots. After this disrooting keep the pots well watered and add a little more top-dressing of rotten munure, or, what is still better, some crushed bones. In Fig-houses where the trees grow too rampant and produce only thin crops of fruit, it is sound practice to circumscribe the borders by root-pruning the trees and making the borders only about 3 feet in width. If the bottom of the border is well drained after the root-pruning a good surface dressing may be given to the trees of rich loamy soil, mixed with a little old lime scraps or bone-dust. Where there is reason to fear that the drainage of the border is defective it will be better to lift the trees in the autumn, root-prune them, and replant them in good soil. For drainage let plenty of broken bricks and old lime rubbish be used, and when replanting the trees let the soil be well rammed in about the roots. This will suit Figs either for early or late forcing; and in narrow borders, by adding fresh compost as surface-dressing, the trees will always produce abundant crops, and the use of the knife in pruning or in pinching in of the shoots will not be required so much as when they grow all to wood in rich wide borders. *William Tillery.*

CUCUMBERS.—The general treatment in this department remains much the same as was advised in the last Cucumber Calendar. Encourage the autumn fruiters to make a strong growth, to effect which bestow a liberal attention by way of earthing-up the roots from time to time, plenty of water at the roots and in the atmosphere all day long this weather, and maintain a mean temperature of summer-heat or thereabouts. Discontinue the use of fires during a continuance of this weather, and gradually inure the plants to a good sun-heat. There should be no lack of energy by way of training, stopping, and thinning-out the old growths just now. The syringe must also be regularly employed about 3 30 P.M., and a liberal dusting of flowers of sulphur periodically amongst the foliage as an antidote to red-spider and mildew. Bitter Aloes, too, may be employed if red-spider is very troublesome. Dissolve a couple of ounces of the aloes in about a quart of soft boiling water, after which add about 4 gallons of clean water, and syringe well all over. The application may be repeated every three or four days. We are just harvesting our seed, and we fancy we see the advantage of fertilising; at least it is very noticeable that those fruits which were fertilised have a much greater percentage of good seed over and above those not fertilised: reserve only those seeds which sink to the bottom. The market grower should push forward the work of clearing out his houses, one by one, and which will afford ample opportunity for painting and thoroughly cleansing the houses ere they are wanted in the end of next month. Examine carefully the heating appliances, and remedy any defect, however small, or it may be a serious trouble at a serious time, *i.e.*, in severe weather, when sharp firing has to be resorted to. Continue to gather Gherkins from time to time. *T. Simpson, Chelmsford, August 24.*

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

59. PRESERVATION OF SEEDS IN SUGAR. — In the memoirs of Dr. Cartwright, the ill-requited inventor of the power-loom, it is stated that he found seeds from distant lands preserved their germinating powers best when packed in moist sugar. Has this been tried of late years? *H. K.*

Answers to Correspondents.

ADIANTUM COCINNUM: *A Subscriber.* We can only account for your plant going off in the manner described by supposing that it must have been allowed to get dry at the roots a time or two before the young fronds were matured. It is not likely that rats have been at it; they are not so discriminating.

FRUIT GROWING ON RAIL FENCE: *Irene.* Peaches, Nectarines, and Apricots, would no doubt do moderately well against the fence in question. The draught through such fences is, of course, objectionable, but we know of nothing that can be done to make it more wind-proof.

FUNGI: *R. S. Yates, Sale, Cheshire.* The plants forwarded belong to the Horse Mushroom (Agaricus arvensis), and though generally edible, are not so highly esteemed as the true meadow Mushroom (A. campestris).—*Gardener, Fenagh House.* The piece of wood forwarded to us is thickly covered with the spawn or mycelium of a fungus probably belonging to the dry rot. The dry rot commonly grows on unseasoned wood, or on wood in damp and unventilated places. Its eradication is often difficult, or even impossible, when it has attained such a strong hold as described by you. You should consult the builders who put up your stove-house.

INSECTS: *Delta.* The leaf of some plant which you have sent—(why did you not say what kind of plant?)—is infested by several mining larvæ, which, as far as we can see, from the crushed state of the leaf, are those of some two-winged fly (Phytomyza? sp.) *I. O. W.*

LILY OF THE VALLEY: *An Old Subscriber.* A month hence take out small circular patches from all places where the foliage is too densely packed to permit the air free play amongst them, and refill the holes so made with rich soil. During November remove the dead leaves, and place about an inch in thickness of decomposed leaf-mould all over the bed; let the rains of winter wash it into the soil. During February following slightly mulch the bed over with good yellow loam.

NAMES OF PLANTS: *A. Boyle.* Monarda didyma.—*Forbes.* 1, Sanguisorba officinalis: 2, Trifolium arvense; 3, Bartsia Odontites.—*W. D. F.* Androsace lactea.—*E. H. W.* Bromus brizæformis is its botanical name, but it may be advertised under some other name by nurserymen.—*J. S., Cork.* 1, Nepeta nuda; 2, Echium lusitanicum; 3, Polygonum amplexicaule; 4, Nepeta Mussini; 5, Phyteuma canescens.—*J. T. B.* Helichrysum ericæfolius. *C. E. F.* 1, Mentha sativa var. paludoca; 2, M. rubra.—*L. C.* The ordinary Polygonum Persicaria. —*A. B. H. C.* Adiantum Capillus-Veneris and Achillea Ptarmica flore-pleno.

PSEUDOLARIX: *H. K.* It is probably a graft from a side-shoot, in which case the advantage to be gained by tying up one of the shoots is doubtful. There can be no harm in trying the experiment.

VERBENA: *W. Rumsey.* The scent had all departed before the flowers reached us.

*** Correspondents are specially requested to address post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time.

ERRATA.—In report of Longford Hall, p. 226, col. 3, the last word in line 12 from top should be "Camellias," not "Cucumbers." Further down, the paragraph referring to heating should read, "In the whole there are 3 miles, including 1045 yards of 4-inch piping," &c., not "2 miles, including 1045 yards of 14-inch piping," &c. *T. Baines.*

CATALOGUES RECEIVED.—William Paul (Waltham Cross, London), Catalogue of Bulbs, Camellias, Azaleas, &c.—Louis Van Houtte (Royal Nurseries, Ghent, Belgium), Catalogue of Azaleas, Camellias, Rhododendrons, Magnolias, &c.—Dicksons & Co. (Leith Walk, Pilrig and Bonnington Farm, Edinburgh), Descriptive Catalogue of Roses; also Catalogue of Dutch Bulbs, Pansies, Phloxes, &c.—Alfred Legerton (5, Aldgate, London), Wholesale Catalogue of Dutch and other Flower Roots.—Messrs. Sutton & Sons (Royal Berks Seed Establishment, Reading), Autumn Catalogue of Bulbous Flower Roots.—Thos. S. Ware (Hale Farm Nurseries, Tottenham, London), A. B. C. Bulb Guide and Catalogue of Spring Flowering Plants.

COMMUNICATIONS RECEIVED:—W. C.—W. H. L.—W. S. (many thanks).—Rev. H. E. R.—C. W. D.—J. B. N.—J. P. M.—W. Pike.—W. W.—W. G.—G. A. (thanks).—J. F.

Markets.

COVENT GARDEN, August 26.

Large quantities of goods still arriving from the Channel Islands and France. Jersey Grapes keep the prices of home-grown fruit very low. French Pears consist of good samples of Williams' Bon Chrétien, Louise Bonne, Beurré d'Amanlis, and Duchesse d'Angoulême. The supply of home produce does not diminish. Kent Cobbs and Filberts have arrived in fair condition during the week, but more than sufficient for demand. *J. Webber, Wholesale Apple Market.*

CUT FLOWERS.

	s. d.	s. d.
Carnations, 12 blooms	0 4–	2 0
— Clove, per doz	0 3–	0 9
— mixed, 12 bun.	3 0–	9 0
Cornflower, p. doz. bun.	3 0–	6 0
Eschscholtzia, 12 bun.	3 0–	6 0
Eucharis, per doz.	4 0–	9 0
Gardenia, per doz.	2 0–	6 0
Heliotropes, 12 spr.	0 6–	1 0
Lilies, white, p. bun.	1 0–	2 6
Mignonette, 12 bun.	3 0–	6 0
Myosotis, per bunch	0 4–	0 9
Pelargoniums, 12 spr.	0 6–	1 0
— Zonal, do.	0 3–	1 0
Primula, dbl., p. bun.	0 9–	1 0
Roses, indoor, p. doz.	2 0–	6 0
— outdoor, 12 bun.	3 0–	9 0
Spiræa, 12 sprays	1 0–	3 0
Stephanotis, 12 sprays	3 0–	9 0
Stocks, 12 bun.	3 0–	6 0
Sweet Peas, 12 bunch.	2 0–	6 0

PLANTS IN POTS.

	s. d.	s. d.
Begonias, per doz.	6 0–	12 0
Bouvardias, do.	9 0–	18 0
Calceolarias, do.	6 0–	18 0
Cyperus, do.	6 0–	12 0
Dracæna terminalis	30 0–	60 0
— viridis, per doz.	12 0–	24 0
Ficus elastica	1 6–	7 6
Fuchsia, per doz.	3 0–	18 0
Gardenias, do.	12 0–	60 0
Gladiolii, do.	9 0–	18 0
Heaths, in var., doz.	12 0–	30 0
Heliotrope, per doz.	6 0–	12 0
Hydrangeas, per doz.	9 0–	24 0
Lilium lancif., p. doz.	12 0–	60 0
Mignonette, do.	3 0–	6 0
Myrtles do.	3 0–	9 0
Pelargoniums, dble., per doz.	4 0–	12 0
— Scarlet, do.	3 0–	9 0
Petunia, per doz.	6 0–	9 0
Rhodanthe, do.	6 0–	12 0
Solanums, do.	6 0–	18 0
Stock, do.	3 0–	6 0

FRUIT.

	s. d.	s. d.
Apples, per ½-sieve	1 0–	2 6
Apricots, per doz.	0 9–	2 0
Figs, per doz.	0 9–	3 0
Filberts, per lb.	0 5–	0 9
Grapes, per lb.	0 9–	5 0
Lemons, per 100	8 0–	12 0
Oranges, p. 100	20 0	..
Peaches, per doz.	1 6–	15 0
Pears, per doz.	1 0–	4 0
Pine-apples, p. lb.	3 0–	6 0
Plums, per bushel	3 0–	6 0
— per punnet	0 6–	1 6
Walnuts, p. bush.	16 0–	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Horse Radish, p. bun.	3 0	5 0
Aubergines, per doz.	4 0	..	Leeks, per bunch ..	0 2	0 4
Beans, French, per bushel	6 0	..	Lettuces, per score..	1 0	..
— broad, per bushel	3 0	..	Mint, per bundle ..	0 4	..
— Scarlet Run., do.	5 0	..	Mushrooms, per pott.	1 0	2 0
Beet, per doz. ..	1 0	2 0	Onions, young, bun.	0 4	0 6
Cabbages, per doz. ..	1 0	2 0	Parsley, per bunch..	0 4	..
Carrots, do.	0 6	..	Peas, per quart ..	10	1 0
Cauliflowers, p. doz.	2 0	..	Radishes, per bunch.	0 2	0 4
Celery, per bundle ..	1 6	2 0	— Spanish, doz. ..	1 0	..
Cucumbers, each ..	0 3	0 9	Shallots, per lb. ..	0 3	..
Endive, per doz. ..	1 0	2 0	Tomatos, per doz. ..	1 0	2 0
Herbs, per bunch ..	0 2	0 4	Turnips, per bundle.	0 8	..
			Veg. Marrows, doz.	1 0	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

SEEDS.

LONDON: *Aug.* 26.—The agricultural seed trade is in a quiet state just now, and our markets are poorly attended; folks, no doubt, being busy at home over harvest work. In Clover seeds, notwithstanding the firm feeling that prevails, there is for the moment a complete absence of transactions. For Trifolium, however, we have a fair demand at full prices; values in France having declined to about our level, a few small importations of French seed are now to hand. The few winter Tares which now offer, though small and poor in quality, are held for long prices, and it is the general opinion that Vetches will be very dear this season. New Rye continues in steady request, at last week's currencies. There is some inquiry for winter Barley and Oats. White Mustard, for sowing purposes, experiences a diminished sale. Rape seed is also neglected, and can be bought on easier terms. In consequence of an extraordinary scarcity, Canary seed is realising very extravagant rates, in fact to-day's quotations are even higher than the remarkable famine prices of some weeks since: a more liberal supply may shortly be expected. For white Millet seed 1*s.* to 2*s.* per quarter more money is asked. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday business was slow. Old Wheat was nominally without change, attention being chiefly directed to new produce, which was from 2*s.* to 3*s.* per quarter cheaper than on Monday last, the general top quotation for white being 50*s.*, and that for red, 48*s.* A fine sample of Talavera, weighing about 62½ lb., was held for 52*s.*, or 2*s.* in excess of what was offered. Barley was lower in price when forced for sale. Malt barely supported previous rates. Oats were difficult to move, even at a reduction of 6*d.* per qr. Maize was flat, and sales were somewhat weaker both for Beans and Peas. For flour factors were disposed to accept less money for all descriptions.—Trade remained dull on Wednesday. The show of new Wheat was moderate, and the prices asked were hardly equal to those on Monday, though 50*s.* may again be quoted as the general top figure. Barley was very short, and malt was difficult to move even at some slight reduction. Oats were a good supply, and the quotations had an easy tendency. Maize was flat, and any change in either Beans, Peas, or flour, was certainly in favour of the buyer.—Average prices of corn for the week ending August 21:—Wheat, 53*s.*; barley, 33*s.* 7*d.*; oats, 32*s.* 1*d.* For the corresponding week last year:—Wheat, 57*s.* 2*d.*; barley, 46*s.* 5*d.*; oats, 32*s.*

CATTLE.

At the Metropolitan Market on Monday there was a small consignment of North American beasts—good bred ones, which seemed to have wasted on the voyage, yet fetched £28 to £36 per head. Best quality English were scarce, and made high prices. The number of sheep was very small, and prices continued high. Good lambs and calves were in demand at rather higher prices. Quotations:—Beasts, 4*s.* 8*d.* to 5*s.*, and 5*s.* 8*d.* to 6*s.* 4*d.*; calves, 4*s.* 6*d.* to 6*s.*; sheep, 5*s.* 8*d.* to 6*s.* 4*d.*, and 6*s.* 8*d.* to 7*s.* 4*d.*; lambs, 6*s.* 6*d.* to 8*s.*; pigs, 4*s.* 4*d.* to 5*s.* 6*d.*—On Thursday choice quality beasts were readily disposed of at the above quotations. For sheep trade was slow, and the average was not quite so good. Lambs were lower in price. Choice calves, being scarce, were dearer. Trade improved a little for milch cows.

HAY.

The Whitechapel report says that the small quantity of fodder brought forward has been cleared quickly at about late rates, prime Clover being quoted at 100*s.* to 154*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 148*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 35*s.* to 50*s.* per load. — Cumberland Market quotations: Superior old meadow hay, 135*s.* to 150*s.*; inferior, 90*s.* to 126*s.*; superior Clover, 150*s.* to 168*s.*; inferior, 100*s.* to 130*s.*; and straw, 50*s.* to 54*s.* per load.

POTATOS.

The Borough and Spitalfields reports state that trade improved towards the latter part of last week, and this week a fair business was passing at enhanced prices. Rounds, 60*s.* to 90*s.*; kidneys, 100*s.* to 110*s.* per ton.—Imports into London last week consisted of 50 bags from Amsterdam, 32 bushels from Antwerp, 149 bags from Harlingen, and 9 barrels from Dunkirk.

COALS.

In the market on Monday there was an active demand, and previous prices were maintained. Wednesday's business was characterised by steadiness, but without any change in prices.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
CORN MANURE, for spring sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass. Retail 1*s.* 6*d.* and 2*s.* 6*d.* per bottle, of the Sole Manufacturers,
BELL AND SON, 10 and 11, Exchange Street, Norwich.

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1*s.* 6*d.* and 3*s.* per bottle—1*s.* 9*d.* and 3*s.* 4*d.* per bottle, if packed for travelling, of the Manufacturers,
EWING AND CO., Norwich.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

Scott's Wasp Destroyer.
J. SCOTT offers his well-known preparation to Fruit Growers at 1*s.* 9*d.* and 2*s.* 9*d.* per bottle, post free, on receipt of stamps. No one who has fruit to grow should be without it. May be obtained through all Seedsmen, or direct from
JOHN SCOTT, The Seed Stores, Yeovil.
N.B. Beware of spurious imitations.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100*s.*; Petersburg, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

Russia Mat Merchants.
MARENDAZ AND FISHER, 9, James' Street, Covent Garden, W.C., IMPORTERS and MANUFACTURERS, have just received a large consignment of New ARCHANGEL MATS; also Heavy, Close-woven, and Light ST. PETERSBURG MATS. RAFFIA FIBRE, NETTING, CANVAS, TWINES, &c., always in stock.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle; Prince Christian for Frogmore Lodge; the Royal Gardens, Kew; the late Sir Joseph Paxton; and the late Professor Lindley, &c.
MADE of PREPARED WOOL and HAIR.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied.
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" CANVAS—
2 yards wide .. .. 1*s.* 10*d.* per yard run.
3 yards wide .. .. 3*s.* per yard.
4 yards wide .. .. 3*s.* 10*d.* per yard.
"FRIGI DOMO" NETTING.
2 yards wide .. 1*s.* 6*d.* and 1*s.* 10*d.* per yard run.
None genuine unless stamped with Name and Trade Mark.
E. T. ARCHER, Stanstead and Brockley Roads, Forest Hill, S.E.; and all Nurserymen and Florists. All goods free to London.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.
TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3*d.* per yard, or 100 yards, 20*s.*, 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.*
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
TIFFANY, 6*s.* 6*d.* and 7*s.* 6*d.* per piece of 20 yards.
EATON AND DELLER, 6 & 7, Crooked Lane, London Bridge.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of
CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

Under the Patronage of the Queen.
J. SMITH'S IMPROVED METALLIC LABELS.

The above Labels—which have just been adopted for the Royal Gardens at Windsor—are made of a White Metal, with RAISED BLACK-FACED LETTERS, and are of various shapes and sizes. Samples and Price List free.
Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

Window Glass, Sheet Lead, Paints, &c.
THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

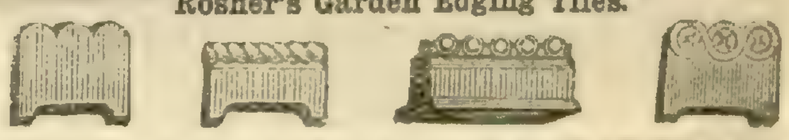
Indestructible Terra-Cotta Plant Markers.
MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens, sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

LAWN SWEEPING and ROLLING MACHINE, Patented.—Great economiser of labour. To the hand besom what the mowing machines have been to the scythe. Independent of lawn sweeping and rolling we sweep and roll one mile of sand walks, averaging 9 feet wide, under two hours, with ease, with a 3-foot machine. Is not that economy? During five months' rough work, testing the machines, the besom has only worn one-eighth of an inch. They sweep and roll close up to the verge. Illustrated Price List on application.
SINCLAIR AND CLAYTON, Ripley, Leeds.

The Royal Pottery, Weston-super-Mare.
UNDER ROYAL PATRONAGE.
JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.
JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

Rosher's Garden Edging Tiles.



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GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
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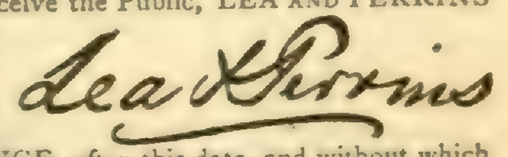

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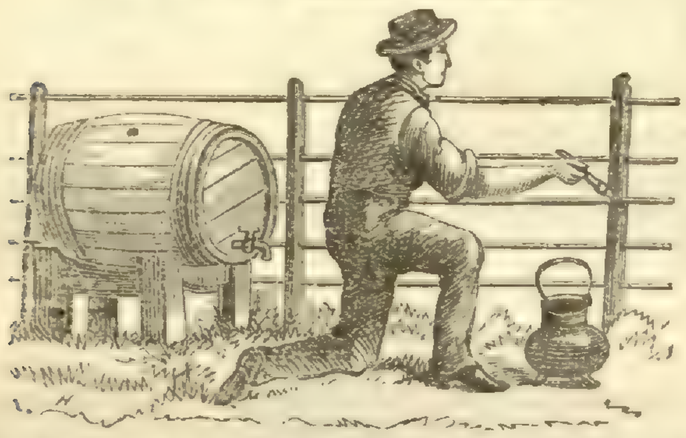

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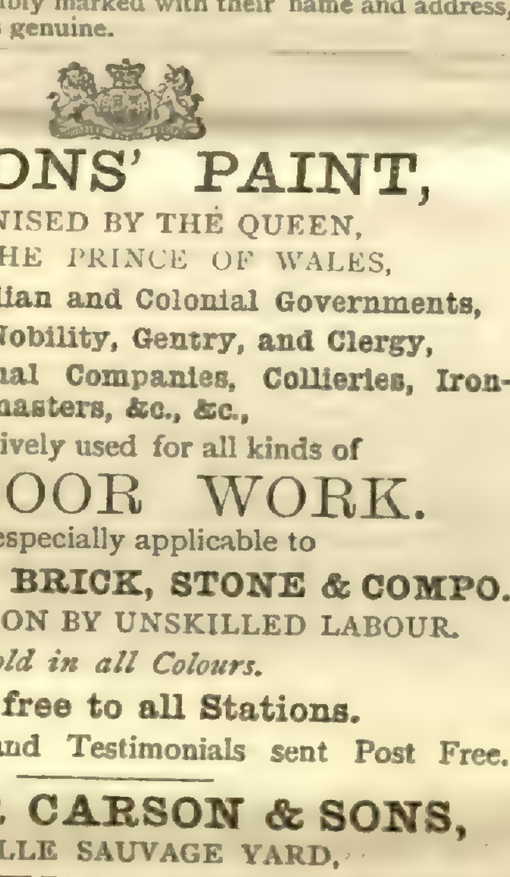

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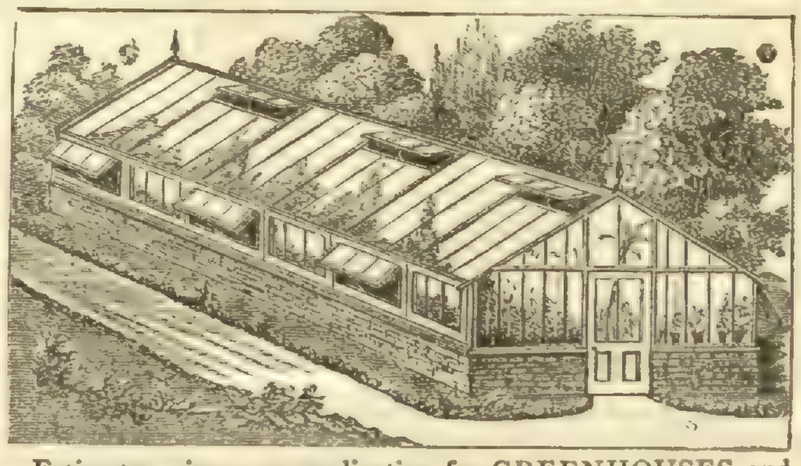

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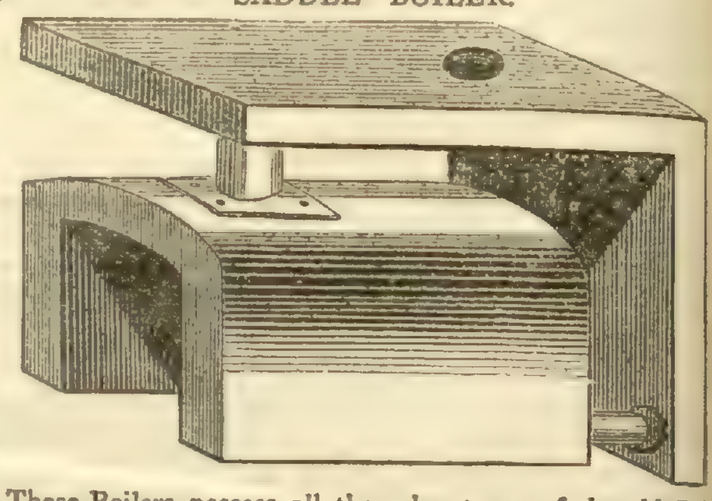

These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz.: the water space back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time the Boilers are simple in construction, and being made of wrought iron are not liable to crack. They are made of the following sizes:-

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20 ,,	18 ,,	24 ,,	400	8 0 0
20 ,,	18 ,,	30 ,,	500	9 0 0
24 ,,	24 ,,	24 ,,	700	12 0 0
24 ,,	24 ,,	30 ,,	850	14 0 0
24 ,,	24 ,,	36 ,,	1,000	16 0 0
24 ,,	24 ,,	48 ,,	1,400	20 0 0
28 ,,	28 ,,	60 ,,	1,800	25 0 0

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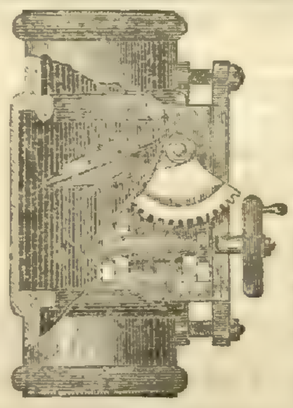

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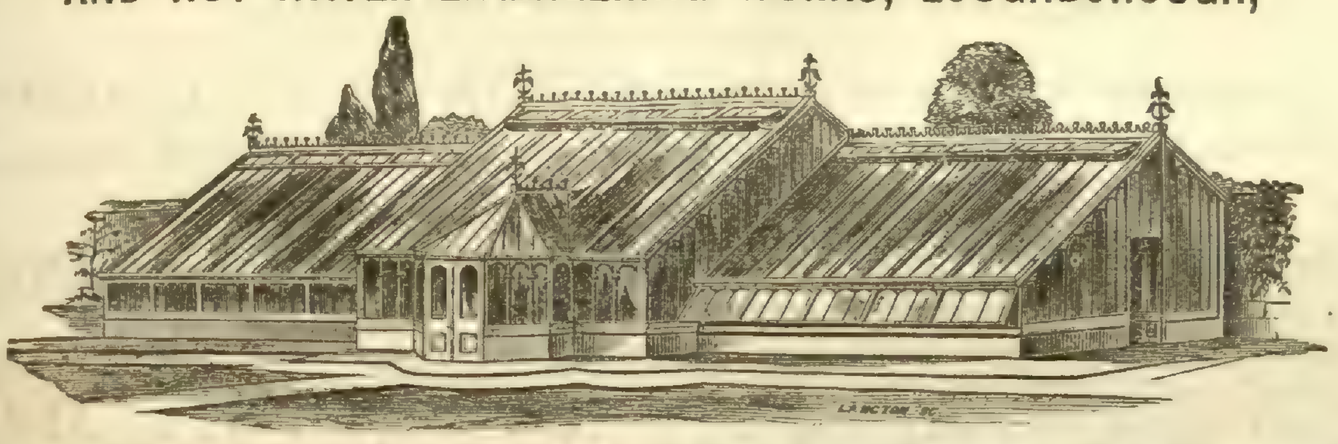

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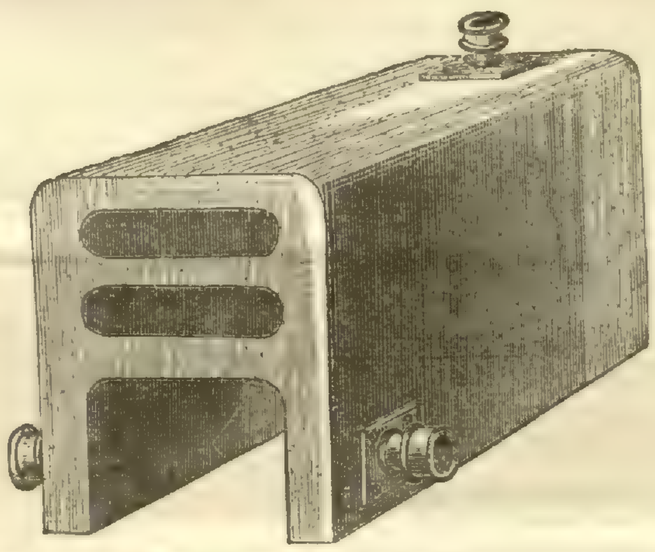

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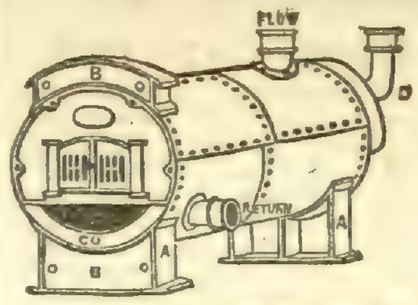

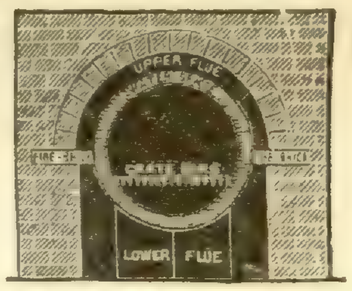

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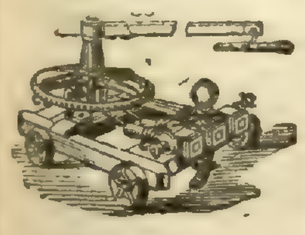

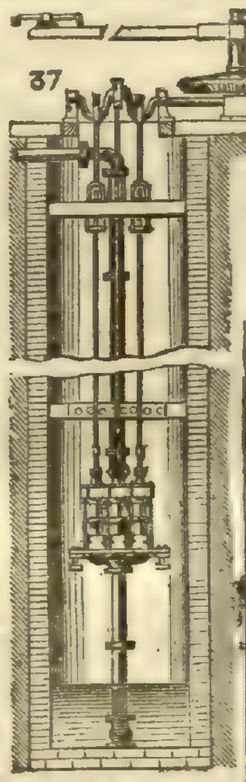

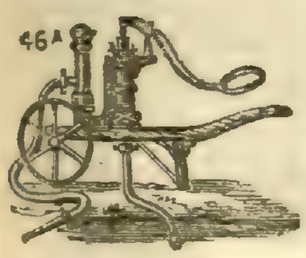

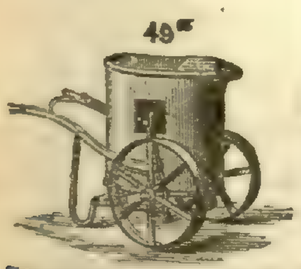

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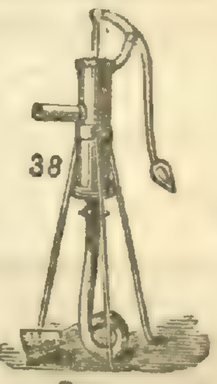

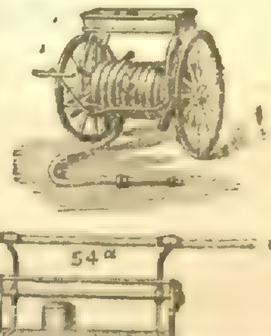

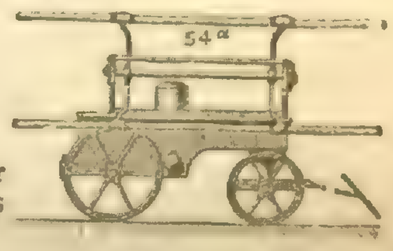

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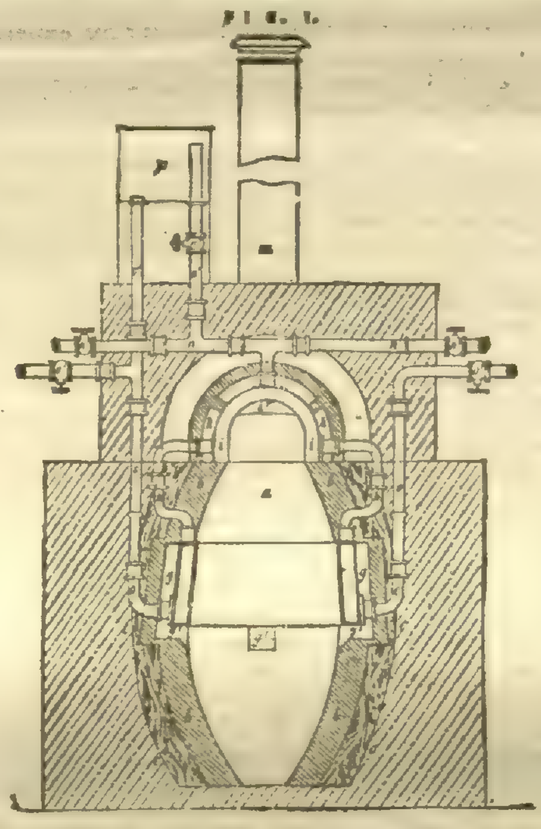

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ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.

The DATES of MEETINGS for the FRUIT and FLORAL COMMITTEES and EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, &c., next year (1876) are :—

Spring Show of Fruit and Flowers, Wednesday, March 15.

First Great Summer Show of Fruit and Flowers, Wednesday and Thursday, June 7 and 8.

Second Great Summer Show of Fruit and Flowers, Wednesday and Thursday, July 19 and 20.

Great Autumn Show of Fruit and Flowers, Wednesday, November 8.

FRUIT and FLORAL COMMITTEES' MEETINGS :—Wednesdays: January 19, February 16, March 1 and 15, April 5 and 19, May 3 and 17, June 7 and 21, July 5 and 19, August 2 and 16, September 6, October 4, November 8, and December 6.

Medals, as well as Certificates, will be awarded at the Fortnightly Meetings for Exhibits of Fruit and Flowers evincing extraordinary merit. By Order of the Council,

J. S. DAVENPORT, A.S.

CRYSTAL PALACE.—GREAT AUTUMN FRUIT and FLOWER SHOW, SEPTEMBER 7, 8, and 9. Tuesday, September 7, Moore & Burgess Minstrels and Great Firework Display. Thursday, September 9, Dramatic Performance.

BRIGHTON and SUSSEX HORTICULTURAL SOCIETY will hold their GRAND AUTUMN EXHIBITION at the Royal Pavilion and Eastern Lawn, on WEDNESDAY and THURSDAY, September 8 and 9. Prizes offered to the amount of £250, including the Corporation Cup, value Ten Guineas, for the best Eight Stove and Greenhouse Plants. Also the Ashbury Cup, value Ten Guineas, for the best Eight Exotic Ferns.

SCHEDULES can be obtained on application to the Secretary, 96, St. James' Street; or, E. SPARY, Superintendent of the Exhibition, Queen's Graperies, Park Street, Brighton.

EDWARD CARPENTER, Secretary.

GREAT AUTUMN SHOW of 1875, in BURGHLEY PARK, Stamford, on SEPTEMBER 15 and 16.—Prizes include Fifteen Silver Cups, several First Prizes of £20, £10, and £5. £120 for Plants, £100 for Cut Flowers, £50 for Fruit, £40 for Potatos, and £30 for Vegetables. Also an EXHIBITION of BEES, by eminent Beemasters. ENTRIES CLOSE on SEPTEMBER 6. No entry fees. Schedules, with forms of entry, on application to

HENRY JOHNSON, } Hon. Secs.,
THOMAS LAXTON, } Stamford.

To the Trade Only.

SPIRÆA JAPONICA, 25s. per 100, £11 per 1000, for cash.

B. SMITH, Ealing Dean Nursery, Ealing, W.

Winter and Spring Flowers.—Now Ready

CARTER'S Illustrated CATALOGUE of HYACINTHS, TULIPS, CROCUSES, &c., with all other popular Bulbs and Plants for Autumn Cultivating. It contains practical hints of great value to amateurs. Gratis and post free on application.

CARTER'S, The Queen's Seedsmen, 237 and 238, High Holborn, London, W.C.

DOWNIE AND LAIRD have to intimate that their splendid collection of HOLLYHOCKS is now in full Bloom. Inspection invited. No disease.

Royal Winter Gardens, Edinburgh.

Dwarf Roses.

SEE CHARLES NOBLE'S ADVERTISEMENT, *Gardeners' Chronicle*, AUGUST 14 and 28, and SEPTEMBER 11 and 25.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.

EWING AND CO., The Royal Norfolk Nurseries, Norwich.

LOUIS LEROY, NURSERYMAN, Angers, France.

FRUIT and ORNAMENTAL TREES and SHRUBS.—Roses, Camellias, Rhododendrons, Azaleas, Gardenias, Magnolias. Speciality for Nursery Stocks, Pear Seedlings, Quinces, Plum Seedlings, Mahaleb Cherries, Paradise, Doucin, and other Stocks. CATALOGUES sent on demand.

EUCALYPTUS GLOBULUS (Blue Gum Tree of Tasmania).—Celebrated for destroying malaria, rapidity of growth, and strong camphor-like odour, very agreeable and pleasant. Strong plants in pots are offered at 75s. per 100, 12s. per dozen, or, selected, any less number, 1s. 6d. each.

W. H. ROGERS, Red Lodge Nursery, Southampton.

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.

Carlton, Tasmania.

LILY of the VALLEY, for Forcing.—Guaranteed of the first quality, 37s. 6d. per 1000, for cash. Next quality at a much cheaper rate.

MÜLLER AND KADOW, Handelsgärtnerei, Genthin, Prussia.

Spring Flowers.

THOMAS S. WARE'S new A. B. C. BULB GUIDE (now ready, free on application) contains a selection of all the best Spring-flowering Perennials and Bulbs in cultivation.

Hale Farm Nursery, Tottenham, London.

N.B.—See Cheap Collections of the above.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium.

CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.

Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, have now and will have, a large quantity of WHITE CAMELLIA BLOOMS to Dispose of.

FOR SALE, seven CAMELLIA PLANTS in pots, fine healthy plants well set with bloom-buds, from 6 to 8½ feet high.

D. WOOD, Norwood Nursery, S.E.

HOLLIES, Green and Variegated, in large quantities. Fine pyramids at low prices.

Wholesale CATALOGUE of Nursery Stock, Post Free on application.

G. T. ALBERTS, The Nurseries, Boskoop, near Gouda, Netherlands.

Green Walls.

THOS. S. WARE is now offering a quantity of Lombardy POPLARS, 10 to 25 feet, perfect specimens, feathered to the ground. Planted rather thick they make the most beautiful green screens possible. An inspection solicited.

Hale Farm Nurseries, Tottenham, London, N.

Australian Seeds and Plants.

SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.

SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

WANTED, a quantity of GERANIUM CUTTINGS of good bedding sorts, Scarlet, Pink and White. Send price per 100 or 1000 to

H. POTTER, The Nurseries, Sutton, Surrey.

WANTED, One or Two Millions of 1-year WHITETHORN QUICKS. State lowest cash price, with sample, to

THOMAS PERKINS, 42, Drapery, Northampton.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

Dutch Flower Roots.

JAMES DICKSON AND SONS will be happy to send, post free on application, Priced CATALOGUE of their large and very superior stock of DUTCH and other FLOWERING BULBS.

108, Eastgate Street, Chester.

To the Trade.

DUTCH BULBS at Dutch prices.

SANDER AND CO., Seed Growers, St. Albans.

Bulbs of All Kinds.

THE NEW PLANT AND BULB COMPANY beg to announce that their AUTUMN CATALOGUE is now ready, and will be sent free on application.

Lion Walk, Colchester.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.

Highgate Nurseries, London, N.

HYACINTHS, TULIPS, CROCUS, GLADIOLI, LILIES, IRIS, NARCISSUS, COLCHICUMS, HELLEBORES, PÆONIES, &c.

Our English CATALOGUE of the above for 1875 is now ready, and will, as usual, be sent post-free to all applicants.

ANT. ROOZEN AND SON (late Ant. Roozen), Overveen, near Haarlem, Holland.

Dutch Bulbs.

A. E. BARNAART AND CO., Vogelenzang, Haarlem, Holland. Wholesale Catalogue of DUTCH BULBS is now ready, and may be had free from

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

N.B.—A large number of the Botanical and Royal Horticultural Societies' Prizes for Hyacinths, &c., were awarded to Bulbs sent out by A. E. B. & Co. during the past four years.

Bulbs, Tubers, and Perennials.

THOMAS S. WARE'S A. B. C. Descriptive BULB CATALOGUE is now ready, free on application, containing one of the largest collections of Bulbs and Tubers in cultivation, to which is added a selection of Spring Flowering and other Perennials for Autumn Planting.

Hale Farm Nurseries, Tottenham, London.

Imported Flower Roots.

CHARLES TURNER has received his first Consignment of the above. The Bulbs are very fine and sound.

Descriptive CATALOGUES can be had on application.

The Royal Nurseries, Slough.

LILIUM EXIMIUM.—20,000 bulbs of this chaste and highly fragrant Lily to be disposed of, for cash. The land being required for building, the above will be sold at moderate prices. First size flowering bulbs, 25s. per 100, 4s. per dozen; second size, 80s. per 1000; small bulbs, 20s. per 1000. All further particulars, and Post Office Order made payable, to be addressed to

Mr. W. MYATT, Manor Farm, New Cross.

Colchicum autumnale (Autumn Crocus).

J. E. DIXON, SEEDSMAN, &c., Lord Street, Gainsborough, having a few hundred extra fine Bulbs of the above, can supply them at 1s. per dozen, or 7s. per 100, cash.

B. MALLER begs to inform the Trade and the Public in general, that his extensive NURSERY STOCK, consisting of Fruit, Forest, and Ornamental Trees, Standard and Dwarf Roses, Evergreen and Deciduous Shrubs, is in the finest possible condition. An inspection is solicited.

The Nurseries, Lee and Lewisham, S.E.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

Fruit Tree Culture in Pots under Glass.

THE ORCHARD-HOUSE CATALOGUE is now ready, and will be sent Post Free on application.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Splendid New Apple.

LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, next autumn 3s. 6d. each, 21s. for seven; 2-yr. plants, 5s. to 7s. 6d. each.

GRAPE VINES.—A fine stock of Black Hamburgh and other popular sorts, including the new varieties—Venn's Black Muscat, Waltham Cross, and Duke of Buccleuch—in strong, well ripened Fruiting and Planting Canes. Prices on application to

FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

SALES BY AUCTION.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY, September 8 and 11, at half-past 12 o'Clock precisely each day, a large quantity of choice HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, and other Bulbs, from Holland, in lots to suit the Trade and private buyers.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids, the Property of John Russel, Esq., of Mayfield, Falkirk.

MR. J. C. STEVENS has been favoured with instructions from John Russel, Esq., to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., EARLY in OCTOBER, his entire Collection of ORCHIDS, which has been formed during the last twelve years regardless of expense, and comprising many of the finest plants and varieties in existence; amongst others grand plants of Aerides Veitchii, Fieldingii, quinquevulnerum, &c., splendid specimen Burlingtonias, rare Angræcums, including Ellisii, sesquipedale, &c., Anguloa eburnea (true), Cattleya amethystoglossa, Dawsoni, Dowiana, Mendelii, Wagneri, exoniensis, marginata, grandiflora, labiata, and the finest forms of Trianæ; Cypripedium Dayanum, caudatum, superbum, Rollisson's var., &c.; Dendrobium Falconeri, Wardianum, bigibbum, &c.; Lælia anceps, Dawsoni, Turneri, Wolstenholmiæ, and others; Masdevallia Lindeni and Harryana, Odontoglossums in great variety, including nævium majus, Day's var., the rare nevadense, blooming plants of coronarium, trichopilia crispa marginata; grand Saccolabiums, including the whole of S. Russeliana, S. Holdfordiana (true), &c.; fine Vandas, including the rare V. Russeliana, V. suavis, Cathcarti, Dennisoniana, &c., all in the finest possible health.

Catalogues are preparing, and will be ready a fortnight before the Sale.

Auction Rooms, 38, King Street, Covent Garden, London, W.C.

Auction Mart, Tokenhouse Yard, E.C.

EXTENSIVE CONSIGNMENT of First-class DUTCH FLOWER ROOTS, for UNRESERVED SALE, lotted to suit the Trade and Private Buyers.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, near the Bank of England, E.C., on MONDAY NEXT, at 10 for 11 o'Clock precisely, about 800 lots of the finest named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, and other BULBS, the whole of which are selected and true to name, Messrs. P. & M. having undertaken to sell for those growers only who are willing to consign the cream of their stock. Commissions faithfully executed.

On view morning of Sale. Catalogues may be had at 98, Gracechurch Street, E.C.

Tooting, S.W.

IMPORTANT SALE of extra STOVE and GREENHOUSE PLANTS, the whole of which are in a very healthy and thriving condition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. R. Parker to SELL by AUCTION without reserve, on the Premises, the Exotic Nursery, Tooting, Surrey, S.W., about fifteen minutes' walk from Balham and Tooting Railway Stations, on THURSDAY, September 9, at 11 for 12 o'Clock precisely, a large quantity of extra stock of choice STOVE and GREENHOUSE PLANTS, including Dracæna lineata, Anthurium Scherzerianum, Stephanotis, Phormium tenax and Colensoi variegatum, Yucca filamentosa variegata, Gardenias, Pandanus and Crotons in variety; a fine assortment of best named Camellias and Azalea indica, Epacris, a large number of selected Palms, choice and valuable Orchids, Adiantum farleyense, Platycerium grande, Davallia Moreana and aculeata, Gleichenias of sorts, and other exotic and hardy Ferns, together with some herbaceous and succulent plants, hardy climbers in pots, &c.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers as above.

Lea Bridge Road, E.

EXTENSIVE ANNUAL TRADE SALE of Fine Winter-Flowering HEATHS, EPACRIS, CYCLAMENS, TREE CARNATIONS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, without reserve, on the Premises, the Lea Bridge Road Nurseries, Leyton, Essex, E., on FRIDAY and SATURDAY, September 10 and 11, at 11 for 12 o'Clock precisely each day, about 30,000 Winter Blooming HEATHS, remarkably well-grown and thickly set with bloom-buds, including Hyemalis, ventricosas in variety, gracilis, caffra, melanthera colorans, Willmoreana, regerminans, persoluta alba hybrida, and perspicua erecta; CYCLAMEN PERSICUM, AZALEA INDICA to name, GENISTA FRAGRANS and ATLEANA, Tea-scented ROSES in pots to name; a large stock of SOLANUM CAPSICASTRUM, full of berries; TREE CARNATIONS, ACACIA DRUMMONDII, and a quantity of MISCELLANEOUS GREENHOUSE PLANTS, including Phœnocomas, Apheloxis, Pimeleas, Boronias, Lapageria rosea; together with a quantity of VARIEGATED IVIES in pots, nice specimens of ANDROMEDA FLORIBUNDA, and H.P. ROSES.

May be viewed any day prior to the Sale.

Catford, S.E.

IMPORTANT CLEARANCE SALE of ESTABLISHED ORCHIDS; also a few STOVE and GREENHOUSE PLANTS and GARDEN EFFECTS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Ed. B. Green, Esq., to SELL by AUCTION, without reserve (in consequence of a change of residence), on the Premises, Ravensbourne Park, Catford, Kent, within five minutes' walk of Catford Bridge Railway Station, on WEDNESDAY, September 15, at 11 for 12 o'Clock precisely, the choice Collection of ESTABLISHED ORCHIDS, the whole of which are particularly well rooted, and in fine thriving condition, and amongst which are included Cypripedium Lowii, Dendrobium Wardianum, Masdevallia Veitchii, M. Harryana and amabilis, Odontoglossum Alexandræ, O. Bluntii, Phalænopsis, P. amabilis, P. Schilleriana, P. Luddemanniana, P. grandiflora aurea, Saccolabium ampulaceum, S. Blumei Dayi, S. guttatum, Thunia Bensoniæ, Vanda cœrulea, V. cœrulescens, V. teres Andersoni (a charming variety), V. tricolor; likewise a few STOVE and GREENHOUSE PLANTS, 400 Double Camellias, many of which are set with bloom-buds; Platycerium grande, Adiantum farleyense, Leptopteris superba, and other Exotic Ferns, several large Agapanthus in tubs, together with three MOWING MACHINES and other GARDEN UTENSILS and EFFECTS.

May be viewed the day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, E.

Long Cross, Chertsey.

CLEARANCE SALE of a Large and Beautiful PRIVATE COLLECTION of Choice, Hardy, HERBACEOUS, PERENNIAL, and BULBOUS PLANTS, admirably adapted for the permanent Ornamentation of Gardens, and covering four acres of land, comprising large quantities of Hepaticas, Double Primroses, and Alpine Auriculas in all the choicest and best varieties, and other Plants too numerous to mention. Also a quantity of FRUIT TREES and SHRUBS, 500 Dwarf ROSES, by name, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, on the Premises, Flutter's Hill, Long Cross, Chertsey, by order of Mr. H. Cooper (without reserve), in consequence of a change of residence, on WEDNESDAY, September 8, at 11 for 12 o'Clock precisely. On account of the number of Lots ample time will be allowed for clearance.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, Valuers, and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Tottenham, N.

GREAT SALE of STOVE and GREENHOUSE PLANTS. Important to the Trade and other Large Consumers.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Maller to SELL by AUCTION, on the Premises, the Brunswick Nursery, Tottenham, N., Middlesex, opposite the White Hart Lane Station, Great Eastern Railway, on TUESDAY, September 14, at 11 o'Clock precisely, 700 lots of unusually well-grown STOVE and GREENHOUSE PLANTS, mostly in No. 48 pots, and fit for immediate sale, consisting of 20,000 winter-blooming Heaths in fine thriving condition, and promising a profusion of flowers; 10,000 remarkably well berried Solanum capsicastrum, fine Camellias and Azalea indica set with bloom-buds; 5000 Bouvardias of sorts, Acacias well furnished; 1000 Adiantum of sorts, Todea superba and other Tree Ferns, Eucharis amazonica, Ficus elastica, Epiphyllums in variety, 1000 Poinsettias, Daphne indica rubra, 5000 fine Cyclamens, 1000 Genistas, 2000 Fairy Roses, Double and Single Primulas and Cinerarias, 2000 Dracænas, Palms, strong Ivies in pots.

May be viewed any day prior to the Sale.

N.B. This sale will commence punctually at 11 o'Clock, in consequence of the number of lots.

Whipps' Cross, Walthamstow, Essex.

ANNUAL SALE of 10,000 Winter-blooming HEATHS, of remarkably fine growth, including 5000 Hyemalis, 1000 gracilis, hybrida, ventricosas of sorts, and others; 1000 CYCLAMEN PERSICUM, beautifully grown, and a first-clas strain; 300 CAMELLIAS, 200 choice AZALEA INDICA, CINERARIAS, PRIMULAS, &c.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. E. Preston to SELL the above by AUCTION, without reserve, on the Premises, Elm Road, Whipps' Cross, Walthamstow, on THURSDAY, September 16, at 11 for 12 o'Clock punctually.

On view prior to Sale.

Lee, S.E.—Fifth Annual Trade Sale.

PRELIMINARY NOTICE.

MESSRS. PROTHEROE AND MORRIS have been instructed by Mr. B. Maller to SELL by AUCTION, without reserve, on the Premises, the Burnt Ash Nursery, Lee, S.E., on WEDNESDAY, September 22, many thousands of particularly fine winter-blooming HEATHS, and numerous other choice GREENHOUSE PLANTS.

More detailed particulars will appear next week.

West Dulwich, S.E.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. F. & A. Smith to SELL by AUCTION, on the Premises, The Nursery, Park Road, West Dulwich, S.E., in the latter END of SEPTEMBER, a large quantity of Winter-blooming HEATHS, and a beautiful assortment of selected STOVE and GREENHOUSE PLANTS.

Detailed particulars will appear next week.

Kingston-on-Thames.—Final Clearance Sale.

MESSRS. PROTHEROE AND MORRIS are instructed by the Exectors of the late Mr. Bruce to SELL by AUCTION, on the Premises, The Nursery, Kingston-on-Thames, on THURSDAY, September 23, the remaining GLASS ERECTIONS and STOCK-IN-TRADE, including a considerable number of ERICAS.

Preliminary Notice of

FORTHCOMING SALES of NURSERY STOCK, &c., by PROTHEROE AND MORRIS.

OCTOBER 5 and 6.—BRANCH NURSERY, Upper Tooting, S.W. By order of Mr. Charles Young. Sale of Chinese Nursery Stock, Camellias, Azaleas, &c.

OCTOBER 7.—AUCTION MART, London, E.C. By order of E. L. Morris, Esq. A compact Leasehold Estate, comprising 5 acres of productive Orchard Land, well cropped; also two semi-detached Villa Residences. Lease 75 years unexpired, held at a moderate ground rent.

OCTOBER 19.—HALE FARM NURSERIES, Tottenham. By order of Mr. T. Ware. A large quantity of clean-grown Fruit Trees, Roses, and General Stock.

OCTOBER 20.—BRANCH NURSERY, Wallington. By order of Mr. Clark. The whole of the General Nursery Stock, the land being required for building purposes.

OCTOBER 27 and 28.—EXOTIC NURSERY, Tooting, S.W. By order of Mr. R. Parker. A considerable quantity of beautifully-grown Nursery Stock.

OCTOBER 27 and 28.—NORTHGATE NURSERY, Chichester. By order of Mr. D. Scott. A large and rich assortment of clean-grown Nursery Stock.

NOVEMBER 2, and following days.—At one of their BRANCH NURSERIES, Kingston-on-Thames. By order of Messrs. Jackson & Son. An extensive assortment of about 8 acres of fine Nursery Stock.

Date not yet fixed.—ASCOT. By order of the Executors of the lated Mr. John Standish, deceased. A very large quantity of Nursery Stock, Plants in pots, &c.

Date not yet fixed.—The NURSERY, Dulwich. By order of Messrs. F. & A. Smith. A large quantity of Border Plants and General Nursery Stock.

Date not yet fixed.—SUNNINGDALE NURSERY, Bagshot. By order of Mr. C. Noble. An immense quantity of beautifully-grown Nursery Stock.

Date not yet fixed.—At one of his BRANCH NURSERIES, Effra Road, Brixton. By order of Mr. J. Peed. The whole of the valuable Nursery Stock, the land being required for building purposes.

Date not yet fixed.—BALHAM, close to the Balham Station. By order of Mr. Edwards. A quantity of Nursery Stock.

Date not yet fixed.—BRANCH NURSERY, Loughton. A large quantity of beautifully-grown Nursery Stock.

Catalogues, when ready, of any of the above Sales may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, Essex.

Stoke Newington, N.—Clearance Sale.

MESSRS. PROTHEROE AND MORRIS are directed by the Executors of the late Mr. John West, deceased, to SELL by AUCTION, without reserve, the whole of the GLASS ERECTIONS, HOT-WATER PIPING, and STOCK and UTENSILS-IN-TRADE, on TUESDAY, September 28.

Freehold, 28 miles S.W.

FOR SALE, a beautiful ESTATE of 250 acres, with elegant Swiss Villa and capital Stabling; gravelly soil, fine views, and nearly a mile of frontage on the London Road; free from Tithe and Land Tax; two-thirds on mortgage. A Plot of about 50 acres, planted with fine evergreens, fruit, and other trees would be Sold separately; also a Plot of 25 acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

To Gentlemen, Gardeners, and Florists.

TO BE LET, at Valuation, or the LEASE to be SOLD, of a well-established FLORIST'S BUSINESS, about 19 miles South of London, and to which a good Seed Trade could be added.

Apply to — JENKINS, Esq., Solicitor, Board of Works, 5, Tavistock Street, Strand, W.C.

TO BE LET on Lease, at Michaelmas next, a very desirable SMALL FARM, of about 70 acres of sound Corn Land, in the best corn growing district of Essex.

Particulars of Mr. WOODTHORPE, Glazenwood Nursery, Bradwelll, Braintree, Essex.

GOVERNMENT EMIGRATION.

SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For passages and further information, apply to the AGENT-GENERAL, 3, Westminster Chambers, Victoria Street, S.W.

ROYAL SCHOOL of MINES, DEPARTMENT of SCIENCE and ART.

During the Twenty-fifth Session, 1875-76, which will commence on October 1, the following COURSES of LECTURES and PRACTICAL DEMONSTRATIONS will be given:—

1. Chemistry By E. Frankland, Ph.D., F.R.S.
2. Metallurgy. By John Percy, M.D., F.R.S.
3. Natural History. By T. H. Huxley, LL.D., F.R.S.
4. Mineralogy. } By Warington W. Smyth, M.A., F.R.S.,
5. Mining. } *Chairman.*
6. Geology. By A. C. Ramsay, LL.D., F,R.S.
7. Applied Mechanics. By T. M. Goodeve, M.A.
8. Physics. By Frederick Guthrie, Ph.D., F.R.S.
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Extra ,, Group of Hyacinths, Tulips and Narciss, Liverpool Horticulttural Society.
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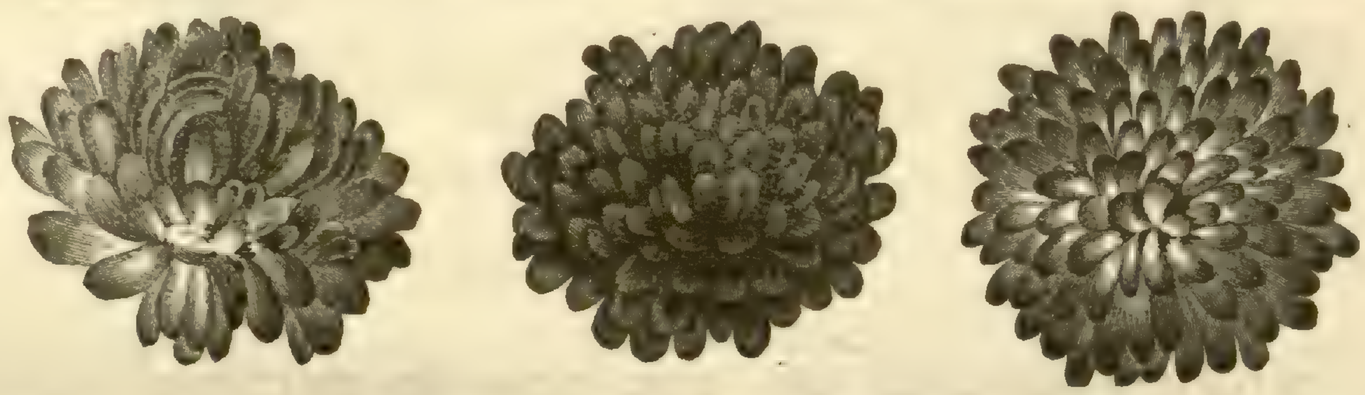

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ROYAL

HORTICULTURAL SOCIETY.

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September 1, 1875.

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CLASS 1.—36 DAHLIAS, cut blooms, distinct. (Open.)
1st, Mr. J. Keynes, The Nurseries, Salisbury.

CLASS 2.—24 DAHLIAS, cut blooms, distinct. (Nurserymen.)
1st, Mr. J. Keynes.

CLASS 3.—12 DAHLIAS, cut blooms, distinct. (Amateurs.)
1st, Mr. H. Glasscock, Rye Street, Bishop Stortford.
2d, Mr. G. Smith, New Villa, Hedge Lane, Edmonton.
3d, Mr. J. C. Quennell, Brentwood, Essex.

CLASS 4.—12 FANCY DAHLIAS, cut blooms, distinct. (Open.)
1st, Mr. J. Keynes.

CLASS 5.—6 FANCY DAHLIAS, cut blooms, distinct. (Amateurs.)
1st, Mr. H. Glasscock.
2d, Mr. T. Anstiss, Brill, Bucks.

CLASS 6.—24 GLADIOLI, cut spikes, distinct. (Open.)
1st, Messrs. Robertson & Galloway, Nurserymen, &c., Glasgow.
2d, Messrs. Kelway & Son, The Nurseries, Langport, Somerset.
3d, Mr. J. Douglas, Gr. to F. Whitbourn, Esq., Loxford Hall, Ilford.

CLASS 7.—12 GLADIOLI, cut spikes, distinct. (Amateurs).
1st, Rev. H. H. Dombrain, Westwell Vicarage, Ashford.
2d, Mr. J. Douglas.

CLASS 8.—6 GLADIOLI, cut spikes, distinct. (Amateurs.)
1st, Rev. H. H. Dombrain.
2d, Mr. J. Douglas.
3d, Mr. Harding, Gr. to Mrs. Benham, Syon Lodge, Isleworth.

CLASS 10.—12 HOLLYHOCKS, cut blooms, distinct. (Nurserymen.)
1st, Mr. G. Wheeler, The Nursery, Warminster, Wilts.

CLASS 12.—24 FRENCH ASTERS, not fewer than 12 varieties. (Open.)
1st, Mr. G. Wheeler.
2d, Mr. J. Stickler, Gr. to — May, Esq., London Road, Reigate.
3d, Mr. J. Morgan, Gr. to Major Scott, Wray Park, Reigate.

CLASS 13.—24 GERMAN ASTERS, quilled, not fewer than 12 varieties. (Open.)
1st, Mr. G. Wheeler. | 3d, Mr. J. Morgan.
2d, Mr. T. Benham, Bagnor, Newbury.

CLASS 14.—12 pots of ASTERS, not fewer than 6 varieties. (Open.)
1st, Mr. R. Dean, Ranelagh Road, Ealing.

CLASS 15.—12 DOUBLE ZINNIAS, cut blooms. (Open.)
1st, Mr. G. Wheeler. | 2d, Mr. J. Morgan.

CLASS 16.—6 LILIUMS, in pots. (Open.)
1st, Mr. C. Turner, Royal Nurseries, Slough.

CLASS 18.—APPLE, IRISH PEACH, 9 fruits.
1st, Mr. R. Dean.

CLASS 19.—APPLE, EARLY JULIEN, 9 fruits.
1st, Mr. Harding.

CLASS 20.—APPLE, LORD SUFFIELD, 6 fruits.
1st, Mr. G. Brush, Gr. to Lady Hume Campbell, High Grove, Pinner.
2d, Mr. W. Gardiner, Gr. to E. P. Shirley, Esq., Lower Ettington Park, Stratford-on-Avon.

CLASS 21.—APPLE, any other dessert kind, ripe, 9 fruits.
1st, Mr. T. Benham. | 2d, Mr. J. Douglas.

CLASS 23.—PEAR, SOUVENIR DU CONGRÈS, 6 fruits.
1st, Mr. J. Douglas.

CLASS 24.—PEAR, MADAME TREYVE, 6 fruits.
1st, Mr. G. Wheeler. | 2d, Mr. J. Douglas.

CLASS 25.—PEAR, any other dessert kind, ripe, 6 fruits.
1st, Mr. J. Douglas. | 2d, Mr. W. Gardiner.

CLASS 26.—PLUMS, 6 varieties, distinct, 9 fruits.
1st, Mr. A. Bridgeman, Gr. to J. S. Cocks, Esq., Thames Bank, Great Marlow.
2d, Mr. J. Burnett, Gr. to Mrs. Hope, The Deepdene, Dorking.
3d, Mr. T. Record, Gr. to J. Whatman, Esq., Vinters Park, Maidstone.

CLASS 27.—PLUMS, 3 varieties, distinct, 9 fruits.
1st, Mr. A. Bridgeman. | 3d, Mr. T. Record.
2d, Mr. J. Burnett.

CLASS 29.—PEACHES, single dish, 9 fruits.
1st, Mr. R. Dean.

CLASS 31.—NECTARINES, single dish, 9 fruits.
1st, Mr. J. Douglas.

Prizes offered by Messrs. SUTTON & SONS.

CLASS 32.—Collection of 24 ASTERS, 12 varieties, consisting of the varieties offered in Sutton's Spring Catalogue and Amateurs' Guide for 1875.
1st, Mr. J. Morgan, Silver Medal and £2 2s.
2d, Mr. T. Benham, Bronze Medal and £1 1s.

MISCELLANEOUS.

Mr. B. S. Williams, The Nurseries, Upper Holloway, for a Group of Plants, Extra Prize.

Mr. J. Aldous, Florist, &c., Gloucester Road, South Kensington, for a Group of Plants, Extra Prize.

Mr. R. Dean, for 1 Dish of Apricots, Extra Prize.

SATURDAY, SEPTEMBER 4, 1875.

BLACKBERRIES.

SEPTEMBER has begun; and with its opening come the first indications of the coming season, in the brilliant tints of the changing leaves, which become brighter and brighter as their time for falling approaches. With the changing leaves come the shortening days and the chilly evenings and foggy mornings, when the gossamer—"*le fil de la très sainte Vièrge*," as the French prettily call it—floats in the air, and the spider's webs form mimic barriers across our path. The season of "harvest homes" and "harvest festivals" is upon us—the first being one of our most pleasant and social old customs, and the last so natural and suggestive a mode of showing thankfulness for the blessings of harvest that it seems strange that it should be only a recent ecclesiastical development. Not only our orchards, but our hedges are teeming with fruit—the Nuts and Blackberries rivalling the Apples and Pears in their beauty and abundance. The Blackberry bushes, indeed, have an advantage over the other fruits from an æsthetic point of view, inasmuch as they produce both flowers and fruit simultaneously, the first crop of Blackberries being usually accompanied by a second flowering which yields a succession of fruit later on. Many interesting points of various kinds are connected with the Blackberry, and it may be worth while to glance at a few of them, referring, if need be, to its near relations, the Raspberry, Cloudberry, and Dewberry, in proof of the importance of the genus Rubus, to which they all belong.

First of all, we must define what we mean by the Blackberry or Bramble, inasmuch as "doctors disagree" upon this, as upon most other points. We may fairly leave to botanists the question whether there is one very variable species which is usually called the Blackberry, and was named by Linnæus Rubus fruticosus; or whether this name is to be looked upon as in a manner generic, and comprising in itself, as Mr. Pickwick said of politics, "a study of no inconsiderable magnitude." Certainly many Brambles have a distinctive appearance of their own, and one readily recognisable when seen growing; but when we come to definite distinguishing marks we find their discrimination a far more serious affair. It is so difficult to define where one form ends and the other begins; and although it may be urged with some truth, that this is a difficulty which must be present to all systematic botanists, it cannot be denied that in what are called "critical" genera the difficulty is increased to an alarming degree. For our present purpose, however, we need not stop to ascertain whether there are three or three hundred kinds of Bramble; we will accept the popular interpretation of the term, which groups them all together under the name of "Blackberries."

We are so accustomed to Blackberries in our hedges that it seldom occurs to us to ask how they got there, more especially as, now-a-days, their presence is rather discouraged by the farmer. But such was not the custom in former days, as good old Tusser shows, when he says:—

> "Go plough up, or delve up, advisëd with skill,
> The breadth of a ridge, and in length as ye will;
> When speedy quickset for a fence ye will draw,
> To sow in the seeds of the Bramble and Haw."

This style of hedge-planting was maintained at a much later date. Martyn, in his edition of Miller's *Gardener's Dictionary*, gives a good deal of information upon this point, and says it is especially useful "in raising live hedges in a poor sandy soil, in the shortest time and at the least expense." He goes on to cite a case in which a bank was planted with Brambles mixed with Hawthorn, just as Tusser describes, when it was found that the former protected the latter in a great measure from the attacks of sheep, besides, by its quickness of growth, forming a hedge with great rapidity. The experiment of planting a hedge in two rows upon a bank, the upper of Hawthorn and the lower of Bramble, was tried with some success; but it is found that the Bramble occupies too much space to be employed with profit.

The long thorny shoots of the Bramble—which are known in some parts of the country by the uncomfortable, yet suggestive name of "lawyers"—are not without uses of their own, either real or imagined. Among the latter may certainly be reckoned the superstition, which attaches an especial importance to such of these shoots as have bent down and taken root at their extremities. It seems almost incredible that even at the present day, or, at all events, within the last ten years, it has been the custom in many districts to make a child afflicted with whooping-cough, or in some instances with hernia, creep through the arch thus formed for a certain number (usually seven) times as a means of cure; yet such is the case. Drawing the poor sufferer backwards through a Bramble bush is also thought to be beneficial. Gloucestershire and Hertfordshire are the counties whence we have the most recent records of this senseless practice, which was also in vogue not long since in Worcester, Warwick, and Stafford. In Cornwall the same performance is gone through as a cure for boils, or for rheumatism. Drayton has a reference to the custom:—

> "Then thrice under a Brier doth creep,
> Which at both ends was rooted deep,
> And over it three times doth leap."

The leaves of the Blackberry were formerly superstitiously used in cases of scalds or inflammatory diseases. "Nine leaves," says Mr. Mason, "are taken and wetted with spring water, and passes are made with them from the burned or diseased part. Whilst this is being done, for every Bramble leaf the following charm—a mixture, you observe, of religion and superstition—is repeated three times:—

> "There came three angels out of the East,
> One brought fire and two brought frost;
> Out fire and in frost,
> In the name of the Father, Son, and Holy Ghost."

The long pliant branches of the Bramble have been applied to various uses at different times. In the days when thatched cottages were general they were employed by the thatchers in binding on the thatch, and the smaller shoots, as Loudon tells us, were used by the makers of straw beehives and straw seed-baskets for sewing the different layers of straw rope together. For this latter purpose the shoots were drawn through a cleft stick, as well to bruise them, and thus render them less liable to break when bent, as to deprive them of their prickles. The tops of the young shoots have also been employed in dying wool and silk black, and they were supposed in former days to have a similar effect on the human hair. The leaves have been similarly used in France; they furnish with alum a clear greyish-yellow, and with sulphate of iron an ash-gray colour. A decoction from them is also employed for imparting a clear yellow to wool specially prepared for the purpose. Country boys choose the stouter branches of the Bramble to make "standards" for kites, and they are sometimes used for binding down the sods upon graves in country churchyards. The leaves have long been known to possess astringent properties, and we find

directions for their use in most of the old Herbals. They are sometimes substituted for those of the Mulberry as food for silkworms, and with apparent success. We read in the last edition of *English Botany* that in the hot summer of 1858 a number of cocoons of the silkworm were found upon some Brambles in Kent, the caterpillars having probably been hatched from some eggs accidentally scattered there. The silk produced was of good quality. The caterpillars seemed to have fed upon various wild plants in the vicinity, as well as on the Bramble leaves.

Coming now to the fruit of the Bramble, we may note that its abundance has passed into a proverb—"as plentiful as Blackberries" being a popular simile for a copious supply of anything. The spell of fine weather which is often experienced at the end of September and beginning of October, and which is variously known as St. Luke's or St. Martin's "little summer," is called the "Blackberry summer" in some parts of Hampshire and Suffolk. As to their uses, they are numerous and varied. In some districts of France they are used in colouring wine; in Provence the red Muscat wine is so coloured, and from them wine, syrup, and a kind of "eau-de-vie" is prepared. The juice when dried is employed in painting, and paper coloured with it is sometimes used as a reactive in chemistry. It will be remembered that Shakspeare alludes to Blackberries in the first part of *King Henry IV.*:—"Shall the blessed sun of heaven prove a micher, and eat Blackberries?" In explanation of which, it may be noted that in the Forest of Dean to mooch Blackberries, or simply to mooch, means to pick Blackberries, and these fruits have thence obtained the name of Mooches.

The names of the Blackberry are sufficiently varied and puzzling. "Blackberry" itself is intelligible enough, although the fruit is not a berry in the botanical acceptation of the term; but what are we to make of "Bumblekites," by which euphonious title Blackberries are generally known in the North of England? Dr. Prior's explanation is scarcely as happy as usual. He says:—"From Scot, *kyte*, belly, as in the *Wife of Auchtermuchty*—

> "The deil cut off thair hands, quoth he,
> That crammed your *kytes* sae strute yestreen!"

and *bumble*, applied by Chaucer to the voice of the bittern; from the rumbling and bumbling caused in the bellies of children who eat its fruit too greedily!" This derivation is almost as good as that proposed for Smallage at p. 263, "from its known quickness of growth, or its attainment of a large size at a small age!" it being well known that it is an equivalent of "small ache," or small Parsley, in contradistinction to the Alexanders, which was the great ache (ache large) of old French Herbals. In the case of bumblekites there can be no doubt that the first half of the word is a corruption of Bramble, which is rendered in various dialects brimmle, brammle, brummle, and bumble; "kite" is certainly much more difficult to explain: it may mean belly, as Dr. Prior suggests, and, if so, may have arisen from a confusion between belly and berry, owing to the similarity of sound in the two words; but this seems a little far-fetched. It is less strange to find that in Suffolk Blackberries are known as Mulberries, as the common French name for them is *mûres de haie*, or *mûres sauvages*, and they were formerly sold in apothecaries' shops under the title "Mora bati," or, as Parkinson says, "Mora bassi, the berries of the Mulberry tree being called by them Mora celsi." "Scaldberries" was another old equivalent of Blackberries, apparently from a traditional belief in their effects, which is thus explained and controverted by Threlkeld, in his *Synopsis Stirpium Hibernicarum*:—"The fruit of the Bramble," he says, "is reputed infamous for causing sore heads, whence it comes to pass that to scare children from eating of them, some call them Scaldberries; but I look upon this as a vulgar error; and that after Michaelmas the d——l casts his club over them, which is a fable: for the earth is the Lord's and the fulness thereof." Parkinson tells us that "the leaves of Brambles boyled in lye and the head washed therewith doth heale the itch," and so on; but this would scarcely account for the name of the berries, as Dr. Prior supposes. This notion that the devil exercises some influence, or "puts his foot" on the Blackberries after Michaelmas Day, is still prevalent in Ireland, and they are generally left ungathered after that date.

Among the uses of Blackberries, it must not be forgotten that they are employed, although not as extensively as they deserve, in making jam, and a conserve of Blackberries was in former times considered efficacious in cases of sore throat. Mixed with Apples they form an agreeable pudding. The difference in flavour of the different varieties of Blackberry is very remarkable, and, so far as it goes as an evidence of their distinctness, our American cousins have introduced some of the varieties into cultivation, and have obtained some very large-fruited forms, some of which were at one time introduced into England. For some reason, however—possibly because we felt we had already a sufficient supply of Blackberries in our hedges—they did not become popular, in spite of extensive advertising, and it may be doubted whether any of them are now in cultivation in England, unless it be in some of the large fruit nurseries. The cut-leaved Bramble is frequently grown, not only for its handsome foliage, but likewise for its fine fruit.

We have devoted so much space to the Bramble that its allies must stand over for future consideration, when we shall find that they also are not deficient in points of interest. *B. M.*

New Garden Plants.

MASDEVALLIA LIVINGSTONIANA, *Rchb. f.**

I have just the first two fresh flowers at hand. They are rather better than I had expected them to be. The tube is greenish-yellow, the inferior part of lateral sepals and the tails are dark violet. There is a yellowish blotch on the end of each inferior sepal, which gives a very striking appearance. The length of the tail is nearly that of half the tube, but it is rather different in each flower. Every one who knows a little about Masdevallias has experienced such variations, which appear to be only unknown to Monsieur André (whose gossip about M. polysticta I may speak about another time, when it is not so hot as to-day, when such an indifferent job would make one fall asleep). The whole length of the perigone is about more than half an inch. The rather stately leaves are 4 to 5 inches long and ⅝ to ¾ wide. I have already stated the plant is a discovery of Señor Benito Roezl in Panama. I have to thank Herr Hofgartner Kirchhoff, of Doanueschingen, in Baden, for the fresh flowers. They come from the beautiful collection of the Prince Egon von Fürstenberg. *H. G. Rchb. f.*

MASDEVALLIA CALOPTERA, *Rchb. f.*

This proves to be a very nice little gem, by far sweeter than M. polysticta. Its beauty consists in the dark yellow tails contrasting from the neat purplish bodies of the sepals. There are no dark stripes on these, as in the dried specimens. It has lately flowered in the garden of Prince Carl Egon von Fürstenberg, under the able management of Herr Hofgartner Kirchhoff. *H. G. Rchb. f.*

* *Masdevallia Livingstoniana*, Rchb. f.—(Clausæ porrectæ.) Cæspitosa; foliis spatulato obovatis basi bene attenuatis apice rotundatis minute tridentatis; pedunculis unifloris brevioribus; bractea tubulosa ovario pedicellato longe breviori; perigonii externi cyatho elongato, mento obtusangulo parvo; sepalo supremo a triangulo brevissimo in caudam linearem (non subulatam) recurvo ascendentem extenso; sepalis inferioribus a triangulis latis cum cyatho angulatis lineari ligulato caudatis, caudis decurvis; tepalis ligulatis obtusatis basi attenuatis; labello pulcherrimo peltato, basi brevissime sagittato, lobulato obtuso; columnæ androclinio denticulato. — *Masdevallia Livingstoniana*, Rchb. f. in *Gardeners' Chronicle*, 1874, ii. 322.—Perigonii tubus viridiflavus ventre inferiori atroviolaceo; caudæ atroviolaceæ; basi albido flavo uniocellatæ. Tepalum e columna alba. Labellum basi flavum punctis rubris; ceterum album striatis longitudinalibus rubris duabus (August 8, 1865).

INFLUENCE OF CHLORINE ON THE NUTRITION OF PLANTS.

WHILE, on the one hand, there is a class of materials which are indispensable for the normal nutrition of plants, there is another class with regard to which opinion is much divided, some regarding them as essential, others as merely accessory. To this latter class belongs chlorine. Its significance for plant nutrition has recently been investigated by M. W. Knop, and a brief account of his researches on the subject is given in a recent number of *Der Naturforscher*.

From various experimental researches it seems to have been established that the most suitable concentrations of solutions of nutritive material for plants in general, are those between the limits of 0.5 to 5 grammes proportion of salt per litre of water. With concentrations over 1.5 per 1000, the plant absorbs, from the solution given, a more dilute one, so that the residuum becomes more concentrated about the root than the original solution was. With dilution of 1 to 0.5 per 1000 proportion of salt, on the other hand, the plant absorbs more salt in proportion to water, so that the residuum loses in concentration, and more so the smaller it has been. Further, more salt is absorbed by a root in equal time from a more concentrated solution than from a more dilute one, and with some salts this increase of absorption is just proportionate to the concentration. From these considerations it appears that by increasing the concentration one may, at will, excite a certain compulsion on the absorption of nutritive matter by the roots.

The experiments with which we have here to do were made in the summer of 1874. From a number of Maize plants, which in the last week of May were about 1 decimetre long, three equal specimens were selected. The first, A, was placed in a nutritive solution without chlorine, containing, in 2 litres, 0.9884 grammes nitrate of lime, 0.2457 grm. nitrate of potash, 0.2457 grm. phosphate of potash, and 0.2430 grm. sulphate of talc-earth, and having as much nitrate of potash afterwards added as it already contained, *i.e.*, 0.2457 grm. The second Maize plant, B, was placed in the same original solution, and to this so much chloride of potassium was added that its proportion of potash corresponded to that of the previous addition of nitrate. The third Maize plant, C, lastly, received, with the original nutritive solution, an addition of chloride of calcium, in which the proportion of chlorine, again, was the same as that of the chloride of potassium addition in plant B.

Into each of the three vessels chosen for experiment was poured, on June 1, 55 cc. of the original solution, then the special addition was made in each case. The plants were put in the vessels, and whenever a plant had evaporated 100 cc. of water an additional 100 cc. of the normal solution was proved in: this was continued till each had received exactly 2 litres of solution altogether. Then absorption was further permitted, till the residuum in the vessels was 400 cc. The remains of the nutritive solution were afterwards analysed.

As regards the growth of the plants there were no differences till the middle of June. Then the plant A went ahead, followed by C, then B. On July 15, A was 8.3 decimetres long, B 6 and C 7. On July 20 the petals of the female flowers were developed in all three plants; but all three had rudimentary pollenless anthers. The evaporation of the 1600 cc. water, which occurred during the vegetation period, was ended in the case of plant C on July 23, in that of A on July 27, and in that of B only on August 8. The living weight of the plants at the time that each had evaporated the 1600 cc. water, was A = 67 grm., B = 30 grm., and C = 44 grm.; and their dry weight, A = 14 grm., B = 10 gr., and C = 11.7 grm. Another Maize plant, X, from an older series of experiments, was taken into account in the final working out of the results; it had been grown in the same normal solution of 0.4 to 0.5. per cent. This by August 10 had produced 50.3 grm. dry weight. From comparison of the residual solutions the absorption of mineral matter was found to have been, in the case of X = 4.1103, A = 0.8032, B = 0.7442, and C = 0.6369. For production of 100 grm. dry weight A thus consumed 5.736 grm. of mineral matter; B, 7.442 grm; C, 5.442 grm.; and X, 8.170 grm..

With respect to the particular substances supplied in the solutions to the plants, M. Knop draws from his experiments the following conclusions:—

1. The Maize flourished best in the two solutions without chlorine for plants X and A.

2. The more concentrated solution, of 4 to 5 per 1000 proportion of salt for plant X, nourished the Maize plant better than the dilute one, of 1 per 1000, for plants A, B, and C.

3. Those of the plants which remained longest in the nutritive solution absorbed most mineral matters.

4. The relative absorption of all nutritive matters also increase with the duration of the vegetation period.

5. The absolute absorptions of lime were not

directed so much according to the duration of the vegetation period, because the nitrate of lime of the nutritive solution is immediately decomposed on contact with the surface of the root, and partly remains behind in the solution as carbonate of lime, and because the root also always gives back to the solution some of the previously absorbed lime. The absolute absorption of lime rather increases conformably with the quantity of dry substance produced; in the case of A it was 0.1609 grm., in that of C 0.1275, and in that of B 0.0933 grm.

6. The absorption of talc-earth shows that the significance of this substance is quite different from that of the two other bases. It passes in much less quantity into the plant than the lime or the potash, and its absorption is in no marked connection with the absorption of the acid.

7. The absolute absorptions of potash show distinctly that the plant has no such great need of any of the other bases, or any acid, as of potash. The absorption of this exceeds that of all the others very considerably. It is found that from a solution rich in potash more of the substance is absorbed than from one that contains little of it.

8. The absolute absorptions of phosphoric acid are always much greater than the absorption of the other acids. The absorptions of phosphoric acids are conditioned by those of potash, and increase where they increase. The lime, however, also concurs, but not magnesia.

9. The absolute quantities of sulphuric acid are never greater than the quantities of phosphoric acid absorbed, but equal to these, or less.

10. On the addition of chloride of calcium to the solutions the whole of the chlorine was absorbed by the plants. Of the chlorine of the chloride of potassium a small quantity remained behind in the nutritive solutions.

11. The relative absorptions of chlorine bring to light a very remarkable fact. They prove a very different influence of the chlorine on the absorption of the other bases, according as it is combined with potash or with lime. The chlorine combinations exert a specific pressure on the absorption of the lime, without this forced lime being replaced by potash or talc-earth. The chloride of potassium, therefore, quite remarkably, and chloride of calcium in less degree, caused a marked increase of the acidity contrasted with the basicity of the absorbed mineral constituents.

It is evident that such a relation may have physiological consequences. If it be correct that an addition of chloride of potassium favours the formation of the fruit of plants, then the action lies in this influence, in the depression of absorption of lime, not in the action of the chloride of potassium or of the potash therein contained; for the absorption of potash does not increase with the absorption of chlorine, and the chlorine may quite fail without the fruit formation being inevitably ruined.

The action consists rather in increase of the acidity of the mineral constituents. It has been shown by Arendt's researches that the phosphoric acid is strongly attracted to the fruit. Now since, among the acids, it is phosphoric acid that is most abundantly absorbed, this, if chlorine really play a part in formation of fruit, would be explained by the chlorine considerably increasing the absorption of the phosphoric acid that is important for fruit formation.

12. The action of the four nutritive solutions, of which that for X is not altogether comparable with the others, because it had four to five times the concentration, is best indicated if we divide the quantities dry substance produced by the number of the days in which they were formed. From the figures thus obtained it appears that the two solutions, without chlorine, for the Maize X and A were the most favourable; next came the solution poorest in potash and with chloride of calcium mixed. The most unfavourable was the chloride of potassium solution for plant B.

13. It is peculiar, that those plants which were grown in the solutions without chlorine grew the strongest. The author suggests that his solutions without chlorine contained more nitric acid than those in which chlorine was present, and that this would account for the greater production. *A. B. M.*

Foreign Correspondence.

A PILGRIMAGE TO THE HOME OF THE TORREYA.—Ordered to go South until I should meet the tardy spring and summer, I was expected to follow the beaten track to East Florida. But I wished rather to avoid the crowd of invalids and pleasure travellers, and turned my attention in preference to Western Florida, determined that, if possible, I would make a pious pilgrimage to the secluded native haunts of that rarest of trees, the Torreya taxifolia.

All that I knew, or could at the moment learn, was, that this peculiar evergreen Yew-like tree—prized by arboriculturists for its elegance, and dear to us botanists for the name it bears and commemorates—grew on the banks of the Apalachicola river, somewhere near the confluence of the Flint and Chattahoochee, which, by their union, form it. It was there discovered, nearly forty years ago, by Mr. Henry B. Croom, and has since been seen at two or three stations by his surviving associate, Dr. Chapman, of Apalachicola, author of the *Southern Flora*. Mr. Croom, upon ascertaining that he was the fortunate discoverer of an entirely new type of coniferous trees, desired that it should bear Dr. Torrey's name, and the genus Torreya was accordingly so named and characterised by the Scotch botanist, Arnott. It is of the Yew family, in foliage and in male flowers much resembling the Yew itself, but more graceful than the European Yew tree, wholly destitute of the berry-like cup which characterises the latter genus, and with the naked seed itself fleshy-coated, and larger than an Olive, which it resembles in shape and appearance. One young tree, brought or sent by Mr. Croom himself, has been kept alive at New York—showing its aptitude for a colder climate than that of which it is a native—and has been more or less multiplied by cuttings.* Sprigs from this tree or its progeny were appropriately borne by the members of the Torrey Botanical Club at its founder's funeral, two years ago, and laid upon his coffin. But very few botanists have ever seen the tree growing wild, and in its full development. I was desirous to be one of the number.

Among the broad, black lines with which the railway map is checquered, I found one which terminates at Chattahoochee. This was the objective point, and the way to it seemed plain enough, though long. Pilgrimages to famous shrines by railway, in the Old World, are now-a-days systematised and made easy. The untried one which I undertook appeared to offer no privation nor difficulty, except the uncertainty whether I should be fortunate enough to find the grove which I sought. And, indeed, there was little

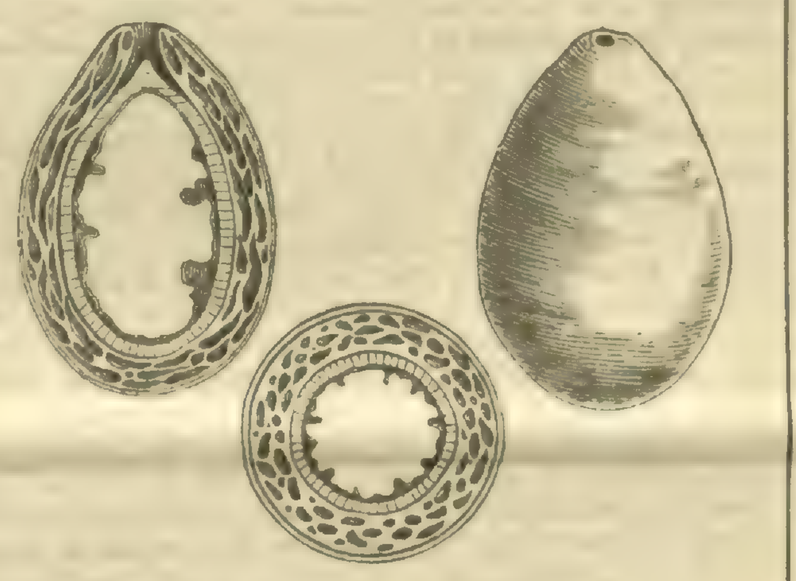

FIG. 63.—FRUIT OF TORREYA.

privation to speak of. It was, however, rather trying to us (*i.e.*, to myself and my companion in travel and life), when, after leaving Savannah on an early April morning, with the assured understanding that we should reach Chattahoochee late that evening, we learned that we were to be left for twenty hours at a small hamlet on the borders of East Florida, named Live Oak—a manifest *lucus a non lucendo*, as there were no Live Oak trees in the neighbourhood, but a prevalent growth of long-leaved Pines. There was some good botanising to console us, and, thanks to the railroad conductor for directing us aright, unpretending but truly comfortable quarters for the night. Then, the next day, resuming our journey after a 12 o'clock dinner, which we were to mend with a supper at Tallahassee, we were at length informed that we were to be supperless; that the stations, both of Tallahassee and Quincy, were out of town and out of reach of all edibles; that Chattahoochee station, to be reached after 10 o'clock, was only a freight house on the wild and wooded bank of the river, built upon piles in the swamp, reached at ordinary times over a mile of trestles, and now so overflowed that it probably could not be reached at all, certainly not that night; that the train would stop for the night 2 or 3 miles back in the woods, where the agent had taken up his abode in a box-car; that the town of Chattahoochee, a mile away, large as it appeared on the map, consisted mainly of a state-prison and a couple of grocery shops—neither of which were quite proper for passing a night in, even if we could reach them; in fine, that our only course would be to sleep in the car (which made no provision for it), and crave from the agent of the road a share of his breakfast.

The kind and intelligent fellow travellers as far as Tallahassee and Quincy, who gave us this disheartening information, finding that we were not disposed to stop short of our object, remarked that they had set us down as eminently philosophical people, since we had passed a night at Live Oak and still possessed our souls in patience (a view which a couple who had stopped at the hotel there practically confirmed), and so left us with their good wishes, but evidently faint hopes. The weekly steamboat, which was to call at the landing next day, would eventually relieve us; and so we resolved to make the best of it. The worthy young conductor, who was to sleep in the car also, kindly proffered a share of his supper; but we fortunately had a bottle of cold tea, some crusts of bread ten days old, and wafer-biscuits, upon which we scantily supped, and then, folding around us such drapery and wraps as we had, lay down to sleep upon the couches which the conductor ingeniously arranged for us, by some skilful adjustment of the car-seats. In the morning, after due ablutions made at the tank of the locomotive, we were hospitably welcomed by the agent, General Dickison, and his son, to a much-needed share of their breakfast in the stationary box-car, which served both as bedroom, parlour, and dining-room.

To our great delight we found that General Dickison knew the tree which I was in search of, and it was arranged that his son should conduct me to the locality, not far distant. So striking an evergreen tree could not fail of notice. The people of the district knew it by the name of Stinking Cedar or Savine—the unsavoury adjective referring to a peculiar unpleasant smell which the wounded bark exhales. The timber is valued for fence-posts and the like, and is said to be as durable as Red Cedar. I may add that, in consequence of the stir we made about it, the people are learning to call it Torreya. They are proud of having a tree which, as they have rightly been told, grows nowhere else in the world.

My desire for a sight of it was soon gratified. Making our way into the woods north of the railroad track, along the ridges covered with a mixed growth of Pines and deciduous trees, I soon discerned a thrifty young Torreya, and afterwards several of larger size, some of them with male flowers just developed.

As we approached the first one, I told my companion that I expected to find, under its shade, a peculiar low herb, which I described, but had never yet seen growing wild. And there, indeed, it was—greatly to the wonderment of my companion—the botanically curious little Croomia pauciflora, just as it was found by Mr. Croom, when he also discovered the tree, nearly forty years ago, probably at a station several miles further south. I was a pupil and assistant of the lamented Torrey when Mr. Croom brought to him specimens, both of the tree and of the herb, both new genera. The former, as I have stated, was named for Dr. Torrey by his correspondent, Arnott. The latter was dedicated to its discoverer by Dr. Torrey. I well remember Mr. Croom's remark upon the occasion, that, if his name was deemed worthy of botanical honours, it was gratifying to him and becoming to the circumstances that it should be borne by the unpretending herb which delighted to shelter itself under the noble Torreya. It is not, as Mr. Croom then supposed, exclusively so found; for it grows also in the central and upper portions of Alabama and Georgia, where Torreya is unknown, but where I fancy it may once have flourished. I cannot here detail the reasons for this supposition.

There is a second Torreya in Japan, founded on Thunberg's Taxus nucifera, of which I saw original specimens at the British Museum in the winter of 1838-9, and then identified the genus. There is likewise in Japan a second Croomia, very probably in company with the Torreya. A third Torreya inhabits California, but it has no associate Croomia.

I have formerly treated of the peculiar distribution of these genera and species between the United States and Japan, have collocated a large number of equally striking similar instances, and have offered certain speculations in explanation of them. The views maintained have been more and more confirmed, and are now adopted by the leading philosophical botanists.

The few hours devoted to this first search for Torreya, pleasant as they were, yet were too scantily rewarded to satiate my interest. I saw no tree with trunk over 6 inches in diameter, and found no female blossoms. It was necessary to hasten back to the railway car, to await the expected summons to the steamboat. I bore with me, besides my botanical specimens, a stick of Torreya, suitable for a staff, which I propose to make over to the President of the Torrey Botanical Club for the official *Mace*. Before long the whistle of the steamboat announced its approach to the landing, and offered us a prospect of a much needed dinner; the water had fallen sufficiently to allow us to be conveyed to the wharf upon a hand-car, and so we embarked for Apalachicola *viâ* Bainbridge—that is, we went up the Flint River about 40 miles and thence back, in the night, past the place of embarkation.

* The *Agriculturist* for May states that the tree spoken of, or its seed, "was brought from Florida by the late distinguished Major Le Conte." I am confident that this is a mistake, and that Le Conte knew nothing of this tree in its native station. If my recollection is correct, at least two seedling trees were placed in Dr. Torrey's hands by Mr Croom, one of which was consigned to A. J. Downing, of Newburgh, the ultimate fate of which is unknown to me; the other to Mr. Hogg, sen., which, as the *Agriculturist* states, is now in Central Park.

I will not here give any account of a delightful ten days' episode, beginning with the voyage down the brimming river, bordered with almost unbroken green of every tint, from the dark background of long-leaved Pines to the tender new verdure of the Liquidambar and other deciduous trees in their freshest development, interspersed with the deep and lustrous hue of the Magnolia grandiflora, and, when the banks were low, dominated by weird naked trunks of Southern Cypress (Taxodium), their branches hung with long tufts and streamers of the gray and sombre Southern Moss (Tillandsia) below, while above they were just putting forth their delicate foliage. Along the lower part of the river occasional Palmettos gave a still more tropical aspect. Then followed a week and more at dead and dilapidated, but still charming Apalachicola, where the post office opens on Monday evenings, when the steamboat arrives, and closes for a week the next morning, when she departs; where the climate, thanks to the embracing Gulf, is as delicious in summer as it is bland in winter; where game, the best of fish, and the most luscious oysters are to be had almost for nothing, and Blackberries come early in April when the Oranges are gone; and where, far from the crowd and bustle of the world, with Bill Fuller for caterer, and his wife Adeline for cook, the choicest fare is to enjoyed at the cheapest rate. Then there was the pleasure of renewing our acquaintance with Dr. Chapman, and botanising with him over some of the ground which he had explored so long and so well—of gathering, under his guidance, the stately Sarracenia Drummondii in its native habitat, and, not least, acquiring from him fuller information respecting the localities where Torreya grows.

The return voyage up the river was not less enjoyable than the descent. It was so timed that the bold bluff of Aspalaga, where the tree was first found, was reached after sunrise. But it was sad to see that the Torreya trees, which overhung the river here in former days, had been cut away, perhaps for steamboat fuel. So I did not land; but leaving the boat a few miles above, at the upper Chattahoochee landing, while it made the run to Bainbridge and back, I had a long day to devote to Torreya. Following Dr. Chapman's directions, I repaired to the wooded bluff to the north of the road, where I soon found abundance of the trees, of various ages, interspersed among other growth. The largest tree I saw grew near the bottom of a deep ravine; its trunk just above the base measured almost 4 feet in circumference, and was proportionately tall. But it was dominated by the noblest Magnolia grandiflora I ever set eyes on, with a trunk 7½ feet in girth.

After long search one tree was found with female flowers, or rather with forming fruit, from which a few specimens were gathered. Seedlings and young trees are not uncommon, and some old stumps were sprouting from the base, in the manner of the Californian Redwood. So that this species may be expected to endure, unless these bluffs should be wantonly disforested—against which their distance from the river and the steepness of the ground offer some protection. But any species of very restricted range may be said to hold its existence by a precarious tenure. The known range of this species is not more than a dozen miles in length along these bluffs, although Dr. Chapman has heard of its growing further south, where the bluff trends away from the river. At least the Yew tree grows there, which Mr. Croom found with the Torreya near Aspalaga, and I heard of it (identifying it by the description) as growing five or six miles away.

Returning to the boat at nightfall, I brought with me thirty or forty seedling Torreyas, which, being too far advanced to be safely sent far north this spring, have been successfully consigned to the excellent Mr. Berckman's care, at Augusta, Georgia. I hope that one or more of them may in due time be planted upon the grave of Torrey.

A word or two of Mr. Croom and his sad fate. His name merely is known to botanists as the discoverer of Torreya taxifolia and of Croomia pauciflora, and as the author of a monograph of Sarracenia, in which the handsomest species, S. Drummondi, was originally described and figured. He was the first to find this in blossom, Drummond having seen and collected the leaves only, in a winter visit to Apalachicola. Of the botanists who remember and personally knew him, only Dr. Chapman and myself survive. Mr. Croom, originally, I believe, of Newbern, North Carolina, had a plantation at Quincy, Florida, and another at Mariana, east of Apalachicola River; and it was in passing from one to the other that he discovered the tree of which I have been discoursing, as well as the herbaceous plant which bears his name. He was an accomplished and most amiable young man, full of enterprise and zeal for botany, and much was expected from him. But, just as he was entering upon his chosen field, and had made preparations for a thorough exploration of Florida, in connection with his friend, Dr. Chapman, he was lost at sea, with his wife and all his children, in the foundering of the ill-fated Pulaski, between New York and Charleston.

I have been told that two seedling Torreyas which Mr. Croom planted near his house at Quincy, and which had become stately trees, have recently been demolished by the present proprietor; also that a tree of Mr. Croom's planting still flourishes in the grounds of the State-house at Tallahassee. *Professor Asa Gray, in "American Agriculturist."*

ASPARAGUS CULTURE AT ARGENTEUIL.

THE extensive culture of this esculent near Paris, and the abundance of the produce in the markets of the principal towns of France, induces us to think that some account of its cultivation may be acceptable to our readers. The following details are taken from a paper of M. C. Dubost in the *Annales Agronomiques.*

Nothing definite is known as to the origin of this culture at Argenteuil. It is simply proved by deeds, which date from the 18th century, that even at that time it was of some importance, and was well esteemed in the Paris markets. Be this as it may, a complete revolution in the cultivation of this esculent has taken place since the commencement of the present century. Formerly it was grown entirely by itself. Towards 1818 a Vine grower named Lescot commenced to grow Asparagus along with the Vine, probably to fill up the vacant spaces left by the Vines which died from age or accident. The results he obtained excited general attention, and it was not long before it was recognised that if the Vine suffered from the proximity of the Asparagus, the latter gained much from its association with the Vine, and that ultimately it would be more profitable to associate the two than to grow them separately. It is by roots obtained from seeds in the nurseries that the plantation is effected. But, contrary to the practice usually followed, shallow planting at a depth of 30 to 40 centimetres only is practised. A trench of this depth is dug, the bottom of which is lined with street-sweepings. When the root is therein deposited, it is covered with carefully pulverised soil. As the plant grows fresh soils (*terre de déblai*) is thrown into the trench, taking the precaution to keep it constantly open. About the fourth year cutting commences, without, however, exhausting the plant. About the fifth year the crop is in full bearing, and this lasts generally from ten to twelve years; at that time not only are the trenches headed up, but they are surmounted with a mound of very mellow soil, which is destined to favour the development of the stems and to protect them from the action of light, and which also permits the stalks to be readily examined, so that their size may be ascertained and their fitness for gathering. In this way Asparagus of fine quality is obtained, and sometimes of extraordinary size, and which fetches a price of 25 centimes to 5 francs the stick (*sic*). A bundle of this fine Asparagus is sold in the shops at 6 to 8 francs at the end of April; a bundle of exceptionally large sticks fetches even as much as 25 to 30 francs.

It is estimated that a plant of Asparagus cultivated with the Vine yields, on an average, 1 franc a year during the bearing period. Some roots have even been known to furnish as much as 20 francs annually. Grown by themselves the annual produce of each root would be only half this. An idea of the value of this crop thus associated with the Vine may be gained from the fact that 5000 Asparagus plants may be planted per hectare of vineyard, and that they will yield 4000 to 5000 francs. Not the whole of the vineyards of Argenteuil, nevertheless, are planted with Asparagus. This arises from various causes, of which the most important doubtless are the difficulty and care required in cutting the crop. At the time of the vintage all the household is in the vineyards. All the Asparagus plants must be examined. The cutting must be done with the greatest care in order not to injure the adjoining stems. The mounds are uncovered by the hand in order to isolate those stems which are to be cut. When the cutting is done the earth is replaced, so as to cover those stalks which are to be cut at a later period. It is in this way that the labourers in the vineyard are enabled every day to note the progress of each plant. They know exactly how many sticks may be gathered in a certain period, their size, and the probable day of cutting.

In traversing the grounds of M. Louis Lhéraut, we were astonished to see that experienced cultivator detect, at a glance, the mounds that concealed the largest sticks and those most fit for cutting. The cutting having been effected in the morning, and every plant scrutinised with care, the rest of the day is devoted to tying up the bundles. In the evening the produce is conveyed to Paris, the central market (Les Halles), which city is reached about midnight. It is all sold between 4 and 7 A.M. Not fewer than three bundles are sold at a time. The Asparagus is cut between April 10 and June 10, and thus it coincides with the necessary operations on the Vine. Hence it will readily be understood that the production of Asparagus is limited by the amount of labour available. Skilled labour is here essential, the product is too delicate and too valuable to be entrusted to untrained hands. The Vine-growers of Argenteuil do not fail to avail themselves of outside assistance to gather the Grapes, but they regard the cutting of the Asparagus as a family work reserved for the members of their own establishment.

While the Asparagus gains by being grown with the Vines, the association is not beneficial to the latter. The amount of wine produced undergoes notable diminution. With 3000 Aparagus plants per hectare, the Vine only yields half its produce; and this is still further diminished when there are 5000 Asparagus plants per hectare. Even under these circumstances, the yield of the two harvests is very considerable.

A thousand to 1500 francs of wine, and 2000 to 3000 and even 4000 francs worth of Asparagus is not a yield to be despised in the north. Continuous cultivation of Asparagus is not successful. When grown apart from the Vines, ten years' interval must elapse between the destruction of the old and the formation of the new plantations. Among the Vines two successive plantations may be made, taking care to change the position of the plants. In this way an Asparagus plantation may last thirty years, twenty in full bearing. After that time a new planting of Vines with the suitable rotation must be made to insure the success of a new rotation of Asparagus.

A HOLIDAY IN CARMARTHENSHIRE.

THE Potato disease has been terribly bad about Carmarthen, in many places the crop appears to have been totally destroyed, but whether from the first or second visitation of the murrain I do not know. The odour, however, which prevails in many places where Potatos are in the soil only too clearly indicates the sad amount of destruction which has taken place amongst the tubers. But we have had enough of the Potato disease at present, with its oogonium and antheridium, its zoospore and its resting-spore; when we next attack it let us hope to cure it. When I went down to Carmarthen last week to meet Professor Babington of Cambridge, Professor Westwood of Oxford, and other contributors to your pages, it was for the purpose of ignoring horticultural matters for a time and joining the Bishop of St. Davids, Lord Cawdor, Colonel Grant Francis, the Rev. James Davies of Moor Court, and some eighty other members and friends of the Cambrian Archæological Association in a visit to some of the prehistoric and other antiquities of South Wales. Professor Westwood of Oxford, who is always explaining, naming, and illustrating the destructive insects of our gardens in your pages under the familiar initials of "I. O. W.," and whose patience seems to be without end in naming the insect-tribe for your readers, read the very first paper on "the inscribed stones of Wales," principally adverting to those belonging to the Romano-British period. In the clearest and pleasantest manner possible Professor Westwood explained to his hearers the nature of these often occult inscriptions and the peculiarities of the letters of which they are composed, many of the letters being made upside down, and an equal number sideways. Mr. C. C. Babington, Professor of Botany at Cambridge, whose name is also not unknown in your columns, was chairman of the committee; he opened the proceedings, and at each evening meeting he gave a general report of the excursions and explorations.

Our first day (August 17) in South Wales was a terribly wet one. (Little difficulties of this sort only make pleasure more pleasurable.) Whether this was owing to the presence of several fungus men and botanists in the party will perhaps never be known; but my heart misgave me when I received a letter, on the morning of my departure, to look out at the Gloucester Station for a visitor with a "rufous pileus." This expression, when translated from the fungological into the vernacular, means, of course, "Look out for a fungus-man with a red head." The visit to Llanstephan Church and Castle was made during such a continuous and pitiless downpour of rain that had the Cambrians been mere zoospores furnished with cilia, they might have floated from Carmarthen to Llanstephan like swarm-spores over Potato foliage. Every one got thoroughly wet except the Bishop and a few ladies and gentlemen for whom inside seats were reserved. Little could be seen and nothing sketched, owing to the driving torrents of rain, of the grand Castle of Llanstephan, which overlooks Carmarthen Bay. Lady Hamilton, of Plas, however, mounted

the headland in the rain, and explained the nature of the structure to the visitors. Sir James Hamilton afterwards most hospitably entertained the whole party at Plas, and regaled the wet archæologists with usquebaugh—the famous strong, distilled, aromatic spirit of Drogheda. The part singers forming the Aberdare choir were at Plas, and sang, together with other Welsh songs, the "Men of Harlech" with fine effect. Owing to the hospitable entertainment and the potent usquebaugh, no one felt any worse for the morning's wetting, indeed it is the general exception, not the rule, for one to take cold who eats and drinks well, and takes good mental and physical exercise. This is why colds are unknown to fungologists: these latter bathe in the autumn rains, and get wet (as we all do in bathing or washing) but never chilled. It was much finer weather on the return to Carmarthen, so that one had a good chance of observing and admiring the magnificent groups of Eupatorium cannabinum and Lythrum Salicaria which lined the hedges on both sides, and the Hart's-tongue Ferns on the banks.

The first cromlech of this year's meeting was met with in a pasture at Llwyndu: the huge cap-stone was gone, but the three upright stones were *in situ*; one was of quartz conglomerate, another of coarse grit, and the third of old red sandstone. This ruined cromlech is now known by the name of Meini Llwydion (the grey stones), and the poorer peasantry regard all such structures with superstitious reverence. On asking a Welsh peasant on the spot as to who placed the stones in position, he replied, "No one in this world knows;" and instances are known in Pembrokeshire and Somersetshire, where similar stones occur, that footpaths are made to take a wide and circuitous *détour*, so that village pedestrians may not approach the mystic stones too closely. The Llwyndu cromlech was duly sketched, as were some single Druidical stones known as "maenhirs" at Ystrad; the latter were 5 feet high and covered with lichens, one (being in a damp place under trees) with algæ, as well as small plants and lichens. On the drive back to Carmarthen the air was heavy with the delicious fragrance of the "Meadow-sweet" in the hedgesides.

On Wednesday the visit to the places of interest in and near the town was continued from the day before, and an ancient historical Oak in one of the streets, to which we may possibly return, was sketched, and a visit made to the Priory and "Nun's Walk;" the Nun's Walk has this year been planted with Leeks and Potatos (the latter all diseased, with haulms flat and mycelium active), and between the sets we observed Borage to be everywhere abundant—quite likely a relic of the old Priory garden; one of the cottages near had the stone lid of a coffin for a coping-stone. On this day the great pre-Roman earthworks at Clawdd Mawr, 1½ mile in length, were visited, and the cromlech and stones near Nant-y-Clawdd sketched and measured. In this place there are remains of five or more cromlechs (cromlechau), disposed in an irregular circle 70 feet in diameter one way and 50 feet or 60 feet the other. Near this spot is a great and unmistakable circular British camp. One of these cromlechs, specimens as they are of prehistoric rockwork, we have illustrated in fig. 64. These ancient stones, which were antiquities at the time of the Roman Conquest, probably mark the graves of chieftains belonging to a remote age—an age so ancient and far distant that it is utterly impossible to attach any date or time to the buildings or the builders. The Nant-y-Clawdd cromlech is composed of one of the Bala series of sandstones belonging to the Upper Cambrian of Sedgwick, which is the same with the Lower Silurian of Murchison, and the upper huge stone is 11 feet in length. These grand and impressive structures are covered with lichens, whilst the interstices give shelter to innumerable small plants; Foxgloves and Ferns grow under the immense stone where the great and mysterious chieftain is supposed to rest, and on the banks of earth Bilberries grow in profusion. Altogether this picture on the Welsh hillside is so wild yet garden-like, the plants so fresh and full of life, the stones so ancient and full of mystery, that it appears like profanation to destroy such monuments. Yet these structures get fewer in number every year; they are blasted and broken up for mending roads, and often destroyed from mere mischief. Some cromlechs are far more regular in shape than the one above illustrated, and as these could easily be moulded and reproduced in concrete, it is quite worthy of consideration whether some of these grand monuments of ages long past might not be reproduced, and set up in our better rock-gardens and parks before all traces of the originals are utterly lost.

In the afternoon various inscribed Romano-British stones were visited and sketched, and, whilst the bulk of the party returned to Carmarthen, Professor and Mrs. Westwood, Professor Hughes (of Cambridge), Mr. John Rhys (the philologist), the writer of these lines, and a few others, made a *détour* (bothered by horse-flies) to Merthyr Monach to see a famous inscribed stone.

The driver did not know his way, so Merthyr Monach was only found by aid of the Ordnance maps and the compass. We found the stone, but lost our dinner, and returned footsore to Carmarthen at nine in the evening. We were footsore because the wretched screws of horses would not, or could not, get up and down the hills, and we were consequently obliged to walk—our only consolation being in Epipactis latifolia in the hedge sides. The ancient Welsh people always carried their roads over the hills. It has never struck them that it is no further to go round a hill than to go over it.

On August 19, Llangan Church, dedicated to St. Canna, was visited; a deserted and miserable structure, full of insects, snails, and weeds. In the middle of a meadow, immediately adjoining this church, is a large roughly cubical stone with a depressed surface, near one edge of which the word CANNA is inscribed. This word has nothing to do with the plants coming under the genera Canna and Maranta, but it is the name of the saint who is believed once to have rested upon, and so depressed the surface of this stone. It is a sacred and wonderful stone, well worthy of the attention of English pilgrims. The peasantry believe it to be good for the rheumatics, and are now (or have till recently been) in the habit of first dipping themselves in a neighbouring cold stream, and then prostrating themselves for a considerable time, or even all night, on this stone—"St. Canna's Chair." The "chair" was sketched from two points, and other inscribed stones visited. One Romano-British stone, inserted in the wall of Llanboidy church, reminded me of my fungus-friend of the red pileus. The inscription runs, MAVOCH · F⊢L⊢ · LVNARH⊢ · COCC⊢ · (= Mavoch · fili · Lunarhi · cocci), "Mavoch the son of Lunarhi the red." Not far from this church there is, at Cefnbrallan, a huge ruined cromlech, with its cap overturned and broken; one of the upright stones measures 64 inches in height. Whilst this was being sketched

FIG. 64.—PREHISTORIC ROCKWORK WITH WILD PLANTS.

a peasant was interrogated as to its partial destruction; he could not tell when the damage was done, but he told us in Welsh that some fifty years ago an attempt was made to further destroy the cromlech, when a dreadful storm overtook and stopped the evil worker in his misdeeds. Our informant said, that whilst the sudden storm thundered overhead, the earth shook and trembled beneath, and all the time these great and mysterious stones remained immovable. The chief sight of this, the thirtieth meeting of the Cambrian Archæological Association, was, however, the huge cromlech at Dolwilym; the capstone, of gigantic size and enormous weight, is in its original position, supported upon the tops of four immense upright stones; these latter stones have all been hammered and chipped at the top, to better receive the weight of the enormous capstone by which they are surmounted. This magnificent structure is well preserved in the grounds of E. Protheroe, Esq., of Dolwilym, and could easily be reproduced in concrete. It stands in an open place in a grove of trees on a hill-side, and is surrounded by two imperfect circles of great stones, the cromlech being in the centre. Dolwilym cromlech is covered with lichens and minute plants which have probably grown unmolested on the huge stones for thousands of years. No one can approach such structures without feelings of awe and reverence, inspired by the mystery which surrounds the situation, the stones, and the early builders. Near this spot a very large specimen of Polyporus ulmarius was gathered whilst I was absent sketching; it was preserved with great care in one of the carriages for me, but as edible and poisonous fungi were not the objects of the excursion, I paid but little attention to it. On the morning of the last day (August 20) the ancient village of Kidwelly was visited, with its fortified houses of the date of Edward III., its fine church, and anchorite's cell, and magnificent castle. The Hollyhock disease (Puccinia malvacearum) was here detected growing on the native Mallows, and Astrantia major was afterwards met with in a garden at Carmarthen, where Linaria Cymbalaria was abundant on the old walls.

The programme concluded with a visit to the village church and castle at Langharne. At the church a singular cross belonging to the tenth century was being sketched whilst the bulk of the party went off to a bone-cave at Coygan. The entrance was small, very narrow, wet, and not upright. At first there is insufficient space inside to stand erect, but further in there is more room, with plenty of wet air and darkness. This, however, did not prevent the ladies pushing in till at last the cave got so crowded and hot that work was difficult, especially as lights were not forthcoming. Some of the ladies secured bones which had been gnawed by the old untamable British hyenas; but proper tools were not at hand, so that a satisfactory exploration could not be made. By this time every member of the party was thoroughly tired, both in mind and body; even Mr. Bloxam's shoes, made of Kangaroo leather, did not avail him, for he was equally tired with the rest.

The Welsh language is not one of my accomplishments, so that without Professor Hughes of Cambridge, and some other learned philologists, I (in common with several other visitors) must have been several times in great difficulties without their aid. An ear for the subtleties of music avails little in Wales; one requires to have a very sharp appreciation of all shades of gutturals before Welsh can be understood, and a perfect capability of producing these gutturals in the throat to speak it.

Many of the inscribed stones visited and sketched date from the sixth century, and when it is remembered how little manuscript we have older than the twelfth century, the deep interest of these inscribed stones will be understood. In Carmarthenshire there are woods and woody places, but in the neighbouring county of Pembroke few trees are to be seen; the whole county is rocky and bare, and swept by the Atlantic winds. Cromlechs and fixed isolated stones are comparatively common about Carmarthen, and they all date from a very remote antiquity. Some are situated in places difficult to find, as on the hills; and in awkward situations, as in cornfields, &c. Sometimes these ancient stones (and stones with Ogham markings) are used as gate-posts or steps. It is quite common to see large loose stones in the fields; these have rolled down from the rocky hills, and from the way in which they lie scattered about remind the spectator of the battle places of the giants and Titans of classic mythology.

The excursionists were all greatly aided by the knowledge of Mr. E. A. Freeman, the historian of the Norman Conquest; the Rev. E. L. Barnwell, Mr. John Rhys, and other gentlemen not previously mentioned, and the Rev. Rupert H. Morris was the local secretary, on whom devolved the difficult task of arranging the details of each day's excursion; this he did with success and great goodwill, for without the assistance gained by his knowledge of the positions of the objects and the roads to them, little really good work could have been done in the four days of the meeting. *W. G. Smith.*

COLOGNE INTERNATIONAL HORTICULTURAL EXHIBITION.

THIS Exhibition was opened by H.I.H. the Crown Prince of Germany on the 25th ult., and is to be continued until September 26. It is held in the gardens of the Flora Society, a short distance only from the city, and in some adjoining land which has been "requisitioned" for the purpose. Nothing can be better or more convenient than the site—the winter-garden, with its fine central Palms and other decorative plants, furnishing a central meeting-place and point of attraction, which compensates for the want of a general view of the Exhibition as a whole. The latter is, indeed, scattered through several houses, little and big, hence there is not much opportunity for scenic effect. The gardens of the Society are picturesquely laid out, and though wanting the finish we expect to see in similar establishments in England redound to the credit of the landscape gardener. The supplemental piece of land is occupied by hardy plants of various kinds planted out, and is surrounded by covered sheds filled with machinery, agricultural implements, tools, vegetable products of all kinds—in fine, with a most miscellaneous assortment of articles, some of which have but a very remote connection with horticulture—as much, however, as have the bazaar articles and similar impertinences that one meets with at the shows of the Royal Agricultural Society and similar gatherings at home. The show is very large and extensive, there being nearly 3000 exhibits arranged under eight principal divisions:—1, plants; 2, vegetable products; 3, garden architecture; 4, garden decorations; 5, machines and tools; 6, miscellaneous collections of woods, insects, &c.; 7, bouquets and artificial flowers; 8, garden literature. Each of these eight primary divisions is further subdivided in a very convenient manner, so that, with the full and well-arranged catalogue, it is easy to get a good general idea of the contents of the exhibition.

There is, as usual in Continental exhibitions of this character, a good exhibition of Palms, Cycads, and Tree Ferns, though not so numerous as we have seen them on other occasions. There is, partly owing to the season, a great deficiency of flowering plants, specimen stove and greenhouse plants, in our sense of the term, being almost absent. Very few Orchids, and those not remarkable. Crotons, Dracænas, Nepenthes, succulent plants, Agaves and Conifers—the two last arranged in the open air—constitute the most noteworthy features of the exhibition. There are altogether over 900 classes, in each of which medals of gold, silver, or bronze (or all three) are offered as prizes to the successful exhibitors. We can only afford space to allude to some of the more remarkable collections exhibited.

Among exhibitors of NEW PLANTS we may mention Messrs. Jakob-Makoy & Co., of Liège, who, in a collection containing many plants familiar to English eyes for the last year or two, showed some of the most recently-exhibited novelties, such as the bronze and purple-leaved varieties of Artocarpus, Zamia Wallisii, Dieffenbachia Parlatorei; Dracæna angustifolia, a long narrow-leaved form of very dark hue; Pavonia Wiotii, a new Malvaceous plant, figured in the *Belgique Horticole*, but which has not, we believe, been shown in this country yet; its beauty lies in its long narrow bright pink bracts. As shown the plant appears to be of "sticky" habit, but if this can be overcome we shall have a new plant as effective as it is interesting. The same firm show Liparis elegantissima, an Orchid with leaves dotted with pinkish spots, various new Marantas, especially Maranta Massangeana, a species of creeping habit with mid-sized leaves, of a rich deep green velvetty appearance, with a central disc of silvery white, the main nerves of the leaves being similarly picked out with white; and a charming little Selaginella named S. textura, having much the appearance of a finely-plaited chain.

M. L. de Smet, of Ghent, sends, in addition to various new variegated plants, including a variegated Imatophyllum Aitoni, a plant of Ficus ferruginea, and a most charming new Agave, quite one of the most remarkable plants in the exhibition. The present specimen is small, but we were assured that M. de Smet has a full-sized plant in his nurseries, which shows that the species is one attaining large dimensions, though probably not of the largest size. It has thick, three-sided, glaucous leaves of a blueish-green colour, each terminated by a stout curved spine; the edges of the leaves are margined with a narrow belt of white. The whole plant looks more like a Leuchtenbergia than an Agave. The plant is as yet unnamed, and it is believed to be quite new. We hope to see this pretty little plant shown at some of our own exhibitions.

M. Linden's new plants included a new Artanthe, some new Crotons, Dracænas, Cyanophyllum marmoratum, Tillandsia Lindeni vera, with flowers of a beautiful blue colour, and others.

Messrs. Veitch & Sons exhibit a very interesting collection of new and rare plants (not for competition) including Nephrolepis davallioides furcans, Rottlera barbata, with Ricinus-like leaves and scarlet leaf-stalks; Eulalia japonica, a hardy grass, with white-striped leaves, likely to be an acquisition by the borders of lakes, or where an effective plant of medium size is required; Yucca filamentosa angustifolia variegata; Pothos Endresii with neat marbled leaves; Pentagonia macrophylla, a large-leaved rather coarse-looking plant; Tillandsia Zahnii, probably the finest plant of its kind yet exhibited; Brahea filamentosa, a new Palm, to which much interest attaches, as it is stated to be hardy—it is a Fan Palm, the leaf segments of which are edged with narrow white threads, as in Yucca filamentosa: this is a valuable introduction indeed, if the prognostications as to its hardihood prove correct—in any case as a greenhouse Palm it would be very ornamental. Pescatorea lamellosa, a new Orchid lately shown at South Kensington, is also exhibited here; as well as Lapageria alba, and the divided-leaved Croton Disraeli, which attracted much attention from the peculiarity of its form. Among Ferns, Messrs. Veitch & Sons show Asplenium ferulaceum; a fine plant of Adiantum princeps, lately figured in our columns; A. Luddemannianum, and A. gracillimum. The same exhibitors also show a very curious cross between Caladium Chantini and Alocasia sp., together with the parent plants. The result is more curious than beautiful, but is very interesting nevertheless.

Among miscellaneous collections, in addition to that of Messrs. Veitch, above alluded to, Mr. B. S. Williams shows a very fine collection, including Bertolonia Van Houttei, Woodwardia radicans cristata, Pleocnemia Leuzeana, Tillandsia musaica—the largest plant we have seen of this beautifully marked species, Campylobotrys Hoffmanni, a fine specimen of Ouvirandra fenestralis, Adiantum gracillimum, &c.

M. Adolf d'Haene also shows a fine miscellaneous collection of 200 plants, including Araucarias, Aroids, Crotons, Dracænas, Marantas, &c.

NEPENTHES.—Fine and varied as these miscellaneous groups are, they are thrown into the shade by the grand collection of species and hybrid varieties of Pitcher plants, Nepenthes, Sarracenia, and Cephalotus, shown by the Messrs. Veitch. The plants are not large, but the pitchers are, and superbly coloured and highly cultivated. Amongst the finest we may mention Nepenthes lanata, × N. Chelsoni with grand pitchers; N. intermedia, N. albo-marginata, N. hybrida maculata, N. Rafflesii, N. Hookeri, × Sarracenia Stevensii, and Cephalotus follicularis with pitchers larger and more deeply coloured than we ever remember to have seen previously. Mr. B. S. Williams also shows some fine Nepenthes, and a new hybrid Sarracenia, × S. Williamsii.

PALMS, &C.—Among Palms there are several fine collections from Messrs. Abel of Vienna, Linden of Ghent, Lemonnier of Brussels, and others. For the prize for twenty-five the competition is very keen between MM. Linden and Lemonnier. M. Linden has secured the best place for his lot, but we are not sure that M. Lemonnier's plants are not, on the whole, superior. M. Adolf d'Haene shows a fine plant of Corypha australis. M. Linden's group of three new Palms include Cyphokentia macrostachya, Geonoma princeps, and Phœnix rupicola.

Among Cycads there are fewer fine plants than usual. M. Van Geert has his fine plant of C. circinalis, M. Lemonnier has Zamia Vroomii, Lehmanni, speciosa, Dion edule, Cycas siamensis, and several others. M. Linden shows Zamia Lindeniana, M. Jean Verschaffelt a new species of Zamia.

M. Lemonnier shows also a nice collection of Pandanads—small plants, but interesting. Among them is a small plant of the handsome Pandanus madagascariensis fariniferus.

ORCHIDS.—These are by no means remarkable. Mr. Williams' miscellaneous collection includes Cypripedium Stonei. M. Linden shows, among others, Restrepia antennifera, Vanda tricolor, Cattleya Eldorado, Odontoglossum grande, Oncidium serratum, Selenipedium longifolium, and others, all small plants. In another collection, to which at the time when we made these notes no label was attached, but which we suspect may be exhibited either by M. Oscar Lamarche de Rossius, of Liège, or by M. Linden, are Cypripedium Roezlii, Saccolabium Blumei, Odontoglossum Andersoni, Odontoglossum Insleayi, Mesospinidum vulcanicum, Anguloa Ruckeri, &c.

CROTONS are grandly shown by Mr. B. S. Williams, whose plants are small but finely coloured, especially C. undulatus, C. Weismanni, and others. Herr Gruson, of Magdeburg, also shows a fine collection of these handsome plants, larger than those of Mr. Williams, but not so finely coloured. Croton bellulus is shown by more than one exhibitor. It is a dwarf form, of compact habit, with small narrow leaves of golden colour. It is stated to be a cross be-

tween C. cornutus and C. Hillianus. M. A. d'Haene, of Ghent, has also a good collection, but his plants are smaller than those of Mr. Williams.

DRACÆNAS.—Many good varieties are shown in various collections, but the finest group is that of M. Peters, of Brussels, who exhibits a very fine collection of twenty-five sorts. We should like, however, to know how long the plants have been in the possession of the present proprietor. Mr. B. S. Williams also shows a fine lot of these plants, including D. Baptistii, Weismanni, Dennisoni, angustifolia, and others. M. Petermann, of Offenbach, also shows a fair collection of thirty-six varieties, including most of the best kinds. Smaller collections are shown by M. Stelzner, of Ghent, and M. Louis Römpler, of Nancy, who also shows a collection of Caladiums.

Among SUCCULENT PLANTS MM. Pfersdorff and Hildmann, of Berlin, show fine collections, and there are others, but the incomplete state of the preparations does not enable us to say by whom they are exhibited, nor to give any details concerning them.

M. Van Houtte shows a fine frame of the gorgeously coloured Bertolonias and allied plants, for which his establishment is so famous.

M. Willinck, of Amsterdam, sends a fine group of large plants of various Selaginellas, in twelve distinct species.

Of BEGONIAS, MM. Froebel, of Zurich, show (in the open air) their new Begonia Froebelli, described in our columns by M. A. De Candolle at p. 552, vol. ii., 1874. This is a fine hardy variety, with deep red flowers, likely to be very useful for out-door work. The same exhibitors also show a fine collection of various new hybrid Begonias.

TREE FERNS are shown by several exhibitors, but none are very remarkable; there is a good plant of Cyathea medullaris, a good piece of Todea africana, which, though not a Tree Fern, may fitly be mentioned here. This is exhibited by M. Juhlke, Director of the Sans Souci Gardens at Potsdam. This exhibitor also shows Balantium antarcticum.

Marantas are well shown by M. Adolf d'Haene, of Ghent, and M. Lemonnier, of Brussels.

Phormiums are well illustrated by MM. Krelage, of Haarlem; Römpler, of Nancy; M. Asmuth Müller, of Bremen; and Stelzner, of Ghent. M. de Smet, of Ghent, shows a very fine variety, under the outrageously long, but still expressive, name of P. tenax atropurpureum marginatum—the leaf-margins being bordered by a deep stripe of darker colour than the rest of the leaf.

FLORISTS' FLOWERS, including Asters and Dahlias, are not shown to advantage, the only group calling for special notice being a collection of Gladioli shown by MM. Vilmorin, of Paris. The blooms are somewhat small, owing to having opened in transit. The collection consists of about 1200 spikes, in 100 or 120 varieties, all of M. Souchet's raising, and selected from amongst the best. They have broad, large, well opened flowers, and well set together, and blooming nearly all at the same time. Amongst the best kinds already in trade we may mention Phœbus, Michel Ange, Grand Lilas, Jupiter, Vésuve, Eugène Scribe, Argus, Margarita, Pericles, Eldorado. From the novelties to be sent out only in November we may mention Hécla, a dwarfish sort, very brilliant scarlet, of perfect shape; Titania, white and soft rose, of the freshest possible colour; Fiammetta, mottled white or flesh colour and bright pink; and Léandre, very beautiful white and lilac. Although all are good, these four are most striking.

CONIFERS, &C.—In the outdoor department the collection of Conifers form the most remarkable exhibition, some of the collections being of great interest. Among them we may cite those of MM. Peter Smith & Co., and Jürgens, of Hamburg; Adolf d'Haene, Stelzner, and A. Van Geert, of Ghent; Heins, of Bremen; Krelage, of Haarlem; Jurissen, of Amsterdam; Schindler, of Cologne; C. Van Geert, of Antwerp; Croux & Sons, of Sceaux, and others.

M. Jürgens, of Hamburg, show a remarkably fine collection of specimen Conifers, including Abies nobilis bearing cones, A. Engelmanni glauca, the curious A. excelsa inversa, A. Hookeriana, Juniperus drupacea, Abies lasiocarpa, a fine Sciadopitys verticillata (6½ feet high), Thuja Lobbii, Retinospora squarrosa (a fine plant), Thuja elegantissima, Chamæcyparis filicoides, Cupressus Lawsoniana pyramidalis argentea, Chamæcyparis obtusa nana aurea, Thuja plicata nana, Thujopsis Standishii and lætevirens, T. occidentalis globosa (a form of very neat habit), Juniperus virginiana glauca (a semi-erect variety of J. Sabina), Cephalotaxus Fortunei, and many others.

M. Charles Van Geert, of Antwerp, has also an equally fine and in some respects finer collection of fifty sorts, including several rare species not met with in other collections, such as Podocarpus, &c., twenty varieties of Juniper, twelve of Retinospora, twenty-four varieties of Thujas, in addition to isolated specimens and Conifers not yet in commerce.

Messrs. Peter Smith & Co., of Hamburg, also show a very large and interesting collections of Conifers, including most of the species hardy in Central Germany.

Messrs. Jurissen & Sohn, of Amsterdam, exhibit a large and varied collection of Conifers, including a variegated Wellingtonia. The specimens are not quite so fine as those in the other collections but noteworthy nevertheless. We have not space to enumerate the varieties, suffice it to say that the collections of these exhibitors, as well as those we have already mentioned, are very deserving of close examination.

Messrs. Jurissen, Van Geert, and others, show standard Hollies, Bays, and plants of that description, which are much in vogue on the Continent. Messrs. Barron & Son, of Borrowash, show a particularly choice though small collection of the newer and rarer varieties of Conifers, including C. Lawsoniana elegantissima, Picea concolor, Retinospora aurea tetragona, Abies Douglasii pygmæa, Retinospora obtusa pygmæa, Abies amabilis, and many others. This is one of the choicest collections in the exhibition.

In the grounds may also be seen a grand bed of AGAVES—quite one of the finest exhibits in the whole show. This, with a companion group of Echeverias, is shown by Prince Henry of the Netherlands, from his garden at Soestdyn.

Near here also Messrs. Harms, of Hamburg, Haack & Müller, of Trier, and others, show large and ugly beds of standard Roses, the blooming of which has been retarded. Many of the newer and better sorts are exhibited, but the result is, as may be imagined, not altogether satisfactory.

Mr. John Laing, Forest Hill, shows a nice bed of Zonal and Bronze Pelargoniums, including most of the sorts for which his firm has a just renown.

Some mixed and carpet beds are worthy of notice—one in particular with a Dracæna in the centre, and various Agaves, Cannas, Yuccas, &c., dotted here and there, and small Aucubas and other variegated shrubs.

Messrs. Haack & Müller, of Trier, show good collections of deciduous trees and shrubs, and of various variegated forms.

In the side sheds is a very miscellaneous assemblage of machinery, tools, and the like, together with bouquets for the most part very tasteless and bad; vegetable products, wines, fibres, sugar, starches, dried fruit, cones, including a large collection of Egyptian products exhibited by the Viceroy of Egypt and by the Greek Government, and other objects which we cannot stay to detail. Here Prince Troubetzkoi, of Intra, shows branches of Eucalyptus and the tincture made from the same, also E. amygdalina in fruit. The same exhibitor shows a shoot of Bambusa mitis which has grown 8 metres in length in three months. Large quantities of fruit are among the European entries, and no less than 150 different kinds of Potatos, but we did not observe anything calling for special notice.

Among HORTICULTURAL BUILDINGS and suchlike we note that the English horticultural builders are represented by Mr. Dennis, of Chelmsford, who has erected, rather for the Society of Flora than for exhibition, an octagon Victoria Regia house, which is a neat light structure, but too small for that description of house. The columns of this house are so arranged as to form supports and rain-water waste-pipes, and the lights are ingeniously arranged so as to open simultaneously if required. The foreign builders are in pretty strong force. First, and perhaps we may venture to say, foremost also, comes M. Pantz, of Metz, who has erected the Palm-house, a very light and elegant structure. M. G. Schott, Breslau, exhibits a double-glazed span-roof house on the same plan as those chiefly used in Russia. M. G. Bruns, jun., of Bremen, exhibits a span-roof plant-house. These three houses are made to form one block, and are intended as permanent structures for the use of the Flora Society. The Palm-house has been warmed by Weeks & Co., of London, by one of their latest Patent Duplex Diaphragm boilers. M. A. Debard, of Sarcelles, France, shows an unfinished lean-to house, the special merit being a double-grooved water-bar for conducting condensation into the gutter, and preventing drip upon plants. The shape of bar in section is similar to that which has been often adopted by the builders in England. All the buildings are of the usual type, composed of T and angle iron, and very deficient in provision for ventilation. Of the hot-water apparatus there is much greater variety, several attempts being made to do away with deep stokeholes. Each of the apparatus is, however, upon so small a scale that it is doubtful whether they would act with anything like the present success if the number of compartments were increased. With one boiler to each compartment, almost any principle will work, but if a series of, say, six houses were attached to one boiler, the probable effect would be one would neutralise the other.

The conservatory is erected by G. H. Bruns, jun., Bremen. The building now exhibited has been entirely constructed, transported, erected, glazed, and painted since the receipt of the order from Baron von Oppenheim on August 2, and it is considered to be one of the most substantial in the grounds. A grotto by M. Blatou-Aubert, of Brussels, is worthy of notice, as also are the hydraulic pumps of Otto, Langen & Co., of Deutz, and the rustic iron bridge by Pantz & Son, of Metz. In the machinery department Messrs. Walther & Co., of Kalk, have fixed two of Roots' patent safety boilers, fitted with Peats' and Dennis' patent steam and water-valves, which will drive the machinery exhibited in motion. The largest exhibitors in the machinery department are R. Garrett & Sons, who show a portable steam-engine, a fixed steam-engine, a steam-plough, a straw-elevator, and a corn-grinding mill. Messrs. Clayton & Shuttleworth show a steam road-roller and a steam sapper. Aveling & Porter show three vertical steam-boilers, 20-horse power, by Lewin, of Poole. M. Herbertz exhibits a three-stall stable, completely fitted with the patent enamel iron fittings, by Barton, of Oxford Street, London.

Messrs. J. Carter & Co., of High Holborn, have supplied the grass seed for the grass plots, and these are in excellent order. One flower-bed, arranged, bears the inscription, "Augusta," in honour of Her Majesty the Empress of Germany, and another opposite, "Wilhelm," in honour of the Kaiser. Both groups are the gift of Baron Sigmund von Oppenheim, and tastefully arranged by his head gardener.

A hothouse, constructed by Roder Brothers, of Magdeburg, is opposite the hall, erected on a small elevation, in which American drinks are furnished.

Nearly opposite the Customs office is a large conservatory, hothouse, and garden pavilion, the floors of which are inlaid with mosaic. Fountains are beautifully arranged in these buildings, and a grotto adjoins them; these are exhibited by Rahles & Limbach, of Cologne. The fountains are supplied by a tank, into which water is forced by hot-air engines, constructed under Lehmann's patent.

In garden ornaments the chief exhibitors are the Maegdesprunig Meudorf Company, from the Hartz district, who have forwarded from their zinc and iron foundry most elaborate castings of animals, vases, deer-horns, &c.; two stags and two fallow deer, opposite the entrance to the machinery hall, are well deserving of notice. Not only can this company cast animals, but even such small articles as breast-pins, &c. In the large conservatory, next to the Victoria Regia, the celebrated Loreley fountain of Messrs. Schaefer & Hauschner, of Berlin, is erected; it surmounts a grotto, around and in which stand some beautifully executed bronze statuary.

The pond from which the centrifugal pumps receive water is executed in a new cement composition, together with the large central fountain, by the firm of J. F. Espenschied, Mannheim.

To show the force and working of their new gas engines Messrs. Otto & Langen, of Deutz, have erected a wooden tower in the Flora ground 70 feet high, on the top of which is placed a reservoir for the water forced up from the lake. This tank will supply the fountain in the lake and the waterfall in the grotto, erected at the expense of and presented by this firm to the Flora Society. A lift, supplied by the Rhenish Machinery Company, has been so attached to the tower as to enable visitors to ascend to a handsome Swiss gallery, and enjoy an extensive view.

Her Majesty the Empress of Germany, who had already given as a prize a vase value 400 thalers, and who, as we learn from the *Belgian News*, has intimated her intention to visit the exhibition on September 6, has notified that she will give another prize, consisting of a handsome porcelain service, with Rhine views painted on each piece; and their Imperial and Royal Highnesses the Crown Prince and Princess have also offered as a prize a very choice set of mantelpiece ornaments, of Saxon china.

Among the English contributions are the tents, rick-cloths, &c., of Messrs. Unite and Edginton.

The prize list had not reached us up to the time of our going to press.

Professor Reichenbach was, we believe, the President of the first section of the jury whose functions were to adjudicate upon New Plants, Orchids, &c.

RARE CONIFERS.

PINUS DEFLEXA, TORREY.—We believe that the only figure of this rare species that has been published is that given by Dr. Torrey in his work on the *Botany of the Mexican Boundary Expedition*, and our coniferous readers will therefore, no doubt, be pleased to have an opportunity of judging for themselves of its appearance and affinities from the figure which we now give (fig. 65), which is not a reproduction of Dr. Torrey's figure, but an original sketch taken by Mr. Worthington Smith from the fresh specimens recently sent home by Mr. Roezl. The only deviation that has been made from the actual specimen is that the leaves are represented as three in a sheath. In point of fact, in the specimen itself they were not all three in a sheath; some had only two in a sheath, others three, and others four; but we know perfectly

that the section to which the species belongs is that of Taeda, whose typical number is three in a sheath. Dr. Torrey figures and describes his as three in a sheath, and we therefore requested Mr. Worthington Smith to disregard those leaves where the number in the sheath was different, as it might mislead those who only looked at the picture and not at the text, if an unusual abnormal number were figured, as Mr. Smith, in his fidelity to Nature, wanted to do. So much is due to him and strict accuracy. It is the fact, however, that in these Californian and Mexican Pines the number of leaves in a sheath is much less constant than in the Old World species, and especially in the Mexican Pseudostrobi is the number variable.

No one can look at the figure of this species without seeing that it is very closely allied to P. ponderosa; and we can foresee that botanists of a future age in California, when they have ransacked their country, and exhausted all the well marked species, will do as so many of our own naturalists do who exhaust their ingenuity in making new species out of old ones, set to work to separate and define all the different forms and varieties of P. ponderosa. Then will the varieties Craigana and Beardsleyi, which we described thirty years ago from specimens taken respectively from the foot and the top of Scots Mountain, again raise their head; then will Jeffreyi be hailed as distinct, and the still larger-coned forms, Benthamiana and Sinclairiana, be accepted as good species along with the present form, deflexa. Where the limit lies between these different forms, which are varieties and which species, we do not pretend to say; but we do say, without fear of contradiction either future or present, that they all are closely connected with each other and ponderosa, and are merely climatal forms of the same type. *Andrew Murray.*

THE ROYAL GARDENS, KEW.

[THE following notes are extracted from the Directors' report on the progress and condition of the Royal Gardens at Kew, during the year 1874.]

The number of visitors to the Royal Gardens continues to increase annually, amounting to 699,426 in the past year, which is 15,556 in excess of 1873, the highest number previously known. The visitors have been more equally distributed upon the whole throughout this year than last, though there have been relatively many more on Sunday. As before, the maximum of attendance was in May and August.

BOTANIC GARDENS.—In this department the hardy fernery, alluded to in my last year's report as being contemplated, has been constructed and planted. It occupies a winding path 40 yards long, which has been made in continuation of that which runs along the front of the rockwork.* The Ferns are planted on both sides of the path amongst loose stones, which form a low bank backed by evergreens. For the most part the Old World species are on one side, and the New World ones on the other. An edging of Ivy along the path both tends to keep them cool and damp, and to collect the dust raised by the feet of visitors, which, in hot dry days, when many thousands are in the garden, is most prejudicial to the general health of such tender plants. About 150 species and varieties are planted out, many of them represented by both European and American specimens.

It has been found necessary to erect a wire fence in front of the rockwork to prevent the visitors from handling the plants and displacing the labels.

The collection of Liliums has been removed from the south end of the herbaceous ground, where they suffered from the intrusion of the roots of trees into soil prepared for them, to the west side of the Ivy collection on the other side of the wall bounding the ground. The collection has been removed and planted in two deep beds of mixed peat and loam with broken bricks, which latter are found to be very advantageous for holding moisture in the light sandy soil of these gardens. The beds are edged with Rhododendrons, and bushes of these and Camellias are planted down the centre of each to provide shade in summer and to protect the young growths from the cutting winds of spring.

The collection of species of Iris has been extended along the whole length of the west wall of the herbarium ground (120 yards), and the collections of Crocus, Amaryllis, Fritillaria, Colchicum, &c., have been removed to new beds formed upon the opposite side of the same wall.

The Orchid-house has had a porch with double doors constructed at its east end, as recommended in my report for 1873; it is 12 feet long by 15 broad, and provided with side-tables and shelves close to the glass. This has proved of the greatest advantage during hot days and when the number of visitors is very great. The Orchids, which on such occasions were frequently withered and scorched, are now sufficiently protected.

* This continues to be one of the most attractive features of the gardens. About 560 species of alpine plants were grown upon it last year.

A collection of carnivorous plants has been arranged on the table on one side of the porch, which, again, it has been necessary to protect from the curiosity of the public by a wire fence.

In the Palm-house the beds of climbers round the walls under the side shelves have been renewed and new plants put in.

In the ornamental conservatory (No. 4) the Camellias have been planted out in beds occupying the centre of the transepts.

During the last year practical lessons in various departments of botany, and its kindred subjects, have been given to the young gardeners with a view of preparing them better for their duties in general, and especially of qualifying them for Government and situations in the colonies and India, where a scientific knowledge of gardening, arboriculture, &c., is required. The lessons are given in the evening after working hours, and embrace the elements of structural, systematic, and physiological botany; of chemistry, physical geography, and meteorology in their application to horticulture; of economic botany, forestry, &c. They are given, some in the young men's library, others in the garden and museum. Attendance is not compulsory, but any one commencing one of the courses is required to go through with it and take notes, which are written out in books, and these are examined periodically. The courses are short, and some of them are repeated twice or oftener during the year, so as to enable a succession of young gardeners (who cannot well attend to more than one course at a time) to obtain instruction in all or most of the subjects taught.

It should be premised that no young gardeners are taken into the service of the Royal Gardens who have not passed their apprenticeship elsewhere, that they come ostensibly for the purpose of self-improvement, and are expected to remain for two years in the service. They, however, seldom remain more than twelve to eighteen months, the fact of having served at Kew being considered so high a recommendation for curatorships of botanic and other public gardens, and by persons requiring gardeners with a special knowledge of plants, and the demands upon Kew for gardeners to serve in India and the colonies being very frequent.

Though the attendance has been voluntary it has been remarkably good, three-fourths of the young gardeners availing themselves of the lessons, and the results have been extremely satisfactory, both in respect of the encouragement to self-improvement amongst the gardeners and of the increased confidence with which the authorities of the establishment can recommend them for employment elsewhere. It may be mentioned here that, as has been the case with evening attendance in the library, the fact of good attendance on the lessons is recorded in every gardener's certificate of conduct and proficiency on his leaving the service of this establishment.

FIG. 65.—PINUS DEFLEXA.

Numerous applications for admission to the lessons have been received from persons inhabiting the neighbourhood, which in all cases have been refused. It is obvious that the amount of benefit to be obtained from such lessons given to young men who come to Kew, and who are for the most part profoundly ignorant of the subjects taught, depends mainly on the individual attention which each receives from the instructor, and that the presence of strangers would impede that free intercourse that should subsist between the teachers and their pupils, amongst whom not a few are unaccustomed to that severe training in the exercise of the hands, eyes, and reasoning powers that is required to master in a few lessons a sound knowledge of the principles upon which the science and practice of botany and horticulture are based.

ARBORETUM (IN THE PLEASURE GROUNDS).—The laying out and improvement of these grounds, with the view of completing the arboretum and replanting the parts so fast being denuded of trees, is being progressed with. Trenching beds for new plantations and digging the soil around young trees and keeping the surface round others free of grass, so as to allow the rain to penetrate the soil, now employs annually a great deal of labour, but with the present staff it is impossible to accomplish each year what should be done in this way. As, however, the young trees gain stature this individual attention will be less required.

Many standard trees have been planted about the lower end of the lake.

Nursery of Rare Trees.—Two acres of ground in the vicinity of the Old Palace grounds have been prepared for the reception of examples of the rarer sorts of ornamental trees for the London parks, and will be planted during the coming season.

Queen's Cottage Grounds.—Many old and dead trees have been removed, and several acres of ground trenched and replanted with a mixture of forest trees, and many beds of shrubs have been formed.

Pinetum.—The progress of this collection has been very satisfactory, almost all the species having thriven. It has been visited by many public and private collectors from various parts of the world, and especially from the United States, where similar collections are being formed.

Salicetum.—The collection of Willows and Alders along the banks of the lake has been re-examined and the specimens labelled as a security for correctness of nomenclature in case of the tallies being accidentally or mischievously transposed. A plan of the lake banks, with the position of each species, has been made for future reference.

New Walks.—The connecting straight walk parallel to the west front of the temperate-house, alluded to in the report for 1873, has been completed. This walk, commencing near the Syon Vista, and after a short turn running through the collection of Hollies, is 850 yards long by 4 wide, forming a perfectly straight avenue; about 450 yards of this were formed during the past year and planted chiefly with Taxodium sempervirens and beds of flowering and evergreen shrubs.

Crossing this walk diagonally is a vista from the Pagoda lined with Irish Yews. This vista has been extended, so as to look across the Deer Park and the Thames to the village of Isleworth. The continuation of it in the grounds is bordered with Japanese Retinosporas and grassed. Extensive mixed plantations of trees and shrubs have been made, skirting the Deer Park, to break the force of the wind which sweeps over that extensive piece of open ground, and is most destructive to the old trees.

Old Gravel Pit.—The laying out of the rough ground between the Deodar Avenue and the Richmond Road, in which is the old gravel pit, has been commenced, and to complete it will take much time and labour. The collection of Clematis, Berberis, Cistus, and Hypericum, &c., which occupied the upper part of the gravel pit, have been removed to the nursery, and the operation of sloping the edges of the pit and giving this very formal piece of ground a natural appearance, in harmony with its surroundings, has been begun. When finished the whole will be replanted, and the above-named collection of plants re-arranged in it, together with the Magnoliaceæ and various other natural orders.

INTERCHANGE OF PLANTS AND SEEDS.—The receipts during the past year have been 4762 plants of all kinds, and 2656 packets of seeds from 277 donors. They were distributed as follows:—

	Ward's Cases.	Seeds (Packets of).	Stove and Greenhouse Plants.	Herbaceous Plant.	Trees and Shrubs.	Contributors.
British Isles	..	596	1051	1272	988	151
Continent	..	558	146	37	303	19
Asia	9	616	249	14	..	31
Africa	3	205	175	..	..	21
America	8	412	205	266	..	36
Australasia	3	269	56	..	..	19
Totals	23	2656	1882	1589	1291	277

Among the most important of these are North American trees and shrubs, from Mr. C. S. Sargent and Professor A. Gray, on behalf of the arboretum and garden of Harvard College, Cambridge, Massachusetts, and from Mr. F. Watts, on behalf of the Department of Agriculture, Washington. From these a great quantity of hardy, ornamental, and useful shrubs have been raised for distribution to the colonies and North India as well as at home.

A large stock of the true Liberian Coffee has been obtained through the kind efforts of Messrs. Irvine & Woodward, of Liverpool. This is a larger and, perhaps, different variety from that received from Cape Coast, and which was mentioned in my last year's report. Large quantities of both have been sent to the Coffee-growing British possessions, and have arrived in excellent condition.

Dr. Thwaites states that the Cape Coast Coffee, the safe arrival of which in Ceylon I mentioned in the report of last year, is, notwithstanding that it was immediately attacked by the leaf-disease, doing well. He also remarks "the Cape Coast and Liberian Coffees, although they would seem to differ much as regards size of their respective seeds, yet, in the matter of foliage, there is great resemblance between them. In this latter respect they differ considerably from the ordinary Coffee plant of Ceylon, their leaves being a good deal larger, more firm in texture, and tapering more gradually to the base."

The disease and insect ravages by which of late years Coffee has been attacked in India, Natal, Ceylon, and other colonies, has directed the attention of the local and home Governments to this important culture, and given rise to a very extensive and onerous correspondence with this establishment. My attention has in consequence been directed,—(1) to obtaining accurate reports as to the nature of the disease, of which several are confounded under one common epithet; (2) to recommending measures for the cultivation of Coffee in colonies once famous for its production where it has been almost abandoned, as well as in others where the cultivation has been scarcely attempted; and (3) to the cultivation of new and improved varieties.

The demand for seeds of Eucalyptus globulus has continued unabated. I am still unable to endorse the views of those who regard the tree as capable of cultivation in tropical swamps, and as a prophylactic against ague and fever. But whilst responding in this sense to the multitudes who write to me on the subject, I have accompanied my answer with a packet of fresh seeds for trial. There is little doubt, however, that in places which are favourable to its growth it will prove a very valuable source of timber of hard quality, and, contrary to the usual habit of hard-wooded trees, it is of very rapid growth.

The subject of the cultivation of various materials for paper-making in the colonies has led to a correspondence upon this subject with the Colonial Office, which is now in progress.

The Tobacco cultivation and cigar manufactory in Jamaica, alluded to in my previous reports as due to the exertions of Sir J. P. Grant, in connection with Kew, are, I understand, rapidly advancing.

The subject of Cinchona cultivation in the now almost abandoned colony of St. Helena has been again brought under the notice of the Government, owing to the fact of a large proportion of the trees introduced there ten years ago from Kew, and whose culture had been abandoned, having been found after years of neglect to be in a flourishing condition. The suitability of the soil and climate of that island for Cinchona cultivation has now been indisputably proved, and the question of continuing and extending it is one that must depend upon other considerations. The successful introduction of this febrifuge into India, Ceylon, and Jamaica, being now accomplished, this subject no longer demands a notice in my report.

The prospects of Ipecacuanha cultivation, which is no less important than that of Cinchona, is far less encouraging. This arises not so much from want of success in establishing and increasing the plant, as from the apparently extremely slow growth of the underground root-stock from which the drug is obtained, and the small yield of even a fully-grown plant. Nevertheless, the cultivation must be persevered with. The causes that retard the progress of this valuable herb under cultivation are those that raise the price of it in its native country. Were it a plant that increased rapidly, it would be with difficulty eradicated in the forests which it inhabits.

The plants of the true India-rubber of Para (Hevea brasiliensis),* which I stated in my last report had been taken out to India by Dr. King, Superintendent of the Calcutta Botanic Garden, have safely arrived, and have already to some extent been propagated by cuttings. The cultivation of this tree is extremely important, not merely from the valuable quality of the rubber obtained from it, but also in view of the diminished supply from the Indian Ficus elastica, which, owing to its epiphytic germination and mode of growth, is not well adapted for cultivation for this purpose, while severe inroads have been made upon it in the forests where it occurs.

An assistant-director has been selected for the Royal Botanic Gardens, Peradeniya, Ceylon. The Director hopes that some progress may in consequence be made in the long-expected popular Flora of Ceylon, and that more may be effected in the arrangement of the herbarium and in the distribution of indigenous types.

A gardener has been sent from Kew to superintend the Government gardens at Lahore.

The following is a statement of the packets of seeds and plants sent out during the past year:—

	Ward's Cases.	Seeds (Packets of).	Stove and Greenhouse Plants.	Herbaceous Plants.	Trees and Shrubs.	Recipients.
British Isles	..	845	4176	1163	257	95
Continent	..	69	327	75	17	18
Asia	7	494	412	42	36	9
Africa	3	501	210	38	..	11
America	13	907	902	58	9	16
Australasia	5	1320	255	..	..	8
Totals	28	4136	6282	1376	319	157

BRITAIN.—The usual exchanges have been made with the Botanic Gardens, with the Royal Horticultural Society, Chiswick; also with the principal nurserymen. Contributions have been received from upwards of 130 additional sources.

HERBARIUM.—The great desirability of providing a more commodious and fire-proof building for the Herbarium library, MSS., and collections of drawings of plants which have for twenty years been, by the gracious permission of Her Majesty, temporarily accommodated in the residence of the late King of Hanover, and which was mentioned in the report for 1873, is now under the consideration of the Government. In the event of such a building being erected, it will be associated with a laboratory for physiological botany, through the liberality of Thomas Philip Jodrell, Esq., M.A., the founder of the Jodrell Professorship (of Physiology) in University College, London.

About 22,000 specimens from all parts of the world have been received at the Herbarium (chiefly by presentation) during the past year.

Number of Visitors in the Year 1874.

Total number on Sundays	359,237
Total number on weekdays	340,189
	699,426
Greatest monthly attendance (August) ..	155,728
Smallest monthly attendance	3,424
Greatest weekday attendance (August 3) ..	50,739
Smallest weekday attendance (December 8) ..	15
Greatest Sunday attendance (June 21) ..	23,117
Smallest Sunday attendance (November 15) ..	47

Number of Visitors in each Month.

January	6,507	July	104,527
February	9,413	August	155,728
March	26,048	September	50,092
April	83,310	October	17,121
May	148,808	November	7,667
June	86,781	December	3,424

Home Correspondence.

The Potato Disease.—Amongst your contributors the Potato disease has ever been and now is an "apple of discord." When this subject (by no means golden) is thrown on your editorial table, discord is the invariable result. It is impossible to answer every contributor, because the queries raised are generally the result of misapprehension, and the answers to one and all would merely be repetitions of what has been printed before. None of the questions or difficulties raised by your contributors invalidate or alter our knowledge of the action of the murrain in the slightest degree, they only tend to make the known facts and their meaning more impregnable than ever. It often happens that your correspondents misstate the botanical observations, and then raise an imaginary difficulty which does not exist. One of your contributors says of me last week, p. 272:—"It is most satisfactory to know that he realises how little he has yet discovered that can be of value to the cultivator." Now if this is true, it is anything but satisfactory, but there are no grounds whatever for the statement contained in the sentence quoted, as my principal object from the beginning (see my experiments with carbolic acid, sulphur, &c., reported in *Gardeners' Chronicle* for Jan. 24, 1874) has been to find the means of effectually destroying the pest. But, says the preacher, there is "a time to keep silence and a time to speak." The same correspondent says (referring to the year 1844) "he" (the correspondent) "has a right to ask from whence the Peronospora came." He might as well ask where the sun came from. The probabilities are, that the Peronospora has always

* Called by an oversight Hevea elastica in my last report.

existed, either here or elsewhere, and there are no reasons for believing that it has not always been parasitic upon Potatos. Certainly not to the same extent as at present; but it must never be forgotten that the Potato disease preys upon other plants in a similar way with the so-called human diseases, which also prey upon monkeys. The Peronospora of the Potato is one of a large family. A large proportion of this family are with us, and the rest very near. They all have a strong family likeness, and it is not always easy to distinguish one from the other. No one can tell how or when they first came, or where they came from, any more than we can tell how the typhus fever, small-pox, or the great plague first came. They have all been suddenly bad in various places, but the probability is that they have existed from the beginning amongst men, the lower animals, and plants. That diseases are bad at certain times in Asia, at others in America, or again in Europe, is of little consequence, compared with the acquisition of a knowledge of an exact diagnosis. The satisfactory treatment of an ailment can only follow the knowledge of the nature of the disease, and the constant effects which invariably accompany and indicate it. *W. G. Smith.*

—— Now that we know the life-history of the Potato fungus a cure against its attacks must be tried in the purification of the soil, or by keeping the tubers intended for setting in some strong dose, like that intended for seed Wheat. If the resting-spores, however, are embedded in the tubers no steeps of any kind can reach them as it does in the Wheat kernels. On August 15 I tried the experiment of dusting on the haulm of a break of Wood's Scarlet Prolific and Pink Regent Potatos a good coating of newly-slacked magnesian lime. This lime is of a very caustic quality, and no rain of any amount has fallen since to wash it off. The disease had not appeared then on the foliage of any of these Potatos, but a portion of each sort was left unlimed, and the black spots made by the fungus are now seen on them. Whether the limed portion is attacked or not cannot be seen now for the thick coating of lime, and it will only be at lifting time when it will be seen whether the crop is sounder than those unlimed. Mr. Lowe, of the Highfield Observatory, believes that quicklime will be found a cure for the disease if applied in time, that is, before the stage in the Potato's growth when the Peronospora appears. In all the years when the disease has been bad I have always had quicklime dusted amongst the Potatos when storing them in pits, and that with the best results. The lime dries up the diseased portion of the tubers, and prevents them infecting or rotting the sound ones in the pits. Respecting the early lifting of all the Potatos, nearly ripe in July, I am convinced Mr. Fish's advice to do so is the soundest practice. In the end of July, from a warm south border, I had a great quantity of Hammersmith Early Kidney, Dixon's Early Kidney, Rivers' and Veitch's Ashleaf, and the Coldstream Early Round lifted and put into boxes containing about a bushel each. They were for seed, and on examining them last week there was not a diseased tuber amongst them, all being well greened on the top of the boxes and as hard as nails. These Potatos were planted very early on the border on which they grew, and never were injured by frosts in the spring, and began to show symptoms of ripening early in July. This shows how that early Potatos are affected on some soils, for your correspondent, Alex. Dean (p. 272), says his early sorts were lifted in an apparently sound state, and now one-third of them are diseased. For the last ten days the weather here has been very dry and warm, with the nights cold, and suitable for preventing the fungus from spreading, but its virulence is already seen by the destruction and stench of the haulm of all the Potato crops in the cottagers' gardens and in fields on strong damp soils. In the kitchen garden here at least one-half of all the tubers lifted of the late sorts are diseased and the quality bad, the American kinds being very bad, the best being the new sort, Snowflake, and the Late American Rose. Last year Climax, another American sort, was excellent in quality as a second early, but this year it is hardly fit for the pigs. The Rector of Woodstock, one of the handsomest Potatos grown, and likewise one of excellent quality, was the first that showed the disease here, in the end of July, and there is now hardly a sound tuber of it left. *William Tillery, August* 30.

—— Having discovered a remedy, which prevents the spread of the Potato disease, if the same are dug up to all appearances good, I am prepared to prove beyond all doubt that my preparation will enable the Potato to become firm and bright, will cook well, and will not be in the least prevented from germinating. I have grown several kinds this year, most roots are more or less diseased. I have divided the good ones which I have separated from the bad, placed them in the same room; those I have applied my preparation to are keeping perfectly sound, the others are going bad rapidly, and becoming quite unfit for use. *George Brown, Spencer's Wood, Shinfield, near Reading.*

[We give insertion to the above with full reserve. We would advise Mr. Brown to exhibit samples of his skill at one of the meetings of the Royal Horticultural Society at Kensington, or at the Potato exhibition at the Alexandra Palace on September 29 and 30. EDS.]

Unhealthy Azaleas.—Will you kindly inform me, through the *Gardeners' Chronicle*, the cause of the enclosed leaves being in such a condition? The plants have made a fine growth, but immediately stop when attacked. Rain-water has been used upon every occasion. Sulphur has been used, but is of little use. Is it mildew from Roses, which were grown in the same house? If it is a disease, what is the remedy? *W. Pike.* [When leaves of Azaleas, such as those enclosed, or similar plants, in any way affected with disease or insects, are sent for examination, they should be put betwixt damp blotting-paper; that will preserve them in something like the condition they were when taken from the plant; otherwise it is difficult to determine whether the state they are in is caused by insects, or is the effect of the sap being extracted from them by the over-dry material they were packed in. The leaves sent appear to have been slightly affected with thrips or red-spider, although neither of these pests was actually present upon them when received. You do not state whether the leaves fall, or are merely discoloured and still adhere to the plants. Mildew from Roses is not at all likely to affect Azaleas. If sulphur has been used upon the plants for any purpose, and found its way to the roots by being carried down in watering, it would produce a condition of the leaves such as the enclosed, and cause them to fall off. A similar condition would likewise be produced by fumigating the house in which they stood with tobacco, which also will cause large quantities of the leaves to fall. But, without seeing the plants, or fuller particulars respecting them, it is impossible to say what is the reason of their unhealthy appearance, which might be brought about by a number of causes. *T. Baines.*]

Bees Feeding on Apricots.—It is certainly not a common thing for bees to attack Apricots in the manner described by your correspondents. I remember but one solitary case in the whole of my gardening career, and that occurred one season when living at Osberton several years since. My attention was first drawn to it by my late employer one Sunday morning just after service, and I have still a very vivid recollection of the enormous quantity of bees busy at their onslaught of the fruit, and the merry music they made over their disastrous work, which proved almost a total wreck. I had never heard of bees attacking Apricots before, and my employer and his lady, the Viscountess Milton, assured me they had not, and they considered it a most extraordinary occurrence. The most singular thing was, we kept no bees at Osberton, and they must have come some considerable distance to the attack: in this case very few wasps were to be seen. The storming or feasting of the bees lasted one day only, they not even returning to finish what few fruits were left. *Edward Bennett, Rabley Nurseries, Herts.*

The Slow Ripening of Fruit this Year, &c.—This is a peculiarity of the season. I never remember the enormous yield of Apricots, for instance, ripening so slowly. For months the fruit has been of the richest golden colour, and yet we are still gathering. The same feature has been most pronounced among Plums. Perhaps this is partly due to over-cropping, for they have been cropped unmercifully; but there must be some other cause or causes, for a few trees, not quite so heavily laden, ripen as slowly as others, while a three-year-old maiden cordon, with 204 Plums on it, is not later than others less heavily burdened. The transition from a very wet to a month or more of exceptionally dry weather probably gave the fruit a sudden stop, which they have not yet got over. Peaches are less affected than other stone fruits; while, on the other hand, many of the Apples seem to be ripened sooner than usual, so that the fruit season has shown several marked specialities. I find, too, that as Pears approach maturity the hail and ice marks they received early in the summer become more pronounced, and threaten to become nuclei of decomposition, thus threatening with destruction perhaps the most serviceable dessert fruit of the season. Neither does the plague of wasps or flies cease. It is singular, however, how local such things are. I noticed a correspondent lately stated that there were fewer than usual of queen wasps this spring; on the contrary, about here they were almost as plentiful in May as now—I never saw so many, The town of Bury St. Edmunds is only about a mile from Hardwicke as the crow or wasp flies. We have been literally besieged with wasps, and after destroying all the nests we could find are now trapping them in bottles at the rate of a peck a week. On entering a garden at Bury the other day, I noticed the fruit—some fine Peaches among others—were without speck. On pointing this out to the gardener, he replied he had not seen any wasps yet. It seemed incredible; but there were the fruit, without speck or flaw, to prove it. No doubt the presence or absence of woods and plantations has much to do with such matters. Large woods and massive shrubberies are rich, picturesque, splendid adjuncts to country seats, but among the drawbacks are countless hosts of wasps, flies, and birds. Five hundred blackbirds and thrushes in a morning lashing and thrashing our choicest wall fruits—Pears and Tomatos—are apt to make savages of all horticulturists; and were it not that gentle blood is inherent to the craft I verily believe the pests, insect and feathered, would be annihilated. Town scribes know nothing about it. Let a man see the best of everything in his garden destroyed before his eyes, and yet be expected to place all that wrecked fruit perfect on his employer's table, and then listen to counsel about the immense usefulness and service of his tormentors! There is reason in most things, and there is no lack of it, nor of kindness and true humanity either, in reducing the number of those creatures whose most obvious service is the destruction of our produce. *D. T. Fish.*

Rhynchospermum jasminoides.—In reply to the inquiry of "H. H." (*Gardeners' Chronicle*, p. 272), I beg to state that in my garden at Saint Marychurch, near Torquay, a plant of this species has bloomed with the utmost profusion for many years past—ten at least: it is now in bloom. It is about 6 feet in width, and 8 in height. It never has any protection, nor any special care, but it grows on the outside of the wall of one of my Orchid-houses—a stone wall, through which it can scarcely extract any artificial heat. *P. H. Gosse.*

Black Ants.—A few weeks ago I was greatly plagued by these industrious little pests. They took up their abode in a propagating frame, which was full of cuttings of various kinds, mostly in pots. They made their nests in nearly every pot, and the frame was quite overrun with them, and the effect upon the cuttings would have been fatal but for the application of a remedy I was fortunate to find in the *Gardener, Florist, and Agriculturist*, vol. ii., p. 263. I procured some camphor, and having broken it into small pieces I distributed it in the frame, by merely laying it in different parts on the surface. I immediately shut up the frame quite close for twenty-four hours, and upon opening it I was delighted to find that my late enemies had decamped, bag and baggage, and had not left one behind to tell the tale. Where they went to I know not, but this I do know, that they are gone, and that all my cuttings, which were looking in a sickly and dying state, are now growing vigorously, and are as full of health as I could wish to see them, and not an ant is to be seen either in the frame or near it. *A., The Manor House, Staines, August* 26.

The Woodstock Seedling Potatos. — But recently Mr. Fenn told us in these pages that as soon as the Potato disease made itself manifest, he at once purchased a couple of pigs to eat up and so utilise the diseased tubers. So far the idea was a sensible one, but it is amusing, and certainly to Mr. Fenn not a source of disappointment to find that out of a bulk of from 50 to 60 bushels constituting his crop of the present year, not more than from 6 to 7 bushels were diseased, so that these have been eaten long since; the sound chats, being few, have nearly all disappeared, and if the pigs continue to subsist on Potatos, they must be obtained elsewhere. The simple truth is this: Mr. Fenn found on lifting his crops that they were sound, even beyond his greatest hopes, and this comparative immunity from an evil which has afflicted others so severely is by him ascribed—whether rightly or wrongly—to the practice of growing his Potatos on the ridge system, a plan that is not the idea of yesterday, but has with him been a practice, always successful, for more than twenty years. A powerful illustration of the value of this mode of cultivation was given in a field situated on a hill just outside the town of Woodstock. In one part Mr. Fenn's Potatos grown on 3½ feet ridges turned out fine clean crops, and close by, on soil exactly similar, where the crops were grown on the ordinary flat system—that is, in rows 2 feet apart, and earthed with the hoe—more than one-half were diseased. Mr. Fenn claims for the ridge system of cultivation that the heavy rains are thrown off from the roots into the furrows—that the elevation of the ridges causes the haulm to fall abroad over the furrows, and thus to leave the crown of the ridges exposed to light and air, and also that the rains that bring or promote the Peronospera cannot, therefore, wash the fungoid spores from the foliage on to the tubers—assuming with Mr. Barnes, of Levens, that such is the case; and further still, he finds that the crops so grown are quicker in growth and maturation than when grown on the flat system. Of one thing I was assured by my own sight, that finer, handsomer, and cleaner produce I have never seen—and that is saying a good deal in favour of the ridge cultivation. Mr. Fenn is so rich in varieties of his own raising, that he has little room to grow other

kinds. Some half-dozen of the best of the American sorts were, however, cultivated this year, but the produce was, in most cases, very indifferent, Snowflake bringing the best crop and handsomest sample, and next in order Thorburn's Paragon—which latter, however, should it be better favoured next season, will probably prove to be one of the handsomest of all the American kinds. The stocks of Rector of Woodstock, Bountiful, Early Market, Early White Kidney, Little Gem, and other older sorts, are very handsome and clean; but finest of all are the samples of the newest seedling kinds, of which a large batch was raised four years since, and which have, therefore, now had a considerable weeding down. The parent plants of this batch are chiefly Mr. Fenn's old Woodstock Kidney, now defunct, and Dawe's Matchless Kidney, this cross having thrown a very fine strain of kidneys, and an equally fine batch of round kinds has resulted from a cross between Rector of Woodstock and the Mayor of Woodstock, the latter since rejected. Two kidneys of great size and beauty, and remarkably handsome, have been named respectively Woodstock Kidney and International Kidney, the latter in honour of the great Potato show to be shortly held. These are enormous croppers, of fine quality, and will make grand exhibition kinds. Another has been named the Radclyfle Kidney, in honour of a fine old Potato cultivator; and three others will probably be selected for naming, all having specially valuable qualities. The selected round kinds offer a succession from earliest to late croppers, although none are positively late, being ripe by the end of August. The first progenitors of this strain of rounds were Hogg's Coldstream and the Ashleaf Kidney, and from such a cross it is natural to look for early sorts, and shapes varying from the neat round of the Coldstream to a longish oval form showing the kidney infusion, no two of the samples being alike. One of the advantages derived from the careful hybridisation of diverse sorts of Potatos is the inevitable production of really diverse kinds, showing many diverse characteristics, and in this respect Mr. Fenn's seedlings differ materially from many others raised, which being merely uncrossed seedlings are almost, or quite, reproductions of the parent plant. So famous a hybridist as the late John Standish admitted that he had not been able to tackle the Potato, and success in results can only be obtained by long and patient perseverance. Whatever may have been the value of Mr. Fenn's earlier kinds—and these have been variously estimated—it is certain that this present batch is a remarkably fine one. He is now testing for the first time, in large pots under glass, a batch of seedlings, the result of a cross between Bountiful Kidney and Late Rose, also with Willard, hoping to obtain some fine red kidneys. What the result will be, another year will show. *Alexander Dean.*

A Gardening Question.—Situation 12 miles south of Chester. New red sandstone. Garden and house on cold clay, underlaid by wet rammel above the sand rock, which may be from 10 to 20 feet deep. Flower beds on slope towards west, well drained, 3 feet deep, and filled with good made soil (turfy loam and leaf-mould mixed): soil of different beds varies. Picotees and Carnations in all have a tendency to go off, as the enclosed. Gladiolus gandavensis withers off just in the same way and in the same proportion, viz., about two-thirds of new layers or new bulbs planted. Most garden flowers do well. I have varied the soil without effect. I have given up Gladiolus as unsuited to the climate, but ask you kindly to give me your opinion of the reason before I give up Carnations; some sorts fail more readily than others. *C. W. D.* [Try a further renewal of soil, taking a lesson from some practical Carnation grower. EDS.]

The Vine Coccus.—I have enclosed specimens of what I suppose, by the description on p. 234, to be the Vine coccus [Yes]. I first discovered it about April; the shell at that time was full of eggs or small insects, much like American blight, and had a similiar appearance when crushed. Now they have left the shell and white fibrous substance, and spread over the Vine, infesting stem, leaves, and berries alike, in the form of small scales, as you well see by enclosed specimen. The Vine has been planted about seven or eight years, and I have not noticed any insects before this year. No plants have been put into the house with any insect of this kind on them; they made their appearance suddenly, and I should not be sorry if they took their departure in the same way. *W. Brooks, Weston-super-Mare.* [Clean and well dress the stems and branches when dormant. EDS.]

Dutch Catalogues.—"W. A.," at p. 274, seems to be put out of "sorts" because I have at p. 203 drawn the attention of the trade to certain facts, which "W. A." seems to think would have been better left unexposed. Would "W. A." uphold not only unbusiness-like but clandestine transactions, *et hoc genus omne?* I decline to follow "W. A.'s" letter, for he not only seems unreasonable but somewhat sarcastic in dealing with the subject in hand. Perhaps "W. A." has a vested interest in the Dutch trade, but be that as it may, he should have kept his wrath within the bounds of common courtesy. "W. A." has had his bulbs direct from the growers for the last ten years. Perhaps he finds it more "convenient" to have them direct from Holland, as he gets them a little cheaper. But with gardeners "quality is the test of cheapness." "W. A.," in the commencement of his note, has knocked the "obstreperous Dutchman" down, and then endeavours to lift him up again, for he tells us that the "trade" has studiously and severely let the obstreperous Dutchman alone, hoping that at least a comparative few only would know of their terms and existence. Certainly this statement seems to be contradictory and antagonistic to the remaining portion of "W. A.'s" letter. In conclusion, I I beg to remind "W. A." that there is also another old saying, besides the one quoted by him, which "W. A." can read for his own information, "Where ignorance is bliss, 'tis folly to be wise." And here I take my leave of "W. A." *H. W. W., Sarum.*

Bougainvillea glabra.—To-day by train I have forwarded to you a sample of flowers of the above, which I consider is the finest of stove climbers. The plant it was cut from is growing in the stove here, and is planted out behind the pipes in the front of the house, and allowed to ramble over the roof. It has no restriction whatever at the root (which in this variety would be the greatest mistake), but is induced to grow vigorously, not only by being planted in good soil, but assisted occasionally by liquid manure. The plant (which is a young one), has now been in full flower for fifteen months, and to all appearances will continue for as much more. One might imagine that the incessant flowering of the plant would stop its growth, but not so: the more it flowers the more it is cut (in my case), and the more it is cut the stronger the growths become, consequently the greater show of bloom, as every inch of wood flowers. To keep a plant always in bloom simply requires judicious pruning. Before concluding, I may say I have cuttings of this plant flowering in 4-inch pots. *Walter Johnstone, Gr. to the Marchioness Camden, Bayham Abbey.* [A splendid sample. EDS.]

Cheiranthus Marshalli.—I have been much interested by reading the admirable description Mr. Marshall has given of the origin of this beautiful hardy perennial, and in view of the fact that Mr. Allen, of Shepton Mallet, has recently obtained from it seedlings that closely resemble the Erysimum Peroffskianum, it is doubly interesting to find that this hardy annual was one of its progenitors. An examination of C. Marshalli shows that it differs from C. ochroleucus both in colour and form of foliage, and in the form of the flower-stalk, which latter as it elongates much resembles that of the Erysimum. And in the foliage and habit of growth it will be found that what divergence from C. ochroleucus there is, is evidently towards the foliage and habit of the Erysimum also. I have often tried to get seed from C. Marshalli, but without success, and have on several occasions used pollen from the flowers of the dwarf yellow Wallflower, but to no purpose. I am told that structurally the seed organs of the flowers are perfect, but why no seed is produced is a mystery. It would seem, however, that the flowers are not devoid of pollen, as I have found natural crosses produced on the yellow Wallflower—one plant exhibited by me at South Kensington last spring showing the effects of the cross in a marked degree. It is worthy of remark that whilst the rich orange hue of the flowers of Marshalli renders it the most attractive kind, yet it is not so robust or by any means so freely propagated as is its old perennial parent. *A. Dean.*

Extra Early Vermont Potato.—This kind has proved with me to be the best I have grown this year; it is a great cropper, perfectly free from disease [It was one of the worst at Chiswick], and one of the best flavoured kinds I have tasted this season. Some Ashleaf Kidneys planted near them were nearly all diseased. I have heard complaints about the Extra Early Vermont being waxy and only fit for pigs, but I can with confidence recommend it as a very mealy kind. Most of the Potatos in this neighbourhood (which is one of the largest Potato growing districts in England) are very much diseased. *J. E. Dixon, Gainsborough.*

The Herbaceous Garden at Peterborough House.—We have recently seen the germ of what may prove to be the finest private herbaceous garden in the vicinity of London. Mr. Terry, being anxious to have a little of everything horticultural, has allotted a large share of his garden for this neglected class of plants—an oblong piece of ground, containing twelve beds, six on each side, separated by a grass walk 20 ft. wide: each bed is 50 ft. long, 10 ft. wide, and 10 ft. apart. In each bed there are three lop-headed Acacias (Robinia inermis umbraculifera). On the southern side are two large trees, and where the beds come in proximity to these advantage has been taken to make rockwork of a simple character, still preserving the line of the bed. To dig and dung 2 ft. deep close to an Elm would be to give it every inducement to take possession of the whole bed; as it is, it is feared they may be troublesome. Planting was commenced in the spring of the present year, which was not the most favourable for some things; however only a few have succumbed, and Mr. Terry has the pleasure of seeing some 300 additional floral faces of different species, besides what are termed florist flowers, such as Phloxes, Hollyhocks, Pentstemons, Pyrethrums, as well as Liliums and annuals. The number of the latter will be reduced as old friends turn up. The most notable in flower now are Anemone vitifolia, A. japonica alba, Chelone barbata antwerpensis, Erigeron glaucus, Gaura Lindheimeri, Œnothera Youngii, Statice incana and latifolia, Achillea Ptarmica flore-pleno, Eucomis punctata, Coreopsis lanceolata, Potentillas. *X.*

Notices of Books.

Rambles in Search of Shells, Land and Freshwater. By J. E. Harting, F.L.S. With coloured illustrations. Pp. 110. Small 8vo. Van Voorst.

One of the best testimonies we can offer as to the value of this unpretending little book is to be found in the circumstance that we placed it in the hands of two children, one of fifteen, the other of seven years respectively, and both alike became active "collectors" immediately. Since then the garden rockwork, the Ivy-covered wall and the adjacent hedge have been diligently, and not by any means fruitlessly, searched. Neither does the ardour seem at all likely to suffer speedy abatement. Fresh fields and pastures new will undoubtedly feed the growing taste, and paterfamilias will have to construct a dredge, a scoop and other etceteras, deemed requisite by the shell collector. By the way, Mr. Harting might as well have added to his "hints to collectors" a few directions as to the points we have just mentioned. A dredge is easily constructed of a cup-shaped form of wire netting, 3—4 inches across, and with a tubular handle to slip on to the end of a walking-stick. With such an implement we collected in bygone years most of the freshwater shells to be found in the Thames Valley, and in many a Kentish stream. After all, there are cases where the fingers form the best dredge. If the collector wants to make sure of the whereabouts of the Zebra mussel, Dreissena polymorpha, he will do well to turn up, or better still remove, his coat sleeve and thrust his arm into the canal and feel about along the banks. In the vicinity of London, or Oxford, and probably in most other parts of the country, it may thus readily be found. This species—one of the most singular of all—is not a true native of this country but was introduced from the Baltic. So much at home, however, has it become that Mr. Harting tells us that some iron waterpipes taken up in Oxford Street were found in places to be completely lined with these shells. Helix pomatia, the large snail eaten by the French, was another favourite of our collecting days, when we used to find it on the Surrey hills and have also seen it on the chalk hills near Canterbury. In a garden where some two dozen of these fine handsome snails were turned out no trace of the animals was to be found after a short time, not from any deficiency of food but —must it be added?—from the unreasonable prejudice of the gardeners! And yet every visitor to Paris is familiar with the neatly dressed mollusc with its little tuft of Parsley gaily garnishing the mouth of the shell. We own we have not had courage to try them, fearing that they might be, as the story goes, "d—d green." That the French appreciate them is, however, shown by the fact that from Burgundy and Champagne, where the dainty molluscs feed on Vine leaves, no less than 100,000 are sent to Paris daily! Mr. Harting chats pleasantly enough of snails in the garden, snails in the river, snails in lakes, on rockworks, in old walls, on chalk downs and elsewhere, and contrives to give his readers a pretty full idea of the numbers and varieties of land and freshwater shells native to the southern counties, and of their life history. The book makes no pretension to be exhaustive, but we heartily commend it as a capital introductory book, well calculated to please and instruct the beginner, and to lead him on to higher flights. The subject-matter originally appeared in the columns of the *Field*, and in the present form a number of well-executed and characteristic coloured illustrations have been given.

—— The following publications lie on our table:—The Gardener—The Villa Gardener—The Gardeners' Monthly—The Journal of Education (Brooklyn, N.Y.)—Queensland Timber, Report on—Duty of States in Teaching the Science of Plant Life, by Lewis A. Bernays—The Classification and Sexual Reproduction of Thallophytes, by W. T. Thiselton Dyer—Journal of the Agricultural Society of New South Wales—Boston Journal of Chemistry—La Belgique Horticole—Botanical Magazine—British Wild Flowers (Van Voorst).

HORTICULTURAL EXHIBITIONS, 1875.

SEPTEMBER.

13 and 14.—Carnation Show at the Botanical Gardens, Old Trafford, Manchester.
15 and 16.—Royal Caledonian Society. International Fruit and Flower Show in Edinburgh. Sec., J. Stewart, 5, Alva Street, Edinburgh.
15 and 16.—Stamford Floral and Horticultural Society's Exhibition in Burghley Park. Hon. Secs., Messrs. Johnson and Laxton.
23.—Royal Horticultural Society of Aberdeen; Autumn Show. Sec., A. J. Rennie, 123½ Union Street.
29 and 30.—Potato Show at the Alexandra Palace. Hon. Sec., Mr. P. McKinlay, 23, Upper Thames Street, London.

OCTOBER.

6.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees. Fungus Show.

NOVEMBER.

10.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
15 and 16.—Loughborough Chrysanthemum and Fruit Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.
25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

DECEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE
Gardeners' Chronicle.

SATURDAY, SEPTEMBER 4, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	Sept. 7	Crystal Palace Autumn Fruit and Flower Show (three days). Littleover Horticultural Society's Exhibition. Sale of Fancy Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Sept. 8	Glasgow and West of Scotland Horticultural Society's Autumn Show. Brighton and Sussex Horticultural Society's Exhibition (two days). Sale of Dutch Bulbs, at Stevens' Rooms.
SATURDAY,	Sept. 11	Lee and Blackheath Horticultural Society's Show. Thornton Heath Public Show. Sale of Dutch Bulbs, at Stevens' Rooms.

WE alluded briefly in our last to a telegram which we had received from COLOGNE with reference to the INTERNATIONAL HORTICULTURAL EXHIBITION, opened in that city on the 25th ult., by H.I.H. the Crown Prince of GERMANY. We are now enabled to give, in another column, a few notes on some of the principal objects exhibited, and may, in this place, lay before our readers some general impressions as to this extensive exhibition.

The phrase "second-rate," which appeared in the telegram which was forwarded to us from Cologne, is quite justified, in so far as the horticultural exhibition as a whole is concerned. Naturally, however, there are some features in it of first-rate importance, even from a horticultural point of view. Still, looking back to the preliminary flourishes, and remembering, with gratitude and something like astonishment, the lavish public hospitality, and the exuberant loyalty manifested by the Rhinelanders to their Prince, we can but feel that horticulture *quoad* horticulture played but a very secondary part. With the exception of a few exhibits, duly noted in another column, the mind, in the attempt to recal the main features of the exhibition, wanders back to the profuse hospitality offered to the jurors, and pre-eminently to the very magnificent reception accorded to the Crown Prince—a reception, the festivities connected with which the foreigners present at Cologne were privileged to witness and take part in. Breakfasts, luncheons, dinners, suppers followed one another with perplexing rapidity; festival cantatas, fireworks, torch-light processions, "hochs" and "hurrahs" were alike innumerable. These and such as these take the first place in the memory of these *fêtes*, and horticulture plays but a secondary part.

It is noteworthy, and, though we are in no sense a party or a political journal, yet we cannot help adverting to the fact—it is noteworthy that all this display was occasioned by the visit of H.I.H. the Crown Prince to Cologne, on the invitation of the Horticultural Society of the town, the so-called "Flora" Society. For three days and as many nights did Cologne and its neighbourhood well over with enthusiasm at the fact that the Prince was the guest of the Flora Society.

To realise this state of things let our readers suppose that H.R.H. the Prince of WALES was invited, as he very possibly, and we hope ere long, will be, to open such an exhibition here, would the whole town for three whole days run mad, as it were, with joy and excitement? Some will point to the case of Sheffield a week or two ago, as an affirmative response to our question, but the case is not parallel. It was not the Sheffield Horticultural Society that invited the Prince, it was the Municipality. At Cologne, on the other hand, it was the local Horticultural Society which invited the Prince, and the Municipality and the inhabitants followed the lead; and the result was a display of exuberant loyalty, which even in our own favoured land could hardly be excelled. We note this the more as, so far as we have seen, the ordinary journals have scarcely noted the occurrence, and the special correspondents seem to have been at "*les eaux*," or, at any rate, were not on duty, else they would scarcely have failed to report the magnificent illumination of the city and of the exquisite cathedral on the night of the 26th ult.

For some 30 or odd miles, from Rolandseck above Bonn to Cologne, on this evening, the Prince's progress down the Rhine was a sort of Carnival de Venise—every little village, every isolated boat-house was ablaze with light, or served as a battery for the noisy loyalty of gunpowder.

The grandeur of the spectacle culminated at Cologne. It is impossible to convey by words an idea of the splendour of the scene, particularly of the Cathedral, illuminated as it was by coloured fires, which give it an appearance as if at a transparent red heat.

It must not be thought that all this was official and to order; it was perfectly spontaneous, and, with the exception of the Cathedral illuminations—which were undertaken by the city—the work of private individuals, natives of the headquarters of Roman Catholicism in Germany anxious to show their loyalty to their Protestant Prince. These are signs of the times which, it appears to us, the politician should not lightly ignore.

All this, however, has little to do with horticulture, and we owe our readers some apology for alluding to it. The spontaneous loyalty of the people, however, manifested itself far more effectively in these pyrotechnic displays than in any floral display such as we have been accustomed to in this country of late years. In fact, the art of the floral decorator has apparently not advanced beyond its first infancy in this part of Germany. A few Spruce Fir boughs tied up here and there, a few huge but tasteless bouquets, an array of miserable pot-plants in the dirtiest of pots, constituted all that was attempted in the way of floral decorations. In this country we have of late years gone to the opposite extreme, and in our wealth and luxury committed, and daily commit, gross errors in taste in these particulars, sacrificing valuable plants merely because they are valuable, regardless of the fact that much cheaper material would be quite or even more effective for the purpose.

At the Horticultural Exhibition itself the preparations were somewhat in arrear, and the arrangements were by no means complete at the appointed time. One feature, however, stands out amid the general unreadiness and confusion, so excellent that it goes far to outweigh the inconvenience arising from the incompleteness of the preparations—an incompleteness more or less unavoidable in all large exhibitions of this kind—we allude to the catalogue. It is hardly possible to speak in too warm terms of the boon that was offered to those who had business at the exhibition, in the circumstance that a well arranged, well printed, and, so far as we saw, complete catalogue was placed in the hands of the visitors on the very first day of the exhibition. As to the other arrangements, the selection of the jury, the tedious formalities connected with their installation, the long delays ere they were in a position to begin their work, and other matters of this kind, the Cologne folk were no worse than most of the Continental towns in like case. Without arrogance, and having, we hope, a due sense of our own imperfections, we may yet say that on all these points we have nothing to learn, and that, on the contrary, our Continental friends would do well to adopt the system and copy the arrangements made on similar occasions in England, when the whole business is done in fewer hours than it takes days to do the same work abroad, and which, unless we flatter ourselves, is quite as well done. Another point we venture to call attention to, lest it may become a precedent, and that is the practice of some exhibitors turning the space allotted to them into a shop-stall. In some cases at Cologne a whole house or a whole tent was filled with mere market plants—scores of Cycad stems and, worse than that, with sixpenny pots of some plant appropriate enough in a greengrocer's shop or a costermonger's barrow, but wholly out of place in a horticultural exhibition. The managers should have power to exclude such groups, or to relegate them to shop counters or bazaars apart from the general exhibition. Of the practice of buying plants for exhibition purposes, of which there were so many obvious cases at Cologne, and which, unfortunately, prevails also in this country, we shall have more to say on another occasion. It is a practice which, if it be, as many consider; to some extent inevitable, should be hedged round by restrictions, and should be done openly and publicly, so that the public may know which exhibitor buys his spurs, and which wins them by his own skill.

THE experience of the past season does but confirm, in respect to ARTIFICIAL WATERING, which must have been the frequent inference of practical observation, namely, that when dry weather suddenly sets in after a period of abundant and frequent rains, and the concomitant absence of clear sunshine, vegetation is more apt to suffer than it does even during a much longer period of what is ordinarily designated dry weather. The remark necessarily applies with more force to light soils and warm elevated situations, such as we have more especially in view; and possibly the conditions referred to affect in a much less degree what are called holding soils. The explanation seems to be this, that where such light soils as those under consideration are kept constantly moist, by oft-repeated rains, which fairly soak the upper strata of earth, the young active roots are induced to strike upwards nearer to the surface, in order to drink in the tempting supply, instead of striking deeper to draw their supply from below, as they would do under other circumstances; and thus when a few days of hot sunshine, possibly accompanied by drying winds, set in, the surface moisture of the soil itself is quickly evaporated, while the requirements of the plant itself are very greatly increased. After two or three days of such weather the plants begin to droop, and if the parching continues over a few more days they become flaccid to an extent which is by no means favourable to the perfect development, whether of the herbage, in the case of vegetable crops, or of the inflorescence, in the case of ornamental flowers.

Under such conditions as those which have just been indicated, recourse should at once be had to mulching and watering. The latter should be done efficiently—as thorough a soak-

FIG. 66.—OREODOXA REGIA IN THE BOTANIC GARDEN, BRISBANE.

ing of the roots as may be practicable being given, after drawing away the dry soil around the plants; and when this has soaked in the soil should be returned to its place, and a mulching of short dung or litter, whichever may be most readily obtained, should be spread over the surface to retain the moisture. A single good watering applied in this way will in most cases prove sufficient to enable the plants to tide over the adverse conditions which were pressing upon their energies, unless the period of drought should prove to be very long continued.

The more direct practical application of these remarks at the present season, rather concern indoor than outdoor plants. Greenhouse plants, for example, which have been standing out-of-doors, have necessarily required and received ample potations in order to keep their roots in the proper state of moisture. When they are removed indoors, as happens about this time of year or a little later, the fear of autumn or winter damping tends to induce the cultivator to avoid excess, and in giving effect to this precaution he is perhaps sometimes apt to err on the side of giving too little water, that is, cutting off the supplies which have been freely given while out-of-doors too abruptly, to the starvation of the roots, in the same manner, though in a less degree than those which sustain injury in outdoor crops by the period of drought immediately following a period of abundant moisture. If the plants are suffered to flag, as they sometimes are, the mischief done is very great, and in some cases irremediable, while even a slight degree of dryness in the ball of a potted plant may lay the foundation of permanent mischief. We allude to the subject now, when greenhouse plants are being prepared for housing, in order that, by having their attention called to the matter, cultivators may avoid the evils resulting from this venial oversight.

—— OUR contemporary *The Gardener* is in a position to inform its readers that "the forthcoming INTERNATIONAL SHOW, to be held IN EDINBURGH on the 15th and 16th of the present month, is likely to be the finest show of fruit generally, and especially of Grapes, that has ever been seen in this country. Not only is the quality of the Grapes likely to be an improvement on former displays, but it is expected that the heaviest bunch that has been grown is to be exhibited on that occasion. While thus referring to this gathering we would take the liberty of expressing a hope that those who have the management of affairs will be able to arrange some special meeting-place, where gardeners from all parts can meet and comfortably renew old acquaintanceships, and make new ones too." It is rumoured that the bunch above alluded to is one of Raisin de Calabre, growing at a small establishment near Dalkeith.

—— Since writing the last notice of the BRISBANE BOTANIC GARDENS, which accompanied an illustration on p. 108, vol. iv., of a plant of Cocos plumosa, we have received Mr. HILL's report for the past year. From it we gather that the work of the garden is still progressing. The experimental department before referred to continues to be a prominent part of the garden machinery. Fibre and dye plants are constantly asked for, and amongst the former an indigenous species of Musa, which Mr. HILL says has been known to exist in the North, together with two other species discovered by him while accompanying the North-East Coast Expedition. These plants, he considers, will prove to produce a fibre equal, at least, if not superior, to Manilla Hemp, the tree being of a more robust habit than Musa textilis. It is suggested by Mr. HILL that 400 acres of land upon both the Johnstone and Daintree Rivers should be set apart for the cultivation of valuable economic plants, such as the Clove (Caryophyllus aromaticus), Nutmeg (Myristica moschata), Vanilla (Vanilla aromatica), Cocoa (Theobroma Cacao), Coca (Erythroxylon Coca), Mangosteen (Garcinia Mangostana), Durian, (Durio zibethinus), Bread Fruit (Artocarpus incisa), and other similar plants. Amongst interesting plants that flowered in the garden during the year 1874 was a Macadamia ternifolia, five years old; Cocos flexuosa, nine years old; Euterpe oleracea, ten years old; and Oreodoxa regia, eighteen years old. A specimen of this Palm is shown in our engraving (fig. 66) on p. 301, which is from a photograph sent by Mr. HILL to the Kew Museum. It represents a plant that was presented to the garden in 1854 by the late Sir W. J. HOOKER. The genus Oreodoxa includes perhaps the most graceful of all the forms of Palms. The slender stems rise sometimes to 100 feet in height, and have a very striking appearance, on account of the upper part being of a bright green, smooth, and apparently succulent, while the lower part is rough, and ringed, like other Palms, with the scars of the fallen leaves. This is well shown in our cut. It must, however, be borne in mind, that the tree figured by us is a young one, but it can easily be imagined that a tree of this form some 60 or 80 feet high, crowned with its massive and graceful foliage, must indeed be a beautiful object, either in the landscape or for avenues, for which purpose this Palm is largely used in the West Indies. Unlike most Palms it is not of great value in an economic sense. An allied species, however, O. oleracea, is known as the West Indian Cabbage Palm, from the fact of the young unfolded leaves being eaten as a vegetable—a use to which many of the Palms are applied. From the central portion of the trunk a kind of sago is made, and the inside of the leaves, which is easily stripped off, makes, when dry, excellent paper. The bushy Palm shown in the cut to the right of the Oreodoxa is Latania borbonica, a native of the Isle of Bourbon.

—— It is rumoured, and we believe there is good foundation for the rumour, that the ROYAL HORTICULTURAL SOCIETY intends next year to revive the PROVINCIAL SHOWS, and to hold one of great magnitude at LIVERPOOL on or about June 27. We sincerely hope that this may be carried out successfully and on a broad basis, as few things are more valuable either as regards the Society or the progress of horticulture in general. The dates fixed for the other shows are:—Spring show, March 15; first summer show, June 7 and 8; second summer show, July 19 and 20; autumn show, November 8.

—— We have been favoured by Dr. DENNY with trusses of flowers of two of M. JEAN SISLEY'S NEW DOUBLE PELARGONIUMS, which had been sent to him for trial, and which appear to us to be highly worthy of commendation. We understand they are of the ordinary Zonal type, not the coarse-growing series represented by Beauté des Suresnes, and with which the others will not intercross, thus suggesting that they may be of a distinct race. One of the novelties in question, which bears the name of Buchner is very distinct in character. The truss is of moderate size, and the flowers semi-double, that is to say, thinly filled out with small inner petals, while the colour is a blush-white, with a salmon-coloured centre; it thus forms a very pleasing light-coloured variation amongst the double-flowered sorts. The other, which is of the same type, is a mauve-tinted rose-pink, with a whitish centre. It is called Sulphide. We presume both have been flowered in pots under glass. We have not seen the foliage, but we conclude it is less coarse than that of the ordinary Continental doubles of the Beauté des Suresnes type.

—— We learn that a plant of LILIUM AURATUM has been sent to the Royal Botanic Society, Regent's Park, by Sir FRANCIS GOLDSMID'S gardener (Mr. WHEELER), with a fasciated stem 6 or 7 feet high and 2 to 3 inches in diameter, branching at top, with about seventy flowers, mostly in perfection, and each somewhat larger than those of the common white Lily. It is now growing in a small pot in the centre of the conservatory.

—— Many plants, although nearly or quite hardy in some parts of the United Kingdom, do not often attain perfect development out-of-doors in this country. Some of these may be seen in their full vigour and beauty at such places as the CRYSTAL PALACE, and in the large WINTER GARDEN at KEW. This is especially noticeable in the familar climber, as Cobæa scandens, both the green and variegated varieties; Passiflora cœrulea, some of the Tacsonias, Fuchsias, &c. They form stems of an extraordinary and surprising length, and flower so profusely and for so long a period that they deserve the title of perpetual bloomers more than the freest Rose. The climbers form one of the principal attractions in the Winter Garden at Kew, and the charming festoons of various plants hanging from the balustrade of the lofty gallery make us wish that a different plan of planting this fine house had been adopted. But among the climbing plants here is one that is not often seen, namely, Rhodochiton volubilis, a Mexican plant closely allied to Lophospermum. Indeed, it will be found in some gardening books under the name of Lophospermum atro-sanguineum. Although introduced so long ago as 1833 or 1834 it does not appear to have become very widely dispersed in gardens, possibly because it is not often seen in perfection. The flowers are not brilliantly coloured, it is true, but what they lack in brilliancy is quite made up in number and duration. The corolla is a deep, dark purple, almost a plum-purple, a tint rarely met with in flowers; and the large calyx is of a dull red or rose. The latter organ is of unusual size, and what is technically termed persistent, that is, not falling away with the corolla or soon after it. Moreover, it retains its colour and does not shrivel up till the seed-vessel is nearly mature. The plant is of rapid growth and elegant habit, with slender stems and heart-shaped leaves. Like its allies, it will thrive in warm situations in the open air, in favourable seasons, if planted out about the middle of May. The plant we have in view at Kew covers a considerable space on the wall immediately to the right on entering by the east door. It has been in flower, we believe, for at least two months.

—— We are informed that the Amaryllis exhibited by Mr. Boivell, gr. to Sir H. W. PARKER, at the Royal Horticultural Society on August 18, is a seedling raised by Lady PARKER in Australia from a cross between Amaryllis Belladonna and Brunsvigia Josephinæ. This cross was first effected by the late Mr. BIDWILL, and has since been several times repeated by Lady PARKER. Some of the seedlings so raised were superior, both in the number and colour of the flowers, to the specimen exhibited on the 18th.

—— It is rumoured that the finances of the ROYAL HORTICULTURAL SOCIETY have been placed in such a position by a timely loan that the prize money for 1874 will now shortly be paid. The prizes for 1875 have already been paid. This is good news, and augurs well.

—— The custom of DECORATING the TOWN in which the annual flower show is held appears to be a practice to a great extent confined to the West of England. Trowbridge, in Wilts, where there is annually held one of the most extensive and popular shows in the West of England, is a case in point. Large numbers of persons come in from the surrounding villages to see the show; in fact, it is the *gala* of the district, and the townspeople give them a cordial welcome. Handsome archways span the street, which are tastefully draped with evergreens and enlivened with flags and festoons of flowers, the lamp-posts are shrouded in green, and hnge Spruce Firs, with their stems cut off just above the roots, are placed at intervals along on either side of the principal streets. In a large number of cases the fronts of the houses are most tastefully decorated with plants and flowers, and flags wave plentifully at all points. Some of the townspeople form themselves into a decorative committee, and raise a special fund for decorations, while much is also done by individuals apart from the committee. A beautiful archway, erected opposite the residence of Mr. HADEN, is said to have cost a large sum of money. The railway station exhibited a remarkable transformation: wreaths and festoons of evergreens, flowers and flags quite hid its bare outlines from view; and the occupants of the passing trains looked on with something like wonder. Mr. COX, the station-master at Trowbridge, deserves the highest praise for the true artistic skill he displayed on this occasion.

—— In connection with the Fungus Show to be held in October by the Royal Horticultural Society it is proposed to get together an exhibition of CONES. This is an excellent idea, and we trust it will be well responded to. Gentlemen and others having collections of those objects, or fresh specimens, would be doing a good service by contributing to this exhibition. Last year was very favourable for the formation of cones on many of the rarer species, hence we may hope for a very interesting exhibition.

—— We learn that the first part of the DICTIONARY OF ENGLISH PLANT NAMES, by Messrs. BRITTEN and HOLLAND, is now passing through the press. Our readers have had several illustrations of late of the interest attaching to these names, the historical associations, and the philological importance attaching to them, as well as the curious side-lights they often throw on the manners and customs, the hopes and fears, the ignorance or the learning of past ages. The publication is to be issued under the auspices of the English Dialect Society. Mr. BRITTEN (Botanical Department, British Museum) will be glad to receive further contributions as to local names of British plants.

—— A meeting of the Royal Horticultural Society's Floral Committee took place at Chiswick on the 27th ult., for the purpose of examining and adjudicating upon the PELARGONIUMS SENT FOR TRIAL, on which occasion the following were adjudged worthy of First-class Certificates as bedding sorts:—Tyrsal Rival, scarlet; Rosa Little, scarlet; Harry King, scarlet; Caxton, violet-crimson; Mark Twain, scarlet; Colonel Wright, light scarlet; Mrs. J. George, pale scarlet; Mrs. Holden; Mrs. Augusta Miles, deep pink; Lady Emily, bright deep pink; and General Outram, dark scarlet. In the Gold and Bronze section Golden Harry Hieover, W. E. Gumbleton, and Rev. C. P. Peach, were awarded First-class Certificates, as were Gem of the Season and Argus amongst the Ivy-leaved sorts. A considerable number of the older sorts, which had formerly held a good position and won certificates, were on this occasion struck off the lists as being superseded by better sorts

of similar character. This is very useful work in the case of subjects like the Pelargonium, where the number of sorts having a certain appreciable degree of merit is considerable. This discarding, of course, only shows what sorts have proved wanting at Chiswick in a wet cold season like that of 1875; but the list, when published, will doubtless be found of general application; while, on the other hand, growers will hold on to sorts they may have themselves proved to be good in their own localities.

—— The fine collection of SUCCULENT PLANTS lent by Mr. J. T. PEACOCK to the Alexandra Palace Company is now arranged, and forms one of the most attractive features to visitors. For the reception of the plants the company have erected a large and handsome span-roofed house, close to the Palace on the southern side, and some idea of the number brought together may be gathered from the statement that twenty-four waggon-loads left Mr. PEACOCK'S establishment at Hammersmith. It must not be understood that the removal of this great number of plants has in any way detracted from the merit of the home collection, the plants sent to Muswell Hill being simply duplicates. Mr. PEACOCK'S establishment is still unique.

—— Colonel TREVOR CLARKE'S MELON-CUCUMBER, now to be seen in the Economic-house at Kew, and of which we gave an account some weeks since (*Gardeners' Chronicle*, Aug. 14, p. 206), is probably not really an exception to NAUDIN'S statement that a cross cannot be obtained between these two closely allied plants. The female parent of the hybrid in question, notwithstanding its Melon-like fruit, is regarded by NAUDIN and Dr. HOOKER as essentially a Cucumber. It is the "Concombre du Sikkim" described by the former in the *Annales des Sciences Naturelles*, 4ème sér., vol. xi., p. 28, as a variety of Cucumis sativus, Linn. The hybrid is, therefore, at any rate, only a cross between two Cucumbers, and it shows little, if any, indication of the influence of its presumed pollen parent—the Telegraph.

—— A fine plant of the true FUCHSIA COCCINEA is now in bloom in the large temperate-house at Kew. It is about 6 or 7 feet high, and, judging from the plant in question, this species is by no means so profuse a bloomer as F. macrostemon, a variety of which is commonly grown as F. coccinea. It certainly is inferior as an ornamental plant to the original varieties of F. macrostemon, and doubtless it was for this reason soon discarded in favour of its hardier rival. That it is very rare, even if it existed in any other garden in England, at the time when Dr. HOOKER discovered it at Oxford a few years ago, there can be no doubt, for Mr. HEMSLEY informs us that he has not received a single specimen of the true plant in any of the numerous lots sent to him by gardeners in various parts of the country. Besides F. coccinea there are several other species and old varieties in flower now in the same house at Kew, among them F. alpestris, globosa, gracilis, microphylla, fulgens, corymbiflora, radicans, splendens, thymifolia, &c. The remarkable New Zealand apetalous species, F. procumbens, may also be seen, both in flower and fruit. The fruit is very large, and altogether it is a most interesting plant. The erect flowers of this species, not very showy in themselves, may give birth by cross fertilisation to a new race of Fuchsias. F. coccinea will be found in No. 5 bed, and F. procumbens among the New Zealand plants on the bench on the west side of the house.

—— We hear that Mr. INGLIS, late of Powerscourt Gardens, is appointed gardener to Earl GREY, Howick Hall, Northumberland; and that Mr. ROLAND KING, lately foreman in the extensive gardens of Sir JOHN KELK, Bart., is appointed gardener to Major MACLEAY, Grass Hayes, Lyndhurst, Hants.

Apiary.

HIVING SWARMS IN HIGH TREES.—One of the most difficult things in the experience of all young bee-keepers is run-away swarms, and swarms which seek the highest bough in any of the large Apple or Pear trees in the neighbouring garden. In the case of run-away swarms follow them if you can, but in reference to the swarms in a high bough, this is not so difficult a task as may appear at first sight.

I watched with much interest a cottager's wife recently hiving a swarm up in an Apple bough; I tendered no advice but simply watched all her operations, which were simple enough. She procured a common Potato, or half-measure, hamper and fastened it to the top of a long pike, then holding it beneath the swarm shook the bough as vigorously as possible under the circumstances, and brought her swarm down safely; they afterwards quietly entered the hive. This was a rough way of hiving. I hope none of your readers will follow her example. I have used for some time for this purpose a bag made with stiff black leno stitched. Around the mouth I attach a little very thick wire, to prevent it closing when being used; the bag is then fastened or nailed near the top of a long pole made of deal wood, about 9 feet in length and 2 inches in thickness, or like a clothes prop, but at the summit, about 6 inches above the bag, I nail a bit of wood to prevent the pole from splitting, as well as to act as a hammer, to beat or shake the bough on which the swarm is settling. The illustration, fig. 67, will explain it far better than a merely verbal description. To the wire ring, if desired—although it will act far better without—a string may be tied, and held in the hand of the operator, and when the bees are shaken into the bag by pulling the cord they are prevented from escaping.

I make use of it thus. Having got it in readiness, when the bees are observed to begin clustering of course the first thing to be attended to is the hive, and table on which they are to be placed for a few minutes after hiving before they are finally removed to their permanent stand. Then suddenly shake the bough with the end of the pole, the bees will drop into the bag—very few will be left on the branch after a vigorous shake. Slowly bringing them down to the table, hold the bag for a few minutes beside the hive, which should be slightly raised on the side nearest the bees, to allow of free ingress. The bees seeing a home in readiness will not be long in taking possession of the new tenement. You need not fear securing the queen at the first shake, and if any of the bees are at all disposed to take refuge again on the bough, lay across it a smoking or smoldering rag, which will quickly drive away every bee to the hive below. The table should be placed beneath the tree if possible.

FIG. 67.—MODE OF SECURING A SWARM OF BEES.

It will not take long to hive them in this easy way. I have succeeded in securing them, persuading them to settle in the new home, and removing them to the stand in fifteen minutes; in half an hour afterwards they have commenced working as if nothing had happened. I first learned this simple plan from Quinby's *Bee Book*, but it seems still to be unknown by bee-keepers in this country. I hope my notes on the subject may prove useful. *R.*

Reports of Societies.

Royal Horticultural: *September* 1.—The Hon. and Rev. J. T. Boscawen in the chair. The Rev. M. J. Berkeley announced the awards of the Fruit and Floral Committees, and remarked with regard to the Gladioli shown, that he did not think they were so good as last year, which may not have been so favourable to the corms. Dahlias, he thought, were particularly good, but they certainly would be better in a fortnight hence. As regards the Gladioli shown by Messrs. Robertson & Galloway, he thought that firm deserved as much credit for the admirable way in which they had packed the flowers for travelling as for the fine flowers themselves. Several of the more interesting plants shown were commented upon, and then Mr. Berkeley stated that he had received from Mr. H. O. Stephens, of Bristol, who had long since retired from the botanical world, some drawings made about thirty years ago, which showed that he had probably seen the antheridium and oogonium of the Potato disease soon after its introduction, but as Mr. Stephens had failed to connect these bodies with the disease at the time, the mentioning of the circumstance now did not detract in the least from the brilliant discovery of Mr. Worthington Smith. In conclusion, Mr. Berkeley expressed a wish that, as many rare Conifers were fruiting this year, it would be interesting if specimens of any of the choicer kinds could be sent to the next meeting on October 6.

FLORAL COMMITTEE.—Dr. Denny in the chair. First-class Certificates were awarded to Mr. J. Croucher, gr. to J. T. Peacock, Esq., Sudbury House, Hammersmith, for Fourcroya variegata, banded with gold up the margin of the leaves—a very distinct plant; and for Begonia metallica, with greenish bronzy, shining, hairy leaves and rosy pink flowers—also a very distinct plant, but whether it is a species or hybrid we are unable to say—any way, it will probably turn out a charming acquisition. To Mr. Eckford, gr. to Lord Radnor, Coleshill, for Verbena Lady Anne Spier, a fine large flesh, with a faint ring of purplish rose round the eye. To Mr. Keynes, Salisbury, for Dahlias John Downie, very dark crimson, almost black—a full, well-built flower; Maggie Fairbairn, rosy pink; Charles Leicester, dark blood-red; and Lord of the Isles, canary-yellow: all very good. To Mr. Turner, Slough, for Rose the Rev. J. B. M. Camm, a seedling of his own, which is bound to become popular: it is a full and well-built flower, with the perfume of the old Cabbage Rose, strong and delicious. Also for Bouquet Dahlia Triumph, dark reddish crimson, and of excellent form. To Mr. G. Rawlings, Romford, for Dahlia John Bennett, of a lemon ground colour, with the petals edged with cinnamon-red, and a full level centre; and J. C. Quennell, primrose-yellow. Second-class Certificates were voted to Mr. Rawlings for Dahlia Dr. Livingstone, fancy, with pale orange ground, tipped and striped with brown; and to Mr. Turner, for Dahlia Yellow Globe, well named. The new Dahlias shown up to the present time do not exhibit any marked advance upon existing kinds, but, on the contrary, their improvement seems to have come to a standstill, and flowers are staged as new which are not one whit better than the popular sorts of years ago. Mr. Croucher also showed cut flowers of Echinopsis valida, a very fine white-flowered species. A well-flowered plant of Rodriguezia secunda, collected in Trinidad in 1873, was shown by Mr. James, 7, Norfolk Road, N.W.; and Mr. Green, Holmesdale Road, Reigate, again sent a plant of × Streptocarpus Greenii to show its continuous and free flowering character. A small group of new plants, including Pescatorea Dayana splendens, and which gained a Second-class Certificate, came from Mr. Bull; and Mr. B. S. Williams showed Coprosma picturata Stockii, a native of New Zealand, a green-leaved form with irregular bands and blotches of yellow; and Photinia serrulata variegata, partially variegated with creamy white. Mr. Spinks, gr. to Mr. H. G. Quilter, Lower Grounds, Aston, Birmingham, sent a new white bedding Lobelia, called White Beauty, compact and very free flowering. From Mr. Charles Noble came Clematis Jackmanni alba, an almost white seedling, of a very promising character. An almost forgotten but very interesting old plant—Erpetion reniforme, with small blue and white flowers allied to the Violet; and cut flowers of Phlox Drummondi Cardinal, and P. D. splendens grandiflora, of the same colour as Cardinal, but with a white centre, came from Mr. R. Dean. Mr. Keynes showed an interesting pink sport from Rose Madame Villermoz.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. From Mr. William Paul, Waltham Cross, again came an interesting collection of early Apples, Pears, and Plums, for which the thanks of the committee were voted. Mr. Sage, gr. to Earl Brownlow, Ashridge, sent cut branches of eight varieties of Nuts, to show their free-bearing character when grown as pyramids. The varieties were the Close, Purple, Red, and Frizzled Filberts, Kentish Cobs, Daviana, and two unnamed, and certainly they were carrying a beautiful crop. This is a favourable year for Nuts, and most trees are heavily loaded, but we have watched Mr. Sage's pyramids for several seasons, and have never seen them without a crop. The thanks of the committee were voted. Mr. J. H. Smith, Iver, Bucks, showed eight very fine fruits of the Lord Suffield Apple, gathered from a three-year-old tree. Mr. Voice, builder, Horley, showed one of his small span-light frames with glazed sides, in which was growing a strong and well-fruited Cucumber. The frame will no doubt be welcomed by many amateurs possessing only small gardens, as a necessary adjunct to their garden furniture, and the committee no doubt thought so too, as they gave it a First-class Certificate. Mr. Voice also showed some Cucumbers preserved, thoroughly plump and fresh, from three weeks to a month, by having their stalks inserted in Potatos. Some fairly well ripened cobs of Cobbett's Improved Maize, came from Mr. R. Dean, Ealing. They were cut from plants raised from seed sown in the open ground on April 15 last. Fruit-bearing branches of two autumn-bearing Raspberries, Saisson blanc and Saisson rouge, came from the

Society's gardens at Chiswick, and two seedling Damsons were contributed by Mr. Horley, Toddington, Beds. Very fine specimens of The Sultan Plum, a large and handsome variety, sent out by Mr. Rivers, were shown by Mr. Dancer, Little Sutton, Turnham Green; and several specimens of The Conqueror Cucumber came from Messrs. Kelway & Son, Langport. It is a smooth-skinned fruit, and appears to be very free bearing. The largest specimen measured 26 inches long, and 8 inches in circumference.

DAHLIA SHOW.—This was a very thin show, both as to the number of subjects staged and the attendance of visitors. Of Dahlias there were very few, and also of Gladioli, in both of which classes, however, there were some very fine flowers; while the display of Asters was somewhat larger, and contained some remarkably fine blooms. Mr. Keynes was the only exhibitor in the classes for thirty-six and twenty-four Dahlias, and took 1st prize in both instances. Both stands were very good ones, the best flowers being of Arbitrator, Memorial, Queen's Messenger, Flora Wyatt, John Neville Keynes, John Standish, Juno, James Cocker, Pauline, Prince Arthur, Annie Neville, and Arbitration. The only contested class was that for twelve blooms from amateurs, and here Mr. Glasscock, Rye Street, Bishop Stortford, was 1st; Mr. G. Smith, New Villa, Edge Lane, Edmonton, 2d; and Mr. J. C. Quennell, Brentford, 3d. Mr. Glasscock had also the best six Fancies. The open class for twenty-four cut spikes of Gladioli introduced us to new exhibitors at the London shows—Messrs. Robertson & Galloway, Ingram Street, Glasgow—who took the 1st prize the first time of asking, with a fine lot of flowers, shown in grand condition considering the length of their journey from the North. The best spikes were of Undine, Monsieur Legouve, Psyche, Horace Vernet, Madame Desportes, Hesperia, Ambroise Verschaffelt, Sylvia, Leda, Adolphe Brongniart, and Orpheus. Messrs. Kelway & Son, Langport, whom we have not seen 2d for a very long time, occupied that position on this occasion with a group of evenly matched spikes of fine quality. The leading sorts were Formosa, Lady Bridport, Meyerbeer, Orphée, Shakspeare, Parnassus, Mrs. Reynolds Hole, Lyncæus, George Galloway, Hesperia, and Ababa. Mr. Douglas also exhibited. In the amateurs' class for twelve the Rev. H. H. Dombrain was 1st with a fine lot, including a spike of Meyerbeer, with twelve fully opened and perfectly fresh flowers, and good spikes also of Triumphans, Princess Mary of Cambridge, Talisman, La Vésuve, Areane, Schiller, and Orphée. Mr. Douglas was 2d. For six, the same exhibitors occupied the same relative positions. Amongst the Asters nothing was shown equal to the examples staged by Mr. G. Wheeler of Warminster, which were really grandly finished flowers, and he took the 1st prizes easily in the classes for twenty-four French varieties and twenty-four German or quilled varieties. In the former class, Mr. J. Stickler, gr. to — May, Esq, London Road, Reigate, was 2d with nice blooms; while in the latter Mr. J. Benham, Bagnor, Newbury, was 2d. Mr. Turner also showed two very nice stands of quilled flowers. The silver medal and two guineas offered by Messrs. Sutton & Sons for twenty-four blooms went to Mr. J. Morgan, gr. to Major Scott, Wray Park, Reigate, who had the best of three collections, the next coming from Mr. Benham, Bagnor—fine quilled flowers. Why do some exhibitors do all they can to detract from the merit of their flowers by using fringed and lace papers under them? If they think it improves they make a great mistake, for anything which attracts the eye from the flowers prevents full justice being done to the latter; besides being an offence against the canons of good taste, which rebels against natural flowers being ornamented by artificial means. The only six Liliums, all auratums, in nice condition, came from Mr. Turner.

There were fourteen classes for fruit, but the display was very poor, probably owing to the nearness of the Alexandra Palace show. Prizes were offered for certain named varieties of Apples and Pears, and the competition resulted in as much grumbling as could be found at a show of much greater pretensions, from the inability of the parties concerned to agree, in some cases, which were the right, and which the wrong, sorts shown under certain names. For instance, in the class for Irish Peach Apples, there were two exhibitors, the one showing a sort of Codlin-shaped green apple, and the other what we know as the Red Astrachan. The 1st prize was awarded to the latter. In the next class, for Early Juliens, two very distinct dishes were shown, one flat, and generally believed to be the true thing; and the other a ribbed, conical-shaped fruit of the same colour, which the judges thought were rightly named, and we do not attempt to solve the problem. Then, again, we heard complaints of one of the prize dishes of Pears being wrongly named, but we did not investigate the case, and left the fruits, regretting the circumstances which kept some of the leading pomologists away.

Alexandra Palace: *September* 2, 3, *and* 4.—The International Fruit Show, which opened at the Alexandra Palace on Thursday last, may be taken to be on the whole fairly successful, though it was not so extensive as we had expected, which may perhaps be accounted for by the fact that about one hundred entries were made by persons who did not bring their productions—a proceeding which is most annoying to show managers. Besides this, a lot of foreign fruit was on the way, but could not be got up in time. The show was held in the central hall—the collections of fruit, Grapes, and Pines, with the table decorations, occupying four rows of tables up the centre, while the Apples and Pears, vegetables and miscellaneous productions occupied long stages on either side. We had hoped that with extended experience the arrangements made for conducting these shows would have been simplified and improved, but we regret to say that the same slow, clumsy, and roundabout way of announcing the awards still obtains.

COLLECTIONS OF FRUIT.—In the class for a collection of sixteen sorts of fruit there were four competitors, who made a most admirable display. The best came from Mr. Coleman, gr. to Lord Somers, Eastnor Castle, and the high quality and beautiful finish of all his things were a great credit to him. Grapes were of course the leading feature, and the dishes of Muscat of Alexandria, Lady Downe's, Waltham Cross, and Black Hamburgh, were exceedingly good, as might be expected. The dish of Waltham Cross was a novelty and the three bunches cut from a pot Vine were very nice, but spotted towards the apex. Mr. Coleman thinks this will prove a good keeping Grape, but the spotting much detracts from its appearance, and it would be interesting to know if this is constitutional. The other fruits were nice Smooth Cayenne and Moscow Queen Pines, fine Golden Gem and Victory of Bath Melons, good dishes of Kirke's and Jefferson's Plums, large and handsome Bellegarde Peaches, Elruge Nectarines, splendidly coloured; first-rate Brown Turkey Figs, Morello Cherries, Williams' Bon Chrétien Pears, and remarkably fine Moorpark Apricots. Mr. Wildsmith, gr. to Lord Eversley, Heckfield Place, came in a good 2d with a capital lot of fruit, the most noticeable of which were the Noblesse Peaches, very highly coloured, grand Downton Nectarines, fine Shipley Apricots, good Plums and Morello Cherries, and a nice Smooth Cayenne Pine; his Grapes were also good, and especially the Lady Downe's, which showed a good finish, and the Black Hamburghs were also good. Mr. Goodacre, gr. to Lord Harrington, Elvaston, who came in 3d, had also an excellent lot of fruit, including fine Canon Hall Muscats, very fair Madresfield Court, and good bunches of Muscat of Alexandria, but not well coloured; good Peaches, Nectarines, and Apricots, and fine dishes of Jargonelle Pears and Red Astrachan Apples. Mr. G. Sage, gr. to Earl Brownlow, Ashridge, was 4th.

There were four competitors in the class for twelve dishes of fruit, exclusive of Pines; and Mr. G. Gough, Little Malvern Court, had a most meritorious lot of fruit, which included very good Buckland Sweetwater Grapes, Apricots, Kirke's and Green Gage Plums, Elruge Nectarines, Brown Turkey Figs, Jargonelle Pears, and Morello Cherries. The 1st prize was awarded to this collection. A good collection also came from Mr. G. L. Bushmore, Tendring Hall, Stoke, who was 2d, and which included nice White Sweetwater and Black Hamburgh Grapes, very fine Violette Hâtive Nectarines, Bellegarde Peaches, good Brown Turkey Figs, Cosford Nuts, Williams' Bon Chrètien, Green Gage and Kirke's Plums, &c. Very creditable specimens were also shown by the other competitors. The most noticeable things were a fine dish of Murrey Nectarines, Transparent Gage Plums, and a dish of home-grown Oranges.

The next class, which numbered only two competitors, was for twelve dishes of fruit, exclusive of Pines and Grapes, and here Mr. Cox, gr. to Earl Beauchamp, Madresfield Court, came in 1st, showing large and well-coloured samples of Crawford's Early and Violette Hâtive Peaches, Oldenburg Nectarines (very fine), very large White Genoa and Brown Turkey Figs, Moorpark Apricots, good fine Jargonelle Pears, Golden Gem Melon, and Jefferson's and Kirke's Plums. Mr. James Chard, gr. to Sir F. Bathurst, Clarendon Park, Salisbury, was awarded the 2d prize for a neat lot.

PINES were not shown in such large numbers as we had expected, only twenty-two fruits being put up. The most meritorious exhibition amongst them consisted of twelve Smooth Cayennes, fruited in sixteen months, and averaging from 5 lb. to 6 lb. each. We did not learn the exhibitor's name. There were only two competitors with "Two Smooth Cayennes," and three in the class for Queens, while one only made an appearance in the class for Charlotte Rothschild: they were very small, and not Charlotte Rothschild at all. For two Smooth Cayennes, Mr. David Wilson, gr. to Earl Fortescue, Castle Hill, South Molton, Devon, was 1st, and Mr. Jones, Frogmore, 2d. The best two Queens cames from Mr. James Harris, Singleton Gardens, Swansea.

GRAPES made a very good show as to numbers, but produced nothing sensational, though they were good quality. There were fine collections of eight sorts, making a very fair class. The varieties shown in the best condition as to size of bunch, berry and general finish were Black Alicante, Buckland Sweetwater, Lady Downe's, Tynningham Muscat, Gros Colman, Bowood Muscat, Foster's Seedling (very good), Black Prince. These came from Mr. W. Upjohn, gr. to the Earl of Ellesmere, Worsley Hall, Manchester, and well won the 1st prize. Messrs. H. Lane & Son were 2d, and Mr. W. Earp, gr. to J. S. Sellon, Esq., Hume Tower, Bournemouth, 3d. Only two collections of four varieties were staged, and one of these was very second-rate. The winning collection, which came from Mr. Coleman of Eastnor Castle Gardens, contained medium-sized but well finished examples of Lady Downe's, Muscat of Alexandria, Black Hamburgh and Waltham Cross White, the latter shown in very nice condition. Ten dishes of three bunches each of Black Hamburgh were staged, and included some very good samples; indeed the class altogether was a very good one. Taken for their fair size and general finish, Mr. Coleman's and Mr. Wildsmith's exhibits stood well to the front, and came in 1st and 2d in the order named. There were some larger bunches with capital berries, but wanting in either colour or bloom. Amongst the Muscat Hamburghs—of which five dishes were staged—the largest bunches were not so well coloured as the other but smaller samples; Messrs. H. Lane & Son were 1st. Excepting on the point of colour, Madresfield Court was fairly well shown by two exhibitors, the best coming from its raiser, Mr. Cox. Out of three dishes of Black Alicante the best came from Mr. R. Farrance, Chadwell Heath, Essex. They were not large bunches, but well finished, a little over-thinned perhaps, but carrying a splendid bloom. Lady Downe's was shown by eight exhibitors, and the class, considering the earliness of the season for this variety, was fairly good. None of the bunches were large, but the berries were good, and in the case of the prize-takers—Mr. Coleman, Mr. Earp, and Mr. Wildsmith—they were well-coloured. The Muscat of Alexandria class contained seven lots, and in one or two cases where good bunches were put up the berries were quite green. The largest and best-ripened examples came from Messrs. H. Lane & Son, Mr. John Edmonds, Bestwood Lodge Gardens, Nottingham, and Mr. J. Akehurst, gr. to S. Copestake, Esq., Highgate Road, N. The examples shown in the class for the heaviest single bunch of black Grapes were remarkably poor in quality. The heaviest bunch weighed 6¼ lb.—Black Hamburgh, quite red, small in the berry, and shrivelled; the other three bunches were not worth mentioning. Only two whites were shown, the heaviest being Trebbiano, 5¾ lb., and very good for the variety. Eleven competitors put in an appearance in the class for baskets of 12 lb. of black Grapes, and there was not a bad sample amongst them. The principal variety shown was Black Hamburgh, and in some cases the size of the berries, bloom, and general finish were all that could be desired. Mr. Coleman came in 1st, Mr. J. Akehurst 2d, and Mr. G. Thomas, Whetstone, N., 3d. In the class for an ornamental basket of white Grapes, not to exceed 12 lb., there were six competitors, and the samples, especially of Muscat of Alexandria, would have been considered very good only they were deficient in colour. Foster's Seedling was shown in remarkably good condition. Mr. A. Bashford was 1st, Mr. J. Akehurst again 2d, and Messrs. H. Lane & Son 3d. The classes for three bunches of any black or any white variety brought out no competition, and of a collection of six sorts there was only one exhibitor, who had, however, fine samples of Gros Colman, Muscat Biferè, a round-berried Grape, Muscat Hamburgh, and Golden Hamburgh—the latter a finer bunch than we have seen for a long time. In the class for a single bunch of Black Hamburgh there were seven competitors, and the class a fairly good one as to quality. The sample shown by Mr. Wildsmith was a very fine one, not a large bunch but with berries of magnificent size, and fairly well finished off. The prizes were awarded to Mr. Wildsmith 1st, and Mr. Coleman 2d. Only one small bunch of Golden Champion was staged in the class for that variety, while there were five competitors with single bunches of Lady Downe's, the best coming from Mr. Coleman and Mr. Wildsmith. The same number of competitors appeared in the corresponding class for Muscat of Alexandria, and some of the bunches would have passed muster anywhere had they been better coloured: Mr. Coleman was again first, Messrs. Lane & Son being 2d. Eleven dishes were staged in the class for one bunch of finest flavoured black, and the varieties shown included Muscat Hamburgh and Black Hamburgh: the prizes were awarded to Mr. W. Cox, Mr. Coleman coming in 2d. In the corresponding class for whites the sorts staged were Muscat of Alexandria,

Canon Hall Muscat, Duchess of Buccleuch, and Buckland Sweetwater: Mr. Wattam, gr., Shendish, Hemel Hempstead, was 1st.

PLUMS.—The class for twelve Plums of any sort was a remarkably good one, no less than thirty-nine dishes being shown. The prizes were awarded to Mr. W. S. Stephens, Chesterfield Park, Saffron Walden; Mr. Bridgman, gr. to T. Somers Cocks, Esq., Thames Bank, Great Marlow; and Mr. Lane, gr., Pyrgo Park, near Romford. The varieties shown were Kirke's, Goliath, Green Gage, Jefferson, Victoria, Mirabelle de Nancy, Magnum Bonum, Rivers' Early Favourite, Washington, Oullin's Golden Gage, Pond's Seedling, large and very handsome; Guthrie's Late Green, Belgium Purple, and Dove Bank.

FIGS.—Of twelve Figs, any sort, there were eight exhibitors, and amongst the finest samples were Brunswick and Brown Turkey. The prizes went to Mr. W. Chisholm, gr. to R. C. Taylor, Esq., Boughton Place, Maidstone, and Mr. James Chard.

NECTARINES.—Of Nectarines there were twenty-two single dishes, eleven containing six fruits, and the same number containing twelve. In the former class Downton, Violette Hâtive, Elruge, Pitmaston Orange, and Murrey were shown in fine order. Similar varieties figured in the latter class, which included also Lord Napier, large and finely-coloured, and Victoria, pale green. Mr. Thomas McClure, Hartley Grange, Winchfield, had the best six, and Mr. W. Coleman the best twelve.

PEACHES.—Thirty-two single dishes of Peaches were put up in twelves and sixes like the Nectarines. In the class for twelve, Crawford's Early was shown in remarkably fine size and colour, and the next best were of Bellegarde, Barrington, Violette Hâtive, Grosse Mignonne, Noblesse, and Dr. Hogg. Similar varieties were also shown in the class for six, in which Mr. W. Cox was 1st, and Mr. Wildsmith 2d. The best twelve came from Mr. Coleman, who was followed by Mr. T. Jones.

APPLES.—Of Apples there were nearly 200 dishes, but the tables looked thin from the fact of the dishes only containing two of a sort. In the class for six sorts of dessert varieties, two of each, there were sixteen competitors; and the varieties best represented were Early Harvest, Duchess of Oldenburg, Ribston Pippin (grand size), Cornish Gilliflower, Cox's Orange Pippin, Red Quarrenden, Fearn's Pippin, Kerry Pippin, Red Astrachan, Reinette du Laak, Cellini Pippin, and Early Julien. The 1st prize went to Mr. J. Pluck, Jersey; the 2d to Messrs. G. & J. Lane, St. Mary Cray, Kent; and the 3d to Mr. W. Holder, gr., Springfield, Maidstone. In the corresponding class for baking Apples, there were twenty-five competitors, and the class altogether was an uncommonly good one, most of the samples being large and fine. Amongst the more prominent were Lord Suffield, Waltham Abbey, Belle du Bois, Hollandbury, Blenheim Orange, Emperor Alexander, Beauty of Kent, Nelson's Glory, New Hawthornden, Keswick Codlin, Bedfordshire Foundling, Tower of Glamis, Mère de Ménage, Kentish Fillbasket, Warner's King, and Alfriston. The prizes in this case went to Mr. W. Cocks, Monks Hall, Spalding, Mr. Pluck, and Mr. G. Bashford. The best twelve dessert Apples fit for the table came from Mr. R. Webb, Calcot, Reading, and Mr. James Pluck had the six heaviest—London Pippins—weighing 4 lb. 13 oz.

PEARS also made a capital show. Eight dishes were staged in the class for the six heaviest, but, except in the case of Grosse Calabasse (4 lb. 9 oz.) and Beurré Bosc (3 lb. 15 oz.), the weights of the others, though much larger, were not stated. Mr. G. Bashford was 1st, and Mr. E. Smith, Bentham Gardens, Cheltenham, 2d. In the class for six Jargonelles there were seven dishes, but none of them first-rate. The class for six of any sort had twenty-two competitors, and amongst the more noticeable varieties were Fondante d'Automne, Williams' Bon Chrétien, Jersey Gratioli, Summer Franc Real, and Jargonelle. Mr. W. B. Upjohn, Worsley Hall, had the 1st prize, and Mr. J. W. Moorman the 2d. The class for twelve sorts, two of each, brought out sixteen competitors, and made a very good class. Some of the best samples were of Louise Bonne of Jersey, Beurré Clairgeau, Beurré Diel, Pitmaston, Duchesse d'Angoulême, Marie Louise, Williams' Bon Chretien, Theodore, Marie, Hacon's Incomparable, Beurré d'Amanlis, Beurré Bachelier, Doyenné du Comice, Doyenné Bouch. Mr. Thomas Jones took the 1st prize, Mr. G. Bashford the 2d, and Mr. Pluck the 3d, an extra being awarded to Mr. Thos. M'Clure.

VEGETABLES made a large and fairly good show, and the competition was confined principally to Cheltenham growers. There were six competitors in the class for six varieties, and the 1st prize went to a capital collection, which included excellent samples of Veitch's Autumn Giant Cauliflowers, Myatt's Prolific Potatos, Veitch's Perfection Peas, Nantes Carrot, Cucumbers, and French Beans. The second prize collection contained good Leicester Red Celery, Banbury Onions, Trophy Tomatos, Canadian Wonder Beans, Veitch's Perfection Peas, and Globe Artichokes. For a collection of sixteen varieties there was a much stronger competition, seven lots being staged. Equal 1st prizes were awarded to Mr. Cox, Madresfield Court, and Mr. Holder, Prestbury, Cheltenham. The winning stands contained Cauliflowers, Cucumbers, French Beans, Celery, Peas, Capsicums, Turnips, Globe Artichokes, Tomatos, Potatos, Beets, Parsnips, Onions, and Brussels Sprouts—all of grand quality. Only two collections of salads were staged, but both contained almost everything that could be named, and all of high quality. Mr. Smith, of Cheltenham, was 1st.

MELONS.—Of green-fleshed Melons there were twelve, and the best was a round, nicely netted fruit, unnamed; Worcester Hybrid, a small, pretty little fruit, 2d; and Golden Perfection 3d. Other varieties shown were Golden Queen, Colston Basset Seedling, The Shah, White's Favourite, Victory of Bath, &c. The best of eight scarlet-fleshed Melons were Read's Scarlet-flesh and Hero of Bath.

TABLE DECORATIONS, &C.—There was a very good competition in the classes for table decorations and bouquets. For a table decoration of flowers and fruit combined, suitable for a table to seat twelve persons, the prizes went to Mr. W. Soder, gr. to O. Hanbury, Esq., Weald Hall, Brentwood; Mr. G. B. Wood, Hornsey Rise, N., and Miss Money, of the Alexandra Palace. The best two flower-stands came from Mr. Buster, St. Mary Cray, Kent; Mr. Chard, and Mr. Hudson; and the best three pieces from Mr. Hudson and Mr. Soder. For a wedding bouquet Mr. J. Studd, Grange Nursery, Heaton Mersey, Cheshire, was 1st; and for three bouquets for a ball-room, Mr. Money came in 1st.

MISCELLANEOUS.—In this class Messrs. George Paul & Son made a large and most interesting display of well cropped pyramid Apple trees, 5 to 6 feet high, lifted from the open ground, and brought up very neatly and well in baskets. Messrs. Rivers & Son also sent a smaller group of fruit-bearing trees, such as upright cordons of Apples and Plums and small espalier-trained trees of the same subjects. Messrs. Rivers also contributed a good collection of Apples, Pears, and Plums. Mr. William Paul showed a large collection of named Apples, and from Mr. W. Soloman, gr. to D. Flooke, Esq., came a gigantic Pumpkin that would have gladdened the eyes of the late Tom Hood. A collection of twenty-eight varieties of Nuts was shown by Mr. Webb, Calcot, Reading; and Messrs. Brown, Stamford, staged handsome specimens of Peasgood's Nonsuch Apple. From Mr. B. S. Williams came two small collections of choice plants. Mr Matthews, the Royal Pottery, Weston-super-Mare, showed an attractive group of garden pots, ornamental Vases, Fern pans, Orchid pots and baskets, &c. Mr. Voice, Horley, showed his garden frames, Messrs. Deard & Co., Harlow, their hot-water apparatus; and Mr. Yeats, Mortlake, specimens of his zinc garden labels.

Bishop Auckland Horticultural: *August* 27.—The exhibitions of this Society might be very appropriately termed the great Floral Carnivals of the North, for such they are in fact. The northern florists especially turn their eyes Durham-ward when Bishop Auckland holds its annual floral *fête*, and they assemble there in great numbers, and take with them flowers that are worthy expressions of their skill as cultivators. For something like twenty-three years the annual show has been held—the first on a Wednesday, which proved a wet day, but all the succeeding exhibitions on Friday; and notwithstanding the proverbially unlucky character of the day, the weather has always been fine. In fact the show is regarded as the occasion of a great outing in the mining districts of South Durham, and were the day wet it would be a social calamity.

All the departments of the show were well sustained, for the promoters commenced by offering handsome prizes, and their spirited policy has been amply rewarded. In the classes open to Great Britain the sum of £10 is offered for six stove and greenhouse plants; £5 for twenty-four Dahlias; £4 for nine spikes of Hollyhocks; and £3 for nine spikes of Gladioli. In all other divisions of the schedule liberal prizes encouraged exhibitors to do their utmost.

No better site could possibly be selected for the exhibition than the grounds of Auckland Palace, the residence of the Lord Bishop of Durham, the entrance to which is at the eastern end of the market-place. In a glorious dell, round which a stream known as the Ganless winds, with a somewhat precipitous rocky ascent on two sides, crowned with trees, and on the other sides by well-wooded slopes, the tents are set up; and eastward of the tents, in a large open space, with an abundance of shady trees at hand, the band is stationed, and so exquisitely do the softest cadences of the sweetest music distribute themselves on the winged air, that they are distinctly heard on the hill-tops, which become crowded with visitors during the afternoon. Looked at from that elevated position, with a clear sky overhead, and "God's beauteous sun beaming through and shining over all," the scene is most animated, and it is one which leaves a powerful impression on the feelings when viewed for the first time.

The park is about 460 acres in extent, grandly undulated, and clothed with trees. Close to the show ground is the "Seven Oaks," a group of trees planted by a famous Bishop Van Mildred many years ago; one standing in the centre, and six ranged round it in a circle. In another part of the grounds can be seen a fine Oak planted by Bishop Barrington in 1794, or near it; and another by Bishop Maltby in 1841, with a memorial stone near each. It is thought by some that Bishop Auckland is a corruption of Bishop's Oak Lands; some fine old Oaks having at one time flourished here; and it is also thought that it once formed the confines of Sherwood Forest.

Turning now to the show itself, it may be stated that it is extremely difficult to take anything like adequate notes of such an important exhibition, owing to the early hour at which the public are admitted. As soon as the judges have made their awards the tents become thronged, and locomotion is very difficult. The chief feature was the handsome special prizes offered for cut Roses, and though several of the leading growers exhibited, the trade competition was limited to three well-known cultivators—Mr. George Prince, Oxford; Mr. George Davidson, Hereford; and Mr. John Harrison, Darlington. The fine examples of Roses staged by Mr. Geo. Prince, who was so far ahead of his rivals as to completely defy competition, were a complete surprise, so large and beautifully coloured were the flowers. Mr. Prince says he has not a Manetti stock in the place, and it would appear that the seedling Briar is the thing to produce good Roses, early and late. His twenty-four trebles consisted of Prince Camille de Rohan, very fine; Annie Wood, very fine; Etienne Dupuy, Duke of Wellington, very fine indeed, in the half-developed state; Maréchal Niel; Baronne de Rothschild, very fine; Maurice Bernardin, Madame Victor Verdier, rich in colour; Gloire de Santenay, Victor Verdier, Clémence Raoux, spotted and stained with rose on a blush ground; Marie Rady, very fine; Xavier Olibo, very fine; Madame Charles Crapelet; François Michelon, beautiful in colour; Dr. Andry, La France, Pierre Notting, fine in colour; Reynolds Hole, expanding buds, very fine; Reine Blanche, Paul Néron, Madame George Schwartz, Louis Van Houtte, and Tea Belle Lyonnaise, a beautiful Rose. Mr. Davidson, who was 2d, had, as his best flowers, Mons. Woolfield, Baroness Rothschild, Xavier Olibo, Black Prince, Paul Néron, Exposition de Brie, Captain Christy, Anne Laxton, and Sénateur Vaisse. Mr. John Harrison had good examples of La France, Sophie Coquerelle, Alexander Dickson, a rose-coloured globular flower; Madame Victor Verdier, very bright; Captain Christy, Beauty of Waltham, fine in colour; Madame Willermoz, and Belle Lyonnaise. Mr. Prince was 1st with twenty-four single flowers, his leading flowers being Marie Rady, Charles Lefebvre, Belle Lyonnaise, Beauty of Waltham, Marie Van Houtte, a lovely Tea; Alfred Colomb, Reynolds Hole, Pierre Notting, Gloire de Santenay, Princess Beatrice, Marie Baumann, and Louis Van Houtte. 2d, Mr. Davidson; 3d, Mr. Harrison. Mr. Prince also had the best twelve yellow Roses, staging flowers of Maréchal Niel; Mr. Davidson being 2d, with the same variety. The best twelve Roses of any variety, not yellow, also came from Mr. Prince, who had splendid blooms of Baroness Rothschild; Mr. Davidson coming 2d, with the same variety; and Mr. Harrison with Velours Pourpre, a dark and somewhat dingy-looking Rose. There were also special classes for gardeners and amateurs, but there was nothing staged worthy of notice. Altogether the sum of £55 was awarded as special prizes for Roses.

In the open class for twenty-four Dahlias there was an excellent competition, several good stands being staged. Mr. John Harrison, Darlington, was 1st with J. W. Keynes, Ovid, Queen of York, James Cocker, Vice-President, Annie Neville, Julia Wyatt, Gipsy King, John Standish, King of Primroses, Thomas White, Arbitration, Thomas Goodwin, Adonis, Emperor, Lady Derby, Marquis of Lorne, Edward Purchase, Chairman, &c.; 2d, Mr. Henry Clark, Rodley, his best flowers being James Service, Cremorne, James Cocker, Vice-President, Acme of Perfection, Alexander Cramond, J. W. Keynes, Chancellor, Leah, Yellow Boy, Toison d'Or, Lord Napier, and John Standish; 3d, Messrs. R. Edwards & Son, Nottingham. The flowers shown in the other classes were of good quality, and generally repetitions of the varieties named above. The best twelve Fancy Dahlias came from Mr. John Forster, Carlisle, and comprised Queen of Scots, Flossy Williams, Queen Mab, Butterfly, Fanny Sturt, Egyptian Prince, Rev. J. B. Camm, Mr. Saunders, Flora Wyatt, &c. Mr. Henry Clark was also 2d in his class.

Gladioli were splendidly shown, in immense spikes

of finely developed flowers. The best nine were staged by Mr. J. Thompson, Newcastle-on-Tyne, who had Mons. Le Gouve, Peeress, Orphée, Madame Desportes, Eugène Scribe, and the rest unnamed. Mr. George Charlton, Morpeth, was 2d, having Eugène Scribe, Robert Fortune, Horace Vernet, Le Gouve, and some fine seedlings. There were also clusters for seven and six spikes; and these were well shown also. The best seven came from Mr. H. Thompson, and the 2d best from Mr. J. Burrell. The best six were staged by Mr. Thos. Battersby, Blaydon-on-Tyne; Mr. Burrell being again 2d.

Hollyhocks in spikes were somewhat below the average. Evidently the recent wet weather had told against them. Cut flowers, also, were below the mark, and they bore traces of the recent rains. Stocks, as spikes shown in water, were fine and attractive, and the Asters were plentiful and good, but they lacked the fine development found in the West of England. Bunches of miscellaneous cut flowers were numerously shown, and so were those of bedding Pelargoniums; but the fine bold trusses of the hybrid Nosegays are rather discredited, seeing that the judges are instructed to reward only flowers having finely formed pips.

Striped French Marigolds, in all their beauty and richness of marking, are always remarkably well shown at Bishop Auckland. A model flower is shaped like a Ranunculus, the petals regularly arranged, and they should be of a rich golden colour, with a regular stripe of maroon on the sides, but not on the edges. Some of the flowers were beautifully marked. Mere size is of no value, the great thing is regularity of marking. The striped varieties were very numerously shown, so also were the orange and lemon African varieties; and here, again, mere size carried no advantage, symmetry in form and purity being the main points.

Passing now to the plants, the best six stove and greenhouse plants in the open class were staged by Mr. Thomas Wilson, Middlesborough, several collections competing. His plants were Ixora javanica, Lapageria rosea, Clerodendron Balfourianum, Allamanda Hendersoni, Dipladenia amabilis, and Phœnocoma prolifera Barnesii. Mr. Gordon Weir, Meanship, was 2d, the best plants being Allamanda nobilis, Ixora coccinea, Stephanotis floribunda, and Dipladenia amabilis. Mr. Edward Lazenby, Darlington, was 3d, and had a fine example of Allamanda nobilis. Mr. T. Wilson also had the best three plants, which consisted of Dipladenia amabilis, Allamanda Hendersoni, and Erica Eweriana superba; 2d, Mr. J. Hebman, Darlington. In the other classes common plants were found, though on the whole nicely grown, such as Thunbergia alata, Begonia weltoniensis, Vallota purpurea, Plumbago capensis, Lantana Cameroni, Petunias, Fuchsias, Clematis, &c.

Fuchsias were small, but nicely flowered. The Zonal Pelargoniums were grandly done—large, finely-furnished plants, with good heads of flower of excellent quality, the plants 2½ to 3 feet in diameter. The same exhibitor, whose name we failed to obtain, had the best six and the best four—in the latter case staging Vesta, Clipper, Beauty, and Adelaide; and in the former Chieftain, Beauty, Mrs. W. Paul, very pretty, Marie Van Houtte, Flambeau, and Emile Licau. Other varieties were Dr. Lindley, Dr. Koch, very fine, and Amelina Grisau.

The foliaged plants were a strong feature, and the competition was exceedingly keen. Equal 1st prizes were awarded to Mr. N. Black, of Darlington, and Mr. Westcott, Raby Castle Gardens, and whenever this is done it is the practice at Bishop Auckland to lump together the 1st and 2d prizes, and equally divide them: no 2d prize is then given. Mr. Black had Croton variegatus, Maranta roseo-picta, a grand specimen, and really the most noteworthy plant in the whole show; M. zebrina, Cocos Weddelliana, Croton angustifolius, and a fine Alocasia Lowii. Mr. Westcott had a large and finely grown Croton pictus, Alocasia metallica, Maranta roseo-picta, M. zebrina, very fine; Dicksonia squarrosa, and a Pandanus. A group from Mr. James Noble, Woodburn, was placed 3d, which contained Pandanus utilis, very fine; Corypha australis, Ficus Parcellii, Dracæna ferreæ, Alocasia macrorhiza variegata, and Dasylirion serratifolia. From other exhibitors there were good examples of Areca sapida, Dracæna Guilfoylei, Maranta Veitchii, M. vittata, and Latania borbonica.

The best group of exotic Ferns came from Mr. Westcott, Raby Castle Gardens, and among them were excellent examples of Davallia Mooreana, an elegant exhibition Fern; Leptopteris superba, Gleichenia flabellata, Adiantum formosum, Gymnogramma peruviana argyrophylla, &c. Mr. James Noble came 2d with Thamnopteris australasica, Goniophebium sub-auriculatum, Lomaria Fraseri, Adiantum farleyense, Todea superba, and Asplenium Belangeri. Mosses were also very nicely shown.

The best three Orchids came from Mr. Westcott, and comprised a good plant of Peristeria alata, Miltonia spectabilis, and Calanthe Masuca; 2d, Mr. L. Etherley, Hartley, with Oncidium flexuosum, Cypripedium longifolium, and Odontoglossum Roezlii. Mr. J. Noble also staged three nice plants.

There was a falling off in the fruit department, as compared with previous years. The best selection of eight dishes came from Mr. H. Jones, Wynward Park, and comprised Foster's Seedling and Black Hamburgh Grapes, Peaches, Nectarines, Apricots, Figs, Melons, &c. There was also a class for eight dishes of hardy fruits. Grapes were somewhat sparingly but fairly well represented; among black varieties being Black Hamburgh and Madresfield Court, and among white Grapes, Muscat of Alexandria, Golden Hamburgh, and Canon Hall Muscat. Peaches, Nectarines, Apricots, Cherries, Currants, culinary Apples, dessert Apples (among the latter one named Atkins' No. 1, a nice early dessert variety apparently intermediate in character between Red Astrachan and Juneating), Pears, &c., were all well represented, but it was physically impossible to obtain particulars owing to the throng of visitors.

Vegetables were numerously and splendidly shown, and we must be content with simply bearing testimony to their high class quality.

The sum of £1020 was taken at the entrance gates, the greater part of it in one shilling admissions. The behaviour of the great crowd was most orderly, but no intoxicating drinks are allowed to be sold in the grounds. (*From a Correspondent.*)

Trowbridge Horticultural: *August* 25.—This highly popular West of England show was again favoured with brilliant weather, and an immense number of persons flocked into the town from all parts to witness the exhibition. On the occasion of the annual show the town gives itself up to a general holiday, the large woollen and other mills are stopped for the day, the shops are closed, and for once business is sacrificed to pleasure; excursion trains run from Bath, Bristol, and the surrounding places, and the adjacent villages pour in their occupants from all points. A first-class military band is always engaged, which is a great source of attraction; and, like the towns in the midland and northern counties, Trowbrige manifests a great liking for high-class music. The committee take upon themselves a great financial responsibility, but they are well supported; fine weather luckily generally favours the annual show, and there is a sum of something like £230 to the credit of the promoters at their banker's.

The site of the exhibition is a field immediately contiguous to the railway station, and though it is lamentably deficient in shade, experience has shown that if it be removed to any distance from the town a diminished attendance results. Six large tents, arranged as a circle round the circumference of the field, accommodate the plants, &c.; the band is stationed in the middle, and there is ample space for perambulation round it.

The admirable arrangement carried out at Trowbridge greatly assists the work of judging, which is invariably done smoothly and rapidly. The open classes are in one tent, the nurserymen's in another, the amateurs' in another—the fruit by itself, the vegetables also—and, in consequence, there is no confusion Sets of cards, each containing six classes, are given to the judges, and as soon as the winning numbers are placed on one of these a messenger takes it to the secretary's tent, and in a short time the prize cards are attached to the group.

Plants are always a good feature at Trowbridge, though this season witnessed a slight falling off in numbers as well as in the quality of the plants. This experience has been by no means peculiar to Trowbridge. The leading class is for nine stove and greenhouse plants: the best group came from Mr. J. F. Mould, Pensey, whose best examples were Dipladenia amabilis, D. insignis, Allamanda Hendersoni, Statice profusa, and Erica Austiniana; 2d, Mr. W. C. Drummond, Bath, with Chironia ixifera, Dipladenia amabilis, Stephanotis floribunda, Statice profusa, &c. In the amateurs' class for six plants, Mr. Matthews, gr. to W. R. Brown, Esq., was 1st with Phœnocoma prolifera Barnesii, Rondeletia speciosa major, Statice Holfordii, Ixora aurantiaca, Allamanda nobilis, and Rhynchospermum jasminoides. Mr. J. Jordan, gr. to Major Clark, was 2d, his best examples being Dalechampia Roezlii rosea, finely grown; Cassia corymbosa, Eucharis amazonica, and Stephanotis floribunda. Mr. Jordan had the best three plants, viz., Dipladenia amabilis, Allamanda Hendersoni, and Eucharis amazonica. Mr. J. Matthews was 2d, with Beaufortia purpurea, nicely bloomed; Stephanotis floribunda, and Rondeletia speciosa major; 3d, Mr. G. Tucker, gr. to Capt. Clarke, who had the showy Asclepias curassavica, very bright and effective; Plumbago capensis, and × Begonia Weltoniensis.

The best foliaged plants came from Mr. W. C. Drummond, and were represented by Croton intermedius, Cordyline Veitchii, Zamia cycadæfolia, Croton variegatus, &c. The best new plant was an excellent example of Adiantum gracillimum.

The great feature of the show in the way of flowering plants was the Fuchsias, and in respect of the cultivation of fine examples of this popular plant, Trowbridge could, in all probability, hold its own against any other place in the United Kingdom. The plants are of size, finely furnished with foliage, and splendidly bloomed. The champion grower is Mr. J. Lye, gr. to the Hon. Mrs. Hay, Clyffe Hall, Devizes, and his 1st prize six plants consisted of Arabella, Mrs. J. Lye, and marginata, all light varieties; Georgiana, Acme, and the Hon. Mrs. Hay, dark. If one were disposed to find fault, in would be in the similarity of character shown by the three dark varieties. 2d, Mr. Matthews, gr. to W. R. Brown, Esq., with alba-coccinea, a very fine plant, but not sufficiently advanced in bloom; Lustre, Madame Cornelissen, British Sailor, Schiller, and Rose of Castile, all very good indeed. In the class for four varieties Mr. Matthews turned the tables on Mr. Lye, and took 1st with grand plants of Marchioness of Bath, very fine; Marginata, beautifully done; Souvenir de Chiswick, and Rose of Castile. Mr. Lye was 2d, with Mrs. J. Lye, Rose of Castile, Queen Victoria, and Hero. Other plants were staged, but they were not worthy of mention by the side of these superb specimens. One most noticeable feature was the fine quality of flowers seen on these plants.

Verbenas in pots are well done here also. The best were from Mr. E. Hobbs, gr. to W. S. Gayton, Esq., and consisted of Lilac King, Wm. Newman, James Birkbeck, one of the best for pot culture; Lady of Lorne, Ariosto Improved, and Mrs. J. Doel. Messrs. Jordan and Tucker were 2d and 3d, with capital plants also. Great Eastern, Géant des Batailles, and Purple Emperor, were the best in these collections. The plants are grown in large pots, and are neatly tied to flat wire frames, with a surface of flowers rising above them. Petunias are a most attractive feature, trained to sloping wire frames, so as to give a face towards the front; they are most profusely bloomed, and make an effective display. Zonal Geraniums were well shown by Mr. J. Lye and others; Mr. Lye's plants, to which the 1st prize was awarded, consisted of alba floribunda, Lucius, Soleil, Acme, a fine salmon-coloured variety; Mrs. Dorling, and Gloire de Corbay. In the nurserymen's classes the Fuchsias were inferior to those shown in the open classes; Pelargoniums were very good, and Petunias and Verbenas also.

Some remarkably good groups of tender Ferns were shown, the best coming from Mr. J. Coke, gr. to A. P. Stancomb, Esq. The most noticeable were Adiantum Farleyense, A. cuneatum, A. tenerum and A. concinnum; Gymnogramma chrysophylla, Alsophila australis, Dicksonia antarctica, Lomaria gibba, Thamnopteris nidus, Dicksonia squarrosa, and Blechnum corcovadense. Other good groups came from Messrs. Matthews and Abrahams, the last named having a fine example of Todea superba. There were many other plant classes, but the foregoing comprise the leading features of the show.

In the cut flower classes the best twenty-four Dahlias came, as is invariably the case, from Mr. John Keynes, Salisbury. The leading flowers were Victor, a new fancy, shown in the self form; J. N. Keynes, Alexander Cramond, Delight, Henry Walton, Vice-President, King of Primroses, Flora Wyatt, Edward Purchase, and Dolly Varden—all fine and symmetrical blooms. The best twelve fancies also came from Mr. Keynes, and comprised capital blooms of Mrs. Saunders, yellow tipped with white, a charming flower; Octoroon, Flora Wyatt, Carnation, John Lamont, and Fanny Sturt. The best six blooms of a seedling Dahlia of 1874 were Delight, pale ground edged with rosy lilac—petal, outline, and centre all good. The Society's Certificate of Merit for a seedling of 1875 was given to Victor, a novel and distinct fancy variety, orange-buff ground, striped and flaked heavily with maroon, fine substance and outline.

A magnificent stand of twelve spikes of Gladioli, with but few exceptions flowers of his own raising, was staged by Mr. Thomas Sampson, Preston Road Nurseries, Yeovil; and, if this is to be taken as Mr. Sampson's usual style of growth, some will have to look to their laurels in their own district. The varieties were Bianca, Grand Duchess, Duke of Edinburgh, Diana, Aubrey de Vere, very fine in colour; St. Jerome, very fine; Lady Georgiana Fane, very fine; Knight of Malta, Rosalind, very fine; Monstera, very fine; Bothynia, very fine; and General Lanza. The other flowers staged were very much inferior to these.

Collections of twenty-four distinct varieties of cut flowers were a capital feature, because so nicely displayed. The best came from Mr. J. Jordan, and included such fine things as Allamanda cathartica, Dalechampia Roezlii rosea, Plumbago capensis, Bougainvillea glabra, Tydæa Vesuvius, Eucharis amazonica, Dipladenia amabilis, Rochea falcata, Erica Bowiana, &c. Stands of fine things like this are infinitely to be preferred to the boxes of paltry bouquets seen at Reading and Newbury. Mr. Brown, Devizes, was 2d, and his stand included the gorgeous Dipladenia Brearleyana, D. amabilis, Allamanda Hendersoni, Bougainvillea glabra, Lapageria rosea, Vinca alba, and Tacsonia Van Volxemi.

Asters were splendidly shown; in fact, the season appears to be eminently favourable to the development of this splendid flower. The best flat-petalled flowers came from Mr. G. Garraway, Bath, mainly of

the Victoria type; Mr. Rolls, of Bath, was 2d. The quilled Asters shown by Mr. Burridge, gr. to S. Butler, Esq., were as near perfection as flowers could well be. In all the classes Asters were grandly shown, and though some fine examples of Truffaut's Aster were staged—large, finely coloured, and fully incurved flowers—the recurved, but large, full, and symmetrical Victorias had the best of it.

Roses were finely shown by Mr. George Prince, Oxford; his seedling Briar stocks are just now giving him splendid flowers. His twelve varieties, three trusses of each, were almost faultless, and consisted of Baronne de Rothschild, Alfred Colomb, Maréchal Niel, Baron Hausberg, La France, Comtesse d'Oxford, Camille Bernardin, Etienne Levet, Pierre Notting, very fine; and Paul Néron. Mr. J. Keynes was 2d, and Mr. G. Cooling, Bath, 3d, with smaller flowers. Mr. Prince also had the best twenty-four single blooms, staging fine examples of Annie Wood, Baron Hausberg, Comtesse d'Oxford, Madame Victor Verdier, Duke of Wellington (very rich in colour), Alfred Colomb, Prince Camille de Rohan, Xavier Olibo, &c. Mr. Pavett, of Bath, had a large collection of Tea Roses, and a box of fine blooms of the leading Clematis.

The best collection of ten dishes of fruit came from Mr. T. King, gr. to R. V. Leach, Esq., Devizes Castle, Pines being, singularly enough, excluded by the schedule. There were Black Hamburgh Grapes, Apricots, Barrington and Grosse Mignonne Peaches, Downton Nectarine, Jefferson's and Green Gage Plums, Melons, &c. 2d, Mr. A. Woods, gr. to Mrs. Hopkins, Bradford, with some nice fruit. Grapes were poorly shown in the classes for them, but Apricots, Plums, Cherries, Peaches, &c., were very fine on the whole. Particularly was this true of dessert and culinary Apples.

Vegetables were numerous, and of superb quality, as is always the case at Trowbridge; and the plants staged by cottagers, such as Fuchsias, Geraniums, Petunias, &c., were the finest we have ever seen from this class of exhibitors.

Sevenoaks Horticultural: *August* 26.—The eighth exhibition of this prosperous society was, by the permission of the Honourable Mortimer Sackville West, held in Knole Park.

The exhibition was a very successful one, four separate tents, two of which were very large, being crowded to overflowing with the various productions. The fruit is at this exhibition a very important feature, a large tent being devoted exclusively to it. Grapes were especially numerous and good. A feature such as is not seen in any other part of the country is more particularly the Plums; which will be better understood when we say that dishes of nine fruits in twos and threes, distinct varieties, standing close together, reached down one portion of a side stage of the large tent to an extent of 50 feet. Evidently the soil and situation is in this place particularly suitable to this kind of fruit. Pond's Seedling were in some instances as large as fowl's eggs.

In the class for a collection of twelve exotic flowering and fine-foliage plants (florists' flowers excepted), Mr. Staples, gr. to Mrs. Candy, Chipstead Place, took the premier prize, and showed in his collection fine plants of Eucharis amazonica, Vinca oculata, &c. Mr. James Burt, gr. to H. B. Milday, Esq., was 2d with, amongst others, a fine specimen of Anthurium Scherzerianum. Mr. Bolton was 3d.

In the class for six ornamental foliage plants (excluding Begonias and Caladiums) Mr. Staples was again 1st, having, amongst others, a fine plant of Maranta Veitchii; Mr. Bolton being 2d, with neat plants of Geonoma pumila, Anthurium regale, &c.; and Mr. James Burt 3d.

For six Begonias, flowering, distinct, Mr. William Bligh, gr. to A. Swanzy, Esq., was an excellent 1st, having a very fine specimen of ×B. weltoniensis, almost a yard in diameter, B. intermedia, B. Corsair, &c. Mr. Bolton was 2d with fine-bloomed examples of ×B. Chelsoni, B. Vesuvius, and B. carminata, &c.; 3d, Mr. John Beach, gr. to C. R. C. Petley, Esq., with very excellent stuff of a similar kind.

Achimenes, six distinct varieties, in pots, or pans not exceeding 12 inches, and the class for four varieties, were respectively warmly contested—the 1st prize in the former class being taken by Mr. George Hubbard, gr. to Col. Warde, the 2d prize going to Mr. H. Gillett, gr. to the Rev. George Kemp. Cockscombs were shown here far finer than we have ever seen them before, the three plants which took the premier prize being exceedingly large combed. These were shown by Mr. A. Henderson, Marbleton Gardens, Tonbridge. It will be seen how fine were these when we say that they measured rather over 16 inches in length of comb, and 8 inches in width. The 2d prize plants were remarkably good, although endwarfed by the very Goliaths they had to contend against, and were shown by Mr. Phillips, gr. to Capt. Jackson, Meopham.

For three Orchids, or "Orchidius plants," as the schedule quaintly puts it, Mr. Burt was 1st, having an excellent specimen of the curious Thunia alba, and a neat plant of Miltonia spectabile, &c.

In the class for British Ferns, Mr. G. Fennell, gr. to E. Cazalet, Esq., Fair Lawn, was 1st, having a very large specimen amongst his six varieties of Polystichum angulare proliferum.

Liliums, six pots, not less than four varieties, were remarkably well shown by Mr. Gillett, gr. to Rev. G. Kemp, his specimens being large, well grown, and nicely flowered.

The class for a specimen plant, stove or greenhouse (florists' flowers excluded), brought Mr. Burt again to the fore with an exceedingly fine three-spiked plant of the lovely Saccolabium Blumei majus; the 2d going to a very fine example of Eucharis, by, we believe, Mr. Staples; 3d, to Mr. Bolton's Allamanda.

Six Caladiums were especially fine, especially those of Mr. Staples, which deservedly took 1st prize, his C. Albert Edward and C. Belleymei being exceptionally well finished; the leaves of the latter averaged 16 inches in length by 12 inches across. Both Mr. Burt's were also very fine.

Ferns, exotic, eight distinct varieties, were well contested; the judges, seeming to favour size, gave the 1st prize to Mr. Bligh, the 2d to Mr. Staples, and 3d, Mr. Bolton, each of whom made excellent displays.

The class for a collection of plants arranged for effect in a space limited to 9 feet by 6 feet, open to all competitors, brought out a very extensive competition, which is a sign of the great capacity possessed by gardeners in this part of the country. After a severe scrutiny Mr. Bolton, gr. to — Spottiswoode, Esq., the President of the Society, was awarded the 1st prize, having effective plants of Croton Weismanni, Liliums in variety, huge pots of Vallotas, Palms, &c. Mr. Hubbard was 2d, Mr. Staples being 3d, with a very neatly arranged group. In the competition for the best arranged collections of wild flowers Master Frederick W. Seale was 1st.

Floral decorations, arranged for a dinner-table at the taste of the exhibitor in a space 10 feet by 5 feet, were very warmly and ably contested, nor is this to be wondered at, when it is considered this is the home of one of the most successful competitors at the Botanic Gardens and elsewhere. Mrs. Seale, Sevenoaks, carried off the premier award most ably. Mrs. Fennell was 2d, Mrs. Beach 3d—their productions being remarkably chaste. For bouquets, Mr. Staples was 1st in one class, and Mrs. Staples in another. A prize for fancy basket or vase of cut flowers was well won by Mrs. Barnes.

For Gladiolus, twenty-four spikes, Mr. Cattell was 1st, Mr. Seale 2d, and Messrs. Bunyard, 3d. Dahlias were well represented, Mr. Seale, Sevenoaks, taking premier honours. In his stand of twenty-four were remarkable examples of James Cocker, Lord Derby, Fanny Sturt, Acme, Vice-President, Bishop of Durham, Charles Backhouse, and, last and best, Queen of Beauties, than which a finer bloom has rarely been staged. In the class for twelve Dahlias Mr. Beach was 1st; and for special prizes offered by Mr. Seale, for twelve Dahlias, Mr. J. Smart was 1st, Mr. Fennell being 2d.

Asters were numerous. For eighteen blooms Mr. Chamberlain was 1st; and for twelve Asters Mr. Bolton carried off a similar award.

We have previously remarked on the excellence of the fruit shown, and it only remains now to give a few particulars regarding the chief prizetakers. For eight varieties (Pines excluded) Mr. Hopgood received the higher award, which, however, Mr. Staples must have wrested from him but for the fact that amongst seven other most excellent dishes he staged a Melon, of little value at the best, but which was actually past use. In several, at least two other, collections a mistake had been made in the arrangement of the necessary number of dishes. For six varieties of fruit Mr. O. Jeal, gr. to Major Board, was 1st; Mr. Henderson was 1st for a single Pine, and Mr. Hopgood 2d.

Excellent Grapes in colour and finish were shown by Mr. John Wood, gr. to M. Lambarde, Esq., who easily won the 1st prize, the 2d going to Mr. Hopgood. For three dishes of Muscats Mr. P. Grant, gr. to P. Roger, Esq., was 1st, Mr. J. Towner, gr. to F. Hoad, Esq., receiving a like award for very praiseworthy Buckland Sweetwaters. The collection of four varieties, distinct, one bunch of each, brought several competitors, the 1st prize going to Mr. Henderson.

Your space would be too much encroached upon were I to enumerate the prize-takers of Apples, Pears, Plums, Cherries, Peaches and Nectarines, and similar miscellaneous fruits, and, indeed, the same remark may apply to vegetables and the cottagers' tents. Suffice it to say that Mr. Bolton was 1st for a collection of vegetables, Mr. Staples being a most excellent 2d. Mr. Charles Noble took 1st for Cucumbers, the only good form of Telegraph being four or five very fine brace shown by Mr. Bolton, which the judges gave a high commendation to.

We have omitted the prize-list of cut Roses as being (though good) somewhat out of season, and the miscellaneous plants contributed by Mr. Ley (Croydon), Mr. Seale, Messrs. Bemyard, and others, all of which aided materially in making up a very fine display. *W. E.*

Sittingbourne Gardeners' and Amateurs' Mutual Improvement Society.—The second autumnal show of fruit, flowers, and vegetables, in connection with the Sittingbourne Gardeners' and Amateurs' Mutual Improvement Society, took place in the Corn Exchange, Sittingbourne, on Thursday week. The hall was appropriately decorated for the occasion. The exhibition, as such, was superior to that of last year, and was very successful; in the afternoon it was visited by many of the leading inhabitants of the neighbourhood, and in the evening it was thronged, the townspeople attending in very large numbers. Some capital music was discoursed by a small orchestra, stationed in the gallery. The staging of the different exhibits was well done. The collection of stove and greenhouse flowering and fine-foliage plants was good. T. Newman, gr. to E. L. Pemberton, Esq., Torry Hill, was, as previously, a large exhibitor. Amongst his noteworthy plants were a beautiful profusely-flowered specimen of Bougainvillea glabra, a fine Orange tree (heavily laden with fruit), excellent specimens of the Struthiopteris pennsylvanica, Lilium auratum, &c., and also Maidenhair Ferns. J. Matthews, gr. to E. Twopenny, Esq., exhibited good specimens of × Begonia weltoniensis, Lomaria gibba, Asplenium bulbiferum, &c.; E. Barney, gr. to W. W. Gascoyne, Esq., sent Nephrolepis exaltata, Lycopodium cæsium, &c.; R. Horton, gr. to R. Mercer, Esq., showed fine specimens of the Pteris tremula, and of the Queen Victoria Coleus; J. Pratt, gr. to Mr. W. Murton, Tunstall, exhibited a specimen of Dicksonia antarctica; J. Boland, gr. to Mr. Smeed, a Hoya carnosa (Honey plant); A. Matthews, gr. to Dr. Grayling, choice Vallotas; R. Callaway, gr. to Captain Knight, excellent collection of Begonias, Coleus, Vallotas, &c. Mr. Edward Thomas, of Harold Nursery, Sittingbourne, exhibited a fine collection, including two handsome Maidenhair Ferns, numerous specimens of Tricolor, Gold, and Bronze Pelargoniums, Achimenes, Gloxinias, a variety of Ferns, handsome plants of Rochea, some good Dracænas, new Fuchsia, Coleus, Petunias, &c. Some good specimens of that handsome rich-coloured flower, the Cockscomb, were shown by Mr. Newman and Mr. F. Harms. One interesting plant, sent by Dr. Grayling—the Eucalyptus globulus, or Blue Gum Tree, a native of New South Wales—deserves especial notice, on account of its medicinal properties; it has a peculiar smell, and is very useful as a preventive against fever and malaria.

A large quantity of fruit was shown, in capital condition. The Grapes (chiefly Black Hamburghs and Muscats), Peaches, Apricots, and Nectarines were especially tempting, though the Plums, Apples, and Pears, of which the sorts and varieties were endless, were very good. W. Murton, Esq., of Tunstall, exhibited dishes of nearly forty varieties of fruit.

Vegetables were also a large class; the Potatos, Parsnips, Carrots, and Beet were worthy of notice. Some good Melons and Gourds were also shown, but there was nothing extraordinary about the Cucumbers and Beans. There were some good stands of cut flowers, principally Dahlias, Asters, and Phloxes. The receipts were much in advance of last year. (*From a Correspondent.*)

Newbury Horticultural: *August* 24.—This show is very popular, not only in the town, but also in the outlying villages; a great deal of interest is taken, especially in the vegetable classes, Newbury being famous for its vegetables.

The exhibition was held in what is termed the Shaw Avenue at Speenhamland, under the shade of the trees forming the picturesque avenue leading to Shaw House, the residence of H. R. Eyre, Esq., a remarkable, interesting and historical dwelling of the early Tudor age, finely preserved. The grounds are to a great extent in keeping with the house, and in walking round the mansion one could almost recall the stirring times of the wars of the Commonwealth, and fancy the Cavalier army were still in possession. Two sanguinary battles were fought here between Charles and the Parliamentarian forces, and visitors are shown a stone placed in the brick wall by the side of one of the old Tudor windows through which a ball entered to the room which the king was then occupying. The grounds are well kept, all the old features being carefully maintained; and near the mansion is a grand clump of Horse Chestnuts. The visitors to the show were permitted to ramble about the grounds, and very many availed themselves of the privilege.

Fruit, cut flowers, and vegetables—the latter finely shown throughout—are the special features of the Newbury show, but plants are generally pretty well represented. Certain prizes were open to all England, among them for six stove and greenhouse plants in bloom, the best coming from Mr. J. F. Mould—a Pansy. The leading plants were Allamanda Hendersoni, Dipladenia amabilis, nicely bloomed; Erica Irbyana, Statice profusa, &c. Mr. C. Ross, gr. to C. Eyre, Esq., Welford Park, was 2d, having a capital

pair of Justicia carnea, Begonia Craigiana, Lilium speciosum, Rhynchospermum jasminoides, &c. For six variegated plants, the 1st prize was awarded to Mr. Howe, gr. to Sir Richard Sutton, Bart., who had good examples of Ptychosperma Alexandræ, Dæmonorops fissus, Stevensonia grandiflora, Cyperus alternifolius, Alocasia macrorhiza variegata and A. Lowii; 2d, Mr. J. Atkins, gr. to Colonel Lloyd Lindsay, M.P., who had an excellent Cycas revoluta, Croton variegatus, and Caladium Chantini in his group.

The Society's prize for six greenhouse plants was also taken by Mr. Mould, who had nice plants of Ericas Macnabiana, cerinthoides coronata, Austiniana, retorta major, and a small but nicely-flowered piece of Leschenaultia formosa. The first specimen plant was a very fine example of Hyophorbe indica, with five stems, three of them very large, shown by Mr. Howe; Mr. Ross was 2d with Buonapartea gracilis, and 3d with Cordyline Banksii.

The silver cup given by C. Eyre, Esq., for the best twelve exotic Ferns, was won by Mr. Howe with medium-sized, clean, and nicely-grown examples, the most conspicuous being Nephrolepis exaltata, Onychium lucidum, Asplenium bulbiferum, Thamnopteris Nidus, Platycerium alcicorne, Adiantum trapeziforme, A. cuneatum, Gymnogramma ochracea, and Pteris tremula. Mr. Ross, who was 2d, had, among others, nice plants of Davallia Mooreana, D. bullata, Pteris argyræa, Thamnopteris australasica.

Fuchsias were sparingly shown, the best coming from Mr. Milling. They were fairly grown well-flowered pyramidal plants, fresh and bright in appearance. Petunias were nicely shown, the best coming from Mr. George Thatcher, gr. to L. Matthews, Esq.—all double varieties of dwarf growth, and well-bloomed. Mr. Ross was 2d with some pretty striped and self-coloured single forms, but their taller growth seemed to render them less desirable for show purposes as compared with the double varieties. Achimenes were fairly done, and Liliums were represented by some good plants of L. auratum from Mr. Bye, gr. to J. Porter, Esq., and some good examples of L. speciosum from Mr. Ross. The best Zonal Pelargoniums were from Mr. Mould—the leading varieties, Flame, Purple Prince, fine and distinct; Delight, and Soleil. The best variegated Zonals also came from Mr. Mould.

In the fruit classes, the best collection, not to exceed eight dishes, was staged by Mr. Howe, and consisted of a Queen Pine, Muscat of Alexandria and Black Hamburgh Grapes, Royal George Peaches, Elruge Nectarines, Golden Perfection Melon, and Jargonelle Pears. The best Pine was a good Smooth Cayenne from Mr. Ross. The best three bunches of Black Hamburgh Grapes came from Mr. Howe, fine in berry and bunch, and well-coloured; while the best three bunches of White Muscats came from Mr. Ross, and some excellent Buckland Sweetwater from the same exhibitor took the 1st prize in the class for any other white variety. The best black Grape other than Black Hamburgh came from Mr. Silk, gr. to Mr. Corrie, who had very good Black Prince. Peaches were finely shown, the best dish of six coming from Mr. Challis, gr. to H. Dunnett, Esq., who had Walburton Admirable, large in size and finely coloured. The 2d best dish came came from Mr. Milling, but the fruit was unnamed. The best Nectarines were Violet Hâtive and Elruge, the former coming from Mr. Howe. Plums were remarkably fine, and included examples of Jefferson's, Washington, Orleans, and Green Gage; Apricots, some of large size, and well coloured—Moor Park and Kaisha being the best. Apples, both dessert and culinary, were well shown; the most noticeable of the former were Red Astrachan, Irish Peach, and Juneating: of the latter Ecclinville seedling, very fine; Blenheim Orange, Emperor Alexander and Lord Suffield. Dessert Pears were represented by Jargonelle. Morello Cherries and Figs were finely shown; also red and white Currants, and Filberts.

Special prizes were offered for twenty-four bunches of cut flowers, and they were represented by little bouquets, altogether devoid of the artistic arrangement which is required in the schedule. How much better and more instructive it would be if exhibitors were to stage bunches of good things separately; and the floral effect would be greatly enhanced. Then there were special classes for three vases for table decoration—in one place composed of garden flowers, in the other of wild flowers. The latter were most charmdone by Miss Holbrook and Miss Staples, and were one of the best features in the show, being light, airy, and graceful.

Vegetables were very fine indeed, and as there exists a regulation that all must be exhibited in a clean state, their appearance is uniform, and the effect is improved thereby. There were classes for gentlemen's gardeners, for amateurs, for mechanics and artisans, and also for cottagers; and it seemed as if the best vegetable growers about Newbury belonged to the third class. The vegetables were all displayed on tables, set up under the shade of trees. Celery was in fine condition, the best sorts being Ivery's Nonsuch, red, and Imperial Dwarf, the former very deep in colour. Carrots are very properly divided into three classes, viz.:—Early Scarlet Horn, James' Intermediate or Short Orange, and the Long Red or Orange; and, as a general rule, colour is of great value in the estimation of the judges. Onions were very fine, and Potatos in large quantity and fine quality. The comparative absence of American varieties was particularly noticeable. Snowflake and the Fluke were finely exhibited. Cabbages, Turnips, Beans, Peas, Cauliflowers, &c., were all of fine table quality, and a good average table size appeared to be the criterion set up by the judges.

At the luncheon to the judges the Mayor of Newbury presided; and there appeared to be a perfect harmony between the committee of the flower show, and the heads of the municipality. *From a Correspondent.*

Sandy Floral and Horticultural: *August 27.*—The cultivation of Cucumbers and Onions has long been one of the main pursuits of the town of Sandy, and now that it has a railway communication with almost all the great manufacturing centres it is no wonder that signs of progress are apparent, and that the annual meeting of the floral and horticultural society should awaken a considerable amount of interest. The seventh annual exhibition was the best and most successful the Society has yet seen. The obliging hon. sec., E. T. Leeds Smith, Esq., is to be congratulated upon the success of a society which has laid upon his willing shoulders the chief burden of the management. The show was held, by the kind permission of J. N. Foster, Esq., in the Park, Sandy Place, and a more delightful spot can hardly be imagined. Of the products exhibited the palm must certainly be awarded to the Onions. Mr. R. Cooper's collection of six varieties were perfection; the sorts were, White Spanish, Nuneham Park, Bedfordshire Champion, White Intermediate, White Globe, and Brown Globe. The judging in this tent was far from satisfactory. In one case White Italian Tripoli was labelled White Lisbon, and in another a mixture of Giant Rocca and Red Italian Tripoli was labelled Giant Rocca; and in neither case did the judges disqualify. The six White Spanish Onions to which the 1st prize was awarded were as brown as the Deptford; while six splendid Onions, true to colour and shape (with one slight exception), exhibited by Mr. Cooper, were not noticed. Cucumbers were not quite up to the mark—a fact not to be wondered at after an inspection of the plants, many of which are drying off prematurely—the effect of a disease. Carrots, Cabbages, and Turnips were all very good, much better than could have been expected.

The flower tent was very attractive, Asters, Roses, and Marigolds being exceptionally fine. Some nice stove and greenhouse plants added much to the beauty of this part of the exhibition. The remainder consisted of bees, birds, implements, &c., each being attractive and well supplied.

The public dinner was as successful as the display itself, and it doubtless is one of the reasons why the Sandy show has held its ground while other shows in the county, notably that at Bedford, have ceased to exist. The chair was taken by Lieut.-Colonel Stuart, High Sheriff of the county, who was supported by Captain Polhill Turner, M.P., the Mayor of Bedford, &c. (*From a Correspondent.*)

Wantage Horticultural: *Aug. 26.*—This Society was formed about ten years ago, and though the district over which its operations extend are somewhat isolated, it is yet enabled to bring together each year a good exhibition that is popular in the neighbourhood, and well supported by the local gentry and residents. Its primary work is to encourage and improve cottage gardening in and about the town of Wantage, and its effects in this direction have been most successful, for the exhibits staged by cottagers were the best developed and interesting in the show. The tents were arranged in the grounds of Stirling House, the residence of Mrs. Brooks, which is close to the town, and an abundance of fine trees afford appropriate shade.

Plants were best represented in the collections, not for competition, sent by Mr. Atkins, gr. to Col. Lloyd Lindsay, M.P.; Mr. Harvey, gr. to P. Wroughton, Esq., and others. A nice collection of fruit and vegetables also came from Mr. Atkins, the former including first-class examples of Madresfield Court Grapes. The leading exhibitor of plants for competition was Mr. W. Kight, who had Fuchsias, Ferns, Cockscombs, Pelargoniums, Achimenes, Liliums, &c., and also variegated foliaged plants.

Of cut flowers Mr. W. Kight had the best twenty-four Dahlias, and Mr. W. Cauldwell the best twenty-four Roses. The best Hollyhocks also came from Mr. Cauldwell. A prime feature was some splendid double Zinnias, and there was a very keen competition between Mr. B. Pumphrey, jun., and Mr. W. Cauldwell—the flowers being of great size, full substance, and handsomely symmetrical. French and German Asters were finely shown, the best in each class coming from Mr. J. Wright and Mr. Pumphrey, jun. Mr. George Prince, Oxford, sent a remarkably fine lot of Roses, not for competition, which included good examples of Emille Hausburg, Comtesse d'Oxford, Madame Victor Verdier, Beauty of Waltham, Lyonnaise, Duke of Wellington, Alfred Colomb, La France, Dr. Andry, Etienne Levet, Prince Camille de Rohan, and François Michelon—an excellent selection of twelve fine show varieties.

The fruit classes comprised some excellent black Grapes from Mr. J. Wright; and Nectarines, Plums, Apples, Pears, &c., were well shown also. In the vegetable classes considerable interest centred round the awards in the case of the special prizes offered by Messrs. Sutton & Sons, Reading, for a collection of vegetables, to include only four sorts of Potatos. This was won by Mr. Mills, gr. to Mr. Brown, Winston House, who had four varieties of Potatos, red and white Cabbage, Cauliflowers, Turnips, Parsley, Cucumbers, Lettuces, Parsnips, Rhubarb, Tomatos, Beet, Vegetable Marrows, Carrots in variety, Peas, Runner Beans, Celery, Onions, &c.—all of fine quality and well displayed. A collection of vegetables which won the special prize offered by W. S. Burton, Esq., Walton Hall, Bletchley, for cottagers, was a remarkable feature; it was shown by Henry Camden, a shoemaker, and were all his *bonâ fide* production. It consisted of long and Turnip-rooted Beet, Vegetable Marrows, red and white Cabbage, Cauliflower, Spinach, Beet, Savory, Turnips, Parsnips, Rhubarb, four varieties of Potatos, Radishes, Cucumbers, Runner and Dwarf Beans, Onions in variety, Peas, Windsor Beans, Parsley, three varieties of Carrots, and red and white Celery. The collection well deserved the Lindley medal. The Potatos, Onions, Carrots, Parsnips, &c., shown by cottagers, were most creditable examples of good cultivation; and one was driven to the conclusion, after inspecting the products of the exhibition tables, that the cottagers of Wantage could hold their own against those of any other town in the country.

There were special prizes for collections of wild flowers, offered by Mr. Kight, competed for by children under thirteen years of age—and among the competitors it was pleasant to find several of the Wantage Union children; and the judges were kindly instructed by the Secretary, Mr. C. Stroud, to award extra prizes to all creditable products of the Union children. (*From a Correspondent.*)

Dundee Horticultural: *August 26.* — This Society has again distinguished itself by a successful exhibition. The *fête*, extending over three days, was opened on Thursday morning by the Earl of Airlie, and closed on Saturday night by Bailie Macdonald, who intimated that £1000 would be offered in prizes at the International Exhibition to be held in Dundee next year. At the dinner Mr. James Yeaman, M.P., President, occupied the chair, and speeches were delivered by the Earl of Airlie, Lord Kinnaird, Lord-Lieutenant of Perthshire, and others. The show was held partly in the High School, and in an encampment in the grounds in front, quite in the centre of the town, and consisted of an immense marquee devoted to flowers, 300 feet long, 45 feet wide, 35 feet high in centre, and 8 feet at sides. A second marquee, occupied with fruit, measured 100 feet in length, 45 feet in width, 35 feet high in centre, and 8 feet at sides. The vegetables were accommodated in a third marquee, of exactly similar proportions. The entries were as follows:—Pot plants, 245 competitions; cut flowers, 458; fruit, 450; vegetables, 484; dessert tables, 3. Total, 1640.

Notwithstanding the sad and protracted strike, with 12,000 mill and factory hands idle, and many thousands more directly and indirectly affected, yet 14,000 members, friends, and visitors entered the gates, and the income amounted to about £550. In flowers the show was very fine, and the plants in excellent condition. Among the notable items was a pot of Lilium auratum, grown by Mr. Jas. Wilson, gr. to George A. Cox, Esq., Beechwood, which gained a 1st prize: there were four noble stems, from 10 to 11 feet in height, each bearing a dozen beautiful flowers. The challenge cup and £5, for nine stove plants, fell to Mr. McMillan, gr. to Joseph Grimond, Esq., Corbett Castle. The local nurserymen—viz., Messrs. Laird & Sinclair and Messrs. John Stewart & Sons—contributed greatly to the success of the show by their extensive exhibits and competitions. Nurserymen from a distance conspicuous by their prizes were—Messrs. Dicksons & Co., Waterloo Place, Edinburgh; Messrs. Robertson & Galloway, Ingram Street, Glasgow; Mr. McPherson, Polmuir, Aberdeen; and Messrs. Cocker & Son, Aberdeen. Though there was a larger competition, the fruit was inferior in quality to that shown last year. Councillor Moncur was very successful, as usual, Mr. Reid, his gardener, having carried off no less than seven prizes in Grapes; Mr. William Eddie, gr. to J. F. White, Esq., Castle Huntly, won the 1st prize for the heaviest bunch of Grapes, with a bunch which weighed 8¼ lb. Through the effects of the unpropitious spring, the vegetables, though

abundant, were decidedly inferior in quality: the Parsley of last year would have swamped the greens of this year in bulk. There was a keen contest by a goodly number of gardeners for the prizes for best baskets of vegetables, ten varieties, and the prize fell to Mr. Peter McArthur, gr. to John Levy, Esq., Kinbrae, Newport (managing proprietor and editor of the *Dundee Advertiser*). Mr. McArthur carried off other five prizes in vegetables. The 2d prize was gained by Mr. D. Ross, gr. to Col. Macdonald, St. Martin's Abbey, who also gained the 1st prize (£7) for dessert decoration and other prizes. Mr. Johnstone, of Ashludie's basket came in 3d. The villagers of Baledgarno, in the Carse of Gowrie, again acquitted themselves by taking no less than thirty prizes. (*From a Correspondent.*)

THE FARM.

GEESE.—I was much interested in the directions given by "O." in your last number for rearing and keeping geese. Last year I was most successful in keeping the goslings I purchased from droves. They had the run of a meadow three-quarters of an acre in extent, with the pigs, and although two died from some cause or other, the remainder made very good birds with no other food than the grass.

This year I reared fifteen goslings from my own settings. They were hatched on May 12 and 15, I also purchased six goslings from a drove in June, the latter being older birds than my. own. All these twenty-one throve on the grass till after their pen feathers came and they were assuming the size of geese, when one suddenly dropped dead in July. Soon after two more looked sickly and died in two days. They continued eating the grass till the last hour when lying down, being too weak to stand. From this time one or two per week died in the same manner till nineteen out of the twenty-one died. Finding they were going so fast I fed the rest on oats in the evening, but it had no effect in arresting the fatality. The two left are thriving as well as the three old birds of last year kept for breeding. Can "O." oblige me by throwing any light upon this mystery? I may add that each bird as it died was as light as feathers. *C. L., Hownslow.*

FARM NOTES.—Should any of your readers who have charge of cattle have an outbreak of foot-and-mouth disease, allow me to ask them to try the experiment of dressing their healthy animals' mouths and feet with Stockholm tar, particularly between the cloves of the foot. Never mind any inconvenience the animal may suffer as to eating. I know from practical experience that tar so applied is a sure preventive if the healthy and diseased animals do not come into actual contact. Should any of your readers try the experiment, no doubt they will publish the result. *Cratægus.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPT. 1, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Aug.	In.	In.	°	°	°	°	°	°			In.
26	29 84	0.00	69.9	58.4	11.5	62.9	+ 2.5	58.4	86	WSW: W.	0.00
27	29.99	+ 0.14	76.1	54.1	22 0	63.0	+ 2.7	51.4	66	W.	0 00
28	29.88	+ 0.02	68.4	52.0	16.4	58.6	— 1.6	52.5	82	S.E.	0.20
29	29.78	— 0.09	68.2	51.8	16 4	57.7	— 2.4	54.5	89	N.W.	0.24
30	29.91	+ 0.04	72.5	51.5	21.0	59.3	— 0.7	50.8	74	WSW: W.	0.00
31	29.88	0.00	70.8	53.0	17.8	59.5	— 0.3	47.7	67	N.W.	0.00
Sept. 1	30.10	+ 0.22	73.1	45.7	27.4	57.3	— 2.1	49.4	75	W.	0.00
Mean	29 91	+ 0.05	71.3	52.4	18.9	59.8	— 0.3	52.2	77	variable	sum 0.44

Aug. 26.—Fine, but cloudy. Slight rain fell at noon.
— 27.—A very fine day. Mist in morning.
— 28.—Fine, but cloudy till 3 P.M. Overcast and rain fell after.
— 29.—A fine day. Heavy rain in early morning.
— 30.—A fine partially cloudy day.
— 31.—A very fine day. Brisk wind.
Sept. 1.—A fine day. Dull and misty in morning.

—— During the week ending Saturday, August 28, in the vicinity of the metropolis, the reading of the barometer at the level of the sea decreased from 30.32 inches at the beginning of the week to 29.89 inches by the afternoon of the 24th, increased to 30.17 inches by the morning of the 27th, changed but very slightly till after 9 P.M. on the same day, then turned to decrease, and was 29.94 inches at the end of the week. The mean reading for the week was 30.04 inches, being 0.13 inch below that of the preceding week.

The highest temperatures of the air at 4 feet above the ground varied from 76¼° on the 27th to 68½° on the 28th, the mean for the week being 72½°. The lowest temperatures of the air ranged between 50¾° on the 23d and 58½° on the 26th, the mean value for the week being 54°. The mean daily range of temperature in the week was 18½°, varying from 23¾° on the 23d to 11½° on the 26th. The mean daily temperatures of the air, and the departures from their respective averages, were as follows:—22d, 63°.9, + 3°.2; 23d, 61°.6 + 0°.9; 24th, 61°.8, + 1°.2; 25th, 61°.9, + 1°.4; 26th, 62°.9, + 2°.5; 27th, 63°, + 2°.7; 28th, 58°.6, − 1°.6. The mean temperature for the week was 62°, being 1°.5 above the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 120° and 124¼° on the 22d and 23d; on the 26th 92° was the highest reading attained by this instrument. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 41° and 45° on the 23d and 28th; on the 26th 56° was the lowest reading. The mean of the several low readings was 48½°.

The direction of the wind was S.W., and its strength gentle.

The weather during the week was very fine and warm.

Rain fell on Saturday only; the amount collected was 0.20 inch.

In England, the extreme high day temperatures ranged from 78° at Sunderland and Cambridge, to 67¾° at Liverpool; the general average over the whole country was 73¾°. The extreme low night temperatures varieds between 53° at Norwich, and 45° at Truro, with a general average of 49¼°. The mean of the extreme ranges of temperature in the week was 24½°, the greatest range being at Cambridge, 31°; and the least at Liverpool, 15½°. The mean high temperatures observed by day ranged between 76½° at Cambridge and 66° at Liverpool; the general average being 71¼°. The mean low temperatures observed by night varied from 55½° at Norwich and Bradford to 51° at Bristol and Eccles, with an average value of 53½°.

The mean daily range of temperature in the week was 17¾°, varying from 25° at Cambridge to 11° at Liverpool. The mean temperature of the air for the week was 60¾°, being 3¼° higher than the value for the corresponding week in 1874. The highest happened at Norwich, 63°, and the lowest at Newcastle-on-Tyne, 58°. The various falls of rain varied from four-tenths of an inch at Liverpool and Sunderland to one-hundredth of an inch at Nottingham and Leeds. At Birmingham, Norwich, and Cambridge no rain fell. The average fall over the country was two-tenths of an inch nearly.

The weather during the week was fine, bright, but the sky cloudy at times.

In Scotland the highest temperatures ranged between 72° at Dundee and 64¾° at Glasgow. The lowest temperatures varied from 51° at Dundee to 47° at Aberdeen. Their averages were 68¾° and 49¼° respectively. The mean range of temperature in the week was 19½°. The mean temperature of the air for the week was 59¾°, being 2° higher than the value for the corresponding week in 1874. The highest occurred at Dundee, 61¼°, and the lowest at Glasgow, 58¼°. Rain was measured at Greenock to the amount of 3 inches, at Leith a quarter-of-an-inch only was recorded, the average fall over the country was 1 inch.

At Dublin the highest temperature was 74½°, the lowest 48°, the mean 61½°, and the rainfall 0.16 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—*Luculia gratissima.*—This most beautiful intermediate-house flowering plant deserves all the attention necessary to induce it to bloom freely. To see it in perfection it requires the back or end wall in a cool stove, where it will not be shaded with other things; yet fine as it is when so managed, it is not so useful either for purposes of general decoration as a blooming subject, or for the production of a lengthened supply of flowers for cutting, for the reason that, when planted out, its time of flowering must necessarily be regulated by the temperature kept up in the house it occupies. Where a number of plants are grown in pots this difficulty is avoided, and they can be so treated as to afford a much longer succession of bloom. All subjects that, like this, have somewhat soft wood, are much influenced in their flowering by being well exposed to the light as their growth is about completion. This good autumn bloomer should now have plenty of light, with not too much heat; if kept too warm it will not flower freely. The comparatively cool, moist, light, airy region of Nepal, where it has its home, at once points to the treatment it needs. If too hot and close, it grows on without apparently having time to flower. It is a plant that should be grown by all who have a cool stove. Too much heat is the cause of many being disappointed in flowering it freely.

Rochea falcata.—Any plants of this that are late in throwing up bloom will be more useful than such as flower earlier; but they will be much benefited by a little warmth. Although, strictly speaking, a greenhouse plant, yet when late in blooming it sometimes damps off, and it is not so brilliant in colour if not encouraged by a little heat. It is a very desirable small-growing subject, easily propagated, rooting freely from the mature leaves inserted singly in thumb-pots; sandy peat suits it best; slight warmth without much moisture will assist its rooting. These leaf-cuttings must on no account be kept close and wet, or they will rot.

Clerodendron fallax.—This fine stove plant is never more desirable than when flowered moderately small, say in 8 or 10-inch pots, grown from seed each year. So managed, they will stand for weeks in a warm conservatory during the summer. To have them in for this purpose the seed should be sown at once as soon as ripe. Plants that have flowered in a warm stove through the summer will seed freely if the bloom-stems have been allowed to remain on. The seeds should be put in thumb-pots, stood out of the sun until they come up, when they should have plenty of light; a shelf near the glass will be the most suitable place in which to keep them. When they have made a pair of leaves they will require moving into 6 inch pots; ordinary loam with a little sand and some leaf-mould will answer their requirements; they should be grown close to the lights, so as to keep them stout and short-jointed, and prevent their leaves getting drawn and disproportionately large. Old plants of this Clerodendron that have done blooming, and that are intended to be kept over another year, should be now headed back, so as to get some growth on them; before winter they must be cut down tolerably low, or they will have a straggling appearance; keep them warm and damped with the syringe every afternoon until they have broken, when they should be partially shook out and put into smaller pots for the winter.

Where *Dipladenias* are required to flower early in the spring, two or three of the plants that were the first in bloom this season should now be kept drier at the root for a few weeks, and be then cut back, at the same time giving them a thorough cleansing from any insects that they may have been affected with. When denuded of all soft young growth they will bear dressing with Fowler's Insecticide, at a strength of 6 ounces to the gallon. When they have broken into growth, about half the old soil should be removed, replacing the plants in the same pots in good fibrous peat; at the same time place them on the trellises they are to flower upon, otherwise they get entangled, and the young growth is in danger of being injured. After this, as the young shoots extend, they can in the usual manner be run up strings, near the glass, through the winter. *Stephanotis*, grown on strings or wires in this way, should have all the light possible, not shading them at all. Where plants of *Hexacentris mysorensis* and of *H. lutea* are grown as climbers in the stove they are most effective flowering subjects, when the house is not kept too hot, but if a high temperature is maintained the shoots grow so rapidly, and are so soft in texture, that no amount of ripening up in the autumn appears to have the effect of inducing a free disposition to bloom. An intermediate heat, with a drier atmosphere than that required by most things, suits them the best. Both varieties are very subject to red-spider, and require a continuous use of the syringe all through the growing season, to keep them clean. Plants of *Clerodendron Balfourianum*, that flowered early, and have been since pushed on for another season, will now be making strong growth, and should be encouraged with manure-water to make plenty of wood. From this plant being easily ripened later on in the autumn, it is advisable to induce it to make as much growth as possible through the present month. *T. Baines.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—The early summer months were particularly unfavourable for the development of bloom on such plants as Pelargoniums, and the growth of the more tender varieties of plants used in the sub-tropical garden has likewise been greatly retarded. The brilliant weather we are now enjoying is having the desired effect in inducing a magnificent display of bloom, and with a continuance

of the same, flower gardens will be in great perfection during the present month. The flowering period taxes the resources of plants to the utmost, and if the soil in which they are growing is allowed to become at all dry, they soon become exhausted, and relieve themselves by shedding their bloom. To obviate this, abundant supplies of water should now be given, as with plenty of sun to consolidate the growth little fear need be entertained that there will be any excess that way, especially where the soil is at all light and poor. The principal beauty of the various sub-tropical plants depends on the kind of growth they make and the ornamental character of their foliage, and to aid them in developing the same to the utmost extent abundant supplies of manure-water should be given as time and opportunity permit. Although the months of June and July were so unfavourable to the class of plants ordinarily used as summer bedders, herbaceous plants have been unusually attractive, and it is much to be regretted that the modern system of flower gardening is fast pushing such an interesting and beautiful class of plants out of cultivation. Few of the bedding plants lose any of their charms by association with these, and the mixed border, where there is a representative of almost every flower, is always one of the most interesting parts of a garden. Masses of colour, although brilliant and effective, may be taken in at a glance, and do not afford half the satisfying pleasure to the real lover of flowers as the mixed border, where almost every step reveals something of fresh interest or beauty.

There are now several distinct styles of garden decoration, each one of which has its own particular votaries, and the latest, known as carpet bedding, appears to increase in popular favour, and when well done is certainly very effective. This, if not carried to excess in working out meaningless designs, appears a step in the right direction, as it has introduced a class of curious and interesting plants that would not otherwise be met with, and it has this additional advantage that the subjects used for this mode of embellishment, are mostly either hardy, or can be increased at a rapid rate. In seasons like the present it has much to recommend it; for, although the ordinary bedding plants refused to put forth flowers till lately, carpet beds appeared to enjoy the washing, and came out all the brighter. That popular old favourite, the *Golden Pyrethrum*, still holds its own for the above purpose, and for marginal lines next to grass is really most effective, and quite unequalled by its new rival, the Golden Chickweed, or any other plant. The above style of bedding to be really effective should have all the divisional lines kept perfectly distinct and well-defined, and this may be done by an occasional stopping or pinching-in of the fast-growing varieties. Many of the plants used in the above kind of garden decoration soon lose colour and condition if not abundantly supplied with water during dry weather, and such things as *Alternantheras* and the *Golden Pyrethrum* are much brightened and improved by an occasional application of liquid manure.

The propagation of the various kinds of bedding plants must now be pushed on as fast as possible; and where a sufficient stock of such things as *Pelargoniums* are not yet in they will be found to strike and winter better if inserted in 60-sized pots, three or so in a pot. The charming dwarf trailing *Mesembryanthemum cordifolium variegatum*, *Verbenas*, *Lobelias*, *Heliotropes*, and plants of that class, are far better propagated in spring, and a few store pots of these afford an abundant supply of cuttings if carefully wintered through. *Lobelias* and the beautiful soft lavender *Ageratum Imperial dwarf*, are generally very disappointing if raised from seed, on account of the irregular growth they make, and the somewhat weedy character the former are apt to assume. The stock of these should now be looked over with a view of saving any improved forms that may occur for purposes of propagation. *J. Sheppard, Woolverstone Park.*

HARDY FRUIT GARDEN.

Consequent upon a succession of rains during the spring and early summer months, fruit trees have required more than usual attention in stopping; this more especially applies to bush and pyramidal trees which have as yet not ceased growing. These should, however, now be gone over, and the laterals stopped back to one bud, so as to perfect the maturation of the present crop of fruit, and strengthen the buds for next season. It has been before recommended to well thin the fruit where practicable; if this has been attended to in due time the crops will be fine and well-finished, while on the contrary inferior fruit will, consequent on the abundant supply, be of little value. *Peaches* and *Nectarines* are now in general gathering from the open walls here. The later kinds will still require attention in stopping back superfluous wood or laterals, and turning aside the foliage so as to expose the fruit as much as possible to the light and sun, without which there will be a want of flavour and colour. Those about to plant new walls or to renew worn-out trees should have borders prepared as soon as possible so as to get the soil ameliorated before the time for planting arrives, and it is well at this season to take notes of such varieties as seem most likely to be suitable for the locality in which they are to be grown. In the northern counties it is hardly advisable to plant the later kinds; for these positions the earliest are best adapted. A good selection may be made from the following, ripening much in the order named, viz.:—*Early Beatrice*, *Early York*, *Early Grosse Mignonne*, *Crawford's Early*, *Violet Hâtive*, *Royal George*, *Stirling Castle*, *Barrington Late Admirable*, and *Walburton Admirable*. The latter (the best of the late *Peaches*) lasts late into October. Of *Nectarines*, *Elruge*, *Downton*, *Violet Hâtive*, *Murrey*, *Hardwicke Seedling*, and *Victoria* are amongst the best. The latter is valuable for its late ripening. *Strawberries* should now have all runners or weeds cleared off between the stools, and, where it is necessary to defer planting until spring, runners may still be thickly pricked out in nursery beds for the purpose. Those potted for forcing will now be well established, and require a liberal supply of water. Liquid manure should also be applied at least twice a week, removing all runners as they appear, and placing the pots wider apart as space is required. *W. Cox.*

KITCHEN GARDEN.

As a spring crop, *Cabbage* is one of the most significant in cultivation. It may not be indispensably necessary in all gardens to provide a supply of these throughout the whole year, but at the period referred to the lack of these in quantity would immediately provoke censure. The variableness of climatal influences renders the making of sundry sowings of these essentially necessary for the purpose of counteracting such conditions, and insuring in a young state an early supply of this universally-esteemed spring vegetable. At the present season the plants which are expected to yield a supply next spring will want special attention, particularly in regard to keeping them free from the attacks of grubs, slugs, &c., to which they are peculiarly liable now. Dust the plants over when damp occasionally with wood-ashes and a slight admixture of soot, as a means of checking the ravages of these pests. Avoid keeping the plants too thickly in the seed beds; when they are fit, transplant at once as many as will be requisite, and thin out the rest. In cultivation, quickness of growth tends to improve the quality of this subject; this should be considered before planting out permanently, and those places which have been highly enriched should be selected. Our usual mode in respect to this crop, is to employ for the purpose ground which has been occupied with Onions, after it has been turned over and properly prepared. The plants from the sowing made about July 24 proved to be, under certain conditions, very apt to run; less space will therefore suffice for these, about 15 inches apart every way being ample; those from later sowings should have more room, 18 or 20 inches apart not being too much. A batch of the latest of these plants should likewise be pricked out into suitable sized beds to winter, for planting out in the spring. By this time the crops of winter *Spinach* will require thinning: this should be done before the plants get too large. Allow sufficient space between the plants to prevent damping off during bad weather, and keep the surface soil between the rows well stirred. This observation also applies to all other crops at this season, and the whole surface in the kitchen garden should be gone over with a hoe before the powerful aid which sunshine contributes is too much diminished to be effective. Thin out autumn-sown *Onions* to about 3 inches apart now, and remove every alternate one for early spring use as they are required. As ground falls vacant continue to fill it up with late plants of *Rosette Colewort*, *Lettuce*, and *Endive* and late *Celery* plants. Take up the main crop of *Onions*, and let them be fully exposed for a few days before storing them away. Prepare the ground for the main crop of *Cabbage* plants. Go over plantations of *Globe Artichokes*, cut away useless stems, and remove all decayed leaves so as to admit light and air to harden them at the base. Attend to the requirements of *Cauliflower* plants which have been recently sown, and sow again at once. Keep up a supply of salading, and see to its being in proper condition for use. Select fine dry days for tying up *Endive*, *Lettuce*, and soiling up *Celery*. *Radishes* should now be sown in more sheltered situations. Remove the leaves from over the clusters of *Tomatos* outside, in order to advance the ripening process. *G. T. Miles, Wycombe Abbey.*

Enquiries.

He that questioneth much shall learn much.—BACON.

60. DERBYSHIRE SPAR.—Can some of your correspondents say where the Derbyshire white spar is to be had? I have been making enquiries, but without success. *W. W.*

61. POT POURRI.—Can any of your correspondents inform me how to dry Roses, so as to retain their natural colour and scent? *H. J. C.*

62. VALENCIA RAISINS.—Will any of your readers be kind enough to inform me if the Vine from which Valencia Raisins are prepared is cultivated in this country, and under what name? I should also be glad to be told where I could obtain a few cuttings. *Richard Binns, Ulverston.*

Answers to Correspondents.

BOTANICAL DICTIONARY: *Rover. Paxton's Botanical Dictionary*, price 25*s.*, published by Messrs. Bradbury, Agnew & Co., Bouverie Street, E.C.

BOUQUET: *J. M.* We know of no rule prescribing the size of hand bouquets, but they are made much larger now than they used to be, with the flowers as open as possible.

CHRYSANTHEMUM TRICOLOR HARDII: *H. J. Hardy.* Your seedling from C. tricolor, with brown, orange, and dark maroon flowers, is very pretty, and, so far as we know, distinct.

ENGRAVER: *Messrs. S. & S.* Mr. Worthington G. Smith, 15, Mildmay Grove, London, N.

FIGS: *P. P.* It is impossible to name a variety of Fig from the leaves only, but yours is probably the Brunswick. Layer a small branch or two, and these will, or ought to, produce fruit quickly.

FUNGUS: *Basset, E. A.* The name of the Fungus from your Melon frame is Agaricus acutesquamosus. It is not uncommon in similar situations, but is no good for the table.

LICHEN: *J. P. M.* A Parmelia; but we cannot say which, as it is not in fruit.

MANETTI ROSE: *H. J. C.* This Rose was raised from seed by Signor Manetti, of the Botanic Garden at Monza; and, so far as we know, the first plants grown in this country were received over thirty years ago by Mr. Rivers from Signor Crivelli, Como.

NAMES OF PLANTS: *James Cocker & Sons.* It is not fair to ask such a question as this on such a fragment, without giving more information as to the history and locality of the plant. It is a Conifer, but without more information and better specimen we cannot undertake to name it. *A. M.—A Subscriber, St. Lawrence.* Your plant is the common Tritoma (Kniphofia) Uvaria.—*J. C., Bromley.* Pinus muricata. *A. M.—T. C. & Co.* Bocconia japonica.—*D. E.* 1, Impossible to name without flowers; 2, Genista canariensis; 3, insufficient.—*Tunstall.* The true Service Tree, Pyrus domestica.—*J. W. E. C.* Stevia Eupatoria.—*G., Bath.* Probably Melianthus major. We regret that so many correspondents should be so inconsiderate as to send such miserable scraps for identification, and that they should pack them so badly, by reason of which half the specimens we receive are smashed beyond recognition. A tin box, with a little moistened blotting-paper or damp moss, is the best means to adopt; never use cotton wool.

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time.

CATALOGUES RECEIVED:—Dicksons & Co. (Waterloo Place, Edinburgh), Descriptive Catalogue of Dutch Flower Roots, New Pansies, Violas, Phloxes, &c.—Messrs. Dick Radclyffe & Co. (129, High Holborn, London), Catalogue of Dutch Bulbs, Flowers, Garden Sundries, &c.—Robertson and Galloway (157, Ingram Street, Glasgow), Catalogue of Dutch Flower Roots.—Joseph Schwartz (43, Rue du Repos, à la Guillotière, Lyons, Rhône), Catalogue of Roses, &c.—Messrs. Paul & Son (The "Old" Nurseries, Cheshunt, Herts), Autumn Catalogue of Dutch Bulbs, Spring Flowering Plants, Azaleas and Camellias, Vines, Strawberries.—Simon-Louis Frères (a Plantières-les-Metz, Lorraine annexée), Priced Catalogue of Fruit Trees, &c.—William Rollisson & Sons (The Nurseries, Tooting, London), Catalogue of Cape, Dutch, and other Bulbs, Evergreens, Conifers, Fruit Trees, &c.—William Rumsey (Joyning's Nurseries, Waltham Cross), Select List of Roses, Ornamental and Fruit Trees, Shrubs, Bulbs, &c.—Benjamin S. Williams (Victoria and Paradise Nurseries, Upper Holloway, London), Catalogue of Bulbs, Fruit Trees, Roses, &c.—Messrs. Dickson & Robinson (12, Old Millgate, Manchester), Catalogue of Dutch Flowering Bulbs, &c.

COMMUNICATIONS RECEIVED:—Rover.—A. Watkins (anticipated).—A. S.—B. R. C.—J. M.—H. E.—L. G.—A. N. B.

Markets.

COVENT GARDEN, September 2.

Prices of outdoor fruit have all had a downward tendency, and clearances have only been made at a low figure. The supply of hothouse fruit is quite equal to the demand. No alteration in foreign goods. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.

	s. d.	s. d.
Begonias, per doz.	6	0–12 0
Bouvardias, do.	9	0–18 0
Calceolarias, do.	6	0–18 0
Cyperus, do.	6	0–12 0
Dracæna terminalis	30	0–60 0
— viridis, per doz.	12	0–24 0
Ficus elastica	1	6– 7 6
Fuchsia, per doz.	3	0–18 0
Gardenias, do.	12	0–60 0
Gladiolii, do.	9	0–18 0
Heaths, in var., doz.	12	0–30 0
Heliotrope, per doz.	6	0–12 0
Hydrangeas, per doz.	9	0–24 0
Lilium lancif., p. doz.	12	0–60 0
Mignonette, do.	3	0– 6 0
Myrtles do.	3	0– 9 0
Pelargoniums, dble., per doz.	4	0–12 0
— Scarlet, do.	3	0– 9 0
Petunia, per doz.	6	0– 9 0
Rhodanthe, do.	6	0–12 0
Solanums, do.	6	0–18 0
Stock, do.	3	0– 6 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, 12 blooms	0 4–	2 0	Myosotis, per bunch	0 4–	0 9
— Clove, per doz ..	0 3–	0 9	Pelargoniums, 12 spr.	0 6–	1 6
— mixed, 12 bun...	3 0–	9 0	— Zonal, do. ..	0 3–	1 0
Cornflower, p. doz. bun.	3 0–	6 0	Primula, dbl., p. bun.	0 9–	1 6
Eschscholtzia, 12 bun.	3 0–	6 0	Roses, indoor, p. doz.	2 0–	6 0
Eucharis, per doz. ..	4 0–	9 0	— outdoor, 12 bun.	3 0–	9 0
Gardenia, per doz. ..	2 0–	6 0	Spiræa, 12 sprays ..	1 0–	3 0
Heliotropes, 12 spr.	0 6–	1 0	Stephanotis, 12 sprays	3 0–	9 0
Lilies, white, p. bun.	1 0–	2 6	Stocks, 12 bun. ..	3 0–	6 0
Mignonette, 12 bun.	3 0–	6 0	Sweet Peas, 12 bunch.	2 0–	6 0

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0–	2 6	Peaches, per doz. ..	1 6–	12 0
Apricots, per doz. ..	0 9–	2 0	Pears, per doz. ..	1 0–	4 0
Figs, per doz. ..	0 9–	3 0	Pine-apples, p. lb. ..	3 0–	6 0
Filberts, per lb. ..	0 5–	0 9	Plums, per bushel ..	2 0–	6 0
Grapes, per lb. ..	0 9–	5 0	— per punnet ..	0 6–	1 6
Lemons, per 100 ..	8 0–	12 0	Walnuts, p. bush. ..	16 0–	..
Oranges, p. 100 ..	20 0	..			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0–	..	Leeks, per bunch ..	0 2–	0 4
Aubergines, per doz.	4 0–	..	Lettuces, per score..	1 0–	..
Beans, French, per bushel	6 0–	..	Mint, per bundle ..	0 4–	..
— Scarlet Run., do.	5 0–	..	Mushrooms, per pott.	1 0–	2 0
Beet, per doz. ..	1 0–	2 0	Onions, young, bun.	0 4–	0 6
Cabbages, per doz. ..	1 0–	2 0	Parsley, per bunch..	0 4–	..
Carrots, do.	0 6–	..	Peas, per quart ..	10–	1 0
Cauliflowers, p. doz.	2 0–	..	Radishes, per bunch.	0 2–	0 4
Celery, per bundle ..	1 6–	2 0	— Spanish, doz. ..	1 0–	..
Cucumbers, each ..	0 3–	0 9	Shallots, per lb. ..	0 3–	..
Endive, per doz. ..	1 0–	2 0	Tomatos, per doz. ..	1 0–	2 0
Herbs, per bunch ..	0 2–	0 4	Turnips, per bundle.	0 8–	..
Horse Radish, p. bun.	3 0–	5 0	Veg. Marrows, doz.	1 0–	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

SEEDS.

LONDON: *Sept.* 2.—The trade for farm seeds continues in the same quiet state described by us last week. A few samples of new French red Clover seed have been shown in Mark Lane, but the business actually transpiring in Clovers generally, and also in Trefoils, is almost *nil*. There is a fair demand for Trifolium incarnatum at about late rates. New French Italian moves off more freely. For sowing Rapeseed the sale is slow. New English Mustard seed is now to hand, but prices are not yet definitely fixed. We have a strong demand for winter Tares, and the supply being small, long prices are obtained. The great majority of the samples which have as yet appeared are poor in quality. Canary seed, owing to increased arrivals, is obtainable on easier terms. Blue boiling Peas continue scarce and dear. For sowing Rye there is a good request. Winter Barley and Oats are unchanged in value. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

The supply of new English Wheat on sale on Monday was moderate, and condition poor. Choice qualities were held for full prices. The top price of red was 48*s.*, and of white 50*s.* per qr. Talavera Wheat was worth about 52*s.* to 53*s.* per qr. Old Wheat was steady in value. In the trade for foreign Wheat a firm tone prevailed, and late rates were well maintained. Barley was quiet, the supplies offering were only moderate, but there was no disposition to purchase freely. The malt trade was quiet on former terms. In English Oats sales progressed slowly at a reduction of about 6*d.* per qr. Beans and Peas were quiet on former terms. Flour sold at about the prices of Monday last.—On Wednesday, holders of choice descriptions of new, as well as of old, Wheat, were firm, and demanded extreme rates; inferior parcels sold at about former prices. Foreign Wheat was steady, at full prices. For Barley the trade was quiet, at about late rates. Malt was in slow request, at late figures. Oats met with a slow sale, at about former currencies. Beans and Peas sold slowly on former terms. For flour there was only a moderate inquiry at late rates. Average prices of corn for the week ending August 28:—Wheat, 52*s.* 9*d.*; Barley, 31*s.* 4*d.*; Oats, 28*s.* For the corresponding week last year:—Wheat, 54*s.* 6*d.*; Barley, 45*s.* 11*d.*; Oats, 30*s.* 4*d.*

CATTLE.

At the Metropolitan Market on Monday, the number of beasts was much larger than on that se'nnight, but choice qualities were not plentiful, and made as much money as on that day. There were also more sheep; trade was slow, without much alterateration in price. Choice lambs were in request, but the general trade was exceedingly dull, and it was difficult to dispose of middling qualities. There were a few more calves, and trade was scarcely as good. Quotations:—Beasts, 4*s.* 8*d.* to 5*s.* and 5*s.* 8*d.* to 6*s.* 4*d.*; calves, 4*s.* 4*d.* to 5*s.* 10*d.*; sheep, 5*s.* 8*d.* to 6*s.* and 6*s.* 8*d.* to 7*s.* 2*d.*—The average quality of the beasts at Thursday's market was middling, and trade was active at fully Monday's quotations. Trade for sheep was about the same as of late, that for lambs scarcely so good, as the season is now drawing to a close. Calves were plentiful, and rather cheaper. Trade was dull for milch cows.

HAY.

The quotations forwarded from the Cumberland Market, for August 31, are as follows:—Superior meadow hay, 132*s.* to 155*s.*; inferior, 90*s.* to 110*s.*; superior Clover, 150*s.* to 160*s.*; inferior, 105*s.* to 130*s.*; and straw, 48*s.* to 52*s.* per load.

POTATOS.

We learn from the Borough and Spitalfields markets reports that a moderate supply of home-grown Potatos have been on sale there, and the demand was steady at the following prices:—Shaws, 70*s.* to 90*s.*; Regents, 80*s.* to 110*s.*; and kidneys, 100*s.* to 120*s.* per ton.—There were no imports of importance into London last week.

The Ferns and Fern Valleys of Temperate Regions
IN THE ISLE OF WIGHT.

MR. A. BLAKE, of Aberdeen, and 9, Norfolk Terrace, London, S.W., is now carrying out some new arrangements for T. P. Gassiot, Esq., F.R.S., in his beautiful grounds at St. John's House, near Ryde, whereby it is anticipated that the whole of the splendid varieties of Tree and other Ferns from New Zealand, Australia, and other temperate regions will luxuriate as in their native dells, without the aid of any heating power, save what may be obtained from the sun.

PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17*s.* per ton.
W. TARRY, "Golden Farmer," Bagshot, Surrey.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.
BROWN and BLACK PEAT, for general purposes.
Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.
FRESH SPHAGNUM, 10*s.* 6*d.* per sack.
WALKER AND CO., Farnborough Station, Hants.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1*s.* 6*d.* and 3*s.* per bottle—1*s.* 9*d.* and 3*s.* 4*d.* per bottle, if packed for travelling, of the Manufacturers,
EWING AND CO., Norwich.

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BELL AND SON, 10 and 11, Exchange Street, Norwich.

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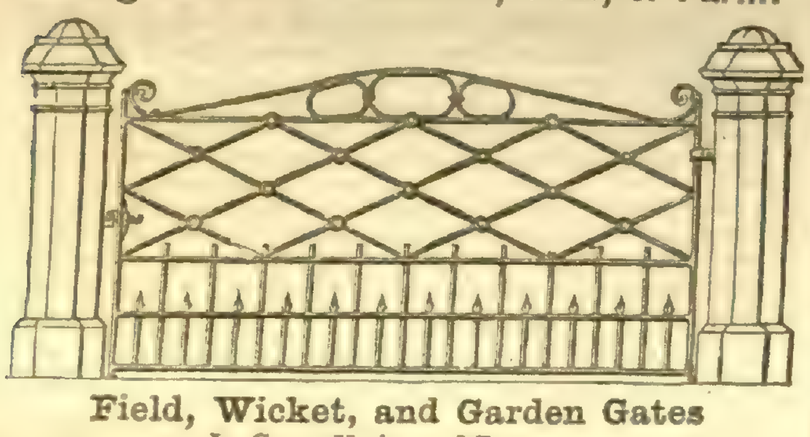

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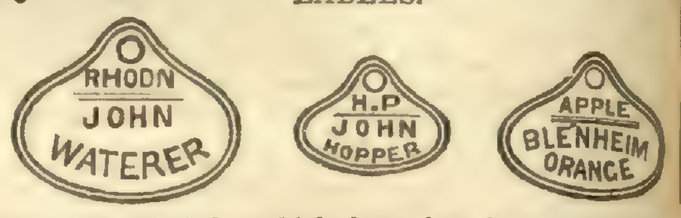

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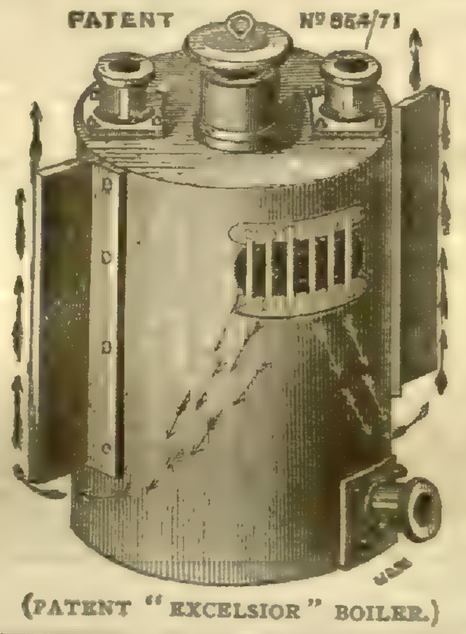

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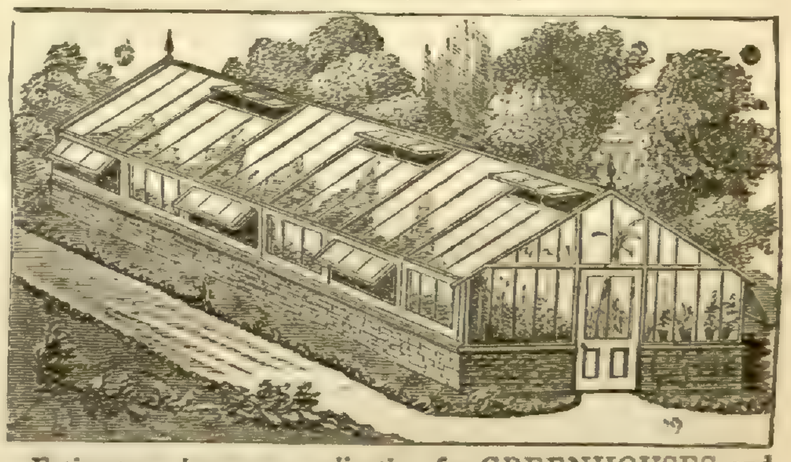

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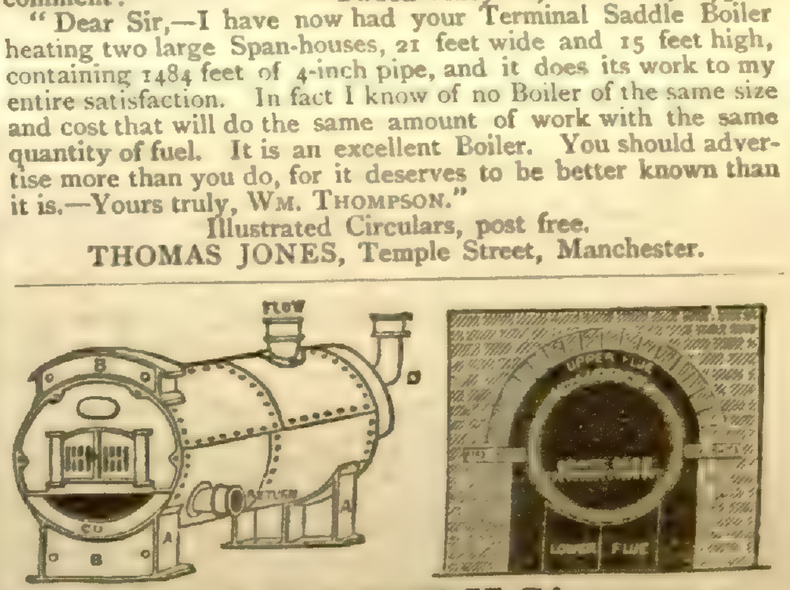

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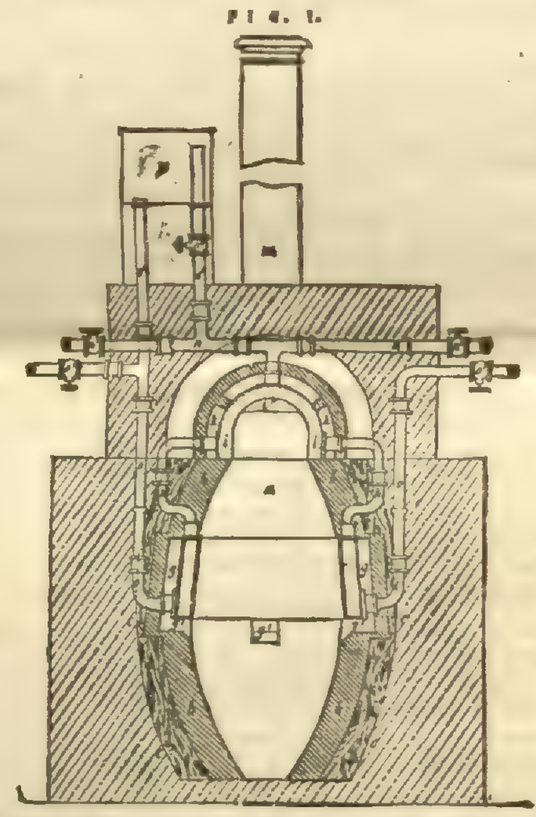

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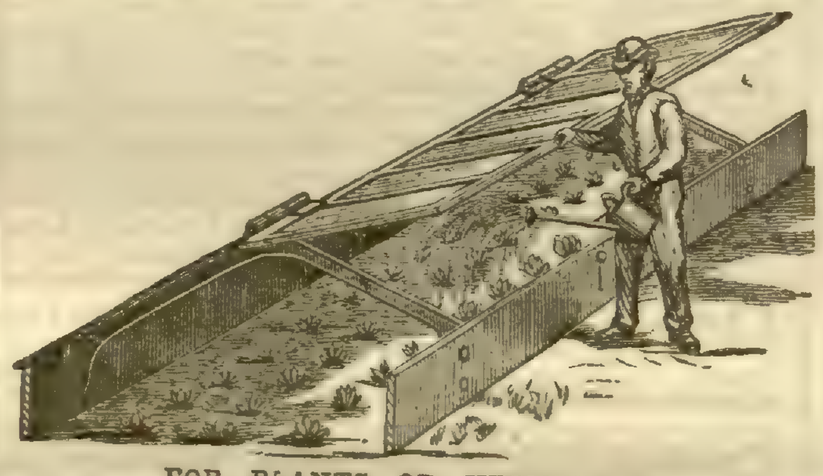

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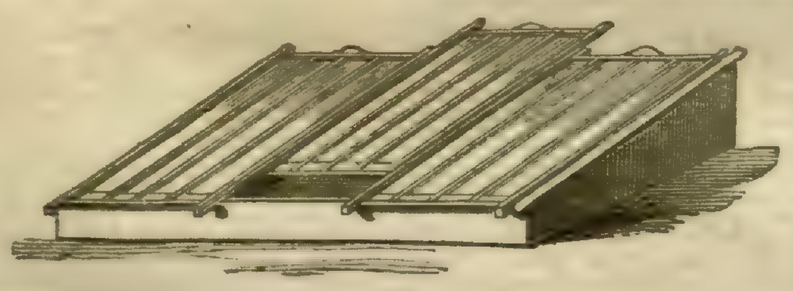

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THE

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Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.

Carlton, Tasmania.

GRAPE VINES.—A fine stock of Black Hamburgh and other popular sorts, including the new varieties—Venn's Black Muscat, Waltham Cross, and Duke of Buccleuch—in strong, well ripened Fruiting and Planting Canes. Prices on application to

FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

Splendid New Apple.

LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, next autumn 3*s.* 6*d.* each, 21*s.* for seven; 2-yr. plants, 5*s.* to 7*s.* 6*d.* each.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.

Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

Colchicum autumnale (Autumn Crocus).

J. E. DIXON, SEEDSMAN, &c., Lord Street, Gainsborough, having a few hundred extra fine Bulbs of the above, can supply them at 1*s.* per dozen, or 7*s.* per 100, cash.

LILIUM EXIMIUM.—20,000 bulbs of this chaste and highly fragrant Lily to be disposed of, for cash. The land being required for building, the above will be sold at moderate prices. First size flowering bulbs, 25*s.* per 100, 4*s.* per dozen; second size, 80*s.* per 1000; small bulbs, 20*s.* per 1000. All further particulars, and Post Office Order made payable, to be addressed to

Mr. W. MYATT, Manor Farm, New Cross.

Imported Flower Roots.

CHARLES TURNER has received his first Consignment of the above. The Bulbs are very fine and sound.

Descriptive CATALOGUES can be had on application.

The Royal Nurseries, Slough.

Bulbs, Tubers, and Perennials.

THOMAS S. WARE'S A. B. C. Descriptive BULB CATALOGUE is now ready, free on application, containing one of the largest collections of Bulbs and Tubers in cultivation, to which is added a selection of Spring Flowering and other Perennials for Autumn Planting.

Hale Farm Nurseries, Tottenham, London.

Dutch Bulbs.

A. E. BARNAART AND CO., Vogelenzang, Haarlem, Holland. Wholesale Catalogue of DUTCH BULBS is now ready, and may be had free from

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

N.B.—A large number of the Botanical and Royal Horticultural Societies' Prizes for Hyacinths, &c., were awarded to Bulbs sent out by A. E. B. & Co. during the past four years.

HYACINTHS, TULIPS, CROCUS, GLADIOLI, LILIES, IRIS, NARCISSUS, COLCHICUMS, HELLEBORES, PÆONIES, &c.

Our English CATALOGUE of the above for 1875 is now ready, and will, as usual, be sent post-free to all applicants.

ANT. ROOZEN AND SON (late Ant. Roozen), Overveen, near Haarlem, Holland.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.

Highgate Nurseries, London, N.

Bulbs of All Kinds.

THE NEW PLANT AND BULB COMPANY beg to announce that their AUTUMN CATALOGUE is now ready, and will be sent free on application.

Lion Walk, Colchester.

Dutch Flower Roots.

JAMES DICKSON AND SONS will be happy to send, post free on application, Priced CATALOGUE of their large and very superior stock of DUTCH and other FLOWERING BULBS.

108, Eastgate Street, Chester.

WANTED, two or three good, strong, dwarf fan-trained PEACH TREES, forcing sorts; must have borne a good crop of fruit this season, and growing in the neighbourhood of Manchester or Chester preferred. State price and full particulars to

W. M. STICKLAND, The Gardens, Hopwood Hall, Middleton, near Manchester.

WANTED, One or Two Millions of 1-year WHITETHORN QUICKS. State lowest cash price, with sample, to

THOMAS PERKINS, 42, Drapery, Northampton.

Fruit Tree Culture in Pots under Glass.

THE ORCHARD-HOUSE CATALOGUE is now ready, and will be sent Post Free on application.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

GARDENIA FONTANI.—Four large Plants, about 4 feet high and 6 feet through, clean and well set with buds; price from £2 to £3 each. Also MAIDENHAIR FERNS, 4*s.* per dozen, for cash.

R. GIBSON, Florist, 4, Wellington Road, Camberwell, S.E.

Bouvardias.

MESSRS. JOHN STANDISH AND CO.'S Stock of BOUVARDIAS, consisting of all the best varieties, is this season the finest they ever had to offer. Magnificent plants at 12*s.* to 18*s.* per dozen. Prices to the Trade on application.

Royal Nurseries, Ascot, Berks.

HUMEA ELEGANS.—300 very fine stocky plants, in pots, at 21*s.* per 100, package included. Address orders to

WILLIAM RUSHFORTH, Nurseryman, Leeds.

New Plant—Kniphofia Macowani.

C. GREEN begs to announce that he is now sending out this very desirable hardy novelty. Strong established plants in pots at 5*s.* each. See *Gardeners' Chronicle*, August 25, 1875. It has received a First-class Certificate from the Royal Horticultural Society.

Botanical Nursery, Holmesdale Road, Reigate.

To the Trade Only.

SPIRÆA JAPONICA, 25*s.* per 100, £11 per 1000, for cash.

H. B. SMITH, Ealing Dean Nursery, Ealing, W.

Green Walls.

THOS. S. WARE is now offering a quantity of Lombardy POPLARS, 10 to 25 feet, perfect specimens, feathered to the ground. Planted rather thick they make the most beautiful green screens possible. An inspection solicited.

Hale Farm Nurseries, Tottenham, London.

HOLLIES, Green and Variegated, in large quantities. Fine pyramids at low prices.

Wholesale CATALOGUE of Nursery Stock, Post Free on application.

G. T. ALBERTS, The Nurseries, Boskoop, near Gouda, Netherlands.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, have now and will have, a large quantity of WHITE CAMELLIA BLOOMS to Dispose of.

Spring Flowers.

THOMAS S. WARE'S new A. B. C. BULB GUIDE (now ready, free on application) contains a selection of all the best Spring-flowering Perennials and Bulbs in cultivation.

Hale Farm Nursery, Tottenham, London.

N.B.—See Cheap Collections of the above.

DOWNIE AND LAIRD have to intimate that their splendid collection of HOLLYHOCKS is now in full Bloom. Inspection invited. No disease.

Royal Winter Gardens, Edinburgh.

BOX EDGING, dwarf, 20,000 yards—also SEMPERVIVUM CALIFORNICUM—cheap for cash. Price and particulars from

J. B. YOUNG, Landscape Gardener, Bridge of Allan.

Tulip Tree.

A full description of this beautiful tree is given at p. 273 of the *Gardeners' Chronicle.*

H. LANE AND SON beg to offer fine plants, from 5 feet to 12 feet high. Intending Planters should see them. CATALOGUES free.

The Nurseries, Great Berkhampstead, Herts.

ALTERNANTHERAS, in store pots, of the following sorts, for sale, 5*s.* per 100:—

1500 A. AMABILIS.
1500 A. AMŒNA.
360 A. MAGNIFICA.

Apply to JAMES METCALFE, Gardener, Elsham House, Grantham.

ROSES, Dwarf, grown on the Cultivated Seedling Briar.—20,000 good plants, at reasonable prices. CATALOGUES on application to

WILLIAM CORP, 54, High Street, Oxford.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.

EWING AND CO., The Royal Norfolk Nurseries, Norwich.

FOR SALE, large SPECIMEN PLANTS, established in tubs and pots, varying in height up to 9 feet:—Four Azaleas, various; four Camellias, various; three Stephenotis floribunda; four Gardenia floribunda; two Hoya carnosa; and one Scarlet Rhododendron.

Mr. WM. HOWITT, Florist, Ilford, Essex.

CABBAGE PLANTS.—Market Gardeners and others can be supplied on making early application to THE PROPRIETOR, Elms Farm, Barnes (the noted Farm for growing Cabbage Plants).

SALES BY AUCTION.

Dutch Bulbs.—Extensive Consignment of Twenty Cases of the finest named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, CYCLAMEN, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the Mart, Tokenhouse Yard, City, on MONDAY next, at 11 o'Clock to the minute, there being about 800 lots.

On view on Saturday prior. Catalogues had at the Mart, and of the Auctioneers, 98, Gracechurch Street, E.C.

Tottenham, N.

GREAT SALE of STOVE and GREENHOUSE PLANTS. Important to the Trade and other Large Consumers.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Maller to SELL by AUCTION, on the Premises, the Brunswick Nursery, Tottenham, N., Middlesex, opposite the White Hart Lane Station, Great Eastern Railway, on TUESDAY, September 14, at 11 o'Clock precisely, 700 lots of unusually well-grown STOVE and GREENHOUSE PLANTS, mostly in No. 48 pots, and fit for immediate sale, consisting of 20,000 winter-blooming Heaths in fine thriving condition, and promising a profusion of flowers; 5000 remarkably well berried Solanum capsicastrums, fine Camellias and Azalea indica set with bloom-buds; 3000 Bouvardias of sorts, Acacias well furnished; 1000 Adiantum of sorts, Todea superba and other Tree Ferns, Eucharis amazonica, Ficus elastica, Epiphyllums in variety, 1000 Poinsettias, Daphne indica rubra, 3000 fine Cyclamens, 1000 Genistas, 1000 Fairy Roses, Double and Single Primulas and Cinerarias, 1000 Dracænas, Palms, strong Vines in pots.

On view any day prior to the Sale.

N.B. This sale will commence punctually at 11 o'Clock, in consequence of the number of lots.

Catford, S.E.

IMPORTANT CLEARANCE SALE of ESTABLISHED ORCHIDS; also a few STOVE and GREENHOUSE PLANTS and GARDEN EFFECTS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Ed. B. Green, Esq., to SELL by AUCTION, without reserve (in consequence of a change of residence), on the Premises, Ravensbourne Park, Catford, Kent, within five minutes' walk of Catford Bridge Railway Station, on WEDNESDAY, September 15, at 11 for 12 o'Clock precisely, the choice Collection of ESTABLISHED ORCHIDS, the whole of which are particularly well rooted, and in fine thriving condition, and amongst which are included Cypripedium Lowii, Dendrobium Wardianum, Masdevallia Veitchii, M. Harryana and amabilis, Odontoglossum Alexandræ, O. Bluntii, Phalænopsis, P. amabilis, P. Schilleriana, P. Luddemanniana, P. grandiflora aurea, Saccolabium ampullaceum, S. Blumei Dayi, S. guttatum, Thunia Bensoniæ, Vanda cœrulea, V. cœrulescens, V. teres Andersoni (a charming variety), V. tricolor; likewise a few STOVE and GREENHOUSE PLANTS, 400 Double Camellias, many of which are set with bloom-buds; Platycerium grande, Adiantum farleyense, Leptopteris superba, and other Exotic Ferns, several large Agapanthus in tubs, together with three MOWING MACHINES and other GARDEN UTENSILS and EFFECTS.

May be viewed the day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, E.

Stoke Newington Green, N.

CLEARANCE SALE, by order of the Executors of the late Mr. John West, deceased.

MESSRS. PROTHEROE AND MORRIS have received instructions to SELL by AUCTION, without reserve, on the Premises, the Walnut Tree Nursery, Green Lanes, Stoke Newington Green, Middlesex, on TUESDAY, September 28, at 11 for 12 o'Clock precisely, the whole of the choice GREENHOUSE PLANTS, including 60 large Stock Plants of Ficus elastica, 200 Gardenias, 1000 Myrtles, 100 Dracæna terminalis, 400 Pteris, 700 Double Camellias, ranging all sizes (inclusive of six large Double Whites), numerous Trees and Shrubs; together with Seven GREENHOUSES, from 27 to 90 feet long; four Brick Pits, several Frames, a quantity of Bricks, 1400 feet of 2, 3, and 4-inch Hot-water Piping, eight Boilers of various sizes, a large quantity of Garden Pots, a Tumbril Cart, a Spring Cart, Water-cans, Lawn-mowers, Iron Rollers, a useful Cart Mare, &c.

May be viewed the day prior to the Sale.

Kingston-on-Thames.—Clearance Sale.

By order of the Executors of the late J. G. Bruce.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executors of the late Mr. J. G. Bruce to SELL by AUCTION, on the Premises, Bruce's Nursery, Richmond Road, Kingston-on-Thames, on THURSDAY, September 23, at 11 for 12 o'Clock punctually, without reserve (Messrs. P. & M. having Sold the Land to the Kingston Gas Company), about 20,000 GREENHOUSE PLANTS, including many thousands of winter-blooming and other Heaths (lotted to suit the Trade and others), 500 choice Double Camellias, 5000 Tricolor and other Geraniums, 500 Gardenia radicans and intermedia, 1000 Solanum hybridum, 400 Vallottas, Ficus, Stephanotis, 1800 Exotic and Hardy Ferns, 2000 Euonymus, and numerous other plants; also a newly-erected Span-roof Greenhouse, 54 feet by 12; Hot-water Piping, a Weeks' Tubular Boiler, Frames, Iron Roller, Ladders, and other effects.

May be viewed two days prior to the Sale.

Whipp's Cross, Walthamstow, E.

ANNUAL SALE of Winter Blooming HEATHS and other attractive and particularly well-grown STOCK. Important to the Trade and Others.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. E. Preston to SELL by AUCTION, without reserve, on the Premises, The Nursery, Elm Road, Whipp's Cross, Walthamstow, E., on THURSDAY, September 16, at 11 for 12 o'Clock precisely, about 10,000 Winter Blooming HEATHS, beautifully grown and well set with bloom-buds, including 5000 Hyemalis, 1000 gracilis, and numerous other approved varieties; 300 fine CAMELLIAS; 200 choice named AZALEAS; 1000 CYCLAMENS of strong growth, and from a first-class strain; CINERARIAS, PRIMULAS, Tea-scented ROSES in pots; SOLANUMS, TREE CARNATIONS, GENISTAS, Variegated IVIES, together with a quantity of Miscellaneous GREENHOUSE PLANTS.

May be viewed the day prior to the Sale.

Lee, S.E.

FIFTH ANNUAL SALE, of great importance to the Trade.

MESSRS. PROTHEROE AND MORRIS have been instructed by Mr. B. Maller to SELL by AUCTION, without reserve, on the Premises, the Burnt Ash Nursery, adjoining the Lee Railway Station, Kent, on WEDNESDAY, September 22, at 11 for 12 o'Clock to the minute, about 650 Lots of choice GREENHOUSE and STOVE PLANTS, including 15,000 winter-blooming Heaths of remarkably clean growth, full of bloom-buds, and fit for present sale; also 30,000 young Succession Heaths, full of promise, and lotted largely to suit the Trade; 1000 Cyclamens, handsome specimen Adiantum cuneatum, berried Solanums, 150 Dracænas, five Standard Laurustinus, 100 Gardenias, 100 fine Camellias, 250 Azaleas, Veronica Blue Gem, 200 Epiphyllums, numerous Specimen Ornamental-foliaged Plants, Palms, Tree Ferns, Magnolia grandiflora, large quantity of Fruiting Vines, Tea and other Roses in pots, Acacias, Poinsettias, Primulas, Begonias, a Tubular Boiler, &c.

May be viewed any day prior to the Sale.

West Dulwich, S.E.

IMPORTANT SALE of 15,000 Choice STOVE and GREENHOUSE PLANTS, in fine thriving condition, comprising a considerable number of fine Ornamental and Variegated Dracænas, selected Palms, Exotic Ferns, Gardenias, Abutilon Boule de Niege, Yuccas of sorts, many thousands of well-grown winter-blooming and Hard-wooded Heaths, worthy the attention of the Trade, including Hyemalis, ventricosa, Willmoreana, &c.; also fine specimen and other Azaleas, beautifully-grown Camellias, 2 to 4 feet, set with flower-buds, Flowering and Ornamental Vines, Figs, Solanums in berry, fine Epacris in considerable quantities, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. F. & A. Smith to SELL the above by AUCTION, without reserve, on the Premises, the Nursery, West Dulwich, S.E., on FRIDAY, September 24, at 11 for 12 o'clock precisely.

May be viewed the day prior to the Sale.

Preliminary Notice of

FORTHCOMING SALES of NURSERY STOCK, &c., by PROTHEROE AND MORRIS.

OCTOBER 5 and 6.—BRANCH NURSERY, Upper Tooting, S.W. By order of Mr. Young. Sale of Surplus Nursery Stock, Camellias, &c.

OCTOBER 7.—AUCTION MART, London, E.C. By order of E. L. Morris, Esq. A compact Leasehold Estate, comprising 5 acres of productive Orchard Land, well cropped; also two semi-detached Villa Residences. Lease 75 years unexpired, held at a moderate ground rent.

OCTOBER 19.—HALE FARM NURSERIES, Tottenham. By order of Mr. T. Ware. A large quantity of clean-grown Fruit Trees, Roses, and General Stock.

OCTOBER 20.—BRANCH NURSERY, Wallington. By order of Mr. Clark. The whole of the General Nursery Stock, the land being required for building purposes.

OCTOBER 27 and 28.—EXOTIC NURSERY, Tooting, S.W. By order of Mr. R. Parker. A considerable quantity of beautifully-grown Nursery Stock.

OCTOBER 27 and 28.—NORTHGATE NURSERY, Chichester. By order of Mr. D. Scott. A large and rich assortment of clean-grown Nursery Stock.

NOVEMBER 2, and following days.—At one of their BRANCH NURSERIES, Kingston-on-Thames. By order of Messrs. Jackson & Son. An extensive assortment of about 8 acres of fine Nursery Stock.

Date not yet fixed.—The NURSERY, Dulwich. By order of Messrs. F. & A. Smith. A large quantity of Border Plants and General Nursery Stock.

Date not yet fixed.—ASCOT. By order of the Executors of the late Mr. John Standish, deceased. A very large quantity of Nursery Stock, Plants in pots, &c.

Date not yet fixed.—SUNNINGDALE NURSERY, Bagshot. By order of Mr. C. Noble. An immense quantity of beautifully-grown Nursery Stock.

Date not yet fixed.—At one of his BRANCH NURSERIES, Brixton. By order of Mr. J. Peed. The whole of the valuable Nursery Stock, the land being required for building purposes.

Date not yet fixed.—BALHAM, close to the Balham Station. By order of Mr. Edwards. A quantity of Nursery Stock.

Date not yet fixed.—BRANCH NURSERY, Loughton. A large quantity of beautifully-grown Nursery Stock.

Catalogues, when ready, of any of the above Sales may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, Essex.

Highly Important Sale of Established Orchids, the Property of John Russel, Esq., of Mayfield, Falkirk.

MR. J. C. STEVENS has been favoured with instructions from John Russel, Esq., to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 30, and FRIDAY, October 1, at half-past 12 o'Clock precisely each day, his entire Collection of ORCHIDS, which has been formed during the last twelve years regardless of expense, and comprising many of the finest plants and varieties in existence. Amongst others grand plants will be found Aerides Veitchii, Fieldingii, quinquevulnerum, &c.; splendid specimen Burlingtonias, rare Angræcums, including Ellisii, sesquipedale, &c., Anguloa eburnea (true), Cattleya amethystoglossa, Dawsoni, Dowiana, Mendelii, Wagneri, exoniensis, marginata, grandiflora, labiata, and the finest forms of Trianæ; Cypripedium Dayanum, caudatum, superbum, Rollisson's var., &c.; Dendrobium Falconeri, Wardianum, bigibbum, &c.; Lælia anceps, Dawsoni, Turneri, Wolstenholmiæ, and others; Masdevallia Lindeni and Harryana, Odontoglossums in great variety, including nævium majus, Day's var., the rare nevadense, blooming plants of coronarium, Trichopilia crispa marginata; grand Saccolabiums, including the whole of S. Russeliana, S. Holdfordiana (true), &c.; fine Vandas, including the rare V. Russeliana, V. suavis, Cathcarti, Dennisoniana, &c., all in the finest possible health.

Catalogues are preparing, and will be ready a fortnight before the Sale.

Auction Rooms, 38, King Street, Covent Garden, London, W.C.

Spring Flowering Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, Importations of first-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, GLADIOLI, and other BULBS, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 16, at half-past 12 o'Clock precisely, Established and Imported ORCHIDS, consisting of rare Masdevallias, Odontoglossums, Phalænopsis grandiflora, Cypripedium japonicum, Calanthe Sieboldii, &c.; a small collection of STOVE and GREENHOUSE PLANTS, ARAUCARIA IMBRICATA SEED, &c.

On view the morning of Sale, and Catalogues had.

Notice.

ROYAL SCHOOL of MINES, Jermyn Street, London, W.

The TWENTY-FIFTH SESSION will BEGIN on FRIDAY, October 1. Prospectuses may be had on application.

TRENHAM REEKS, Registrar.

GOVERNMENT EMIGRATION.

SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For passages and further information, apply to the AGENT-GENERAL, 3, Westminster Chambers, Victoria Street, S.W.

WANTED, to RENT, on LEASE, a NURSERY GARDEN (about 1 acre), with Cottage, a few Pits, and Greenhouses.

T. JONES, Southend School, Catford, Kent.

Freehold, 28 miles S.W.

FOR SALE, a beautiful ESTATE of 250 acres, with elegant Swiss Villa and capital Stabling; gravelly soil, fine views, and nearly a mile of frontage on the London Road; free from Tithe and Land Tax; two-thirds on mortgage. A Plot of about 50 acres, planted with fine evergreens, fruit, and other trees would be Sold separately; also a Plot of 25 acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot.

FOR DISPOSAL, a small, first-class, old-established NURSERY, FLORIST, and SEED BUSINESS, in full working order, doing a sound and profitable trade. All, or a portion only of the stock need be taken, as desired. Part of the purchase-money can remain on security, if wished. To one or two wishing to start in business a more favourable opportunity seldom offers. Satisfactory reasons given why it is offered. Full particulars of J. W., Messrs. Flanagan & Son, 98, Cheapside, London, E.C.

TO BE SOLD, from a Private Garden, one LEAN-TO HOUSE and Pit attached, 54 feet by 11 feet 9 inches by 9 feet 5 inches; one Pit 18 feet 2 inches by 11 feet 9 inches, by 7 feet, with 100 feet 4-inch pipe, two valves. Any reasonable offer will be taken. Further particulars by letter, addressed to

Mr. RHODES, 42, Cross Street, Finsbury, E.C.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

TO BE LET on Lease, at Michaelmas next, a very desirable SMALL FARM, of about 70 acres of sound Corn Land, in the best corn growing district of Essex.

Particulars of Mr. WOODTHORPE, Glazenwood Nursery, Bradwell Braintree, Essex.

TO BE LET, with immediate possession, a small NURSERY, SEED and FLORIST BUSINESS, about 7 acres of Land, well stocked with thriving Trees, &c., at valuation. For particulars apply to

J. WOOBERRY, Nurseryman, Billingshurst, Sussex.

WM. POTTEN can supply the following, strong plants, in 3-inch pots, for cash, package free:—

Twelve select Golden Tricolor GERANIUMS for 8s., viz.:—Acme, Miss Watson, Mrs. Dunnett, Marian Morris, Jetty Lacy, Lady Boswell, Oriental, Victoria Regina, Prince of Wales, Achievement, Peter Grieve, Home Influence.

Six Silver Tricolors for 3s., viz.:—Her Majesty, Mrs. Colonel Wilkinson, Princess Beatrice (Paul's), Mrs. Rousby, Eva Fish, Lass o' Gowrie.

Twelve select Gold and Bronze GERANIUMS for 6s., viz.:—Harrison Weir, Mrs. Harrison Weir, Princess of Wales, Chieftain, W. E. Gumbleton, Rev. C. Peach, Harold, Bronze Queen, Waltham Bronze, Prince Arthur, Mrs. Reid, Mrs. Chamberlain (white flower).

Twelve select Zonals for 6s., viz.:—Athos, Caxton, Miss Maud Holden, Arthur Rogers, Miss Laura Walter, Deuil de Lorraine, Colonel Wright, Ernest, Josephine, Percy Cooper, Mrs. Gibbons, Rose of Allendale.

Twelve select older varieties for 4s., viz.:—Harry King, Amaranth, Mrs. Haliburton, Harry Burley, White Clipper, Nelson, Rosalia, Harrie Hulen, Desdemona, Duke of Devonshire, Mrs. Lowe, Edward Sutton.

Six select Doubles, for 3s., viz.:—Aglai, McLeod, Speculum, Jewel, Theodore Cinqueau, Aline Sisley.

Silver Tricolor, "Lass o' Gowrie," and Silver Variegated, "Little Trot" (the best of this class yet offered). Price per 100 on application.

Twelve good FUCHSIAS for 2s. 6d.

New COLEUS, "Duchess of Edinburgh," 1s. each.

COLEUS VERSCHAFFELTII, strong, 2s. per dozen, cheaper by the 100.

Any of the above can be sent by post, free.

Camden Nursery, Sissinghurst, Staplehurst, Kent.

DUTCH BULBS.

JOHN & CHARLES LEE

HAVE RECEIVED THEIR ANNUAL SUPPLY OF

HYACINTHS AND OTHER DUTCH ROOTS

IN FINE CONDITION.

Early Orders are requested. *CATALOGUES Free on application.*

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT HAMMERSMITH, W

DUTCH ROOTS.

B. S. WILLIAMS

BEGS TO ANNOUNCE THAT HIS

ANNUAL BULB CATALOGUE OF DUTCH FLOWER ROOTS

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SATURDAY, SEPTEMBER 11, 1875.

EDINBURGH.

IN anticipation of the Great International Fruit Show, to be held at Edinburgh next week, and which promises to be of unusual extent and importance, we give in this place a few notes on some of the places of horticultural interest in and about this magnificent city. These notes may be useful to intending visitors, but they must be taken in the light of suggestions merely, as there is no pretence of completeness about them. In our next issue we hope to give, together with a full report of the show itself, a special illustrated Supplement devoted to the Royal Botanic Garden, which, next to the show, will naturally and most fittingly be the first object of horticultural interest which the visitor will be desirous of seeing.

PRIVATE GARDENS.

NEW BATTLE, the seat of the Marquis of Lothian, is a few miles distant from the city, and is a place of great beauty and interest in various ways. The mansion itself (see fig. 71) is not of yesterday, and it occupies the site of a much earlier structure, some portions of which still remain. The pictures and other contents of the house are many of them of extraordinary interest, including several famous Vandykes, which have made their appearance at various times in the London exhibitions through the kindness of the Marquis. The park is extensive, and studded with many noble trees, among which Sycamores and Beech stand out conspicuously. One grand Beech stands near the mansion just outside the terrace garden: a finer specimen or one more symmetrically grown it would be hard to find. A figure of this tree was given in vol. ii. for 1874, p. 521. The best way, perhaps, to realise its enormous proportions is to stand close to the bole and look up to the mass of huge limbs and snake-like branches. Some idea of the size of the tree and of the spread of its branches may be obtained when we say that sixteen paces were required to step round the bole at its base; while at the extremities of its branches as they rest on the ground, or at a short distance above it, no less than 121 paces, of over 3 feet to the pace, were taken up!

On the architectural terrace in front of the mansion are a number of geometrical and scroll beds, for the filling and grouping of which, in spring, Mr. McLeod, the gardener, has obtained a well-earned reputation. It was too early at the time of our visit to say much as to the autumn bedding, but we suspect from what we saw that it is not greatly inferior to the spring display. Calceolaria Golden Gem is a favourite here; it is like Aureo-floribunda, but hardier and not so subject to be diseased. Pansy The Tory is also a favourite here. Two quaint Jacobæan sundials (see fig. 68) stand one at either end of the terrace, to which they lend a great charm. Indeed the front of the mansion, draped with Wistaria and other climbers, and the terrace garden, separated by a low Yew hedge from the park, with its grand trees, form a *tout ensemble* of a strikingly beautiful character.

The kitchen garden is at some little distance from the mansion. In it is a newly-erected range of houses, by Boyd, of Paisley, containing Palms, Bananas, Monsteras, Allamandas, hanging-baskets of Achimenes, and other of the usual occupants of such structures.

In some of the vineries the Vines are planted against the back wall. Mr. McLeod in some cases favours a growth round the collar, with the view of inducing more powerful root-action. Some of these growths were bearing good-sized bunches, which were colouring well. Among Peaches, which are particularly well done here, Mr. McLeod prefers Early Rivers as an early sort: this year it was ripe on June 1. Early Alfred and Early Albert come in later, still later Noblesse and others, and thus in the same house a good succession is obtained. Stirling Castle is a favourite here as a good cropper, and Mr. McLeod thinks well of Princess Dagmar as a promising kind. There is also a capital set of Cucumber and Melon houses, and with the latter especially Mr. McLeod is very successful. Every portion of this fine establishment shows the hand of a master of his craft, and a visit here can hardly fail to be both pleasurable and profitable to those who may be privileged to make it.

—— DALKEITH is too well known, by repute at any rate, to require attention to be drawn to it as one of the finest forcing establishments in the country. Mr. Dunn is careful to maintain the repute which this garden gained under his predecessors. Fruit forcing, and the growth of plants for decorating and for cut flowers, are the principal operations carried on here. The park, with the remains of an old forest with gnarled and pollard Oaks overhanging the ravine, through which the river Esk winds, affords some remarkably bold and picturesque scenery. Other fine trees are scattered throughout the grounds, but we are precluded from going into greater details with reference to this fine establishment. Similar reasons prevent us from saying much as to the magnificent gardens and park at DRUMLANRIG, another seat of the Duke of Buccleuch. Drumlanrig is at a considerable distance from Edinburgh or Glasgow, but may be reached from the latter city by alighting at Thornhill station, on the line between Glasgow, Kilmarnock, Dumfries, and Carlisle. The scenery hereabouts is very beautiful, and recalls that in the neighbourhood of Chatsworth, but is on a bolder scale. The woods are fine, but if Nature has done much, art and skill have done more. The very extensive flower-garden, forcing-houses, the kitchen-garden, herbaceous borders, and other departments, are maintained to such a degree of nicety and perfection, that we may safely say it would be very difficult to rival, much more excel it. The gardens here are under the management of Mr. David Thomson.

—— Miss HOPE, of Wardie Lodge, in the vicinity of the city, is so well known to the readers of these pages as an enthusiastic gardener, that it will be no matter of surprise to any to hear that her garden is, as a garden should be, replete alike with interest and beauty. Herbaceous borders and terrace beds crammed with a varied but choice collection of plants well arranged and well tended—these are what will strike the eye of any visitor who may be privileged to have the *entrée* to this garden. The reserve beds in out-of-the-way corners, and the Kales in their summer quarters also have much interest, while indoors the visitor may perchance see before him the evidence of his want of knowledge or care. It is Miss Hope's practice to seek the name of a plant now from this one, now from that one. The consequence not unfrequently is an array of synonyms which are duly registered, together with the "authothority," on the tallies which confront the visitor as he passes through the houses—it may be to his confusion.

—— The garden of Mr. GORRIE, also in the neighbourhood of the city, is full of interesting plants, whether for decorative or more purely botanical purposes. The rockwork here

is well supplied with suitable plants. Aciphylla squarrosa is here to be met with, a plant which the superficial observer might well be pardoned if he did not recognise it as an Umbellifer, but of whose lineage the carrot-worm entertains no doubt. Large numbers of New Zealand plants are grown here—Mutisia decurrens and Clianthus puniceus, Ephedra monostachya, and even the Loquat, prove hardy. We have not space—even did we feel at liberty to do so—to enumerate many of the interesting plants which render this a veritable garden of acclimatisation. It is refreshing to visit a garden where the plants receive the first consideration.

—— Among the private establishments near Edinburgh which have much to interest the horticulturist, but which, of course, cannot be seen without the express permission of the owners, is the garden of Mr. ISAAC ANDERSON-HENRY, the fortunate introducer of so many fine plants, and the equally lucky hybridiser. The services which this gentleman has for so long a time rendered to horticulture and to botany, render a visit to his well-stocked garden one of unusual interest. Specimen Conifers, rock plants, and herbaceous plants seem the favourites outdoors, while indoors are the very numerous seedlings which Mr. Henry's correspondents in many lands supply him with. Here, too, may be seen, carefully swathed in muslin and duly ticketed, the various plants selected for hybridising experiments.

—— At NIDDRIE, a few miles distant, the seat of W. G. Wauchope, Esq., the gardener, Mr. Gordon, speaks well of a lime-kiln he has in use to heat his vineries, Peach-houses, &c. Mr. Gordon reports that the kiln goes for twenty-four hours without attention. The limestone used is mixed with one-third of coal refuse, and the product is about two barrowfuls of fine lime a-day. The fruit-houses, including the orchard-houses, are extensive and well-managed. In the greenhouses at the time of our visit a great show was made with the white-flowered Campanula calycanthema. By cutting the plant back a second crop of flowers may be produced almost equally fine as the first. In the park here are some magnificent Sycamores—often by the way, called Planes in Scotland.

—— Just outside the city, at the very base of Arthur's Seat, with Sampson's Ribs almost within a stone's throw, and with Duddingston Loch close at hand, is the RESIDENCE OF — NELSON, Esq. No site can be imagined more beautiful. It is not many who have a noble mountain mass and an extensive lake, as it were, at their back doors, yet such is the case here. Though the garden is as yet new, and probably suffers from winds from the sea, yet, quite apart from its surroundings, it is a good specimen of a villa garden. In addition to the ordinary vineries and greenhouses there are here a few good Orchids, and a rich and interesting herbaceous border, which yields throughout the year something or other of interest.

—— Mr. NEILL FRASER'S garden at CANONMILLS is of historic, as well as of present interest. It was formerly in the possession of a famous horticulturist, Dr. Neill, well known to those conversant with botany and gardening matters in Scotland. The garden is a small town garden in an unfavourable situation; nevertheless Mr. Fraser manages to keep it stocked with a rich and varied collection of Ferns, which will be studied with interest by those who are fortunate enough to have the *entrée*. In the garden are sundry old trees of interest, such as the oldest plant of Fraxinus lentiscifolia in Scotland, a fine old plant of Rhamnus alpinus (ripening its fruit in July). Figs and Mulberries, which formerly ripened their fruits against the walls of this garden, no longer do so. It is, however, doubtful whether circumstances other than climatal change have not been the cause of this. In this garden is a pond—all that remains of the Canonmills' loch—concerning which, in 1826, there was a legal contention, in which the botanical acumen of Mr. McNab was of good service. It appeared that Dr. Neill wished to secure compensation for the loss of his loch at the hands of the railway company. This latter body, however, urged in reply that the water was foul, and that, therefore, the Doctor was not entitled to compensation, or at least not to the amount demanded. Mr. McNab, however, by proving that he had gathered Potamogeton natans in it, was enabled to show that the loch was not foul, and the verdict, we believe, went in the Doctor's favour in consequence.

NURSERIES.

Among the nursery gardens in the vicinity of Edinburgh which will repay a visit are the establishments of Messrs. DOWNIE & LAIRD, at West Coates, where is the elegant Royal Winter Garden figured by us in 1872, and which contains some very fine specimen Camellias, Rhododendrons, and other plants. Ferneries and other offices lead out from this while at the rear, disposed in an ingeniously compact manner, are ranges of glasshouses, filled with hard and soft-wooded greenhouse plants, stove plants, Ferns, Pelargoniums, Bouvardias, Azaleas, and various specialities in the way of florists' flowers, for which the firm has a well merited reputation. A Lobelia we noticed in this establishment is worthy of notice. It is of fine free habit as to growth and bloom, and has large white flowers edged with blue. Pansies and Violas form also a special feature of this nursery, an annual display of great beauty being made with them. In addition to the establishment at West Coates, Messrs. Downie & Laird have another one at Pinkiehill, some little distance away, where specimens are to be seen of most of the choice trees and shrubs for which there is any demand, and where trial is made of new florists' flowers, of which there is generally an interesting display. Pansies and Violas are propagated here by the thousand, and the sight of the trial beds in season makes one wish that these charming hardy plants would do as well in the South. A considerable number of pot Vines are also generally grown here, together with a large assortment of hardy flowering shrubs to be forced in spring for the ornamentation of the Winter Garden.

—— The LAWSON COMPANY'S NURSERIES, extending over more than 200 acres, maintain their ancient reputation. "Prodigious!" is an adjective that may well be applied to the stock to be found in this establishment. This will be understood when it is stated that there are thirty millions of Larch, which, at the time of our visit, were being weeded like an Onion bed in a London market garden. Seedling plants of Rhododendron ponticum are counted also by the half million, Hollies in equal quantities, as may be judged from the fact that there are 7 acres of named sorts. Pernettya candida, a charming white-berried hardy shrub, is grown here in tens of thousands, and is so valuable that we wonder we do not see it oftener. Rhododendrons form a great item in this fine establishment, not only the commoner kinds, but also the choicer varieties. A variety of R. Nobleanum, called Garibaldi, transplanted in July of the previous year, was set with flower-buds. This would make a fine variety for forcing purposes. A cross between R. Aucklandii and R. Everestianum is noteworthy for its fringed, white, fragrant flowers. Other noteworthy crosses have been obtained between R. Nuttallii and R. Edgeworthii. R. Hodgsoni is largely grown as a standard, and proves quite hardy.

For striking cuttings, plunging pot plants, and other like purposes, great use is made here of a substance called "pobb." This is the refuse material from the ropeworks, which is watered, allowed to heat, then turned over, and sweetened by exposure to the air. It forms an excellent substitute for peat, and American and other fine-rooted plants thrive well in it. In fact, this "pobb" is a substance of no little

FIG. 68.—SUN-DIAL AT NEW BATTLE.

value for cultural purposes. To revert to some of the plants in this establishment, we may mention that Fremontia californica, which most people find difficult to propagate, here strikes readily enough from cuttings.

Conifers, of course, form an important feature of this establishment; most of the hardy kinds are grown in enormous quantities, and of the rarer ones the stock is choice. We noticed quantities of Cryptomeria elegans, Cupressus Lawsoniana (of course), Cedrus atlantica glauca, fine plants of Pinus muricata, Pinus insignis, which is found to be quite hardy here, owing its immunity to the proximity of the sea; Pinus parviflora, Torreya myristica, Juniperus dilatata, a Himalayan form, with a nice pyramidal habit superior to J. leptoclada. We should, however, have to write a catalogue if we ventured to enumerate all the interesting Conifers we saw here, but we cannot pass over without notice the Araucaria avenue with the view of Arthur's Seat in the distance. This is one of the grandest conceivable views. As to other plants, where there are so many of each kind, we can only jot down without special order a few that attracted our attention on a recent visit. Of Cherry Laurels the variety rotundifolia was pointed out to us as one of the very best, not only from its appearance, but from its hardiness. Buxus japonica aurea is in favour here as an edging plant, from its dwarf habit and the circumstance that it retains its colour. In one of the houses we saw a large quantity of the newly introduced silver variegated Sibthorpia europæa, an extremely pretty variegated plant, but of course hardly so free a grower as the green form. Nertera depressa is also grown in quantities, as might be expected, as it is a charming plant when in berry. Quantities of the Pyracantha, grafted on the Quince, and grown in pots for winter decoration, are to be found here. Griselinia macrophylla is also found to be very serviceable as a window plant, its thick coriaceous leaves and hard skin rendering it comparatively unhurt by dust or gas. Aralia Sieboldi is a favourite with the Edinburgh folk, judging by the profusion with which it is grown.

At the present time one of the sights of this establishment, and it is truly an astonishing one, is a house of Todeas. Some idea may be formed of this when it is stated that there are over 600 good sized plants—not little bits, of these elegant Ferns. Two or three species and varieties are represented. This collection should be seen by all visitors to Edinburgh who are interested in gardening, for it is one of an extraordinary character.

At the time of our visit a plant of the variegated form of Phormium tenax was in fruit. It will be interesting to ascertain whether the seedling will reproduce the variegation.

Herbaceous plants, Lilies, including L. Brownii, deciduous trees and shrubs, in addition to fruit trees and Roses, are among the myriads of things grown, and grown well, in this important establishment.

—— Immediately opposite the Botanic Garden, in Inverleith Row, is METHVEN'S NURSERY, stocked with Conifers, Roses, fruit trees, and the usual description of nursery stock. The ornamental beds and borders, formed of dwarf Conifers, are very effective. They were described in our columns by Miss Hope, of Wardie, some time since, and we think that every one who sees them will feel disposed to imitate them.

—— The nursery of PETER ROBERTSON & CO. is also at no great distance. It is not a show place, but is replete with trees and shrubs, evergreen and deciduous, including most of the rarest and most interesting hardy plants of this character.

—— The nursery of Messrs. DICKSON & SONS is a large and well ordered establishment, chiefly devoted to hardy trees and shrubs.

Among other nurseries worthy of a visit are those of Messrs. Dicksons & Co., well-known for their general nursery stock, and as raisers of some of the finest bedding Pansies; Cunningham & Fraser, Drummond Brothers, Gordon & Sons, Handyside & Co., Mackintosh, Mitchell, and Ballantyne & Son, Dalkeith.

The horticultural tourist on his journey to or from Edinburgh will assuredly not forget Mr. Wm. Thomson's vineries at CLOVENFORDS, which may be reached from Galashiels. There is the less necessity for doing more than allude to them at this time, as they have been described in our columns, p. 629, vol. i., 1874, and some of the houses figured.

Other places, in or within easy reach of Edinburgh, which will be found interesting, are:—

YESTER HOUSE, Haddington, the Marquis of Tweeddale; Mr. Shearer gr.

ARCHERFIELD, Dirleton, Nisbet Hamilton, Esq.; Mr. Kettles gr.

THIRLSTANE CASTLE, Stow, Earl of Lauderdale; Mr. Whitton gr.

FORDELL, Inverkeithing, Fife, H. Henderson, Esq.; Mr. Foulis gr.

MELVILLE CASTLE, Dalkeith, Viscount Melville; Mr. McKinnon gr.

MAVISBANK; Mr. Gray gr.

HAWTHORNDEN, an ancient place, with many strange caves about it. Near to this is

ROSLIN CHAPEL, one of the most popular sights round Edinburgh.

HOPETOUN HOUSE, Winchburgh, Earl of Hopetoun; Mr. Niven gr.

THE GLEN, near Clovenfords; Mr. Stewart gr.; one of the finest fruit growing places in Scotland.

PINKIE HOUSE, Edinburgh, Sir Archibald Hope, Bart.; celebrated for its fine collection of Ferns.

TYNNINGHAME, East Lothian, Earl of Haddington; Mr. Brotherston gr.

THE CASTLE.—Mons Meg, the Armoury, Queen Mary's Apartment, &c.—Regalia of Scotland, 12 noon to 3 P.M.

GALLERIES.—National, Princes Street. Statuary.—Royal Institution.

GARDENS.—Princes Street. The Queen's Park, foot of Canongate.

JOHN KNOX'S HOUSE, High Street, Netherbow.—Wednesdays and Saturdays, 10 to 4.

MONUMENTS.—To Scott, Wilson, and Ramsay, Princes Street; Burns, Nelson, Playfair, Dugald Stewart, Martyrs, and National, on Calton Hill; Duke of Wellington, front of Register Office; Melville, Melville Street; Melville and Earl of Hopetoun, St. Andrew Square; George IV. and Pitt, George Street; Charles II., Parliament Square; Duke of York and 78th Highlanders, Castle Esplanade, &c.

MUSEUMS.—Antiquarian, Royal Institution. Industrial (Science and Art), Argyle Square. Phrenological, High School Yards. Surgeons, Nicolson Street.

PALACE and CHAPEL of HOLYROOD, foot of Canongate. Dalkeith Palace and Gardens, Wednesdays and Saturdays.

New Garden Plants.

DENDROBIUM (DENDROCORYNE INFLORESCENTIA LATERALI) BRYMERIANUM, *n. sp.**

Once more one of these curious Chrysanthemum Dendrobia. This one is not a friend to the theoretical orchidist, since it is a connecting link between the sections Stachyobium and Dendrocoryne, for its stem is very nearly calamiform, only above the base there is a tumid pseudobulbous portion that makes one think of plants like Dendrobium angulatum, Wall. The leaves of parchment substance are only two on the stem at hand, but there are scars of a few more (four), and the upper end of the stem is cut away. The lateral inflorescence has three flowers as big as those of Dendrobium clavatum, Wall., itself, and with bracts nearly as great as those of the just-named species. The long, narrow, cuneate oblong-acute lip, with very broad fimbriæ on both anterior sides and apex, is very uncommon, and gives a little shivering of fright to the describer, who is rather suspicious of the beautiful plant, that has a strong tendency towards getting triandrous. Six examined flowers had each one normal, or nearly normal, terminal anther, and on each side of the stigmatical hollow a knob representing an anther, but always with some rotten substance. The plant is inscribed to W. E. Brymer, Esq., M.P., of Ilsington House, Dorchester, who flowered it first.

* *Dendrobium Brymerianum*, n. sp.—Dendrocoryne inflorescentia laterali; caule teretiusculo sulcato supra basin pseudobulboso ampliato per breve spatium (tripollicare); foliis cuneato oblongis acuminatis pergameneis; racemo laterali paucifloro; bracteis triangulis ovaria pedicellata prope media attingentibus, floribus aureis; mento obtuso parvo; sepalis ligulatis obtuse acutis; tepalis paulo latioribus; labello oblongo ligulato acuto angusto; nunc medio utrinque subangulato, per discum et antice papilloso aspero; basin versus inflexo ciliato; lateribus anterioribus longe ciliato fimbriato; fimbriis longis subramosis; columna (in floribus sex subtriandra) ima basi subtriangulo exsecto.

It is believed to come from one of Mr. Low's importations of Burmese Dendrobia. I have obtained twice fresh specimens from this invaluable correspondent. It is very satisfactory there is such an interesting plant in England, and I would feel exceedingly gratified by the possessors if they would assist me next year with fresh flowers once more, to see whether the plant is constant in its originality, or whether it is a monster of a species, probably quite unknown. As to the bracts, there is but the widely distinct D. clavatum that can be compared with it. It is to be hoped there are other specimens in the collections of the United Kingdom (more or less than 400!) of this easily-recognised yellow-flowered racemose Dendrobe with a stem bulbous in the inferior part. May we hear more of it! *H. G. Rchb. f.*

ORNITHOGALUM (CATHISSA) CHLORANTHUM, *Baker, n. sp.**

A new species of Ornithogalum, which came to Kew from Mr. Wilson Saunders, and flowered there July, 1875. It is a native of the Cape, but I do not know its precise locality, which is most likely the Eastern province. It is not a handsome species, the flowers being small for the size of the plant, and greenish. Of plants already described it comes nearest O. prasinum, Lindley, *Bot. Reg.*, tab. 158. Bulb ovoid, 1½—2 inches thick, with brown membranous coats; leaves three or four to a bulb, cotemporary with the flower, narrow, linear, suberect, deeply channelled all down the face, acuminate, bright green, glabrous, 12—16 inches long, ½ inch broad at the base; scape glabrous, terete, 1½—2 feet long; raceme with about twenty rather dense flowers, measuring, when expanded, 3—4 inches long by 1½ inch broad; pedicels patent or erecto-patent, the lowest not more than 3—4 lines long; bracts lanceolate acuminate scariose, exceeding the pedicels and protruding conspicuously beyond the buds; perianth ½ inch long, a uniform green, the oblanceolate blunt segments with a faint many-nerved keel in the central third; stamens rather shorter than the perianth, the inner filaments lanceolate, the outer linear, the dull yellow, versatile, oblong anthers a line long; style 2 lines long, as long as the round ovary; ovules many in each cell, horizontal; scent faint. *J. G. B.*

ODONTOGLOSSUM PRÆSTANS, *Rchb. f., Warszw.*†

This is much in the way of Odontoglossum odoratum, Lindl., yet it is immediately distinguished by its sepals and petals being internally maroon-brown from the middle to the top. The calli are very peculiarly serrate, or even provided with tendrils. I have seen very many inflorescences of the now common O. odoratum, Lindl., which all proved quite different. The plant came but seldom within my reach. I obtained copious dry wild specimens from Warscewicz himself and from Dr. Lindley, who had the same through Mr. Skinner's liberality; those appeared to come from Peru. Mr. Low sent flowers gathered there, I believe, by Mr. Smith. My friend Wagener gathered it but once at Ocaña. It was flowered very long since at Tooting with Messrs. Rollisson, who sent it to Consul Schiller. Finally, it has recently appeared at the Rev. J. B. Norman's, Whitchurch Rectory, Edgware, London. *H. G. Rchb. f.*

FUCHSIAS.

MY first notes on this genus in the *Gardeners' Chronicle* (see p. 179, vol. iii., new series) have been the means of eliciting some valuable and conclusive testimony respecting the origin of certain varieties, which will add much to the interest and importance of a history of the genus. The origin of F. Riccartoni is settled beyond dispute, and equally I presume we may accept the statement of "S. S.," respecting the origin of Venus Victrix. For these and all direct communications I beg to thank your correspondents. I have not received the true coccinea from any of my correspondents, with the exception of an interesting dried scrap from Mr. W. Marshall, of Ely, who found it in a second-hand copy

* *Ornithogalum (Cathissa) chloranthum*, Baker, n. sp.—Bulbo ovoideo tunicato; foliis 3—4 synanthiis linearibus glabris pedalibus et ultra facie profunde canaliculatis; scapo tereti, 1½—2 pedali; racemo subdenso 4 poll. longo; bracteis lanceolatis acuminatis ante anthesin comosis; pedicellis 3—4 lin. longis patulis vel erecto-patentibus; perianthii semipollicaris segmentis viridulis dorso late obscure carinatis multinerviis; filamentis perianthio triente brevioribus interioribus lanceolatis, exterioribus linearibus; stylo ovario æquilongo.

† *Odontoglossum præstans*, Rchb. f., Warszw.—Affine Odontoglosso nævio, Lindl.; labelli auriculis ciliatis; lacinia media acuminata aristata lævi, cristis in basi quaternis carinæformibus, externis 2—3 dentatis, internis productis 4—6 dentatis seu aristatis. — *Odontoglossum præstans*, Rchb. f., Warszw., Bonplandia, ii. 95.—"Vultus plantæ Mesospinidii vulcanici" (Rev. J. B. Norman in litt.). Folia lineari lanceolata acuta. Panicula macrocl[illegible]da. Rami densiflori (usque 15 flori). Bracteæ lanceolatæ acutæ, usque ovaria dimidia æquantes. Sepala et tepala lineari lanceata acuminata. Labellum trifidum. Laciniæ posticæ angulatæ sericeo-ciliatæ. Lacinia media triangulo acuminata lævis. Columna erecta. Alæ porrectæ falcatæ nunc runcinatæ flores flavis brunneo maculati. Sepalorum et tepalorum dimidia superiore brunnea.

of the eighth edition of Lineæus' *Genera Plantarum*, published at Vienna in 1791. It is in a folded piece of paper, bearing the inscription—

FUCHSIA COCINNEA,
Oct. Monog.
Pot, June 16, 1793.

Much remains to be done yet before I can write the horticultural history of the genus. To-day I propose giving a translation of some portions of a letter received from M. Felix Porcher, President of the Horticultural Society of Orleans, relating to this genus. This gentleman published a pamphlet entitled *Histoire et Culture du Fuchsia*, as long ago as 1844; and last year the fourth edition of this useful work appeared, of which I will shortly send you a brief notice. I obtained it from the author through my friend, M. E. André: and subsequently President Porcher kindly communicated the following letter, which will be of interest to all Fuchsia growers. I have not yet had time to verify the authorities he gives: some of them are doubtless incorrect—the names of the persons who sent out certain varieties having been confused with the raisers. One of my objects in sending this to the *Gardeners' Chronicle* is to get the assistance of old raisers in correcting and adding to the list of varieties raised previous to 1844, as very little of such information is anywhere on record. Concerning F. coccinea, President Porcher writes that he knows nothing beyond what is given at p. 16 of his book, from which it would appear that he is not acquainted with the true plant. He regrets that his age (seventy-eight) prevents him from going to Paris, to clear up all doubts on this subject. Respecting varieties anterior to 1844 "the following," he says, "is all the information I can give. I collected the descriptions of a certain number of species, which I included in the second edition of my work. Many of these being superseded by superior varieties were simply mentioned with the raisers' names in the third edition, and in the fourth edition they are suppressed altogether. As you will find it so difficult to get a copy of the earlier editions, I send you a list, with some additions from my MS. notes, which I hope may prove useful to you, and be the means of gaining further information for me.

Varieties of Fuchsia sent out from 1837 *to* 1844.

Raised by John Salter, then living at Versailles—Albino, Audoti, Baudouin, Brennus, Edwardsi, Géant, Gloriot, La Chinoise, Mirabelle, Oreste, Princesse de Joinville, Paragon, Salteri, sanguinea superba, Thibauti, Victoria, Vulcan.

Cattleugh—conspicua arborea.

Chandler—Chandleri.

Cripps—Venus Victrix, a beautiful and elegant variety, which has given issue to several more vigorous ones, such as Sydonie (P. Smith & Co.), Lady Franklin (Smith, 1853), Thalia (Turner, 1855), Venus de Medicis (Banks, 1856), which it was attempted to send out as new again in 1873.

Dickson—Dicksoni, floribunda.

Epps—Bridegroom, Eppsii, Hero of Kent, and Marion.

Harrison—Amanda, Admirable, Clio, Desdemona, Enchantress, Fairy, Fama, Formosa, Florence, globosa longiflora, Goldfinch, Madonna, Meteor, Prima Donna, Queen, Rosabella, Vesta, venusta, and Zenobie.

Ivery—Iveryana.

Lane—Lanei.

Low—bicolor.

Lucombe—exoniensis (1842), a cross between cordifolia and globosa.

May—floribunda magna, pendula, terminalis, pulchella, stylosa maxima.

Miller—Constellation, between fulgens and corymbiflora.

Pontey—tricolor, remarkable for its beautiful colouring.

Smith—Queen Victoria (1842).

Standish—Aurora, delicata, Hebe, Standishii (1840), Attraction, Colossus, and President (obtained in 1843).

Todd—Toddiana.

Thomson—Formosa, elegans (1841).

Youell—Youelli (1843?)."

Many of the preceding names may, doubtless, easily be verified, but I have given the list in full, and I do not ask for published information as I have access to most books. *W. B. Hemsley.*

NOTES ON RARE CONIFERS.

MR. MURRAY finds it "very difficult to attach much importance to the characters specified" by me in the leaves of Picea concolor, and yet goes on, somewhat paradoxically, to say that "the stomata on the upper surface of the leaves of concolor do certainly run to an extreme away from the ordinary type of grandis, and coupling this with the slight difference in the bracts, I have come to the conclusion (though not without considerable hesitation) to write down concolor in my mental tablets as a good species." The sticking point with him seems to have been the great variety which he found to prevail in the leaves of grandis throughout the Rocky Mountains. But Mr. Murray must have forgot that he told me that not one of the Rocky Mountain specimens of grandis (now in the British Museum), however hoary or light coloured it may be, has stomata on the upper surface of its leaves. With me the difficulty was in another direction. It was because of the great dissimilarity in the leaves of the two species that I felt no compunction in separating them; but I must confess to having had a little difficulty in separating concolor from what I believe to be best known as Lowiana, though to some as Parsonsiana, and yet to others as lasiocarpa; but now that the plants of concolor, which I partly based my conclusions on, have gradually, through growth, assumed a more distinctive character, I have no longer any difficulty in believing it to be specifically different from, though at the same time closely related to, Lowiana. It will be seen, too, that our view of the case is supported by what Professor M'Nab has to say of these two species. He observes:—"P. Lowii (recent) differs from this (concolor) leaf in outline, but agrees perfectly in all other characters." At the same time the sections which he gives of the leaves of Piceas concolor and grandis testify to a great internal, as well as external, difference. But probably I ought not to have quoted the Professor in support of my views. Mr. Murray is surprised at me for having quoted Dr. Engelmann and M. Roezl in my own behalf, because he cannot see what bearing their opinion had on the matter. In justice to Mr. Murray, and to what he has been pleased to call my "capacity," I here state that the passage in which the names of those gentlemen occur bears my meaning on its face. That meaning is no disparagement to Mr. Murray as a botanist, on the contrary, by way of explanation, I have great pleasure in expressing my belief—and might have done so then—that had Mr. Murray been equally privileged with those gentlemen in seeing and handling Picea concolor in its natural and native state the passage which gave rise to this discussion never would have passed from his pen. But, unfortunately, Mr. Murray enjoyed no such privilege; he had only a cone or two and a few desiccated leaves—less even than I had—to base his conclusions on. That being the case, and keeping the outcome of this discussion in view, I am satisfied that we have to thank such scraps or botanical fragments for the present deplorable, I had almost said disgusting, state of botanical nomenclature, and now it is for me to humble myself before Mr. Murray.

It will be remembered that in a former paper I advanced the opinion that P. concolor had a closer affinity to P. lasiocarpa of Hooker than to any other known species of Picea. But I did so only because I believed lasiocarpa (Hook.) to be the same as lasiocarpa or Lowiana of commerce; and it may be seen that the subject matter of my paper proves this, in that all my comparisons were made between the leaves of these two species. But since the appearance of Professor McNab's section of the leaf of lasiocarpa (Hook.) I am inclined to think it a good species. I have carefully examined the internal structure of the leaves of rather more than two-thirds of the known Piceas, and the only one that I find at all approaching it is Mr. Murray's bifolia. In it, as in lasiocarpa (Hook.), the resin canals occupy a central position betwixt the midrib and the sides of the leaf, but with this difference, that in bifolia the resin canals are bluntly wedge-shaped, with the thin edge pointing to the midrib.

Mr. Murray thinks it probable that there is more than one species cultivated under the name of lasiocarpa, one of which he cannot separate from grandis. In that he is quite right. There is first—leaving out lasiocarpa of Hooker, which certainly is not in cultivation—lasiocarpa of horticulturists, better known as Lowiana; and, second, lasiocarpa of Balfour, better known as Vancouveri. The latter, I presume, is the one which Mr. Murray cannot separate from grandis. That there is a slight difference between its leaves and those of Douglas' grandis there can be no doubt; they are shorter and smaller in all their parts, but, of course, such differences cannot be considered specific. Mr. Murray is certainly wrong about the early history of Douglas' grandis and amabilis; but as it would only come second-hand from me to put him right, I will give way to Mr. Barron, who will, I have no doubt, kindly do so.

As it was I who sent Mr. Murray the Picea flowers which he refers to, I beg to remind him that they were labelled "amabilis" and "Lowiana," and not "grandis," as he informs us. But whether grandis or not, this I know, that the one labelled Lowiana had from eight to twelve rows of stomata along the middle of the upper surface of its leaves.

As to the importance of the resin canals as aids in determining species, I can only go as far as Mr. Murray, and with him believe that "in many instances they will be found to be useful accessories." Their importance, when present, seems to lie in their number, shape, size, and position in the leaf, but principally I think in their size and shape. Their number and position seem to be of sub-generic importance. I was somewhat surprised yesterday on examining the internal structure of leaves of all the known species of Yew-leaved Spruces, to find that they had but one resin canal, situate immediately below the midrib, and just above the lower epidermis. If it has one meaning more than another it is that it confirms the justness of the opinion held by some botanists that this section of Spruces is of generic or at least sub-generic importance; and it also condemns others who would separate Hookeriana and Pattoniana into a distinct section from the other species of Hemlock. So far I have failed to find in these two species any generic or sub-generic character which is not to be found in the other species. This same character would also confound those who would place Douglasii in the same section with Hookeriana and Pattoniana; it has two resin canals in its leaves and similarly situate to those of the majority of species of Picea. As yet there is no section justified in holding it, and unless Douglasii var. Drummondii or taxifolia be considered specifically distinct from it, it stands alone in the possession of certain sub-generic characters.

It is a pity, too, for Mr. Bertrand's hypothesis that the single resin canal, when present in the leaves of the order Taxidæ, occupies the same position in the leaf that it does in the species of Tsuga. I fear that his hypothesis will never attain to the dignity of a theory. *George Syme, Elvaston Nurseries, Borrowash.*

BRITISH GARDENERS.—XXV.

JOHN COX.

AMONGST the practical gardeners of the South of England, Mr. John Cox, whose portrait we now publish, holds a very honourable place, being well known amongst his brethren in the profession as a skilful and successful practical cultivator, especially of vegetables and fruits, as a censor whose services are frequently sought at the metropolitan exhibitions, and as a writer whose teachings are always sound and trustworthy, and such as can be understood by every one who is willing to be taught. We give his autobiography in his own words:—

"I have no record to make of servitude in the great places of the day, my early experiences being confined principally to one place, where I made acquaintance with long days of hard work in plenty. I was born in the village of Buckland, in Berkshire, in November, 1814, my father being principal foreman in the then celebrated gardens of Sir John Throckmorton, one of the great patrons of horticulture of that day. From thence my father went to Lee & Kennedy's nursery, at Hammersmith, and was by them sent to the Ladies Ashburnham, at Wimbledon, where the late Lord Churchill became acquainted with him, and eventually engaged him to go as head gardener to Cornbury Park, in Oxfordshire, at which place he spent the remainder of his life. It is from thence that I date my earliest recollections of gardening, planting, groundwork, the formation of green drives through a most extensive park, besides miles of carriage roads, all of which work, and much more, was in full and active operation there for many years. I mention this, merely to show that my early life was spent amongst these most active gardening operations, and long before I left school I was indoctrinated by a clever, but stern father, in most of the practical details of the various works in progress, including the measurement of land, and geometrical plan drawing, so that by the time I left school and entered regularly on the practical study of my chosen profession, which was in my sixteenth year, I was proficient in all the practical details of gardening, as then practised. For all that, my father insisted on my going to the bottom of the ladder, and I was therefore put to serve the kitchen—no mean thing either, for the establishment was large and the requirements great. At the same time I was made responsible for the sowing and planting of all the kitchen-garden crops, being especially enjoined to keep up a good supply of salading. As there were about five acres of land within the walls, and a fair amount of help, I cannot remember, barring unavoidable atmospherical hindrances, to have ever had any difficulty in keeping the family well supplied. I did this for two years, and I have ever since found the benefit of having gone through this training. It is a step which I should strongly advise all young gardeners to take in the beginning of their career, for they will find so many things crowd upon their attention as they advance, that unless previously well grounded in this most important part of a gardener's education, they will find it much more difficult to attain practical proficiency in it in after years.

"Towards the end of the two years I found there was gradually falling to my share the management of the wall fruit trees; and when I left serving the kitchen the whole was put into my hands, with occasional help. This to me was a labour of love, for I had always taken delight in assisting, and was early led to the study of the principles by which practice should be guided; and it has continued with me a favourite study through life up to the present time.

"During this time my attention was not entirely confined to these departments, as I had very frequently to take a share in whatever was going on, more particularly during the planting season, for planting was carried out on a large scale in this fine park, and the constant removal and replanting of large crowded shrubs was fine practice, which has proved very useful to me in after life.

"In these days, when there are so many periodicals and books bearing on gardening, it is comparatively easy for young men to attain, if they will, to a theoretical knowledge of the subject, but in those days we had few helps, and the necessary knowledge came to us only by dint of hard practical work. About this time Loudon was in full career, publishing his admirable works, and one of my first purchases was his *Hortus Britannicus*, from which I soon found that I needed to know a little of the construction of Latin, and, therefore, I employed my evenings in getting up long lessons, and attended the master of the grammar school at Charlbury twice a week. This was afterwards supplemented by lessons in French. This discipline was with a few interruptions maintained for four years. I have never considered the time so spent as wasted, but would advise all young men who have not attained proficiency in these during the time of their school probation, to follow it up in their leisure time afterwards.

"I remained at Cornbury Park five years, during the last two of which, in addition to multifarious other duties, such as the continual overlooking of the houses and pits, I had to devote the half of every day to the pleasure ground, in which position I had to take the lead of nine men in the mowing department. Mowing machines were just then "budding," and were looked upon with much distrust, indeed with a feeling somewhat similar to that which incited the ignorant mobs about that time to break up and burn the threshing machines. Anyway, we were obliged to stick to the scythe then, and on grand occasions, when much company was expected, my men would not scruple to meet me at four in the morning, in order to get a large breadth cut over whilst the dew was on. At this time the keeping of the pleasure ground was such as to be frequently compared to that of White Knights and Blenheim, both celebrated masterpieces of decorative gardening belonging to the Duke of Marlborough. Young men of the present day seem to think that to get into a large range of houses is the most legitimate object of their ambition, but I maintain that unless they have previously, or in combination therewith, passed through a similar probation to the above, they will find they have much to learn when the general management of a large place falls upon their hands or heads.

"In 1836 the late Bishop Spencer, who came to Cornbury Park on a visit, asked Lord Churchill if I would go down to his cottage *ornée* on the edge of the moors in Derbyshire, to help him in his gardening and planting; and his lordship giving me a strong recommendation, my father felt compelled to let me go. I started at once (nearly 150 miles) for the first time from home, and it was four years before I saw it again. One can hardly realise that at that time the journey took two days, and made a very large hole in a £5 note, and that letters were charged 1*s.* each. The journey may now be done in one day for £1. On arriving everything looked so desolate that I thought I had made a great mistake; but after a time I became reconciled to the adverse climate, where Green Gages might possibly ripen once in five years; where Keens' Seedling Strawberries were magnificent in August; where Oak trees became tolerably green by the end of June; where common Laurels were either killed outright, or were cut down to the ground every year by frosts which the Rhododendron ponticum and Portugal Laurel bore with impunity—all so very different from the sunny South. The discipline was, however, invaluable. Nothing came forward without the greatest care and watchfulness, and the Bishop gave me every possible encouragement. He gave me the run of his extensive library, procured *Paxton's Magazine of Botany*, subscribed to the *Gardeners' Gazette*, and also the *Gardeners' Chronicle*, as soon as they came out, and sent me over to Chatsworth with an introduction to Mr. Paxton, from whom, on several occasions, I received marked kindnesses; also to the veteran gardener at Willersby Castle, so noted for the culture of Vines in pots, and with whom I became intimate, and have often gone with him the round of his fires in the early morning before his men came. He supplied me with about fifty fine young Vines in pots, with part of which I planted a large vinery I had put up, and with the other went into pot culture, in which I was fairly successful, as the times were, such culture being then in its infancy, and looked upon as a novelty. I was presented with two guineas for the first bunch of Grapes which had been ripened within 9 or 10 miles of the place. There were plenty within two years after at Buxton, where Mr. Paxton put up one of his ridge-and-furrow houses, which succeeded admirably. In 1841, after the Bishop and Mrs. Spencer had gone to India, I thought it best to leave, and accordingly came South again, bringing with me many a hard-earned lesson of struggles with long-protracted winters of frost and snow, and other adverse influences, always, however, happy and cheerful under it all, so kind and considerate were my employers.

"Having a month or two to spare before going to Knight & Perry's, which was my next destination, I shouldered a knapsack and started off on a walking tour through the counties of Warwick, Worcester, Hereford, Monmouth and Gloucester, calling at all the principal noblemen's and gentlemen's seats on the route, and meeting with invariable kindness from the gardeners I thus met; laying up a good store of names of plants, and much useful information, which I have found of great assistance in after-life.

"At Knight & Perry's I went through much the same routine as that detailed by Mr. Fish; had the same experience of 'Old Joe' with his stealthy tread and sarcastic language; and passed with much advantage through all the principal departments in the houses, until, in October 1842, I was recommended by Lord Churchill as head gardener to the Baroness Wenman, at Thame Park, Oxford, a place with grand capabilities if they had been fully taken advantage of. The noble park added greatly to the attractiveness of extensive and well laid out lawns and pleasure grounds, which latter, by the way, were pincipally designed by the Duke of Marlborough before alluded to, the groundwork of whose arrangements of flower-beds consisted of large circular beds filled with plants all of one colour. I

John Cox

remember there was one large circular bed which required about 300 large plants, not cuttings, of scarlet Pelargoniums; others were all Heliotropes, others Verbenas, among which zonosa and Melindres made grand beds. During my stay here we made great alterations in the pleasure grounds, reducing the size of some of the beds, and introducing more variety into the furnishing of them, cutting down overgrown trees and shrubs, and planting others of more eligible varieties as they came out; letting in plenty of light, and giving a brighter and more cheerful character to the whole place. In the kitchen garden, which was of fair size for the requirements, and very productive both in fruit and vegetables, there was a good range of houses. The Vines and Peaches were rather worn out, principally through overcropping, I therefore gradually renovated the Peach house with young trees. Of the largest vinery I completely re-made the border, planting young Vines; in the other, I lifted the trees which were younger, but the fruit was small and shanked much, and therefore I made a new border, raising it as high as the nature of the situation allowed, replanting the Vines much shallower than before, and trusting by surface dressing to be able to keep the roots nearer the top. The improvement was very marked indeed; even the first year after lifting there was an average crop of good-sized bunches, thoroughly well-coloured, all over the house. The canes in the large house nearly reached the top the first year, and at the end of three years the house was well furnished again with good fruitful rods. In the Peach-house I had great success in a novel experiment I made by potting young fruitful Cherry trees from the walls as soon as the leaves fell, and introducing them at once to the Peach-house, where I forced them very gradually with plenty of air on; they were very successful, and my account of the same was copied into several papers.

"In 1847 the situation at Redleaf became vacant, and my late kind employer wrote to say that I had been recommended to him to fill the place, which I was proud to accept, and in due course left Thame Park, greatly, as I was afterwards told, to her ladyship's regret.

"Redleaf has been too often described in various periodicals to need any panegyric from me. I may say, however, that since it came into the hands of its present proprietor, F. C. Hills, Esq., in 1870, many great and substantial additions have been made by the planting of trees, shrubs, and conifers, of which many thousands have been distributed over a long length of shrubbery walks, which pass through rocky dells filled with thousands of hardy Ferns, and miniature lakes with aquatic plants, all of which has greatly added to the charms of Redleaf. Other great and important additions have been made in every other department, too numerous to be mentioned here, but which have greatly increased the attractions of the place."

Mr. Cox has for some years occupied a seat on the Fruit and Vegetable Committee of the Royal Horticultural Society, where his extensive practical knowledge is often turned to good account.

Forestry.

FROM the well-known fact that many proprietors take a much deeper interest in their woods and plantations, on account of the pleasure and sport they are a means of affording, than from any actual money value or pecuniary return they make out of them, foresters are not only often allowed but encouraged to bestow labour and expend money upon them which they would otherwise be refused; and now that the time has arrived for sportsmen to enjoy the pleasures in which they so greatly delight, it becomes the duty of every forester to aid as far as he can in heightening those enjoyments, and in nothing can he more effectually do this than by increasing the comfort of walking through the woods, and removing obstacles to the killing of game. If these objects are attained, forestry in such cases is considered highly successful, but if not attained, however well the trees may grow, nothing short of a failure is pronounced. Any one who has travelled through an extensive wood or forest, either swiftly or slow of foot, and whether on pleasure or duty bound, can testify to the comfort, ease, and enjoyment afforded by well laid off and properly made shooting roads, or rides as they are sometimes termed, compared with others wherein the whole attention of the traveller is absorbed in looking to his footsteps to avoid sprains and dislocated joints. No wonder when once a sportsman has traversed a comfortable well-roaded covert that he should feel dissatisfied with such as not only bid defiance to all comfort, but are also fraught with danger to himself and others near him.

In forming shooting roads in new enclosures my practice is to lay the whole ground off into squares of 100 yards each way, previous to draining or planting. If the ground is wet, the margins of the roads are defined by drains cut along each side, 18 feet apart; but if dry, a row of trees defines the roadway, without any other distinction. If the ground is moderately level I make the roads in straight lines, but if precipitous or hilly I make them curved or serpentine—less or more so according to the gradients of the surface.

Few estates have, however, been so fortunate in their management as to have all their plantations properly roaded from the first, and therefore what was not done at the formation of the plantation requires doing at some subsequent period. I am at present engaged roading an extensive old wood or forest, which has been cleared of successive crops of mature timber, and is now under a young crop of Pine, Fir, and hard woods generally. The whole surface of the ground is covered with a luxuriant growth of heath and other herbage, and is in many parts very wet, rendering the woodland both unfit for sport and injurious to the growth of the trees. The cover is in many parts so close that only a few yards or even feet can be seen ahead, which renders the road making very difficult, so far, at least, as regards seeing what is beforehand, and keeping in proper lines. The cross-staff and poles used in land measuring are the principal instruments required for carrying on the engineering, and having once fixed upon a certain base line to work from, the operation as to lining is comparatively simple.

The shooting roads in newly formed plantations I make 18 feet wide from drain to drain, but diminish the width at first by planting a single row of trees (generally Birch) on the roadside, to be cut down when the extra width of road is required.

In advanced or old plantations, such as that in hand, I make the roadway 16 feet wide and in some cases only 15 feet. The work is done by contract and the specifications are to pull off all the heather with the hands, to cut close down to the surface of the ground all grass and soft herbage, aad to cut level with the ground all trees and copse-wood below 4 inches in diameter, and clear the whole off the roads, at least 3 feet from the margins. All trees over the above 4 inches are pruned of their lower branches by the contractor, but left standing to be cut by the woodmen, at day wages, and they at the same time reduce any old roots or stumps of trees that may be in the way, and also fill up any holes that may appear dangerous in walking.

The contract price for clearing the surface of 16 feet roads as above described varies from ¾*d.* to 1*d.* per lineal yard, at which the workmen make fair wages, say from 18*s.* to 20*s.* per week. Women and lads are often employed at the work, and do nearly as much as the men, but they require gloves, at least for a time till the hands toughen, which they soon do by bathing them in hot water.

The Heath and prunings are often gladly carted off by the farmers and others for bottoming stacks, and for thatch, or fuel, but when this is not done, the whole can be burnt upon the roads by embracing proper opportunities for doing it.

One great advantage of making all the shooting roads parallel and in straight lines is experienced during the cover shooting, by affording the beaters the opportunity of coming into line at the end of each 100 yards.

Draining and roading plantations are also a great means of increasing game, as almost, if not all kinds of birds and animals delight in sunshine and freedom. The drains carry off the water and render the surface dry, and the openings produced by the roads allow the rays of the sun to penetrate, heat and dry them, to the special delight of the hare, partridge, and pheasant.

The roads also in a short time produce new and fresh herbage, and if encouraged by a little top-dressing, afford food for the game; and thus, in a great measure, preventing it from injuring the young trees, which hares in particular are apt to do. The young trees in well-roaded plantations are often exempt from injury by hares and rabbits when those in unroaded ones are quite destroyed. *C. Y. Michie, Cullen House, Cullen.*

THE GLASGOW BOTANICAL GARDEN.

THE Botanical Garden at Glasgow was founded in 1817. Compared with other similar establishments, the commencement of which dates within the present century, it is thus many years older than the Manchester, Hull, Sheffield, and Birmingham Gardens, though younger than the celebrated Liverpool garden. At the time of its foundation the late Sir W. J. Hooker was a resident in the great industrial capital of the land of the Gael, and it would seem that, if not the absolute originator, he was at all events well to the front among the promoters. The site was then at the western extremity of Sauchiehall Road, a locality which sixty years ago was suitable enough, though now, through the prodigious expansion of the town, in the centre of business, and of course covered with buildings or *overlaid with pavement*. By a curious coincidence the garden was founded in the same year that the streets of Glasgow were first lighted with gas—a boon apiece for body and mind, arriving, as it were, in company.

Sir W. J. Hooker, who was for a long course of years the Regius Professor of Botany at the Glasgow University, published a considerable number of the new plants introduced through the medium of this garden, and which flowered in it for the first time in Britain, in his well-known and admirable *Exotic Flora*, 3 vols., 8vo, 1823—1827, and others, at a later period, in the *Botanical Magazine*, of which he was editor for many years; and from the illustrations these two works afford, we may perceive very plainly that the Glasgow garden, in its early days, must have been one of extreme interest. By the time that Sir William left Glasgow for Kew, which was in the spring of 1841, there was no choice but to remove the garden to a more open situation, and in 1842 it was transferred to the site at present occupied. The whole neighbourhood, which lies due west, was then very agreeably suburban, but is now taking its turn to become girdled by bricks and mortar. Happily, the adjacent buildings are handsome residences, and thus not out of harmony with the class of plants one is accustomed to look for in the garden of a University, though the close proximity of so many chimneys is probably little conducive either to the purity of the atmosphere, or to the cleanliness of the leaf-surface. On the western side of Glasgow the ground rises considerably. It is here that we have "Hillhead;" and, admirably placed upon a commanding brow, the magnificent new College. The main thoroughfare leading westwards from the town, called the "Great Western Road," forms the boundary of the garden on its lower edge; the upper one runs along a steep and irregular declivity, covered with trees, and descending to the river Kelvin. The trees once formed a portion of the celebrated Kelvin Grove, which in times bygone was continuous for a considerable distance along the curve of the hill, the stream laving the base, and forming with the woodland a scene of delightful beauty, well remembered by the elders; for the rest of us it is still alive in that which gives immortality in the midst of decay—the song and the sweet fables of the poet—

"Let us haste to Kelvin Grove,
Bonnie lassie, O!
Through its mazes let us rove,
Bonnie lassie, O!
Where the Rose, in all her pride,
Paints the hollow dingle side,
Where the midnight fairies glide,
Bonnie lassie, O!"

Relics of the Grove survive in various places, exterior to the garden as well as within its boundaries—all the worse, as would be anticipated, for smoke and town improvements; the river, of course, pursues its ancient way, rushing just as in the lang syne when to its "shallow falls"

"Melodious birds sang madrigals."

Of its complexion, however, the least that is said the better; may it long be spared the indignity, last and worst that can befal a river once limpid and romantic, of being rendered offensive to the nose.

Probably it was in order to secure the bit of natural wild woodland, which constitutes so pleasing an adjunct to the garden, and preserving the old sylvan scenery of the banks of the Kelvin, with its quiet and flowery paths, that the present site was chosen; for, excepting that the whole of the area occupied is more or less undulating, the situation cannot be said to be good. The soil is naturally poor; and a capacious pond for hardy aquatics, which should always be included in a garden professing to be scientific, is totally out of the question. The first difficulty might have been remedied in some measure at the outset, but, unfortunately, no pains seem then to have been taken, and the original clay is all the curator now has at command. The extent is 22 imperial acres, though apparently much more, owing to the skilful laying-out, which was executed by Mr. Stewart Murray. Of course one cannot expect many trees of large dimensions, or, indeed, any at all; there is, however, quite enough vegetation of the ligneous kind to serve the immediate purpose of the gardens, which is mainly that of an auxiliary to the botanical department of the University; or, at all events, of the School of Medicine. Trees, as a rule, in Glasgow lead a hard and weary life. The climate, like the soil, is a trying one. Winter sets in early, and is never in a hurry to go. The average temperature is right enough, but there is a very inferior average of solar brightness, and everyone knows that joyous life means plenty of sunshine. The absence of what Nature withholds is felt all the more by reason of the noxious influences of town vapours. These, as in many other places, are telling especially upon the Oaks, everywhere in the district; the trees which suffer least from the effluvia appear to be the Beeches and Horse Chestnuts. In Glasgow, trees of all kinds begin to look very dingy very soon after the height of summer, and few or none ever assume the rich colouring which, in the southern parts of Great Britain, so gloriously marks October. It is no slight privation to be denied the spectacle of the ripening of the leaf, often miscalled the "fading." It is every bit as much a factor of the year's vegetable beauty as the burst of living green when the Daffodils "begin to peer," holding the same place in the grand drama of plant-life that the purple and gold of the western sky, and the sprinkled roses of the zenith, do to evening in summer. In Glasgow the uninteresting kind of leaf-decay which in the South of England distinguishes the Ash, is not the exception, but the rule: even the Virginian Creeper dies off moodily, and "gives no sign." A thriving young plant of the Ampelopsis Veitchii, lately introduced into the Botanic Garden, seems to encourage hope of better things. How much we owe to our collectors, who, bringing these priceless novelties from the ends of the earth, leave Nature, as it were, without excuse.

The garden is maintained by funds supplied by proprietors and subscribers, and by payments at the gates, the public having access at any time for 6*d.* Once a year, for five days during the Fair week, which falls in July, there is free admission to every one. This is very wise, and so is the fixing of the ordinary admission fee to the general public at so low a figure as 6*d.* Nothing is ever lost by cheapening the sight of beauty to those who possess it not at home. A well-kept and lovely garden is one of the best of moral levers for the multitudes; give them only the chance of making it, practically, their own. The present curator, Mr. W. Bullen, is well-known by name to all exact readers of the *Gardeners' Chronicle*, better still to his personal friends, as a man not better informed, and not more skilful as a horticulturist, than in qualities genial and courteous. Mr. Bullen has had charge of the garden for about seven years. Previously it was under the care of the late Mr. Clark.

Of the contents of the Glasgow garden, as of any other of corresponding extent, without minute observation at various seasons, it is, of course, quite impossible to speak accurately. Comparisons are seldom to the point, seeing that deficiency in one particular is very generally balanced by superiority or advantage in some other, which is quite as important. Taken in its entirety, the collection, which is indubitably good and rich, will at all events compare well with any similar one. The set of indoor Ferns is one of the most copious we remember to have met with, though only a few of the specimens are what would be called striking. So much the better. Elephantine specimens, whether of Ferns or anything else, are for "exhibitors" and lovers of the sensational. In a botanic garden we look not for the imposing, but for the calm pleasures that come of philosophic illustration. Its nobleness consists in the possession of things which gratify without dazzling; and, depend upon it, if this be true of a botanic garden, it is roughly true of all other gardens. Floriculture may be considered to be thriving or on the wane the more warmly, or the reverse, that the principle is recognised.

There is likewise at Glasgow an excellent collection of Aloes and other succulents, with corresponding plenty of hard-wooded suffruticose plants, though mostly of moderate dimensions. Of Palms there are some good examples, including species of Sagus, Euterpe, Borassus, Latania, and others of the older sorts, but very few of the recently-introduced. What a pity that these noble plants should be huddled, as they are, into a box that reminds one of the tale of the "Iron Shroud." Mr. Bullen is actually constrained to lop them periodically, in order that the plants may have breathing room. Grand specimens of the Looking-glass tree, Heritiera littoralis, and of many another princely exotic, are positively no better off than prisoners left for execution without benefit of clergy: and this in a city which can erect new buildings for its students such as deserve the admiration of all Europe. The Victoria or Water-Lily house is an aqueous duplicate of the Palm-cell; surely the Glasgow merchants are unaware of its condition. *Per contra*, we were glad to find that a beginning has been made towards the absolutely indispensable reconstruction of the entire range, in the shape of a new house for miscellaneous purposes, 270 feet in length. It is satisfactory also to hear that this house is regarded as no more than the beginning. By setting the new houses, when built, some distance back, upon ground which at present lies waste and useless, the appearance would be improved, and a considerable slice of land would be added to the open garden.

The back wall of the new conservatory bids fair to become very interesting. Mr. Bullen, who seems always to know full well what to do for the best, has planted it from end to end with what we may indicate by Paullinia thalictrifolia, Pergularia odoratissima, Stigmaphyllon ciliatum, Tacsonia insignis, Gloriosa superba, Combretum purpureum, Vanilla aromatica. In two or three years the display cannot fail to become superb, and charming at the same time, to the non-botanical, since mingled with these patricians are Roses, Clematis, and Jasmines, the flowers which every one understands and can appreciate. This is just as it should be. To set forth only the "rich and rare," where the public are concerned, is a profound mistake; the people whom it is wished to allure and to nourish with the sight of the beautiful, see more in the sweet old-fashioned things they know the names of than in Stigmaphyllon, Paullinia & Co., all put together. The new range has been erected by Messrs. Messenger, of Loughborough, and does that firm great credit. The mechanism for opening and closing the lights is remarkably efficient and simple; the heating is on a plan of Mr. Bullen's own, and a decided improvement upon most of the older and usual methods. A fourfold boiler heats 1000 feet of pipe.

To return to the plants in the original conservatories. Orchids we were sorry to find represented but indifferently; the collection has been amended, however, by the addition of some valuable specimens from Meadowbank. Numberless curiosities might be mentioned; among those which most pleased us were Fuchsia alpestris and Fuchsia integrifolia, the latter loaded with delicate crimson bloom; also an example of Bauhinia purpurea, the great twin-lobed leaves of which fine climber are perhaps the most remarkable in the genus. In one of the houses there is an Ilex paraguayensis, 22 feet in height, and with a stem 18 inches in circumference.

Out-of-doors there is less effort to be simply decorative than solidly useful. A long, straight, and sloping gravel walk, which on summer evenings, when a band discourses music upon the greensward, is thronged with company, is very prettily "illuminated,

missal-fashion, with Violas of cheerful hues; but no endeavour has been made to conform further to the ruling fashion as to horticultural ground colouring, or that which reminds one of the rouged cheeks of an actress, in its scarlet Pelargoniums, and of a yellow-hammer in its redundant Calceolarias. Bedding-out, in a word, finds no favour in the Glasgow garden, except to a very moderate extent. The principal portion of the ground is devoted in a straightforward manner to pure horticulture, the herbaceous perennials being chiefly arranged, however, as needful in a scientific collection, according to their natural orders. The contents of the borders containing them being heavily drawn upon by the University, Mr. Bullen, in order to mitigate the pressure, has introduced the useful addendum of a department of hardy annuals. A hundred little circular beds, disposed without formality upon the lawn, are filled with as many different species, and the sorts are varied every year as much as possible. From May till autumn the aggregate of these beds of annuals is exceedingly pretty. Colours unknown to "bedding out" plants are here in abundance, witness the sweet azure of the Spanish Nigella. They have the charm also of the kaleidoscope, changing hour by hour as the earth moves on its mighty axis, the way led, so to speak, by the early rising Convolvulus, the Calandrinias reserving their splendour for high noon, and the evening Primroses arriving when the Helichrysums have closed for the day. How beautiful, too, at twilight, the drooping foliage of the Lupines; how fragrant, from first to last, the Matthiolas, and that gem of the whole race of annual Crucifers, the snow-white Schizopetalon. Annuals of brief duration are easily replaced with something else; in any case, there is always in readiness for these little circles when vacated the unfailing and inestimable China Aster. For completness' sake Mr. Bullen has also recently added an alpine department, and here again we noted a capital contrivance. The pots containing the plants have no bottoms. During the summer, when they are plunged in the earth, the roots can thus go where they like; and when replaced in the frames for the winter they are lifted without difficulty.

Recently a very conspicuous addition to the garden structures has been made in the shape of an immense and very handsome exhibition house. This really fine structure was originally erected by a gentleman residing on the borders of Loch Long, Mr. Kibble, as a conservatory or plant-house for the ornament of his private grounds. Mr. Kibble, having parted with it, the gardens have now the benefit. The plan is that of a broad approach and a spacious rotunda, with little lateral chambers fitted up as ferneries and mosseries. The centre of the rotunda is occupied by a shallow and gravel bottomed pool of water, clear as crystal, and supplied, like Glasgow in general, from Loch Katrine. The circumference of this great glass hall is embellished with plaster statuary, and above there is ample provision for lighting up after dark, the rotunda being at times engaged for concerts. The furnishing of the interior with plants, except as regards the water, which is utilised for large shrubs on inverted flower pots, can of course be only *ad interim*. It is no part of the Botanic Garden proper; little more indeed than an ornamental promenade. Nothing could be better adapted for the purposes of a flower show. Ordinarily, heretofore, the Glasgow flower shows have been held in the City Hall, a very unsuitable place. The experiments that have been made in this beautiful edifice in the gardens lead one to hope that the former will be now, once for all, and for ever, abandoned. On one point the executive seem to have overlooked what is due to good taste. It is not pleasant to be reminded of a third-class railway carriage by tableaux, however, showy, of tradesmen's advertisements.

Taken for all in all, the Glasgow garden is a very pleasant and inviting spot. There is plenty of material for every one who cares for plants and botany; and what in any particular may be wanting, is certainly not chargeable to the excellent curator. *G.*

FERTILISATION BY INSECT AGENCY.

THOSE of us who are growing grey remember, when our botany was young, the pleasure it gave us to note the floral arrangements we thought so perfect for insuring self-fertilisation. For instance, we would take a Fuchsia and note its pendulous flowers, and that the anthers were so placed that the pollen must fall on the stigma. But modern science checks this young exuberance. The pollen of the Fuchsia is gelatinous and does not fall, and what can we say? Yet, if we had looked deeper, we might have noted that allied genera, as Gaura, Epilobium, Œnothera, and even some Fuchsias, had their sexual organs of the same relative positions, and yet with their flowers erect. But it seems to be the misfortune of popular science that it fails to see facts, except as they seem to favour some popular theory which it becomes fashionable to adopt. It is the object of this paper to show that we are in danger of a similar prejudice in favour of the theory of insect fertilisation.

At our last meeting, in reply to a question by Professor Cox, as to why Apocynum caught insects, no better thought could occur to Professor Asa Gray than the playful remark that it was simply an illlustration that even here evil had found an entrance to the world. But while Professor Gray was cautiously feeling his way here, Dr. Hooker, on the other side, was more venturesome. He was asking us to imagine a time when certain plants accidentally permitted the accumulation of insects in some parts of their structure,—and the practice became developed because found useful, and he would probably have said that Apocynum was simply experimenting as to what use it could make of the insects it had caught. This reference illustrates the tendency of thought in regard to insect fertilisation. Müller and others teach that plants come in time to abhor in-and-in-breeding, to desire cross-fertilisation; and, excluding a few cleistogamous forms, and some which took to the winds, took on themselves colour and sweet odours, with a sort of foreknowledge that in this way they could entrap insects into their surface. Müller, indeed, insists that some plants become in time very choice in the selection of lovers, and contracted their pistils and extended their corollas so that only a certain class of insects could possibly enjoy their favours. I have, I know, placed the plant as an actor more strongly than the distinguished gentlemen would who are working in this field: they take the progression in a more passive light. But I am referring to popular apprehension, and, after all, this is a metaphysical distinction of little moment here. In any interpretation of this kind it greatly changes our views of Nature. It is not for us to say they are not correct, but we have a right to insist that the facts should be subject to every test that sound reason may suggest. I have thought it best to take as my text the exact words of a popular teacher of science. He says:—"All plants with conspicuously-coloured flowers or powerful odours or honeyed secretions are fertilised by insects; all with inconspicuous flowers, and especially such as have pendulous anthers or incoherent pollen, are fertilised by the wind. Therefore, before honey-feeding insects existed, the vegetation of our globe could not have been ornamented with bright-coloured flowers." This view is the general one, and thus has arisen a classification to which all flowering plants are referred. They are either anemophilous (wind lovers), or entomophilous (or those which desire insect aid).

I may here remark that a sort of necessity for cross-fertilisation was perhaps suggested by a belief in a popular impression that is probably erroneous. We thought Nature had a horror of in-and-in breeding. Our selected breeds of cattle are the results of this sort of selection, and they have proved just as healthy and productive as the veriest scrub. But it was thought they would at least revert to their originals when the hand of man was taken away. But at our last meeting Professor Brewer showed that this was also a mistake. Quite recently Mr. George Darwin has shown, in a remarkable paper made up of an extensive study of the old families among the English nobility, where intermarriages among relatives have been a source of social necessity for ages, that the popular idea is erroneous. These intermarriages have resulted as productively and as healthily, mentally and morally, as the average marriages of the rest of the world. The question of insect fertilisation is, therefore, no longer a question of necessity—it has to stand on the facts alone as they are adduced.

That some plants require external aid is certain. Yucca and the Orchideæ are familiar examples. But there are general considerations which show how limited insect aid must be. The flowers of the Rocky Mountain region are beautifully coloured; but Fremont pathetically describes the solitary bee that rested on his shoulder at the top of Pike's Peak. On my first visit the comparative absence of insects proved very annoying to the entomologists who accompanied me. It was a frequent subject of conversation whether Fremont's bee was not apocryphal, and though on a visit some years later some humble bees on Polygonum Bistorta on Gray's Peak enabled me to do justice to the veteran explorer, the incident shows how rare such insects are. Indeed, the paucity of animal life of all kinds in the Rocky Mountains is well known; but there is no more scarcity of seed in the coloured flowering plants than in similar ones elsewhere. Nearer home we see the same thing. In many of our woods spring flowers abound, but any observer of woodland flora must have been struck, especially in early spring, with the paucity of insects about them. But all these plants, without any remarkable exceptions, seed well. Again, red Clover fields are favourite pasture grounds for humble bees, but when, as is the case in my vicinity, the white Clover abounds in blossom, they totally abandon the red Clover fields. I have watched red Clover fields carefully several times a day for a week at a time after their abandonment by the bees without seeing anything but a few, very few, diurnal Lepidoptera on them occasionally, and certainly of no consequence for fertilisation to this immense extent, yet the flowers bore seed as fully as the most insect-frequented field would do. General evidence of this kind is, I think, fair presumption against insect agency to any great extent. But the direct and positive evidence is what we want, and here I find it in great abundance. Many flowers are so constructed among the so-called entomophilous class that they must of necessity fertilise themselves. I do not refer to the cleistogamous plants, which seed without perfecting their corollas, but to regular flowers, where it is not usually suspected. In Melampyrum americanum the curved apex of the pistil is clasped by the stamens and held in contact with the pollen, just as in a cleistogamous Violet. A large number of plants have their pistils covered by their own pollen before the flowers open. Of these I have especially for this paper gone over observations previously made with species among Wistaria, Lathyrus, Colutea, Ballota, Glycine, Cercis, Genista, Leonurus, Phaseolus, Pisum, Linaria, and some others. This is particularly the case early in the season; later the pollen sacs burst more generally about the same time with the opening of the corolla. It may be objected that the covering of the stigma with pollen is not fertilisation, as it requires a peculiar condition of the pistil to receive it. But pollen has a long vitality. Carrière has found its fertilising power unimpaired after three months old on one species, and other cases have been recorded. Not to leave this point open, I had some unexpanded flowers of Wistaria sinensis examined by my accomplished microscopical friend, Dr. Gibbons Hunt, of Philadelphia, who reports that the pollen tubes had actually made their descent through the pistil towards the ovarium. But what I regard as remarkable is that many flowers which have been taken by European observers to illustrate the necessity of insect fertilisation, not only fruit abundantly when they are fertilised before they open, but in many cases fruit when not visited by insects, and in some cases, as in Melampyrum, have arrangements for self fertilisation. Thus Dr. Farrar's observations on garden Bean, in 1869; Dr. Ogle's, in 1870, on the Scarlet Runner; Mr. Bennett, on the Pansy; and I think I may include Mr. Darwin on Clover, and the author of the present paper on Linaria vulgaris. In my garden I have rarely seen an insect on the common Pea, yet every flower bears its pod. Its pistil is clothed with hairs on the upper surface, and curved toward the standard, with the anthers on the upper side. As soon as the anthers burst they pass downwards, brushing their pollen against the stigma and covering it with it. The Lima and bush Beans are also rarely visited on my grounds, where Clover abounds—but are abundantly fertile. The pistil protrudes in many of these papilionaceous plants, as noted by the authors above quoted, when an insect or any pressure is made to bear on them; but it will be found that in many cases the very movement makes them clutch, as it were, their own pollen. In the Violet and Pansy the lifting "apparatus" certainly throws the pollen on the entering insect's back, but only to draw it against the stigma on the exit. In the white Clover Mr. Darwin's experiment nearly staggered me. It is so rare there is any mistake about his facts. He says he protected some from bees, and they bore no seeds; some exposed to bees perfected thousands. I am satisfied that in all cases I examined, flowers just before expanding, and before any insect had interfered with them, the pistil had received its own pollen. Mr. D. does not say how he protected his flowers. Nutrition is often interfered with by "protection," and failure to seed follows. I endeavoured to repeat the experiment of protection for this meeting. I covered a patch of Clover with a sieve having one-eighth inch meshes. No bees could get to them. I think I may say every flower perfected seed. Unfortunately I found on one examination a small sand-wasp had ventured through, and was collecting pollen from a flower. I do not think any but this one entered; still, it diminishes seriously the value of the experiment.

I do not care to take up the time of the meeting by referring in detail to the immense number of plants which cover their pistils with their own pollen, and which must limit seriously the extent of the entomophilous class, as any one, and I hope he will look, can find them easily. Even Müller himself admits that the four long stamens in Hesperis tristis are for self-fertilisation in case the two short should fail to meet with insects, for whose use he thinks they were intended; and this ought to be as true of all tetradynamous plants. And yet so thoroughly has the idea prevailed that all petaloid flowers must have insect aid, that because a plant of this class, brought to prominent notice by the *Challenger* expedition, a Pringlea, was apetalous, Dr. Hooker was led to suggest that it must have the pollen of anemophilous plants. As this was found to be so, it is regarded as confirming that view; and yet with us Thlaspi bursa-pastoris, which has no visiting insects of consequence with us, has abundance of seed, as the horticulturists knows, to his great annoyance.

Indeed, the interpretations of the uses of structure often has two sides. I believe I was among the first

to suggest that the lever-like false anther in Salvia was an aid to cross-fertilisation through insect agency, yet I subsequently noted in the *American Naturalist* for 1871 that if the plant had sense enough to plan such a contrivance, it parted with that good sense in Salvia involucrata, where the contrivance is perfect, but a subsequent patent spoiled the first. The Lobelia is another illustration of the beautiful contrivance to insure insect agency. I confess I do not understand how self-fertilisation is accomplished here, but I do know that L. Erinus entirely protected from insects under glass seeds abundantly. Professor Gray says of Habenaria tridentata that in this species the summit of the sterile anthers receives pollen, and is penetrated by pollen tubes; how far similar processes extend in Nature it will do no harm to consider, though out of place somewhat in a paper in which speculation is not in order.

But, suppose that cross-fertilisation by insect agency be all that is claimed for it? Let us grant that there has been an effort on the plant's part to avoid self-fertilisation, and to effect cross-fertilisation by insect aid. The question follows — What has the plant gained by it? If it is not proved that in-and-in breeding, self-fertilisation, is a detriment to continuous existence, the case, theoretically, is gone. But we have facts. Specularia perfoliata is said by the books to have its earlier flowers cleistogamous, but this is only so in open places. In shady situations all the flowers are of this character, and it is wonderful how productive and strong they are. I know an open wood in which the plant is a peculiar characteristic of the surface vegetation. I never saw one petaloid flower on these plants. Most of the seminal increase in the Violet, especially those which grow in woods, in those which produce cleistogamous flowers, is from this class. They have held their own better, are more widely distributed, are in greater numbers than those which depend on increase from petaloid flowers alone.

In any theory of the survival of the fittest, we must take those to be the most fit to survive which produce the greatest quantity of seeds, all other conditions being equal. A plant which perfects a thousand seeds will have a better chance of posterity than an individual of the same species that perfects but a hundred. If a plant thought, as one might almost say in view of popular theories, that it would gain any benefit by escaping from possible injury through in-and-in breeding, and thus changed its structure so as to favour only fertilisation by insect aid, we see at once that it places itself in the position of all of us who give up to others the doing of our own work—it is often not done at all. This is actually the case with non-self-fertilisers. The Geranium is an example within general reach. In my garden I have paid most attention to Geranium sanguineum. The petals expand before the rupture of the pollen sacs. Five stamens elongate, and no sooner have they reached their full length than the pollen cases burst and the anthers fall off. The other five follow in the same way, all before the pistils have made their full growth. The filaments are persistent, close up amongst the pistils, and seem really, in their utterly useless condition, to say that something had gone wrong with the plant in its efforts at cross-fertilisation. The seed time tells the same story—more than half the flowers without seeds, large numbers with only one out of the five, and very rarely, indeed, are the full five carpels fertile. It may be said this is not its native country—insects in its own would have paid more attention to their duties. But granting this, it has lost the power which a self-fertiliser possesses of taking care of itself both at home and abroad. What has Yucca gained? It is one of the most local in its distribution. Each species is confined to limited areas in comparison with self-fertilisers. Some seasons, when the insect fertiliser is scarce, as insects of many species often will be, there is barely a seed, as I have witnessed myself in the chief localities for Yucca angustifolia in Colorado. Indeed, its existence depends on its persistent roots. If it were an annual, I believe the whole genus would now be well nigh extinct. It is the same with Orchideæ, another family that has a difficulty in self-fertilisation. If one, without regard to any theory, but in the light of well-known facts in botanical geography, were to be asked which family he thought the most likely to first disappear, I think he would say Orchideæ. They must stay where their especial insect lords are—and they have to endure the great chapter of accidents, without the chance of escape to foreign lands. Surely we see that self-fertilisers have the advantage in the great struggle for life. If we were to credit plants with a common-sense with which in some quarters they have been almost invested, I think we must award the point of greatest wisdom to those which catch insects and eat them, rather than to those which dally with them to their own final ruin. There are plants which cannot fertilise themselves. But why must we be driven to the opinion that this is a selection—a choice? May it not be what popularly we call a necessity? In the course of ages may there not be a failure of nutritive power which would interfere with the relation of the sexual organs? This suggestion is borne out by facts. I have already shown the members of this Association by numerous facts in several papers, that the male and female sex in plants, that is whether the male or female organs in the flower are most favoured in development, is wholly a question of nutrition. In this paper I have shown a similar law. In the earlier flowers of the season the anthers usually in many species burst just before the flowers open. Later in the season, when vitality is nearer exhausted, the male has not the same active development, and perfects its pollen only after the expansion of the petals. This overlooking of vital power and looking to fertilisation merely for fruitfulness is, I believe, one cause of error in the discussion of the present question. A flower has perfect pistils and stamens. It does not fruit, therefore it was not fertilised: this is the argument. Indeed, I may here quote again the exact language of the author from whom I took my text, "Farmers on the banks of the Rhine reported years ago that orchards in which bees are reared are more productive than those in which there are none." But American experience now is as good as Rhine experience long ago. Our orchards are often white with bloom, and hardly a fruit follows, and again very few flowers, but most of them set. There may be no difference in the number of bees about them. It is wholly a question of how favourable were the influences of nutrition on the maturing flower-buds the fall before. I have already shown that the Wistaria is actually fertilised by its own pollen, and yet it is notorious that the Wistaria rarely seeds in this country, the forces of nutrition not favouring it. Very slight local causes often determine these matters. I once had a very large white Noisette Rose, called Woodland Margaret, trained to the roof of a greenhouse, in which was abundance of light but little sunlight, but it would not flower. In summer, however, a few branches would get through a ventilator kept open, and these always blossomed freely. All cultivators of winter flowers know the influence which direct sunlight has over reflected light in the formation of flowers. So a ringed branch produces flowers when one untouched does not. This illustrates the influence of varying phases of nutrition on the floral organs, and I have no doubt that the difference in the conclusions arrived at by me and Mr. Darwin in white Clover could be accounted for in this way, if all the circumstances were known. Many instances illustrating this nutritive influence might be given. I will give but one more. In our region the Cercis canadensis is very irregular in seeding. A tree this year loaded may not have one seed-vessel next. In olden times "late frosts" furnished the explanation, but more recently "imperfect fertilisation." I have a row of fifty-two trees about fifteen years old. These are all apparently alike in general health and vigour. Most have no seeds, but nine have a profusion. They were all exactly alike as regards fertilising conditions. Some peculiar phases of nutrition aided the productive ones.

I have not thought it necessary to occupy your attention by a long array of facts. What I have adduced is sufficient, I trust, to prove—

1st. That the great bulk of coloured flowering plants are self-fertilisers.

2d. That only to a limited extent do insects aid fertilisation.

3d. Self-fertilisers are every way as healthy and vigorous as, and immensely more productive than, those dependent on insect aid.

4th. That where plants are so dependent, they are the worse fitted to engage in the struggle for life, the great underlying principle in natural selection.

[From a paper read by Mr. Meehan, before the American Association for the Advancement of Science, at Detroit.]

GREENHOUSE PLANTS.—XXIV.

THEIR CULTURE AND MANAGEMENT.

Tetratheca (*Tremandra*).—These pretty, free-flowering plants are natives of New Holland and Van Diemen's Land, where they exist as low-growing evergreen under-shrubs. They are quite distinct in both their flowers, leaves, and general appearance from any other greenhouse subjects in ordinary cultivation: they are also widely different in appearance from each other in habit and duration of flowering. Both the smooth and the woolly-leaved varieties of the heath-leaved Tetratheca (T. ericæfolia) commence flowering in the winter or early spring, and keep on even up to the end of May, but to have them so late as this they must be especially prepared by retarding the opening of their first blooms. Their innumerable pinkish lilac flowers, different in character from anything else, make them very desirable for exhibition purposes, and equally so for conservatory decoration, where they will last long; but when used for this latter purpose they should be placed in a good light situation, and not overcrowded amongst other things that will prevent their receiving all round the light and air necessary for their well-being.

T. ericæfolia comes from New Holland; it is very dense-habited, making a quantity of slender shoots, which grow to a considerable length in the course of a season. In selecting plants it is essential to choose such as have been properly managed by stopping in their earliest stages; when this has not been sufficiently attended to, the natural upright habit is such that they get too tall before being enough furnished at the bottom, and are useless. Plants in 6-inch pots procured in the autumn should be wintered in a light situation, where the night temperature is kept from 35° to 40°. Young plants of this description that have been well grown will have their last year's shoots 10 or 12 inches long. Towards the beginning of March shorten these back to about half their length, they will then be in a fit condition for potting about the middle of April. It is not advisable to shift them so early as some things, as their roots do not get into an active state so soon as in the case of many plants of a similar character. If, when turned out of their pots, they are found to have plenty of roots, they will bear a 3-inch shift. Good fibrous peat, not broken too fine, with a moderate quantity of sand added, is the most suitable material to grow them in; in potting ram the new soil well down. Place the plants where they can be a little close for two or three weeks, keeping the material on which they stand somewhat damp by syringing in the evenings, and also syringe them overhead. Shade slightly in bright weather, removing it as the sun declines in the afternoons, otherwise the growth will be soft, and liable to the attacks of mildew. Train the strongest shoots out horizontally, bringing them well down to the rim of the pot. When the roots have got hold of the new soil give air freely, so as to induce stout growth. This is a free-rooting subject, yet I should not advise giving a second shift during the summer, as it winters better when the pots are filled with roots.

If the plants have made their wonted progress by the end of June the young shoots will have extended considerably, and should have their points nipped out, which will induce them to break back. This stopping must not be delayed until later in the season, otherwise it necessitates more of the growth being removed, which is so much loss, and does not allow time for that which is made afterwards getting fully matured. Continue to keep the centre of the plants well open by training the shoots out, as advised, after potting, otherwise their dense habit does not admit of enough light and air getting through them. About the end of August discontinue the use of both shade and syringe, giving plenty of air day and night. This and the drier state of the atmosphere will discourage further growth, and allow the ripening process being better completed before winter, during which keep them as advised for the preceding, where they will have all the light possible, and in a similar temperature. Tie them out, using nicely made thin sticks; with weak-wooded things of this description nothing looks worse than thick clumsy sticks out of proportion to the plant they are intended to support. The natural free-flowering disposition will be seen by their showing bloom at the base of every leaf, for probably one-fourth the length of the preceding summer's shoots, from the points downwards. But it is not advisable to allow them to flower this year, as it would considerably interfere with their growth. About the same time as advised the preceding season cut the shoots back just at the point below where the flowers are showing; they will then break into fresh growth, and must be again potted in April. This time they will bear a 4-inch shift, using the soil in a more lumpy state; treat as before in respect to air giving, moisture, and shading, and about the same time as last year pinch out the points of the shoots, still keeping the centre of the plants well open. As autumn approaches again give more air, withhold the use of the syringe, and allow them the benefit of the full sun. By this time, if all has gone well, they will be good bushy plants, and should be neatly trained, not using more sticks than can be helped for the support which they need. The following spring they will flower freely, and can, if required, be used for conservatory decoration. As soon as they have bloomed cut them back just below the point where they have flowered, and as soon as they have broken into growth move them into pots 3 or 4 inches larger; treat them in every way as advised for the preceding seasons, except that this summer they should not have their shoots stopped, but should be allowed to grow on until the approach of autumn. By this means they will have more length, and produce a correspondingly greater quantity of flower the ensuing spring, by which time they will be grown into nice young specimens fit for exhibition if required. If intended for this purpose they must be kept cool all through the autumn and winter, only just having the temperature so as not to endanger their being frozen; if not so treated they will come into flower earlier than wanted. After blooming shorten back the shoots, as in the preceding spring. They will not require potting this season, nor most likely

for a couple of years, during which time treat generally as heretofore. When again moved, a 3-inch shift should keep them going for several years, through which they will be benefited by an application of clear manure-water once a week in the growing season.

This Tetratheca, although under cultivation not usually the longest-lived subject, will often last for a number of years in a vigorous healthy condition, until it gets as much as 5 feet in diameter. There is, as has already been alluded to, another form of this plant with hirsute foliage, differing little in other respects from that already treated of; in size and colour, time of flowering, general habit and appearance it is very similar, and the treatment it requires is in every way the same.

T. verticillata, a species introduced from the Swan River, is very different in habit and appearance to the above. It is a plant of remarkably elegant slender growth, the flowers, violet and red, are produced from the young growth freely during the spring and summer months almost continuously, combining well with its small linear leaves borne in whorls, and even when out of flower it has a very nice fresh look. It is of smaller growth than the preceding, not attaining so large a size, although a free grower. Being a very fine-rooted subject, it must by no means be over-potted. It is almost continuous in its growth, and should be kept in a night temperature of 40° through the winter. Ordinary trade-sized plants that have made good growth the preceding season should about the end of March be cut back to within 4 inches of where they were shortened to the year previous. If not cut in closer than advisable with T. ericæfolia, until they have got a considerable amount of root-power, so as to support a quantity of shoots, they get into a straggling condition, which cannot afterwards be remedied, as the plant will not well bear cutting in to the hard wood. When they have pushed young shoots about an inch long they should be potted, giving them a 2 or 3 inch shift, according to the strength and quantity of their roots, using soil of a similar nature to that recommended for T. ericæfolia.

The summer treatment advised for the last-named variety will answer for this also, with the exception that it should be stopped two or three times during the summer, just nipping out the points of the shoots. If the plants have well filled their pots with roots by the end of July, they may have another shift, but not too large—2 inches will be enough, unless in the case of any that are very strong. When moved at this season the atmosphere must be kept well moistened, and the plants shaded, until they have got hold of the new soil, after which they must receive more air and less shade. Keep them well tied out to a few slight sticks inserted inside the rim of the pots, and three or four in the middle, just sufficient to support the plants. Winter as before, a little warmer than recommended for the variety first treated of. In the spring stop and pot, as in the previous season. They may be expected to flower nicely this summer, and will most likely require a second shift. About July they will need tying out into shape, keeping plenty of the stoutest shoots well down to the rim of the pot. Their after-treatment will be simply to attend to stopping the shoots, which must never be allowed to get too long and straggling. If they appear to want assistance give manure-water in a weak, clear state, as it is not advisable to put them in very large pots—15 inches in diameter is big enough for the largest plants of this species. It is not a very long-lived subject, and, to keep up a supply of good-sized specimens, a few small ones should be started every year.

Tetrathecas are plants that require careful watering, especially T. verticillata; its extremely narrow leaves expose little evaporating surface to throw off moisture, consequently if ever the soil gets too wet the chances are that the roots perish. T. ericæfolia is somewhat less impatient in this respect, but will not bear being too wet; it also sometimes suffers from mildew. This must, as soon as discovered, be dusted well with sulphur, allowing it to remain on for a few days, and then washing it off with the syringe. Red-spider sometimes makes its appearance upon them. When this pest is found it should be exterminated at once by a thorough syringing with weak Gishurst, laying the plants down so as to wet every part.

I do not approve of exposing Tetrathecas in the open air, as there is nothing gained by subjecting them to this treatment; they will flower freely without it. Neither in their case is it necessary to counteract mildew, and submitting them to the direct effects of the sun and wind induces a rusty-brown look of the leaves that it is not easy afterwards to remedy. *T. Baines.*

Apiary.

THE BRITISH BEE-KEEPERS' ASSOCIATION.—The great success that attended the Association's first apiarian exhibition at the Crystal Palace last year has encouraged the committee to announce a second exhibition, to take place on September 21, 22, and 23; and they hope and believe that the experience gained in 1874 will aid them in making the prize show of 1875 a still greater success than its predecessor. The work that has been done by and through the means of the Association, has awakened throughout the United Kingdom so great an interest in bee-culture, that the committee trust the industry will in a little time acquire as great attention and be as much valued for the poor man's harvest, as it already is on the continents of Europe and America.

About £100 has been allotted for the prize schedule now announced, which the committee hope will be voluntarily subscribed by the friends of the movement; but they would like to see the present number of members (about 250) so increased that their annual subscriptions would be sufficient to obviate the necessity of a special appeal for a prize fund, which at present they are obliged to make: and they ask all who are interested in the objects of the Association to join as members (if they have not already done so), and to use their influence to induce their friends to do so likewise. The committee only await the financial means to extend their operations in various ways that have been pointed out as desirable, and to consolidate the Association as a national institution.

A practical exhibition of scientific apiarian manipulation of live bees will take place during the show, when the best methods of driving, making artificial swarms, transferring combs from skeps to frame-hives, finding queens, &c., will be practically shown and explained. *John Hunter, Hon. Sec., Eaton Rise, Ealing, Middlesex.*

PETTITT'S HEXAGON COLLATERAL BEEHIVE.—Very few hives achieved the success of the *Times'* Bee-Master's hive; the only peculiarity about it was its hexagonal shape—perhaps, it was argued, because the cells were hexagonal, so must the shape of the hive be, then they would be successful. Mr. Pettitt very

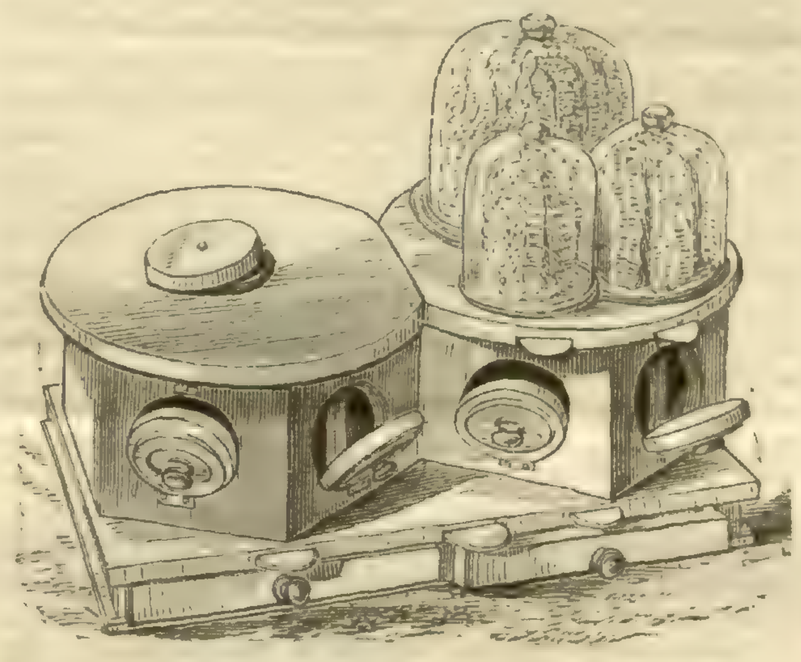

FIG. 70.—PETTITT'S HEXAGON COLLATERAL BEEHIVE.

wisely adds the collateral or Nutt's system to the *Times'* Bee-Master's hive, and allows the beekeeper the privilege of working supers on the top of either compartment. It has many other advantages, such as the excellent way of feeding them from beneath the floor-board; nor must we overlook the fact, it has a beautiful appearance, and, having an additional window in either compartment, it partakes more of the character of an observatory hive: each part contains a small ivory-mounted thermometer. The length of the hive is 2 feet 6 inches, width 17 inches; with the supers on the top it occupies a space of 22 inches in height. For some retired or sunny nook in the garden no better ornament could be found than this excellent and well made hive. *R.*

HALF HOURS AT KEW.—VI.

RARE OR INTERESTING SHRUBS AND TREES.

THE present time being about the best for examining outdoor vegetation, I propose devoting this and a few succeeding articles to the consideration of interesting trees and shrubs. On the present occasion I will ask the reader to accompany me to the parallel beds of shrubs at the north end of the large temperate-house in the pleasure-ground. The first thing that strikes us is the unquestionable poverty of the soil—nothing but gravel; and, unfortunately, it is very little better in any part of the gardens, except where it has been made, as in the old kitchen-garden. However, there is an advantage even in this, for many somewhat tender things will survive the winters here that would perish in a richer soil. In the gravel they are dry at the root, and never make coarse sappy shoots, hence they escape being injured by severe frosts. These beds are mainly filled with Japanese and North American plants, some of which are perfectly hardy, whilst others will only thrive in the more favourable parts of the south and west; and some are old acquaintances, whilst others are still very rare in cultivation. Some of them are in a starved condition, and far from favourable examples of their species, and, on the other hand, a few species appear to be quite at home in this poor soil, and flourish admirably. To the latter category belong the indigenous Sea Buckthorn, the handsome Comptonia asplenifolia from North America, Tecoma radicans (flowering abundantly), Myrica californica, various species of Elæagnus, including the Japanese variegated ones; Aralia spinosa, Maclura tinctoria, various Lyciums, Yuccas, and the North American and South European species of Smilax.

The Sea Buckthorn, Hippophäe rhamnoides, forms a handsome small tree of Willow-like aspect, with slender pendulous branches, developing very few thorns under cultivation; and the female plant is very ornamental when laden with its rich orange berries. It should be remembered that the sexes are borne on different individuals. Like the allied genus Elæagnus, this is clothed with scales, which are very beautiful objects under the microscope. For planting on the coast, and in poor sandy or gravelly soil, this is a very useful deciduous shrub, or small tree.

The elegant Comptonia is stated by some writers to require a peaty soil and shade, but its flourishing condition here speaks for itself. It certainly does not thrive in a wet, heavy soil. The splendid Trumpet Flower, Tecoma, is too well-known to need description, but I may remark that it does not always flower so freely as one could wish. Myrcia californica is a hardy ornamental evergreen species, with leaves scarcely so large as those of Arbutus Unedo. It is of dwarf bushy habit, and quite hardy. It was introduced by Hartweg in 1848, but it appears to be very rare in gardens, though, like the handsome Oreodaphne californica, it deserves a place in every collection. In its native habitat it grows to a height of 10 or 12 feet. There is a description and woodcut illustration of it in vol. vii. of the Royal Horticultural Society's *Journal*. Aralia spinosa, although an old inhabitant of our gardens, having been introduced nearly 200 years ago, deserves a word of recommendation on account of its highly ornamental foliage. It is perfectly hardy and equally as effective as many tender things frequently planted in the "subtropical" garden. For a group, or as a single specimen with an unbranched stem, or associated with other shrubs, it is unrivalled among hardy things. It has enormous tripinnate leaves and a thick prickly stem. The flowers are greenish white, and individually small, but very numerous, and borne in large terminal panicles, which are just now unfolding. There is a fine group of it at the north end of the bed nearest the Pagoda vista. The genus Smilax is a large one, of wide distribution, and some of the North American species are very ornamental evergreen climbers. Their flowers are inconspicuous, but their dark green glossy foliage is very ornamental. Several species are represented here, including S. hastata, rotundifolia, and excelsa, and the South European S. aspera.

Among handsome variegated deciduous shrubs are Cornus mas. variegata, C. sanguinea variegata, and C. sibirica variegata, all three of which rank with the best in their class. But one of the prettiest of deciduous variegated-leaved shrubs is Cerasus Padus aucubæfolia, whose leaves are regularly spotted with white between the principal lateral nerves, becoming fewer towards the midrib. Solanum crispum is a showy species, now in flower. It was introduced from Chili about fifty years ago, and is a worthy companion of the beautiful climbing S. jasminoides, described in my notes on the Old Walls at Kew. It was figured in the *Botanical Magazine* many years ago, and it is there described as being of surpassing beauty, hardy even in the Highlands of Scotland against a south wall. Here it stands out as an erect shrub, and fully deserves the praise bestowed upon it. Certainly the specimen in view is not a handsome one, but it is easy to see that it would prove much handsomer under more favourable conditions. In foliage it has a general resemblance to the Sallow Willow, and the flowers are pale violet with conspicuous yellow anthers. Cephalanthus occidentalis is an interesting North American shrub belonging to the Rubiaceæ, a family of which there are a few hardy representatives, if we except the herbaceous tribe of Stellatæ. It is a dwarf bush, growing, it is reported, in marshy places from Canada to Florida. Be that as it may, it succeeds very well here in the gravel. The leaves are lanceolate, and opposite or in threes, with the small stipules between the petioles characteristic of the family. The small white flowers, which are now expanding, are borne in dense spherical heads, hence probably the American name of Button-wood, which this shrub shares in common with the Plane and several other plants whose flowers are arranged in this way. The remarkable family Hamamelideæ is represented by the handsome Parrotia persica, fully described in last years' volume of the *Gardeners' Chronicle*: Fothergilla alnifolia, a dwarf straggling deciduous shrub, bearing small clusters of small white flowers before the leaves appear in spring; and Hamamelis japonica, which is remarkable for the great resemblance its foliage bears

to that of the Hazel. Indeed, Fothergilla, Corylopsis spicata, and several other members of this family, are very much like the Hazel in the shape and nervation of their leaves. Still there are marked differences to those accustomed to comparing plants together. In the Hamamelis named they are narrowed towards the base, where they are slightly oblique, and the under surface is almost destitute of hairs with a metallic lustre; in other respects it comes very near the American species, H. virginica. Those who delight in cultivating curious things will find many in this family. The Liquidambars are associated with them, and I may mention the handsome greenhouse shrub, Rhodoleia Championi, figured at p. 597, and described at p. 595 of the last volume of the *Gardeners' Chronicle*. Clerodendron is a genus represented in our gardens by many gorgeous tropical and subtropical species, but few persons are aware that there are hardy members of this splendid genus. Yet so it is, and Japan is the country to which we are indebted for them. It is a noteworthy fact, I may mention in passing, that north-eastern temperate Asia presents us with many outliers of tropical genera and families. Clerodendron trichotomum is a small tree with ovate leaves covered with a soft down, and when touched they emit the not too agreeable odour characteristic of many species of the genus. The flowers are certainly not so showy as those of some of the tender species, but judging from the description given of them by Oldham and other travellers in Japan, the tree must present a very striking appearance when in full bloom. It is described as a small ornamental tree bearing a profusion of purplish red flowers in large terminal panicles. It is apparently hardy at Kew, but I do not know whether it has yet flowered in this country. The specimen in question is about 6 feet high. Near this are plants of two Japanese species of the allied genus Callicarpa, C. japonica and C. mollis; that bearing the latter name is probably not the true plant. Both of them are of more botanical interest than ornamental value. Phellodendron amurense, a small tree belonging to the Zanthoxyleæ, introduced a few years ago, appears to be quite hardy. It is closely allied to Ptelea trifoliata, a North American tree of small dimensions, not so often seen as its distinct character would warrant. But the Phellodendron has unequally pinnate leaves. It is a native, not only of North China, whence we obtain so many pinnate-leaved deciduous trees, but also of Japan, as far north as the island of Yeso. Belonging to the same group are two or three species of Zanthoxylon and Skimmia laureola, sometimes called Limonia laureola. The latter is an evergreen ornamental shrub, having simple leaves, thickly studded with aromatic pellucid glands, and appears to thrive better here than the varieties of S. japonica, which seem to require a shady place and a peaty soil. S. laureola is a native of the mountains of India, having a wide range in the Himalayas at an altitude of 7000—10,000 feet. Zanthoxylon schinifolium and piperitum, from their habitats in Japan, are probably quite hardy, as, perhaps, is also the broad-leaved species, Z. planispinum. They are very aromatic more or less prickly shrubs, having glandular dotted leaves, like the Orange tribe; but here they are pinnate. In the two first the leaves are small, the leaflets being less than an inch in length. Z. piperitum bears the name of Japanese Pepper, on account of the pungent taste of its seeds. Representatives of several other families seldom seen in cultivation are here. Thus Styrax officinalis and Symplocos japonica, belonging to the same family as the more familiar Halesia, Cordia thyrsiflora, a Japanese species of a very large tropical and subtropical genus of shrubs and trees, forming a tribe of the Borragineæ; Maclura aurantiaca, the Osage Orange of North America, thrive well in this poor soil. Baccharis halimifolia, a North American shrub of the Composite family, suitable for planting near the sea, is just coming into bloom. It presents a somewhat naked appearance, and the flowers are inconspicuous, though the silvery pappus of the female plant is attractive. Its chief value, however, is its ability to flourish near the sea. Atriplex Halimus may be mentioned for the same reason. The Cotton Lavender, Santolina Chamæcyparissus, is pretty familiar in front lines of shrubberies; but the variety or species called S. viridis is superior to it in some respects, particularly in its larger pale yellow flower-heads. A variety or species of Buxus from Japan deserves mention. It is a handsome evergreen, with thick glossy leaves about the size and shape of those of Phillyrea angustifolia. Fontanesia phillyræoides is a rare shrub—not seen to advantage here—belonging to the same family as the Phillyrea, and having long, slender, pendulous branches. Fabiana imbricata is a pretty evergreen flowering shrub from South America, of Heath-like aspect, with pure white flowers produced in great profusion in early summer. Corema alba, closely allied to Empetrum nigrum, is a dwarf shrub resembling the Crowberry, but having white berries. It is a native of Portugal. There are many other interesting plants here, but I have already exceeded my usual limits.

(To be continued.)

THE FORESTS OF AUSTRIA-HUNGARY.

THE forests of Austria-Hungary are chiefly peopled by trees of the conifer class, and those that clothe the sides of the mountains of the higher altitudes are almost exclusively Pinus Picea. Of such are composed those that flourish in the marshy soil of the Sudetes, of the Reisen and Lichten Mountains, the Alpine, Bohemian, and Carpathian forests, as well as those on the north-east of Moravia, in Eastern Silesia, on the frontiers of Gallicia, the Bukowina, and Hungary. In the so-called Alpine districts, such as Upper Austria, Salzbourg, the Tyrol, Styria, Carinthia, and Upper Carniola, the Larch (Larix europæa) is largely disseminated among the Pines, and may again be found in large quantities in portions of the Sudetes, in the vicinity of Freudenthal, Facquendorff, and Valbersdorff, where the specimens of this tree are remarkably fine and plentiful. Next to these in magnitude and dissemination must be classed the common Pine (Pinus sylvestris), with which the sandstone mountains of Northern Bohemia abound. It is also to be found in plentiful quantities in the sandy or silicious lower strata of the Lower Bohemian mountains, in Moravia, Eastern Silesia, Gallicia, Bukowina, and Lower Austria, as well as the steep declivities and summer spots in the Alps. It grows generally in large powerful masses, in various degrees and proportions, mingling sometimes with trees of other families, and impressing its character upon the general aspect of the places in which it grows.

The Fir (Pinus Abies) is seldom found in large collective quantities on a separate area. It is generally intermingled with other trees of different families, and wherever the Beech tree overshadows the mountains, or in ground formerly peopled by Beeches, there will the Fir chiefly flourish. The Western Carpathians, some of the central mountains of Silesia and Bohemia, the Wiener forest, and portions of South Carniola, furnish the finest and most abundant specimens of this tree. The Black Pine (Pinus austriaca), as regards industrial purposes, is to be only found in Lower Austria, in the Steinfeld, near Weiner-Neustadt, Moedling, and Pottenstein. The remaining members of the Pine family exist in too small quantities to be of importance for industrial or useful objects. Among the "broad-leaved" trees the first to mention is the Red Beech (Fagus sylvatica), with which a great portion of the Carpathian Mountains, of the central mountains of Moravia, Silesia, and Bohemia is covered, and more especially the basaltic heights of Northern Bohemia, of the Wiener-Wald, Southern Styria, Carniola, and along the littoral of the Adriatic. By the side of the Red Beech, in more or less quantity, are found the Hornbeam (Carpinus Betulus), the Field Elm (Ulmus campestris), the Maple (Acer Pseudo-Platanus, and platanoides); also the Lime tree (Tilia parvifolia), particularly in the south-eastern part of Lower Austria, in Southern Styria, Carniola, and also the littoral. Here and there the Chestnut tree (Castanea vesca) is intermingled with the above. The Ash-tree, the Field Elm (Ulmus effusa) are found in soil of a coarser quality, and on more level ground. The Field Maple (Acer campestris) is common enough in the valleys of the above-mentioned provinces, and grows generally on the low level soil that borders the rivers. It is to be found mixed among Alder, Poplars, Willow trees, and different other specimens of soft timber and bushes on the banks of the Elbe, Danube, Thaja, and of the Gallician rivers. The Mountain Ash and the Birch tree (Betula alba and Betula pubescens) are always to be found mingling among the other forest trees.

The Oak especially flourishes in the valleys and along the river courses, and also in the slopes of the advanced ridges of mountains, conjointly with the Beech. Large quantities of Oak are to be found in the lower regions of watercourses which have become fertilised and enriched by alluvial deposits, as in Bohemia, Moravia, Silesia, and Lower Austria. It grows in considerable luxuriance on the plateaux and slopes of the undulating hills in these provinces, both in the rich loam and in the sandy soil of which the land is alternately composed. On the littoral of Goritzia and Montana there are still some specimens to be found of this precious tree, but they remain there more as relics than in sufficient quantity for useful purposes. The same thing may be said of the culture of this tree in Lower Carinthia, Gallicia, and the Bukowina. On some of the mountains there is a sufficient growth of it, mingled with Beeches in the valleys, and with Pine trees on the higher ground. On the mountains the Quercus Robur, or Grape Oak, chiefly abound, while in the valleys and along the river courses the Quercus Cerris and the Q. pedunculata are invariably to be met with, the former being held in slight esteem as a workable material. The class of Oak tree found along the littoral of the Adriatic is the Quercus rubescens,

In parts of Bohemia and Hungary Mr. Ffrench states that entire forests have been so completely destroyed and uprooted that it is very doubtful whether the land is susceptible of again resuming its tree-bearing qualities. Among several of the proprietors there is a feeling of regret at the barbarous havoc that was made of these forests, the more so as, in many cases, the poverty of the soil renders it almost useless for agricultural purposes, and, consequently, unproductive; whereas, if clothed with the products which Nature had implanted there it would still yield considerable revenues. In order to encourage the replanting of the forest ground which had been cleared for agriculture, prizes or rewards have been given by the State to persons who have made successful attempts to this end and object, and of these prizes several have been lately held forth. Inspectors appointed by the Government have been named in all the provinces. In the Tyrol, the littoral, and Dalmatia they are supported by sub-inspectors, whose business it is to survey, watch over, and insure the strict enactment of these forestal laws. They are empowered to assist the communes and proprietors of small forests by their advice, and to form registers containing the results of all scientific and useful investigation. Societies have been formed for the furtherance and development of agriculture, and especially of forest culture: they receive pecuniary subsidies to enable them to form nursery-gardens, schools of arboriculture, out of which trainers and teachers are to be disseminated throughout the empire. Prizes are to be given for the best specimens of seedlings and young trees produced at exhibitions. The teachers in the schools are convoked during the vacation time to meet in some central spot where conferences are held and lectures given in agriculture and arboriculture. These generally last through several weeks, and are illustrated by practical experiments, in order that they may become practically acquainted, in a rational manner, with the essence of what they afterwards have to communicate to their pupils, and thus awaken in them a sympathetic interest for the conservation and preservation of forests in general, and trees in particular.

The expropriation or diminution of the forests in parts of Austria, and more especially in Hungary, has been followed by effects of a serious and baneful nature, such as long seasons of drought and a permanency of tremendous winds which come from the Carpathians, sweeping the whole of the plains of Hungary, filling the air with unceasing clouds of dust, and considerably increasing the development of pulmonary disease, especially in the towns which are now totally unprotected; in this account may be mentioned Pesth, Presburg, and Vienna, which are perfectly intolerable in spring, summer, and autumn. *Journal of the Society of Arts.*

THE FARM.

EGGS.—In the routine of the poultry yard all the details connected with the production of eggs are an important consideration, whether regarding quantity or quality, the time of laying, or the subsequent management.

The summer supply takes little forethought, for the ordinary fowl will lay when the season brings both requisite warmth, and also requisite addition to diet in the increased vegetable and insect productions, but with autumn (and a little later each year with the increasing age of the fowl) comes the yearly moult, and here begins the poultry keeper's difficulty. Eggs and feathers are not forthcoming at once, and cold is unfavourable to the production of eggs, so that winter, generally speaking, unites all difficulties of state of constitution, weather and diet together, unless met by forethought and artificial arrangement.

The first consideration, of course, where fowls are kept chiefly for the supply of eggs, is to select from the known good laying breeds what may be best suited to the special taste of the owner, and also the capabilities of the place.

The Cochin, from its quiet habits, is well suited to a confined space, and lays well, the egg being large, and ornamental from its colour, and also having a marked flavour, agreeable to most palates, but not invariably so to invalids; it lays during the cold weather, but when its store of eggs is complete is a most determined sitter.

The Spanish fowl lays a handsome good-sized white egg in great quantities, rarely wants to sit, and if warm shelter can be given will lay well throughout the winter also.

The Hamburghs are good layers throughout almost all their varieties, and the Pencilled Hamburghs (the "everlasting layers" as they are called) produce a very large number of small eggs, and are especially recommended, but they also are said to require great liberty on a grass run.

The Dorkings, though not to be classed amongst non-sitters, produce a great quantity of large well-

flavoured white eggs, are quietly disposed birds, suited to a moderate run; and where the eggs are not the sole consideration, and breeds are not kept pure, are useful as crossing satisfactorily with the common barn-door fowl, which with the Cochin is apt to produce a most ungainly progeny.

Bantams, Polish, and some other breeds of fowls have all their admirers, but the Bantam has its especial drawbacks; and the amateur making his first selection will do well to study some poultry-book, or seek guidance from some more experienced neighbour before making his choice.

For winter laying it is necessary to secure pullets of the earliest broods of the same season: these should begin to lay in November, and continue if properly fed and housed throughout the winter; the following year these will lay later, so that to keep up a proper supply the age of the birds must be considered, and arrangements made accordingly. The hens should have comfortable quarters at night, and if their pens can be so placed as to share any artificial warmth that may be available, such as the back of kitchen walls, ovens, boiler-sheds, or so on, it will be all the better for the supply of eggs, and by day they should have access to shelter where they may roost or nestle warm and dry, out of reach of snow, rain, or drip, and, if possible, in the influence of sunshine.

It is said no one has such a supply of eggs as the old woman who lets her hens sit with her by the cottage fire, and though the statement may not be quite correct, and the practice is certainly objectionable, it gives its own teaching. The fowls are warm and comfortable, and a perpetual succession of little bits and general petting fall to their share, all tending to keep them in good heart, and increase the egg production. Hens when laying should be thoroughly well fed, but not in too great quantity, and especially not with fattening food—in the words of a successful rearer "a fat hen don't lay." Plenty of lime also should be allowed in whatever may be the most convenient shape to furnish material for the egg-shell, as the production of soft eggs—that is, eggs without shells—is not only disappointing to the owner, but liable to be the cause of disease and disaster also to the fowl affected by it.

When the first laying of pullets is retarded beyond the natural time, without any apparent reason, a change to another run will sometimes put the matter right at once; and as a general rule natural food such as they pick up for themselves in the field and farmyard, or at the kitchen door, in addition to the regular supplies of Barley or Oats, waste Wheat, scraps of bread, bones with bits of gristle to amuse themselves with, bits of green vegetables or boiled Potatos, &c., are better than any of the prepared chicken mixtures. These mixtures are apt, if admitted, to take the place of reliable food, and to be untrustworthy in their effects, and especially risky to amateurs if not able to judge for themselves with certainty of the special requirements of the state of health of their poultry.

When the hen has chosen a place for laying, unless very objectionable, it is best to let her keep it. The choice of position is often very singular, but the leading instinct seems a wish for isolation and concealment, which it is well to follow in arranging the authorised nests. Any place where the hen can just squeeze herself in, and be completely hidden, such as the space under the movable bottom of a cattle-manger, beneath a raised tub, or between the top of a shed wall and the roof, has special charms, thick Ivy on garden walls, a clump of low-spreading Heath under a bush, or a heap of hay in a quiet corner, are all favourite places for the stolen nest, which frequently may all be allowed, but the dog-kennel as a laying-place should be interfered with at once. If once a dog takes to egg-eating, it is most difficult to cure him; even the disastrous consequences of going head foremost on a marauding expedition into a nest of cat and kittens instead of eggs, and the prompt vengeance of the aggrieved parties, sometimes not having the slightest effect in curing the taste.

The laying pens may be conveniently placed along the inner side of the general poultry shed if they are raised sufficiently above the ground to ensure safety from the ducks. A simple and useful form of range consists of a row of box-like pens set side by side, with half of the front of each left open, so as to allow, as it were, a doorway for the entrance of the hen. This form is economical of wood, as the top, bottom, and back of the range may each be made of continuous planking, and the cross divisions to separate each box pen from its neighbour, and the half fronts take little material. The best measure for the size of the pens is given by taking the hen as a guide; there should be width from back to front enough to take her and her nest comfortably in, a height that will allow her to stand up, and length enough for her to be able to get out at the opening, which serves as a doorway without deranging the contained nest of eggs. The lowest plank should be a little wider than the width of the pens, so as to give a resting place for the hen to settle on before stepping into her nest, and thus avoid rolling the eggs hazardously about by a hurried entrance. This form of pen is also convenient for sitting, as the hen has sufficient light and air, and yet is much sheltered from observation, and her absence is not so obvious as to invite interference with the nest from unemployed neighbours. It also shields the eggs from chilling draughts, which is an advantage in cold weather, though (in due moderation) physiologically considered, it is stated that the regularly recurring diminution of temperature during the absence of the hen, which, from the contraction of the air vesicle, draws a new supply of air into the egg, is of much importance in hatching. The fact of air being necessary to the eggs during sitting is practically acknowledged by all good poultry rearers in the care taken to keep the eggs from being clogged with dirt. An egg broken in a nest is (or ought to be) the signal for a careful washing of all over which the contents have dispersed themselves, or they would shortly be as impervious to all atmospheric influence as if they had been thinly varnished. The washing should be performed with water as nearly of the same temperature as the egg as possible, and the eggs should be most carefully handled so as not to be jarred.

Eggs that are desired to be laid aside for setting may be well preserved in bran; it is immaterial whether they are laid on their side or not, the germ will float uppermost however they are put, and much handling risks the eggs without corresponding good. If the bran is placed in some safe vessel, such as a milk-pan or small wooden box, and set in a cool and airy situation with the eggs covered so as to protect them from draughts, they will probably keep some weeks in good setting order, but still for setting purposes the fresher they are the better.

If needed for domestic supply it answers well to dip each egg lightly in melted fat or mutton suet, giving it another dip as soon as the fat is cool, in order that the two spots on the egg left uncoated in the first application from being beneath the finger and thumb may be covered as well as the rest. This plan has a great advantage over the method of filling a jar with eggs, and pouring melted fat amongst them, as in one case an egg can he taken from the jar when needed without any difficulty, and in the other a heated knife or spoon is usually requisite to disengage what may be needed from the mass, and there is much risk of damage.

As a fluid preservative lime-water is recommended but is not entirely desirable any more than lime-powder, as in this case the eggs are apt to smell of the powder in which they have lain, and in the case of the lime-water one bad egg broken in the fluid is likely to injure all the others in the jar.

With regard to the effect of carriage on eggs for hatching opinions seem entirely at variance, some rearers considering the shortest journey injurious, others that journeys of weeks' duration will not do harm. In my own experience carriage has been injurious. In one case especially brought under notice some valuable Cochin eggs were purchased from a well-known and trustworthy London dealer, and packed by him for the journey, but, though conveyed under a passenger's personal care with every imaginable precaution to the West of England, only two chickens hatched from two good settings of eggs, and of these one chick had to be assisted out of its shell.

As a packing material hay or straw is infinitely to be preferred to bran, chaff, or any other similar material liable to shake itself into smaller compass from the continued gentle movement of a long journey. The small particles (as with earth in a newly-filled flower-pot when gently shaken) settle to the bottom, the eggs becoming consequently displaced, and those that are partially uncovered at the top are likely to be much damaged. If a large number have to be packed in one general enclosure it is well to put them first in small collections, each set being carefully packed in a little box or basket before being placed in the large package, as in this way all shifting together on the journey is completely guarded against, and, as far as a supply for the table is concerned, it may thus be secured with little risk of injury. *O.*

GEESE.—I have never met with a similar case to that mentioned by "C. L." amongst my own geese, and without a few more details I am not able to advise with certainty; but from his notes I gather that the geese were kept always in the same grass run, and this for successive years, and that it was shared by pigs. He mentions also that last year most of his birds throve with "no" other food than the grass, and that this year each bird as it died was "as light as feathers."

Putting this together, I should guess the cause of trouble to be insufficient and unsuitable food. If geese have only herbage for food it should be clean, and, if possible, a little varied. Young corn and Clover are a help to the dietary, and by throwing seeds (as in refreshing a lawn), and protecting the patch from the pigs, the plants would soon grow to a useful size. I should particularly recommend, though, that there should be a more general variety of food. Oatmeal or barley-meal made into a crumbly kind of dough, put once a-day (of course protected from the pigs) for them to peck at, Cabbage leaves to pull at, sodden bread, or any scraps of meat, or wholesome odds and ends, would probably tend to their health; and if there is no provision of water, a tub, so that they might have even an occasional bath, would do good.

Should none of these suggestions meet the point, I should be happy to advise if "C. L." would give a few more details of the treatment, and whether the ailing geese lost power, as if paralysed in the limbs, or were swelled or giddy in the head. *O.*

Notices of Books.

MR. WILLIAM LONGMAN, under the title of *Impressions of Madeira*, has published a reprint of an article that appeared lately in *Fraser's Magazine*, and which is intended to correct the erroneous impressions that exist concerning the volcanic island of Madeira. Some persons immensely over-estimate, and others undervalue its attractions. Mr. Longman graphically describes the extraordinary beauty of the wide expanses of golden splendour produced by hundreds upon hundreds of acres of Broom and Gorse in profusest blossom, of the marvellous masses of colour—pink, mauve, and brick-dust red—derived from the bracts of Bougainvillea, and of the wondrously manifold luxuriance of varied garden flowers. The gardens of the quintas or country houses scattered on the sides of the hills are exceedingly beautiful and luxuriant. Pelargoniums grow, Mr. Longman tells us, "to a height of 20 feet and more in a few months, and have to be cut down to prevent their straggling into useless exuberance.

Strange tropical exotics are here naturalised. Bananas, Camphor trees, Nettle trees, Poinsettias, Palms, and Gum trees, with many others, are found in these delicious gardens; while Lilies, Daturas, Bougainvilleas, and flowers too numerous to mention decorate the neighbourhood of every house, however humble.

Madeira, not being a tropical island, doubtless is chiefly indebted to the vapour from the surrounding ocean for this luxuriance, since there are no rivers or permanently-flowing streams in the island—no streams even, Mr. Longman says, which deserve the name of anything but a brook; "nor is there a single lake in Madeira, and indeed I did not see even one single pond in the whole island."

Madeira is not likely apparently to be overrun by tourists at present, or fixed upon by ordinary holiday seekers as a novel hunting ground. The absence of good roads in the island is a very serious drawback, as is also the want of good hotel accommodation, except at Funchal. The stability of the climate forms an attraction for invalids, who do not require a bracing air, but the short-sighted Portuguese officials seem to do all in their power to discourage visitors to the island. The difficulty of getting away from Madeira, in consequence of there being no direct line of steamers between the island and any British port only, is another serious drawback. The various vessels passing between Southampton and the Cape of Good Hope, &c., usually call at Madeira; but while the present governor of the island openly declares that it would please him were the communications between Madeira and the rest of the world (as used to be the case) limited to one steamboat a month, it seems hopeless to expect that the roads will be improved, or the comfort of visitors to the island otherwise studied. Mr. Longman's little pamphlet gives an impartial account of the attractions and counter-attractions of Madeira, and we recommend all intending visitors to read it. It is furnished with a map of the island, and of the author's route.

—— The September number of the *Revue de l'Horticulture Belge* devotes a coloured plate to the lovely Magnolia Lenne, the precise origin of which is not known, but which was disposed of by an Italian amateur, partly to M. A. Verschaffelt, partly to an Erfurt nurseryman, by the latter of whom it was named after the director of the Royal Gardens of Prussia.

—— The September number of the *Moniteur Horticole Belge* contains an article in praise of two hardy ornamental Cucurbits, Thladiantha dubia and Cucurbita perennis; another on the culture of fruit trees, and various duly authenticated extracts from other journals.

—— *Grevillea* for September contains "Notes on North American Fungi," by the Rev. M. J. Berkeley, and various other articles, chiefly devoted to the description of new or interesting cryptogamous plants.

—— The third *fasciculus* of the *Bullettino Ampelografico* is before us. It is devoted to the description of various Italian Grapes.

HORTICULTURAL EXHIBITIONS, 1875.

SEPTEMBER.

23.—Royal Horticultural Society of Aberdeen; Autumn Show. Sec., A. J. Rennie, 123½, Union Street.
29 and 30.—Potato Show at the Alexandra Palace. Hon. Sec., Mr. P. McKinlay, 23, Upper Thames Street, London.

OCTOBER.

6.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees. Fungus Show, and Exhibition of Cones.

NOVEMBER.

10.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
15 and 16.—Loughborough Chrysanthemum and Fruit Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.
25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

DECEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 11, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Sept. 13 — Carnation Show at the Botanical Garden, Old Trafford, Manchester. Sale of Dutch Bulbs, at Stevens' Rooms.
WEDNESDAY, Sept. 15 — Royal Caledonian Society: International Fruit and Flower Show at Edinburgh (two days). Stamford Floral and Horticultural Society's Show (two days). Sale of various Dutch Bulbs, at Stevens' Rooms.
THURSDAY, Sept. 16 — Sale of Stove and Greenhouse Plants, Orchids, Seeds, &c., at Stevens' Rooms.
SATURDAY, Sept. 18 — Sale of Dutch Bulbs, at Stevens' Rooms.

THE report of the ROYAL GARDENS, KEW which we published in our last issue, may serve to give some idea of the labour and difficulty attending the management of so large an establishment, where so many things besides those which appear on the surface have to be attended to. Originally established purely as a garden for strictly horticultural and botanical purposes, it has gradually developed into a pleasure garden on a large scale for the populace—into a scientific establishment of the first magnitude, and into a central depot, as it were, whence all the Indian, colonial, and not a few of the foreign botanic gardens and industrial or experimental plantations are supplied. However much at a first glance we might feel disposed to grudge the time, labour, and money expended on carpet-bedding or any other fashionable garden decoration of the day—and which has about as much to do with gardening proper, so-called, and botany, as Macedon has with Monmouth—a little consideration will show the wisdom of maintaining and increasing the popularity of Kew. Kew is maintained by the public purse, and those who help to fill the public purse not unnaturally like to see something for their money. The majority of visitors would be incapable of appreciating the higher branches of horticulture, still more so of botanical science, and they would take but a languid and vague interest in the supply of useful plants to the colonies. For these latter purposes they would pay grudgingly, but let them see something they can understand and enjoy, and they then willingly contribute their quota to the carrying out of other and more important matters. Not that by any means we look upon the maintenance of fine gardens, flower-beds, lawns, pleasure grounds, for the public benefit as unimportant. Quite the contrary. But while we may have a dozen of ornamental gardens and pleasure grounds—the more the better—we cannot expect to have more than one Kew. From this point of view we should regret anything that would interfere with that kind of work which can be done at Kew better than anywhere else.

Reverting to the report before us, we note one or two passages of special interest. We read, for instance, with very great pleasure of the provision made for the instruction of young gardeners. With the great advantages Kew possesses in its staff, and in its available material for tuition, we have always felt that, failing any attempt to instruct young gardeners and others in the science and practice of horticulture, the resources of Kew were not fully utilised. Our readers will recall how frequently we have urged the establishment of a school of horticulture in this country—little but a dream at present—but one, surely, that ought not to be so difficult of realisation as it appears to be. Meantime we hail the statement as to what has been done of late at Kew with unmixed gratification; and earnestly trust that so good a beginning may speedily be extended. Why should our nurserymen be under the necessity of sending their sons to Ghent or to Paris to receive instruction which they could get here at least as well?

Another point in the report we allude to with pleasure, viz, that in which it is stated that a new herbarium will probably be erected. Those who know how crowded and inconvenient the present building is will hail this announcement with pleasure. Yet another piece of good fortune is promised in the erection—through the liberality of T. P. JODRELL, Esq.—of a laboratory for the prosecution of researches in physiological botany. This is one of the most urgent wants of the day in this country, as we have often pointed out. Such an establishment does not exist in the country, and yet the foundation of rational agriculture and horticulture is vegetable physiology! Let us hope we may soon have the Jodrell Laboratory and the Jodrell Professor at its head—a man conversant with the needs of physiology, and able and willing to direct the work of the place with special reference to the requirements of horticulture and agriculture.

With refererence to these proposed new buildings we trust that there will not be a repetition of the blunder from which it happens that we have now three detached museums, and a herbarium and library, instead of one suitable building or a series of such in direct communication one with another.

LAND in and around London is deemed to be of almost fabulous value, and yet strangers visiting the metropolis for the first time must surely be struck by the hundreds of acres lying waste, neither utilised for food producing purposes nor yet built upon. Speculative land buying and speculative building are rampant in every district, and those places which were built over and occupied some century or two ago—like Chelsea—bid fair to retain more of the aspects of the country than the immediate outskirts of the town, which remain for years in a state of unsightly semi-occupation. Speculators, shrewdly anticipating the requirements of the future, buy up land months, often years, before it is built upon; their first act generally being to root up the hedges and level the fences, laying open the whilom pleasant meadows or fruitful cornfields to a tangled growth of weeds and rubbish. Under these circumstances all traces of beauty are soon lost, and the land lies perhaps for years waste and unprofitable, being in almost all cases convenient spots, not only for the gatherings of the juvenile waifs and strays of the population, but also a receptacle for all the rubbish from every household in the neighbourhood. Where gain and utility have to be taken into account, beauty is seldom considered. We would suggest that these idle acres, so to speak, might be utilised as allotment gardens until required for immediate building purposes. As a rule, builders do not commence operations until spring-time, therefore land which is not excavated nor built upon one season will, in all probability, remain in *statu quo* until the following year. Such land might be let advantageously both to lessor and lessee in plots for a yearly tenancy. Many a labouring man would gladly avail himself of such an opportunity of turning his leisure hours to good account, and although the short tenure would prevent the cultivation of perennial crops, the most popular and easily cultivated vegetables require but the one season to bring them to maturity; therefore, three months' notice given at Christmas or Michaelmas would be ample to prevent the sowing or growing of crops which would not have sufficient time to mature.

The idea is neither Utopian nor original, we have seen the plan most successfully followed in the suburbs of northern manufacturing towns, where the hard-working artisan often looks upon his garden plot, lying often a mile or more from his home, as the very apple of his eye; here he spends many of the proudest and happiest hours of his life, to it all his better thoughts turn, and to beautify and render it profitable many a willing sacrifice is made. Were such plots utilised only for the production of Potatos, it would be a step in the right direction; play is but a change of work, and the labour of gardening becomes recreation when undertaken by men confined in close rooms and workshops the greater part of the day. Allotment gardens have always been looked upon as one of the most ready and useful means of bettering the condition of the agricultural labourer, they are as necessary to the dwellers in vast suburbs of our large towns—indeed more necessary, for the rural labourer's life is passed in physical labour in the open air, and he can obtain common vegetables at first cost. To the town-dwelling workman both these benefits are denied: he toils in a close, unhealthy atmosphere, and buys his vegetables after they have passed through several hands.

To become the possessor of a garden is often the highest ambition of the industrious workman; to make his plot return a hundred-fold no investment of large capital is required, a few shillings will procure the necessary tools, a few pence the necessary seeds: the great desideratum is labour—that labour which he is so willing to supply.

Unremunerative rents can be no plea—a small loaf is better than none: even a low percentage on unoccupied building lands would be far preferable to no return whatever, independently of the great benefit that would be conferred upon an honest, hard-working class of men.

—— MR. SCHMIDT of Lyons has succeeded, according to the *Illustration Horticole*, in raising a new race of Begonias between B. insignis and some of the tuberous-rooted species. Although not of a very brilliant colour, B. insignis is extensively grown for cut flowers in winter; and if these new hybrids possess the valuable quality of flowering freely in winter, combined with greater brilliancy of colouring, they will indeed be a valuable acquisition. We ourselves have raised a number of similar hybrids, but unfortunately they were wanting in the special quality of winter flowering, and in other respects were not superior to their other parents. Eight varieties are described, and it is stated that they are almost perpetual bloomers. We hope that they will prove all that is promised. The varieties have white and variously coloured flowers, from salmon and pink to rich carmine. The time is approaching when these qualities may be put to the test.

—— We learn that Messrs. JAMES VEITCH & SONS, of Chelsea, have been awarded the Empress' Prize, of a splendid porcelain service, richly painted with views of the Rhine, for their fine group of plants at the Cologne Exhibition.

—— The INTERNATIONAL POTATO SHOW, to be held in the ALEXANDRA PALACE, Muswell Hill, on Wednesday and Thursday, September 29 and 30, promises to be international in the proper sense of the word, for we understand that several foreign competitors are expected to take part in it. The peculiarities of the season will, no doubt, enhance the interest of the meeting; for, owing to the prevalence of disease, there will, in many instances, no doubt, be found some difficulty in the selection of suitable samples. That this will be an extensive and thoroughly representative exhibition is confidently anticipated by the promoters; who, at all events, have laboured, and are labouring, to render it such. We are informed that a

dinner will be arranged for on the first day of the show, and those who wish to join must give timely notice. Entries for the show close on the 20th.

—— CALCEOLARIAS are a failure again this season in many places; even where they live their flowers are small, and the plants have the appearance of being in the last struggle for existence. This is the case where their culture is as well understood, and where they are as carefully tended as anywhere. With this experience it is inexplicable to find them thriving luxuriantly in some small gardens under conditions the very opposite of what are generally supposed to be the most favourable to their healthy development. We never saw more healthy, flourishing plants than those in several of our neighbour's gardens this season. These are small plots of about 20 rods area, enclosed all round, and exposed to the sun throughout the day, and so hot that without almost daily watering the plants would be scorched up. The soil is a poor sandy loam. This points to disease more than soil and situation as the cause of failure.

—— Succulent plants are most effective and pleasing when contrasted together; associated with quite a different class of plants they produce a sensation of incongruity. A very good illustration of our meaning may be seen at Kew. About half-way up the broad walk, at the angles formed by the semicircular walks around a fine specimen of the Turkey Oak, and in each of the corresponding corners on the opposite side of the broad walk, is a circular bed planted with succulents. The beds are raised gradually towards the centre, which is occupied by a small specimen of Agave americana variegata. With the exception of a ring of an Echeveria midway between the circumference and centre, the arrangement of the plants is irregular, and the beds would have been still more effective had this ring been broken. The principal plants used are:—Aloe socotrina, A. albo-cincta, Cotyledon adunca, bracteosa (Pachyphyton), Crassula arborea, Echeveria californica, E. glauca, E. glauca metallica, E. metallica, Kleinia repens, Gasteria sp., Sempervivum arboreum, S. urbicum, S. tabulæforme, S. canariense, and Kalanchöe grandiflora carpeted with Sedum corsicum.

—— Messrs. SUTTON & SONS' ROYAL BERKSHIRE ROOT SHOW is announced to be held on November 20 next, when prizes to the amount of £120 will be competed for. A novelty in the schedule is the introduction of prizes for three sorts of Mangels grown under sewage farming only.

—— According to the *Revue de l'Horticulture Belge*, the first consignment of plants to the Continent after the war which terminated in 1815 was a collection sent by Messrs. LEE & KENNEDY to M. VAN AEKEN, whose garden at Wondelghem, near Ghent, was then very celebrated. The consignment consisted of six Kalmia latifolia, six Azalea pontica, two Dirca palustris, four Rhodora canadensis, six Boronia pinnata, four Passerina grandiflora, two Azalea calendulacea flammea, four Magnolia macrophylla; and the price was £80.

—— Mr. SAYERS, for many years gardener at Black Rocks, Dublin, the well-known residence of THOMAS BEWLAY, Esq., and celebrated for its fine collections of plants and elaborate fernery, is about leaving the place. Mr. SAYERS is one of the leading plant-growers in Ireland, and has been a most successful exhibitor.

—— We notice the publication of a new horticultural periodical, under the title of the *Lancashire Gardeners' Chronicle*, devoted specially to the interests of horticulture in the county from which it takes its name. As the proprietors have done us the honour of partly adopting our title, it would have been more courteous on their parts if they had also informed us of the fact, and not have allowed us to discover the publication by accident. As it is, we wish our contemporary every success, and hope he will not take it amiss if we point out to him that the paragraph in the present number relating to "John" (*sic*) "Grew," is something that the botanists of this county will be not a little surprised to read. We perceive that Mr. MEREDITH discourses upon Vines and other matters, so that the practical department may be expected to be of a trustworthy character.

—— The reporters of local newspapers sometimes commit amusing blunders when they come to transcribe their notes taken at flower shows. The other day one of them, in reporting a show, gave the names of some of the leading foliaged plants, mixing up in a remarkable fashion the specific name of one plant with the generic name of another; but the climax was reached when he came to Seaforthia elegans, which was literally translated "Set forth your elegance." The report in itself was by no means bad; and if it could have been laid before some local gardener or nurseryman previous to appearing in the paper, these errors would have no doubt been rectified. We are much indebted to local newspapers for the publicity they give to the proceedings of horticultural societies, and should look with leniency upon errors that are almost inevitable.

FIG. 71.—NEW BATTLE, NEAR EDINBURGH.

—— The best substitute for the YELLOW CALCEOLARIA which has been noticed this season is the new dwarf BEDDING MARIGOLD, aureo-floribunda. Mr. JOHN COX, of Redleaf Gardens, has it now in fine condition, flowering with great freedom, the blossoms being of a handsome rosette shape, and finely coloured. All the heavy rains have not caused it to grow much beyond its usual dwarf bushy size of plant, and they have in no way affected its habitual profuseness of bloom.

—— At the recent meeting of the British Medical Association at Edinburgh, as we learn from the

Journal of the Association, Mr. LAWSON TAIT communicated the results of certain experiments he had made for the purpose of separating the digestive principle or ferment, on which depends the remarkable power possessed by certain plants, as pointed out lately by Mr. DARWIN. Mr. TAIT showed that it was possible to separate this principle from the plant for experimental purposes. So far as his researches had gone he was able to confirm the view taken by DARWIN, that the chemical processes concerned in animal and plant digestion were identical.

—— Three or four years since there were some inquiries in our columns as to the HISTORY of ST. FIACRE, "the patron saint of gardeners," and as to how he became connected with the horticultural craft. As this estimable person may still have some interest for some of our readers, we clip the following notice of him from the *Globe* of Thursday last :—

"It is one of the 'things not generally known" that when you hail a *fiacre* in the streets of Paris you are, in a fashion, addressing an invocation to an Irish saint. Nearly thirteen hundred years ago, when the Anglo-Saxon tribes were still struggling against the 'British enemy,' and establishing little kingdoms and principalities in the country that had hardly yet begun to be called Angleland, St. FIACRE left Ireland to engage in works of religion and charity amongst the rude Francs. His native land was then the 'Island of Saints' (it has changed somewhat in the course of centuries), and produced those holy men in such abundance as to be able to supply every part of the continent of Europe, not forgetting the islands, with learned and religious men, whose names are still associated with a number of localities, institutions, and *fête* days. St. FIACRE was born in Ireland towards the close of the year 600. He went to France on the invitation of the Bishop of MEAUX, and, amongst other good works, founded a refuge for pilgrims at Broglie, in the Brie. The benefits of the institution were extended to the poor, and to wanderers of all sorts, and the sick and diseased were treated according to the best medical skill of the times. In short, St. FIACRE was the founder of the first hospital in France, and his establishment soon acquired a high reputation far and near. In those days locomotion was difficult, for beyond vehicles of the most rude description, chiefly employed for agricultural purposes, there was no artificial means of conveyance from one place to another. It was in order to transport invalids to his hospital, and with a view to lessen the roughness and fatigues of the journey, that the saint invented a species of carriage for his patients. This carriage soon came into general use as an easy mode of conveyance, and gradually developed into the modern French cab, retaining its old name of *fiacre*. Hence, St. FIACRE is the recognised patron saint of French cabmen, and this week his *fête* day was duly observed by the fraternity. The gardeners also took part in the festivities, for St. FIACRE is their patron as well. The good saint had a taste for flowers and a knowledge of horticulture, and loved to decorate his establishment at Broglie with the brilliant and sweet-smelling produce of his gardens—a practice which might be followed in our modern hospitals with great advantage."

—— Mr. LOUIS BARKER, writing to the *Daily News* from 22, Rue de Grammont, Paris, with reference to the origin of the name *fiacre*, as applied to hired carriages, says :—

"St. FIACRE, who really came from Ireland, was a great lover of flowers, and instituted the first gardens in this country, he is therefore also the patron saint of the gardeners. In the last century a man in Paris took it into his head to build coaches and let them out for hire. The office for these cabs or coaches was in a wine-seller's shop patronised by gardeners, and dedicated to St. FIACRE. This is therefore the reason the name of *fiacre* was given to hired vehicles."

—— The efforts of the committee of the STAMFORD HORTICULTURAL SOCIETY to secure a first-rate show for Wednesday and Thursday next are in a fair way of being realised to an unexpected extent. We understand that one of the best and largest shows ever held in the provinces is anticipated. The show will be held in the beautiful park of Burghley, in itself an ample source of attraction ; and the noble mansion, with its unrivalled collection of art treasures, will be open to visitors, of whom a large concourse may be expected. We are informed that the beautiful decorations in Stamford and in the park, prepared in commemoration of the wedding of Lord BURLEIGH, will be left until after the show.

—— The export of GRAPES FROM GUERNSEY is said to be now assuming some importance. About 300 baskets are being daily shipped for the London markets on board the South-Western Company's steamers.

—— CLETHRA ALNIFOLIA is one of the most conspicuous deciduous flowering shrubs in the American garden at the present time. The number of shrubs that flower during the latter half of the summer is not large, and therefore any really good species should not be forgotten. Athough the species is called alnifolia, the resemblance in its foliage to any Alder we can call to mind is by no means striking, although there is perhaps a general likeness. The leaves are clustered at the ends of the branches, and are oblanceolate or nearly obovate, the upper half furnished with pointed teeth ; and the white fragrant flowers are in terminal racemes about 6 inches long.

—— From the *Bulletin* of the Society we learn that the SOCIÉTÉ D'ACCLIMATATION DE PARIS has awarded a prize of 1500 francs to Messrs. VINSON & MORIN for the successful introduction and cultivation of the Cinchona in the Isle of Bourbon. The prize was offered in 1861, and was open to all the French colonies. Cinchona cultivation is now in progress on a large scale in Bourbon, and the gentlemen named fully deserve the prize. Dr. J. TRIANA has received a recompense of 300 francs for his work, entitled *Nouvelles Etudes sur les Quinquinas*, and several first-class medals were awarded to various persons for services rendered in connection with the introduction and cultivation of Cinchonas.

—— Mr. W. EARLEY, Valentines, Ilford, has sent us specimens of the "mossy-maggot-balls" of the Sweet Briar, the fragrance of which is apparently much more powerful than ordinarily exists in the leaves.

—— We lately observed the following verse written on a window in a West of England Hotel, immediately under a pane that had been inscribed with autographs :—

"Should you ever chance to see
A man's name written on the glass,
Be sure he owns a diamond,
And his parent owns an ass."

Some such caustic verse is needed as a deterrent to the snobs who are so prone to cut their initials on the boles of noble trees, for it is very difficult indeed to meet one to which the public has access that is not so disfigured. Oh for a Poet CLOSE, to shame all who seek notoriety after such a fashion !

—— The *Guernsey Advertiser* states that at the present time two Aloes are on the point of blooming, one at the residence of Captain BORLAND, Hautevilie, the other in the plantation between the Castle breakwater and the London Brewery.

—— Negotiations have just been completed, says the *Builder*, for the purchase of Bank Hey, the residence of Mr. W. H. COCKER, J.P., BLACKPOOL, with the land adjoining it, as a site for WINTER GARDENS, the amount of purchase-money being £23,000. The new company will have a registered capital of £50,000, in 10,000 shares of £5 each, and many applications for them have already been made, and the scheme is looked upon as a very good speculation. Bailey's Hotel, which was recently suggested as a site for winter gardens, has been sold to a company in course of formation in Rochdale for £62,000. The proposal to form the winter gardens on the site of the Lane Ends Hotel and Hygiene Terrace will now be abandoned.

—— The daily papers announce that the trial of the gardener CARMINE PAISANO, accused of the murder of an English gentleman, Mr. HIND, who occupied himself at Naples with horticultural matters, commenced a few days ago. The murder is believed to have been caused by a feeling of trade jealousy.

TRANSPLANTING SHRUBS.

THE best time to transplant trees and shrubs is a subject often under discussion, and is one which we may therefore suppose interesting to many. It is a subject which does not generally crop up at midsummer, but rather at mid-winter and spring : then is the time when gentlemen and gardeners have their thoughts turned on planting and ground improvements ; then is the time when the nurseryman puts the subject before his customers, and is most anxious to clear the stock which he has prepared for market ; and then is the time also when plants will travel with most safety to a distance with a minimum of soil attached to their roots, because the atmosphere is moist and cool. Winter and spring are the seasons when labour and time are most at command for extensive planting ; in short, from the point of view of economy and expediency, the winter and spring are the most convenient seasons for planting. Trees and shrubs are, however, things of life, and cannot submit with impunity to the shock of removal just as it suits our convenience : the most convenient time may not be the best time to move a tree. When, then, is the best time to move a tree or shrub? Is it not when the tree is free from foliage, and when vegetation is dormant in winter and early spring, when there is no growth and no heavy call on the roots? To this proposition, at first sight, we might be disposed to answer Yes. The success or non-success of hundreds of thousands of trees and shrubs planted under our notice, though not under our care, last winter, has abundantly convinced us that the season of convenience is not, however, the best in the economy of vitality. The very latest planted have been the most successful—that is, very late spring is better than winter and early spring. Trees and shrubs which have received a shock in transplantation, or which have been injured by frost, will often look sound and well throughout the spring months ; but when life becomes active in summer, they succumb to the constitutional injury. Trees may also suffer as much from dryness at the root, and may not actually show marked signs of distress until rain comes, or they are watered, when they suddenly die off in some mysterious way. The best time, then, at which to transplant any tree or shrub with the best possible chance of success, is when the principle of life in root and branch is most active. Many plants are proverbially difficult to move in winter and spring when life is dormant—for instance, Wellingtonias, Hollies, Arbutus, large tufts of Pampas-grass, &c. ; but if moved in summer—say June—success is certain. The plant-grower does not hesitate to cut in his plants after flowering, waits until active growth commences, then repots, shaking away much of the soil from the root ; a little shade, and all is right. Orchids are repotted when active growth commences. When the vital energies of a plant are aroused, then is the time when it can most quickly recuperate itself from any shock or loss of strength. Three years ago, during a very hot fortnight in the month of April, we moved and planted a great quantity of trees and shrubs, very many of large size. The work was commenced before the heat set in ; but we did not choose to discontinue in consequence of the advance of the season, as we then thought. Pinus insignis, 9 feet high, Wellingtonias ditto, atlanticas, Lawsonianas, Nordmannianas, Laurels, Catalpas, Tulip trees, and hosts of other things, were transplanted with not very much of ball, according as the soil would stick on them. The quantity being large, the watering they received was not at all liberal ; but, with the exception of a few Wellingtonias, the whole did as well as could be desired. We think the hot sun, instead of being a drawback at the time, was a decided advantage : if a dry wind had prevailed from the east, the consequence might have been different. We should not advise April for moving evergreens, but rather a month later.

If asked to name the very best months for moving large evergreens, trees and shrubs, we should say August and September. Never mind though the plants be in active growth — they won't mind it ; the roots are eagerly at work, and will keep the young leaves from drooping, with a day or two's shade and watering at the roots. We have been led into making these remarks from being obliged to move a quantity of large shrubs during hot weather in the middle of July, in consequence of their being in the way of some improvements in course of execution. These happened to include a pretty extensive variety of subjects, and we looked upon the work as a sort of forced experiment, and therefore interesting. Common Lilacs, 8 feet high, common Laurels, 6 and 8 feet high, with succulent young growths like Asparagus, never flagged a leaf. One Arbutus Unedo, 6 feet high, with luxuriant young growths, with pendent bunches of embryo flower-buds at the tips of the branches, flagged a little, but is quite recovered. A Cedar of Lebanon, 6 feet, a bushy tree, looks as if nothing had happened. Forsythias, Rhododendrons, Aucubas, Cupressus Lawsoniana, 6 feet, several plants of Thuja orientalis, 9 feet. Large bushes of Weigela rosea, with long succulent growth, and which could not be lifted with a particle of soil to the roots, we quite despaired of saving ; but, strange to say, they have not turned a leaf ; the roots were carefully spread out, and covered with light moist soil. None were allowed to be many minutes out of the ground, holes being ready to receive them as they were lifted. As the sun shone hot while the work was in progress, not a plant received any artificial watering ; the soil was moist from recent rain, and thunder-showers fell shortly after the work was finished. The success has been complete, except in the solitary instance of a large bunch of Pampas-grass, which is dead. One thing is curious and suggestive—that while the sappy, succulent growths of the common Laurels did not droop at all, the foliage of some large old Rhododendrons drooped on the old hard stunted twigs, and young sappy growths on the same plants did not droop, suggesting that, the more succulent and vigorous the plant, the better it could stand removal. We have found from experience that the green and gross-habited Pinus insignis, with its heavy top of dense green foliage, may be shifted with much less risk than the hard-wooded, twiggy Cedar of Lebanon, with its sparse short foliage. We do not by any means condemn winter and spring planting : shrubs and trees are moved by millions at those seasons with perfect success ; but certain it is that millions die, and we have seen many lamentable results from planting large things in March, when dry easterly winds are prevalent. Some of our readers will be sure to think that because we advocate summer and autumn planting we entirely condemn winter and spring planting : we annually move quantities in winter. What we wish to show is, the true time

to transplant is not when the soil is at its coldest temperature, the atmosphere coldest, the sun at least power, and consequently plant dormant, and many of our most ornamental exotic shrubs, such as Japanese evergreens and Conifers, at a very low ebb vitally—when a few degrees lower temperature might kill them outright. Then, we suggest, is not the time to add a further shock to their struggles with climate; but when the soil is warmed by the summer sun, the atmosphere moist and warm, and the plants full of life, then they are best able to withstand the shock of removal. That a hot sun is no obstacle to the removal of shrubs in full growth we have proved over and over again; but a dry cold wind even in dull weather every one knows to be perilous. Winter and spring is the time for all ground work—that is, trenching, draining, and moving soil. The soils being prepared at these seasons, planting should be executed in summer and early autumn, August and September. *The Squire's Gardener in the "Gardener."*

BATTERSEA PARK.

FOR the benefit of some three and a half millions of people, who are still left in London at this season, it may be appropriate to call the attention of those whose rambles round gardens must be limited to those near the metropolis to the beautiful gardens in Battersea Park. These are endeared to so many of our readers, not only on account of their intrinsic beauty, but for the sake of John Gibson, who made them what they are, and who, by the introduction of the so-called subtropical style of gardening, did so much to redeem our gardens from the charge of monotonous vulgarity. Its wooded undulations and serpentine walks abound in surprises. Cool Fern glens beneath the trees, isolated Palms and Musas—now elegant, now bold in character—grand clumps of Cannas, noble beds of foliage plants, amongst which Aralia papyrifera this year stands out pre-eminent—these, and such as these, meet the eye at every turn, and charm by their novelty and refined elegance. We know no greater treat for the jaded Londoner fond of plants than a visit to this charming spot. Our country cousins, too, will find that in spite of a London atmosphere there are here many hints to be gained and much beauty to be seen which even a visitor from the country cannot afford to ignore. The trees, too, are now assuming fair proportions, and the selection of rare and interesting kinds gives an additional attraction to the spot. In addition to all this there are the glowing carpet beds, which prove so attractive to the public, and which are just now at their best.

In spite of a certain degree of sameness, these beds are a welcome relief from the eternal glare of bedding-out plants in general; and though we should protest against the undue multiplication of such beds, we should be the last to deny the beauty and effectiveness of this style of garden-decoration when kept within due bounds, and not allowed to interfere with the proper culture and display of more intrinsically interesting plants.

We subjoin plans of some of these beds, which may be interesting to many of our readers. In the oblong bed (fig. 73) the basis, or carpet, C, consists of Alternanthera amœna (pink). The outermost edging, A, is planted with Sedum anglicum, parallel with which is a line of Golden Feather, B, which also forms the outer line of the central scrolls. The inner line of the scrolls is formed of (F) Cerastium arvense (white). The centre of the circles, D, is occupied with Alternanthera magnifica, that of E with A. paronychioides major. The two last mentioned plants are also used in the filling of the remaining sections of the pattern, as will be seen from the plan. The bed (fig. 72) is of circular outline, with two parallel bordering lines enclosing a central mass, in which are dotted a number of circles, some large, some small; it is rather difficult to describe the planting of this bed, as the small size of our illustration prevents us from mentioning all the plants entering into its composition. The outermost circle, N, consists of Sempervivum arvernense, next to this is a circular line of Leucophyton Brownii, M; the basis, L, surrounding the smaller circles, consists of Lobelia pumila grandiflora (blue). The carpet, K, on which the circles

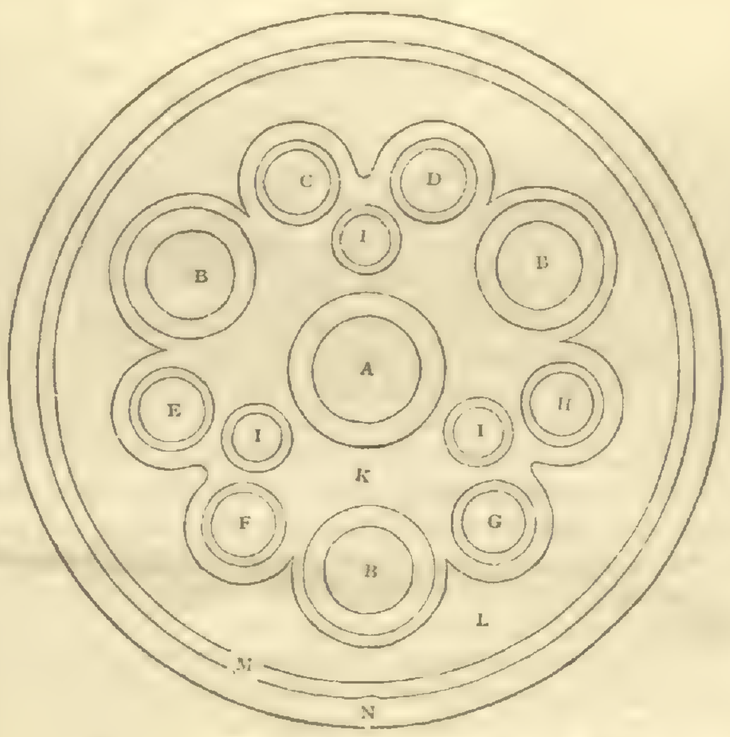

FIG. 72.—CARPET-BED IN BATTERSEA PARK.

are distributed, consists of Alternanthera amabilis latifolia (pink). The central circle, A, has for its centre a plant of Agave americana variegata, placed in a carpet of Sedum glaucum, edged by a row of Rochea falcata in flower, in its turn surrounded by a ring of Cerastium arvense, edged by Golden Feather. The circles B, B, B, have each in the centre a variegated Agave, plunged in a carpet of Sedum anglicum, with Sedum glaucum, with a row of Aloe cymbiformis, and edged with Golden Feather.

The circle F has Agave filifera nana in the centre, carpeted with Sedum anglicum, surrounded by Cacalia tomentosa, and edged with Golden Feather. Circle G has for its centre a plant of Agave potatorum carpeted with Sedum anglicum, edged with Pachyphytum bracteosum, and margined with Golden Feather. Circle H has in the centre a plant of Agave Salmiana recurvata, carpeted with Sedum glaucum, and with a ring of Aloe verrucosa and margined with Golden Feather. The circles I, I, I, consist of a centre of Cotyledon pulverulentum encircled by Golden Feather.

The bed, fig. 74, is also circular in outline. Its centre, F, is occupied by a plant of Yucca filamentosa variegata, encircled by Cacalia tomentosa, carpeted with Sedum anglicum; this is placed on a carpet of Alternanthera paronychioides major, E. The little beds, D, are filled with Alternanthera versicolor; the larger ones, C, with Alternanthera amœna, edged with (B) Leucophytum Brownii; the whole surrounded by an outer edging of Sempervivum montanum.

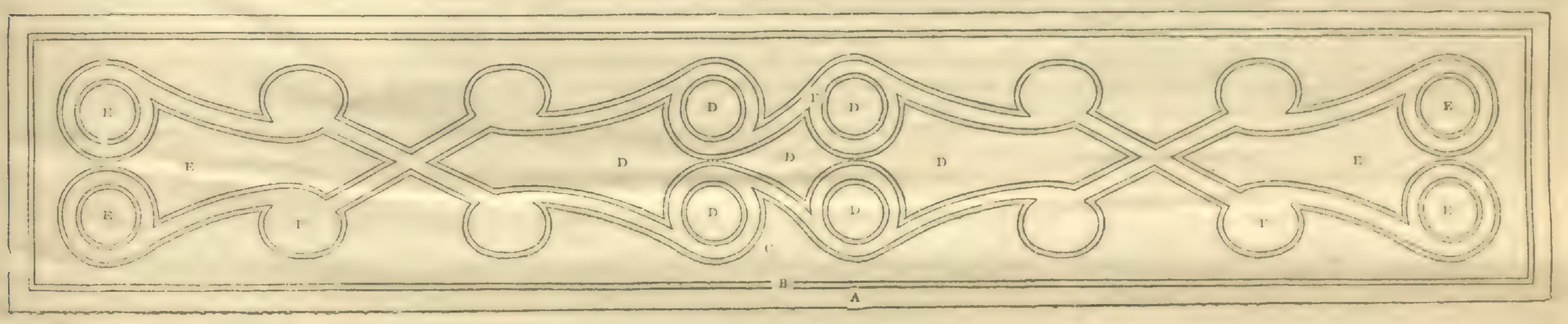

FIG. 73.—CARPET-BED IN BATTERSEA PARK.

FIG. 74.—CARPET-BED IN BATTERSEA PARK.

Home Correspondence.

Bees Attacking Ripe Fruit.—In the *Gardeners' Chronicle*, August 21, Mr. W. Miller writes of the above: I am sorry to say that I am one that suffers likewise, and on a very large scale, as they have commenced in real earnest on Peaches, Nectarines, Pears, Figs, and everything that is half ripe. Yesterday they commenced on the Grapes: only a very few wasps to be seen, and they are of a very weak character. The bees make more havoc by far than anything I ever saw with wasps, and as we have got a lot here on the place I dread the result. They are at them by the hundred, and increasing every day. I wish them in Halifax. *A. D., Courtlands, Sept.* 6.

—— I believe the interesting controversy in your pages regarding the frugivorous propensities of bees—and there is no doubt regarding the fact—resolves itself into a very simple issue. That bees are "fruit eaters," in some instances habitual and determined, I shall have no difficulty in proving; I doubt much, however, that any are so from choice. Here at Valentines the bees actually devour fruit, consisting of Apricots, Peaches, Plums, Nectarines, Pears, and Grapes—if in the latter case they can by any manner of means get into the vineries. I think my language is not too strong when I say that they cluster so thickly together upon all such fruit as I have named as actually to leave no room for the many lovely blue-tinted and other "bottle" flies, which hover around. Indeed my observations permit me to state, that wherever the bees cluster the flies do not, and single bees will by their determined movements keep all other insects away from around them. So intent are the bees that they resist, with their legs, back, &c., all interference with a small stick—only flying up to re-alight when patted too much! Their mode of attack and consumption is strange. I am not able to say that in any instance they commence at whole fruits, but I am inclined to believe that they follow in the wake of earwigs or other pests in these regards. One thing is certain, however—whenever the smallest hole has been made in the outer coating of any fruit, then they quickly commence operations. In no instance, however, could I detect them using their mandibles to enlarge the small orifice so formed, their action being most laborious and painful as they deepened the inside of such holes by consumption. Instead of enlarging the primary hole made in the rind of the fruit, they consume all the pulp possible by simply inserting their elongated tongue therein, themselves assuming, by aid of their legs, every manner of shape, until this becomes of no avail; then they thrust their head in, twisting their bodies all around to aid them. May not this kind of action be a true development of their original teaching—that where flowers possess nectar it is to be reached perforce by physical pressure, rather than by an attempt to gnaw away any projecting parts? Why bees thus attack fruits is a question I think easily answered. We live in a suburban market gardening district, bare fields or vegetable crops are the chief features around. Save in our home park and grounds there exists no food at all for bees at this season. The spring blossoms, the Lime blooms, &c., have all passed away. Summer bedding plants, Roses, &c., afford not nearly food enough; the bees must live and "store up for a future." It may be they can manufacture nectar from

the saccharine pulp of such fruits; if not, may not an occasional cell be turned into a jam-pot? thus to enliven and enrich the long, dreary, and scarcer winter months. *William Earley, Valentines.*

—— It may not be a common thing for bees to attack Apricots in Herts, but it is a usual thing for them to do so here—not only Apricots, but Peaches, Plums, Figs and Gooseberries; so long as there is a ripe fruit on the walls or bushes to be eaten they are there daily, and all day long, devouring hundreds of the finest fruit. During the last few days the trees have been beseiged literally by swarms. *Thomas Gell, The Nurseries, St. Lawrence, Ventnor, Isle of Wight.*

Veitch's Autumn Giant Cauliflower. — Can you or any of your readers suggest the reason of the above Cauliflower buttoning so early this year? It is quite two months before its time in this neighbourhood. For the last two years I have made two sowings, one in the first week, and the other in the last week in April, by which I have been able to cut from about the middle of September till past Christmas. This year, however, the first sowing has been in for quite a month, and the second batch is sharp upon its heels. Mine is by no means an isolated case. *T. Simpson, Mildmay Road, Chelmsford.*

The Potato Disease.—You did me the honour of publishing a letter from me on July 10 on "The Potato Disease." I wrote then from the house of my friend, Dr. Bennet, and happening to be with him now, I to-day received a letter from an American gentleman of Massachusetts, who, observing the letter, although a total stranger to me, has written expressing his approbation of my views, his dsbelief in the fungus theory, and his own conviction that the *fons et origo mali* is due to the "microscropic larvæ of insects." These insects, he says, as pointed out by Mr. Hibberd, not only commit their ravages by gnawing at the roots, but at the same time "communicate a poison to the plant," in fact poison the blood of the plants. Thus there is mutual sympathy between his and my views so far—we both believing the Potato plague to be due to a blood poisoning, and holding that the fungus is merely a symptom, not a cause. In these points we agree perfectly, but I am in accord with him no further. I believe that his microscopic larvæ are, like the fungus, only symptomatic of the diseased circulating fluid, producing decomposition and a vitiated and impaired nutrition, and thus creating a nidus for certain vegetable or animal parasites. This view of the case was pointedly and wittily indicated by our facetious friend *Punch* more than twenty years ago, when Alfred Smee accused the "Aphis vastator" of being the enemy. With respectful deference to the justly earned value of Mr. W. G. Smith's laborious and scientific researches and deductions from them, I must submit to your consideration, and to that of the public, that we must go beyond these vegetable and animal parasites to find the cause of the Potato disease. It appears to me that nothing can be more obvious and simple than the conclusion I have arrived at, and glanced at in my former letter, that the disease arises from "some shock to that department of the vital energy of the plant presiding over its powers of absorption, exhalation, &c." I shall willingly enlarge on this subject if desired, but as I hold some peculiar views, and shall only be considered heterodox in them by those who have already committed themselves to their doxies, they may not be disposed to listen to my disquisitions on the somewhat parallel and inscrutable mystery attached to the rise and progress of cholera in the animal world, and to the striking difference between it and, say, typhus or zymotic diseases, like variola or scarlet fever. Nothing but atmospheric influence could have so suddenly affected the Potato crop of the whole world as was the case in 1845. The curl is one thing, "the Potato disease" or murrain another, and this universality and suddenness should govern all theories as to the causes of disease, and militates against all the theories I have ever heard of, and extinguishes them as well as these last. *Arthur Sarjeant, The Ferns, Weybridge, Surrey, Sept.* 1. [We are of those who hold that the Potato fungus has been actually proved to be in most cases the actual *fons et origo morbi*; at the same time we think it probable that in some cases the fungus may come after some other debilitating cause. EDS.]

The Potato Side of the Potato Disease.—The Potato field is large enough, and the scourge of the disease severe enough to find work in excessive abundance for all. I was, therefore, sorry to find Mr. Alexander Dean running foul of my arguments, or rather conconstructing one of his own, and duly bracketing it as mine, in order to show his dexterity in demolishing it. However, I respectfully decline the honour of fathering either the pith, sense, and grammar of the argument, that "as the tuber is proved to be the home of the resting-spore, so should the fungus be attacked at that stage." My statement, p. 196, was to the effect that it appears the home of the resting-spores was either the "Potato tuber, or the earth in winter." It will hardly be credited that after this authoritative statement of half the truth as the whole, Mr. Alex. Dean proceeds to put Mr. Smith's authority against my argument in these words:—"That Mr. Smith stated that his discoveries so far led him to believe that after the Peronospora had done its work it returned to the earth until again called for in due season." Mr. Alex. Dean also declares that he thinks it altogether improbable that the tuber should be the winter home of the resting-spore. Well, I was not writing of Mr. Dean's belief, which he confesses to be in a rather crude or undefined form, or, in other words, in a state of chaos, but of Mr. W. G. Smith's discoveries, which were placed before us with a lucidity that could hardly be exceeded. What is his testimony on the point of the spores entering the tubers? In the *Gardeners' Chronicle* for July 17, p. 69, col. *a*, third sentence from top, Mr. Smith writes of the resting-spores:—"Afterwards I found them more abundantly in different stages of maturity, especially in the very putrid stems, and in the tubers when in the last stage of decomposition." In col. *c*, on the same page, Mr. Smith states that the bodies found by him are identical with the Artotrogus found long ago by Dr. Montagne in the intercellular passages of spent Potatos. Turning to p. 76 of the same number of the *Gardeners' Chronicle*, I find a note from Dr. Hogg, announcing a right royal as well as wise act on the part of the Royal Horticultural Society—to wit, the presentation of the gold Banksian medal to Worthington G. Smith, Esq., for his skill and diligence in the discovery of the resting-spore of Peronospora infestans in the tuber of the Potato. Again, at p. 130, in the *Gardeners' Chronicle* for July 31, Mr. W. Smith writes, near the bottom of col. *c*, "I have got my most abundant materials from the tuber." Higher up the same column we find Mr. Smith assuming that the resting-spore of the Pythium and the Peronospora are one and the same, and stating that he has found the resting-spore of the Pythium maturing itself and forming its resting-spore in the very centre of the tuber of the Potato. Truly, it would seem that Mr. Alex. Dean is almost in as hazy a state in relation to the laws of evidence as he is crude and undefined about the Potato disease. I, however, prefer Mr. Smith's statements to his "altogether improbables;" and the former assuredly justified me in the statement that the winter home of the Peronospora might be upon or in the tuber, and, if so, steeps for the seed might prove curative or deterrent, or both. Another suggestion of yours and mine—that of burning the haulm, provokes Mr. Alex. Dean's ire, as impossible and mischievous. It cannot be burned without being dried, and during the drying see how you sow the spores broadcast. Singularly enough, in the very article that Mr. Dean was writing about I recommended the burning of the haulm by violent decomposition, aided with short grass for fuel. The sentence in p. 196 should have read thus—"We burned ours—that is, Potato haulm—by rapidly fermenting it with short grass, thus adding to the temperature of our late Melons during the cold weather." Surely Mr. Dean must also be aware that Potato-tops are not slow to heat of themselves, so that there would be but little trouble or risk in burning them up by decomposition. Again, it is easy to ridicule the idea of cross-cropping starving or poisoning the resting-spores out of the ground. It would, however, be a much higher service to point out a more likely mode of mastering or stamping out the disease. And as to early harvesting it is a bore, and necessitates one or more hand pickings. Leave the crops to their fate, and then what remains, if any, will keep sound until eaten. As to seed, unripe seed don't keep; they are excitable and mean to start early, longing seemingly to get back to Mother Earth, and are altogether most troublesome and unsatisfactory. In regard to all which I can only say I have not found them so. Further, leave the seed to winter in the ground, as the nearer in our treatment of seed we can approach to Nature the better. Indeed: does this include aërial storing, greening and planting in dredges, and all the rest of it? If so we may as well send back the noble tuber to the Virginians, and crop the Perononspora out with Tobacco. We might then grow the weed at home, and instead of bales of Tobacco import barrels of Potatos. But Mr. Alexander Dean, standing, as he confesses, on the threshold of the Potato disease, and fearing, like all of us, to master it, is evidently carried away, as he sees looming in the distance a Government commission, and a munificent sum for its discovery, and the raising of the Peronospora to the level of the North Pole, where most of us have long heartily wished the pest, for we are satiated with the subject, and believe that there is little more to be known about it, excepting how to get rid of it. The way to a remedy is not along the flippant path of snarling criticism, but by the truly patient way of careful research and plodding experiment in view of all the facts that have recently been laid before us with so much clearness and force by Mr. W. G. Smith. Though I have not the honour of that gentleman's personal acquaintance, I felt certain that no one would welcome with more pleasure than he even guesses at truth, or suggestions from practical men; and it is because I have thought Mr. Dean's letter likely to check both that I have in this case departed from my usual rule—never to reply to adverse or unkind criticism. *D. T. Fish.*

The Butterfly Beds at the Crystal Palace.—I quite agree with your remark on p. 238, that the manner in which these beds have been planted reflects the greatest credit on Mr. Thomson. The idea of depicting butterflies in flowers suggested itself to me some years back on coming across their appropriate Persian title, "winged flowers." Altering this I looked upon flowers as fixed butterflies, but saw that we then had an insufficient range of compact bedding plants to carry out the idea, and to have used straggling things would have been simply to spoil the designs. As soon, however, as I noticed Mr. Thomson's patterns at the Crystal Palace, I saw the time had arrived for a trial, and I accordingly last spring sketched and sent the six you name as having colours nearest to our bedding stock, with the result you know. The Persians, therefore, supplied the original idea. I altered it, and attempted to put my alteration into practice, and Mr. Thomson has completed the chain. Had he not been such a master of bedding-out I should never have thought of sending him the designs, and therefore the principal credit is his. *The Legal Designer of the Butterfly Beds.*

The Shows of the Royal Horticultural Society for 1876.—It is in no spirit of captiousness, nor with a wish in any way to hamper the Council, nor, I may add, with any interested motives, that I ask what evil genius has presided over the deliberations of the Council to make them fix such dates as they have done for three out of their four shows for next year?—and, ere it is too late, let me urge upon them to re-consider their determination. I presume that their object is to secure the best attendance and the best productions—in a word, to bring the most grist to the mill. No doubt, until they get more money, it is better to do away with the smaller exhibitions, which, however interesting in themselves, are failures as far as the attendance of the general public is concerned. But now let us see what they have done: they have fixed their first show for March, but I think the London season can hardly be said to have commenced then, and I am sure, from a comparison of the attendance at the March and April shows, any one can see that a good company is more easily secured in April than March, and although Hyacinths are very pretty and popular, they bear no comparison with pot Roses, which are altogether excluded, for no grower will grow them for March, and besides, if they did, they would lose the great provincial shows in May, as well the Crystal Palace in the same month, so that some of the grandest flowers are shut out. Again, the season may be said to be in full swing during April, May, June, and the early part of July; yet during the first two of these months the Horticultural Society keeps its gates shut, leaving the Botanic and the Crystal Palace to reap the harvest. Moreover, what becomes of the grand Azaleas which make such a feature in the May shows? The frequenters of the Royal Horticultural Society will not be able to see them there, for, for the same reason that exhibitors will not prematurely force their Roses for March, neither will they retard their Azaleas until June. Then, again, what becomes of the Rose show—the most popular, probably, of all our shows? Oh! on July 17. Alas for the poor queen of flowers! Exhibitors from Scotland or Norway may, perhaps, show well then, but all who are Rose lovers know that nearly every Rose show is over by that time. But then you will secure the Zonal Pelargoniums. Can this be the reason that the show is fixed so late as July, instead of early? if so, I say "more's the pity," for, for one person who cares for the Pelargonium, there are fifty who love Roses. Altogether I believe the matter is wrong. I believe a show in April, another towards the end of May, the perennial show in June, the Rose show early in July, and the Azalea show as fixed, is what would be best for the Society, and would best promote the interests of horticulturists. As I do not exhibit at any of these shows my opinion is at any rate disinterested, and I know it is shared in by many of our most eminent exhibitors. *A Well Wisher.* [There are so many interests to consult, so many neighbours to be courteously dealt with, that the only way out of the difficulty is to consult the exhibitors in *plébiscite*. EDS.]

Channel Islands *v.* Home Exhibitors.—The vexed question of Jersey and Guernsey fruit growers exhibiting Apples and Pears on a level with our home growers cropped up again at the Alexandra Palace Show last week, although the fruit from the Channel Islands had not then reached that size and attained the high colouring usually seen later in the year. The Alexandra Palace authorities had provided a special division for foreign exhibitors, and it was naturally inferred

that the Jersey people would have come under that head. On the one hand it was contended that Jersey is under the British Crown and consequently its people are not foreigners; but on the other side a paragraph in the schedule was pointed to which stated that foreign exhibitors must give notice of their intention to compete at an early date, so that arrangements might be made to pass their packages through the Customs without opening. And as all the Channel Islands traffic passes through the Customs of course it was concluded that, to all intents and purposes, the Jersey people are foreigners. No one wishes to exclude foreign fruit from our exhibition tables: we are only too pleased to see it and to admire its size and beauty; but in the matter of Apples and Pears a line should be drawn somewhere, and it would be well if in all future autumn fruit shows a division was specially set apart for fruit grown in climes other than in our own British islands. *A.*

Slow Ripening of Fruit this Year: Birds.—Your versatile correspondent, Mr. D. T. Fish, has not under-rated the facts regarding the extremely slow ripening of fruit. Precisely the same conditions are observed here. The facts did not militate materially against the goodness and flavour of Apricots, which have been for months a mainstay for the dessert. The reverse was the case at first, however, in regard to Peaches, Nectarines, and Pears, which ripened so slowly and so indifferently, that, though the fruit was extremely abundant, the size was indifferent, as also the flavour. With the month of September all this vanished here, however, and quick-swelling and ripening became the rule, along with excellent flavour. The whole thing is due to the weather or low temperature—a dull, damp, hazy temperature having prevailed. One word regarding the birds. Want is the grand instigator to such depredations, as every gardener is too well aware of. A dry week or two and a birds' rush, garden-wise and water-wise, where the latter exists, are synonymous facts. We have neutralised their depredations by making what I call a "bird feed" in a wood adjoining. I get together all old "droppings," split and bruised Apples and Pears, which exist in most places at this time. I have them chopped in two, and tossed into some place where birds are not frequently disturbed, and they feed freely upon this instead of resorting to the walled gardens for a meal. *Apropos* of this subject, I may revert to the past controversy as to whether starlings consume fruit. This I answer distinctively in the affirmative. There are at Valentines sundry large, aged White Heart Cherries at two different places. They bear well, but birds, starlings more especially, annually consume all the fruit. At this time they literally swarm upon a very old Mulberry we have here; these they consume with avidity. Indeed, what is it that does not eat fruit? An old retriever dog at this place will take fruit from the walls! Decoy and wild ducks, and, what is perhaps more remarkable, moorhens, may be seen any day at this time leaving the water and scouring an adjoining orchard ground for such fruits as have fallen, which they eat freely. The latter case seems incredible, but it is true nevertheless. *William Earley, Valentines Gardens.*

Drying Roses.—In reply to "H. T. C.'s" inquiry in your issue of last week, how to dry Roses, there is one method which I have seen successfully tried at my father's establishment at Reichenberg, Bohemia, Austria, but it does not preserve the scent:—1. Fix two nails in a well-ventilated shed, about 5 feet apart, and fasten on one of the nails a piece of strong thread, and on the other end of the thread pass a needle. 2. Purchase half a pint of sulphuric acid or oil of vitriol (H_2SO_4), empty this in a large basin, and dilute with $9\frac{1}{2}$ pints of water. 3. Cut your Roses on a sunny afternoon, not too well developed, and as dry as possible. Now take one, plunge it in the mixture, and shake the adherent water well off, pass it on the thread before-mentioned, leaving a free space between each flower, so that they do not touch. When your line is filled fasten on the other nail. Care must be taken, because the least quantity of the mixture burns holes in the clothes. Prince Camille de Rohan, Sénateur Vaisse, Louis Van Houtte, Ernest Herger, Deuil de Dunois, Docteur Wm. Neubert, and all the dark varieties suit best. *Adolf Toepfert.*

The Vine Mildew.—Is there any connection between root drought and the Vine mildew? I am tempted to ask this question because last year, with a dry summer, my Vines, growing in a span-roof house, but planted outside, were so affected with the mildew that I could not cut a decent bunch, although I had dusted liberally with sulphur as recommended. This year I have a large and clean crop, and until within the past few days not a vestige of the mildew was visible. From this time, and for the next month, I could net quite a hundredweight of fine well-ripened and good-coloured Black Hamburghs, and I have little fear that they will now be affected. Nothing has been done to the Vines in the way of dressing the wood in the winter; in fact, little trouble is taken with them, as they are with me but a secondary consideration. I should have thought that the Oïdium of last year would have left behind in the house a plentiful crop of seed; or is its mode of propagation—like the Potato disease—still involved in obscurity? Did the heavy rains of last July prevent the spread of the mildew by destroying all the early spores, or was it the means of preventing its action on the Vines by inciting to powerful root-action, and consequent luxuriant leaf growth? Certainly I attribute the freedom from mildew enjoyed by my Vines this year to the heavy rains. The Hollyhock I have found to be less affected by the mildew than in previous years. It would be a curious scientific fact if it can be shown that, whilst the destructive Peronospora is active only in moisture, the Vine and Hollyhock funguses are only so in drought. *A. Dean.* [We do not think this opinion will be borne out generally. EDS.]

Transplanting in July.—It may interest you to know that the Quercus pannonica, planted on the 13th of July, is doing well. During the early part of August the leaves began to assume a yellow tinge, and by the 20th they were of a rich yellow colour all over the tree. They rapidly ripened, and were all blown off during the first week of September, leaving the young growths plump and healthy. The Oak is 15 feet high, and the circumference of the branches 24 feet. After transplanting it was copiously watered, the surface covered with manure, and the stem rolled up with sphagnum moss. A pannonica Oak transplanted last year, on the 12th of August, went through the same treatment, but did not part with its leaves till the end of September. This tree is now in full foliage, and looks as if it had been planted for many years. The success of summer transplanting generally depends on the mass of adherent earth which can be removed with the tree. With very large specimens I generally give them a copious supply of water a few days before lifting, but in the case of the tree abovementioned a previous watering was dispensed with. The ball of earth removed was about 10 cwt.; this was easily moistened through after transplanting, but with trees having balls of earth above a ton weight a previous watering is desirable. *J. McNab, Royal Botanic Garden, Edinburgh, Sept. 6.*

Carnations and Picotees.—Having always been a great lover and, in former years, a successful grower of Carnations, Picotees, and Pinks, I am always desirous of giving to others the benefit of my experience. In the case of your correspondent, "C. W. D.," I cannot do better than refer him to a little book, published some years ago, and which I at that time found a great assistance, it is entitled "*A Treatise on the Cultivation of the Carnation and Picotee*, by an Amateur; Reviewed and Recommended to all Admirers and Cultivators of this class of Plants, by John Dickson, Floricultural Editor of the *Gardeners' and Farmers' Journal.* London: John Dickson, Acre Lane, Brixton; and of Messrs. Warner, Seedsmen, 28, Cornhill, City." In case it should be out of print I will give you the following extract, which may help "C. W. D." out of his difficulty:—"Much has been said and written on the subject of compost by various scribes and amateurs, but for a general compost I am not acquainted with a better than the following:—Take any convenient quantity of turf, 3 or 4 inches thick, from an upland pasture, which is the least difficult to procure, when such a field happens to be under the operation of the plough; lay it together in a square flat top, heap for two or three months with an equal quantity in bulk of rotten stable dung regularly mixed with it, and after that time let it be cut down in thin slices, well chipped with a spade, frequently turned over, and in due time exposed as much as possible to sweeten by the frost—but in open weather always lift on a ridge, to throw off superfluous wet, till it has become a regular heap of mould of near twelve months' standing, or until both dung and turf are sufficiently decomposed as to readily run and rub through your inch riddle. If you find it too light and sandy there must be a sufficient quantity of sal marl, or, in the absence of that, some stiffish loam mixed and well incorporated with it, to make it altogether rather of an adhesive quality. This will suit almost every kind of florists' flowers and herbaceous plants. On the other hand, if your turf has been procured from a field of stiffish land, then a sufficient quantity of coarse drift, or river sand, or old mortar rubbish from buildings taken down, beaten to pieces, or both, should be riddled and well mixed with it, these being excellent materials for internal drainage, which is the principal object of such a mixture with such a soil, and absolutely necessary for the health and vigour of your plants. Lime is also very good for the purpose, though it does not possess any vegetative influence. You must endeavour to let your compost be such as will imbibe and retain a proper quantity of water, and discharge superfluity. I must here, too, observe that I have always found Carnations, Tulips, Pansies, and many other flowers to bloom more brilliantly and distinctly in their colour in a properly mixed adhesive soil than that of a very light and sandy mixture. The florist will do well to bear in mind what Virgil says, in his second *Georgic*, respecting soil, which has been translated thus:—

> 'The fatter earth by handling we may find
> With ease distinguished from the meagre kind;
> Poor soil will crumble into dust, the rich
> Will to the fingers cleave like clammy pitch.'"

The Manor House, Staines.

Smith's Curly v. Hogg's Early.—I have frequently, and again in Saturday's *Gardeners' Chronicle*, noticed a Potato spoken of as Hogg's Coldstream Early. Now I cannot see what right Mr. Hogg or any other person has to change the name of any Potato already well known under its own original and legitimate name, and I am afraid there is only too much of this reprehensible practice now done by the seed trade, and for what purpose I leave your readers to judge. The Potato referred to is Smith's Curly, and nothing else, and has been grown and exhibited at nearly all exhibitions in Berwickshire and Roxburghshire for many years back, and is well known in both counties. *A Reader.*

Foreign Correspondence.

CAPE TOWN.—Went by train to see Mrs. Wright at Wynberg, who kindly met us at the station, and took us to her pretty one-storeyed house. We were much interested in the trees and shrubs, most of them new to us, others, which we have only seen before as conservatory plants, are here growing wild and in rich profusion. The garden hedge is composed of a shrub growing freely, as Privet does in England, having a beautiful pale lavender blue flower (probably Plumbago capensis). The hedge is a beautiful sight, almost a mass of bloom. After we had rested and discussed some Grapes, Mrs. Wright drove us to Constantia, famed for its Cape wine. The drive was most delightful, the day not too hot, and we were specially pleased with a fine view of the Indian Ocean, with its white sands cast up on the sea-shore. We were now at the back of Table Mountain, and could not but admire its bold forms. Not one mountain, but many points, and with deep gulleys between. Arrived at Constantia, we drove through beautiful grounds to a large and substantial but low dwelling house, where a large party was gathered in the verandah. . . . After sitting in the verandah we were taken to a large building close by, where the celebrated Constantia wine is manufactured, and from which the Van Kenens derive their great wealth. As it was dinner-time the men were not at work, but Mrs. Van Kenen, however, bade three of them get into one of the vats that we might have the amusement of seeing them tread the Grapes, and of hearing them work themselves up into a needful state of enthusiasm by their wild songs; and most laughable it was to see their merry black faces, and watch their antics, as they sang their choruses and trod in step round and round the tub, which would hardly hold a fourth. We tasted the Grapes from which the wine is made, and brandy also from the skins. The Grapes were delicious, and we could but grieve they should be manufactured into intoxicating drinks. After seeing the Grapes trodden, and the large casks in which the juice was fermenting—taking about two years to complete the process—we went to another building where the wine is stored in casks valued at £70 each, and when a black waiter brought up a tray of glasses of sparkling white Constantia wine we rather surprised our hosts by refusing to partake, being abstainers. We found that the younger Mr. Van Kenen is an abstainer also. Next we saw a wonderful Oak, fresh and green as though it were spring time instead of autumn, curiously grown and trained into a summer-house, into which we mounted by means of a flight of steps. It contained seats, and would hold a dozen people. After seeing the hill-side covered with Grape Vines not larger than Gooseberry bushes, and walking in the Orange groves and flower-gardens, where Mr. Van Kenen picked for us some beautiful and rare flowers, we returned to Wynberg to dinner, gathering in our way some novel and richly coloured wild flowers. We brought from Constantia bunches of the Rose-apple (Jambosa), a very pretty fruit, of a pale yellow colour just tinted with pink, too sickly for eating, but curious as being strongly scented with, and tasting of Rose leaves. *Correspondent.*

KING WILLIAM'S TOWN, KAFFRARIA: *March* 31.—The country we passed through on our way hither from East London pleased us not a little. Fine and open, with now and then a sight of the Buffalo River, with its rocky sides and steep wooded banks, and always in front of us beautiful ranges of blue hills, the Amadoda and the Buffalo hills. We saw many bright wild flowers new to us by the roadside, which we longed to look at more closely. Especially were we struck with the scarcity of people in so fine a country, as we had been told that it was a most populous part of the colony. We passed a few very small German villages and Kaffir kraals, and many herds of cattle and sheep, also several bullock waggons,

drawn by sixteen or eighteen fine animals. To-day, for the first time, have seen Kaffirs in red blankets and sheepskin coverings. *C.*

Reports of Societies.

Crystal Palace: *Sept.* 7.—The holding of the Alexandra Palace show last week, and the near approach of the great display to be held in Edinburgh next week, are causes which operated against the success of this annual event, and consequently it was a smaller show than usual, though as popular as ever with the public. In the class for a collection of fruits there were four competitors, and each received a prize. Mr. Bannerman, gr. to Lord Bagot, Blithfield, was a capital 1st with an excellent lot, comprising a good and well-ripened Queen Pine, fine Black Prince and Trebbiano Grapes, Barrington Peaches, Pitmaston Orange Nectarines, Brown Turkey Figs, and Marquis of Ailsa Melon. The next best came from Mr. J. H. Goodacre, Elvaston Castle; and Mr. J. Lane, gr. to Major-General Fytche, Pyrgo Park, Romford. Of four Queen Pines staged, the best, a fruit weighing 5¼ lb., came from Mr. Fillery, gr. to Mrs. S. D. Sassoon, Ashley Park, Walton-on-Thames; Mr. H. Plummer, gr. to R. Thornton, Esq., Canon Hill Park, Merton, came in 2d, and Mr. Goodacre, 3d. In the class for any other variety, Mr. Miles, gr. to Lord Carrington, came in 1st with a Charlotte Rothschild, weighing 5¾ lb.; Mr. Plummer being 2d, and Mr. Douglas, gr. to F. Whitbourn, Esq., 3d.

The best dish of Black Hamburgh Grapes came from Messrs. H. Lane & Son, Berkhamstead, fair sized bunches, with grand berries and fine colour. Larger bunches, but not so well finished, from Mr. Crane, The Gardens, Logshill, Chislehurst, were 2d; and Mr H. Alexander, gr. to R. Burgess, Esq., The Grange, Sutton, 3d. Messrs. Lane & Son also contributed the best dish of Muscat of Alexandria, three very good bunches: the rest were only moderate. In the class for any other white three very fine bunches of Foster's Seedling from Messrs. Lane & Son stood 1st; a fair sample of Buckland Sweetwater, from W. Hall, gr. to W. Torens, Esq., Tulse Hill, 2d; and Golden Champion, from Mr. H. Alexander, 3d. The best dish in the any other black class was one of Gros Colman, from Mr. Bannerman, superb in size of berry, colour, and bloom; Messrs. Lane & Son came next. The competition in all of these classes was very poor.

Peaches and Nectarines made a very good display thirty-five dishes of the former, and twenty-six of the latter being staged. In the Peach class Mr. Bannerman came in 1st with large and very highly coloured Barringtons. Mr. Douglas was 2d, with Exquisite, of a rosy orange colour, very taking; and Mr. E. Harris, gr. to C. L. Norman, Esq., Oakley, Bromley, Kent, 3d, with large and highly coloured Royal George. This class was such a good one that the judges awarded three extra 2d prizes. A magnificent dish of Victoria Nectarines, shown by Mr. Tillery, Welbeck, was the best in that division. Violette Hâtive, of grand size and colour, from Mr. Jordan, gr. to J. Bousted, Esq., Wimbledon, stood next; and a very fine sample of Elruge, from Mr. J. W. Moorman, gr. to the Misses Christy, Kingston-on-Thames.

Plums made a capital show, no less than 111 dishes being staged by thirty-seven competitors. Mr. Sage, Ashridge, sent the finest three dishes, the varieties being Jefferson, Kirke's, and Washington, and the quality exceedingly fine. Splendid samples of Washington, Jefferson, and Green Gage, from Mr. W. Holder, gr. to W. Balston, Esq., Springfield, Maidstone, came in next, followed by similar sorts from Mr. W. Jones, gr. to E. Purser, Esq., Wallington Bridge, Carshalton, as 3d.

Cherries and Figs were small classes. The best of the former was one of exceedingly fine Morellos from Mr. Sage; and of the latter a first-rate lot of Brunswicks from Mr. Chisholm, gr. to R. C. Taylor, Esq., Boughton Place, Maidstone.

The Melon classes were by no means good, but the Beechwood, shown by Mr. Harris, gr. to C. L. Norman, Esq., in the green-fleshed class; Reid's Scarlet-flesh, shown by Mr. Pitts, gr. to Mrs. Mayo, Risedale, Dorking; and Colston Bassett Seedling, white-flesh, from Mr. Sage, were 1st in their respective classes, and of superior flavour.

The class for three dishes of Pears was good indeed, and well contested. The best came from Mr. J. Neighbour, gr. to G. Wythes, Esq., Bickley Park—very fine dishes of Williams' Bon Chrétien, Louise Bonne of Jersey, and Beurré d'Amanlis. The Bon Chrétiens were a superb sample. Mr. Sage, Ashridge, and Mr. A. Longman, gr. to E. L. Lushington, Esq., Park House, Maidstone, were respectively 2d and 3d. All the prizes went to Williams' Bon Chrétien in the class judged for flavour.

Kitchen Apples made a fine display, being better represented than anything else in the show. The finest four dishes out of twenty-five lots were Cox's Pomona, Emperor Alexander, Lord Suffield, aad Beauty of Waltham—all of very fine size and quality. These came from Mr. G. Murrell, gr. to A. R. Allerton, Esq., Prittlewell, Essex. In the 2d prize collection, from Mr. John Radclyffe, Swinnerton, Swanley, was the finest dish of New Hawthorndens we remember to have seen. Mr. C. Haycock, Barham Court, Maidstone, was 3d; and Mr. Penfold, gr. to the Rev. A. H. Bridges, Beddington House, Croydon 4th. Mr. Webb, Calcot, Reading, was 1st in a strong competition for dessert kinds, with beautiful examples of Devonshire Quarrenden, Sweet Julien, and Red Astrachan; and Mr. Holder 2d, with Kerry Pippins, Jefferson's and Ribston Pippin.

The vegetable classes, confined to cottagers, were poorly contested, and the produce staged nothing like so good as we expect to see at provincial shows.

Messrs. Kelway & Son were fully up to the mark with Gladioli on this occasion, taking the 1st prizes for thirty-six, twenty-four, and six spikes respectively. Their finest spikes were of Clymenus, Eugène Scribe, Horace Vernet, Clupia, Pithys, Shakspeare, Meyerbeer, Etendard, and the Rev. H. H. Dombrain—the last-named being the gem of the lot, and certainly a magnificent spike. The Rev. H. H. Dombrain was 1st for twelve, and Mr. Douglas 2d; the flowers from the former being finer than usual. New Dahlias were shown by Mr. Turner, and the following received First-class Certificates:—Mrs. Standish, a large full fancy variety, amber with white down the centre of each petal; Sairey Gamp, large yellow edged with red; Samuel Plimsoll, purple, very deep and full; and Barmaid, white deeply edged with crimson-purple, a fine full flower with a high centre. Mr. Turner also showed Yellow Globe, yellow, very compact, and of good form; and Mrs. H. Nash and Miss Beckwith, two blush or French-white varieties of good form. Mr. Rawlings showed his new seedling flower, Mr. Bennett, and gained a First-class Certificate.

In the miscellaneous class Mr. Goodacre showed eight nice dishes of hardy fruits, and Mr. William Paul a collection of Apples and Pears. From Messrs. H. Lane & Son came nine sorts of Grapes, and from Mr. James Sleat, gr. to Mrs. Bailey, Central Hill, Upper Norwood, some choice Apples and Plums. Mr. H. Coppin, The Rose Nursery, Croydon, sent Dahlias and Roses, and Mr. Laing, Stansted Park Nursery, a select group of stove and greenhouse plants. Mr. Webb, Calcot, again staged a nice collection of Nuts; and Mr. Anthony Waterer sent up from Knap Hill three very handsome plants of his Cupressus Lawsoniana erecta viridis.

Alexandra Palace.—1. We are informed that the exhibitor of the twelve Pines shown at the Alexandra Palace, and alluded to by us, was Mr. D. Wilson, gr. to Earl Fortescue, Castle Hill, South Molton.—2. Allow me to correct an error in your report of the Alexandra Palace fruit and floral show on Thursday last. The winner of the 1st prize for wedding bouquets was Mr. Thomas Studd, of the Grange Nursery, Heaton Mersey, Lancashire. *J. B. S.*

A Factory-hands' Flower Show: *Sept.* 4.—About a year ago we gave an account of a very liberal and spirited effort made by Mr. Hugh Mason, a wealthy cotton-spinner at Guide Bridge, near Ashton-under-Lyne, to encourage the practice of gardening among his work-people. The gardening, as we then stated, is part of a very extensive plan for doing good among the hands employed in the mills, being carried on alongside of an institution which contains baths, a library, reading-room, and other such useful aids to physical and intellectual welfare. It is now a good many years since the gardening was set on foot: it has been prosperous ever since the beginning, and the annual exhibition of produce has always been creditable, if not surprising. The show for the current year came off on Saturday the 4th inst., and furnished a capital hint to all who are interested in promoting the happiness, intelligence, and social progress of the operative community of our country. The apartment in which the show was held is an excellent one for such a purpose, being spacious and well lighted, and possessed of plenty of pretty permanent decorations. A working men's flower-show should always be held in as nice-looking a place as may be possible. Indeed, if we mistake not, the *éclat* of many a more pretentious one than the simple little affair at Guide Bridge, would be greatly heightened by exchanging a dull brown canvas tent for a scene that is bright and cheerful, whether flowers are there or not.

The show we are speaking of consisted mainly of vegetables raised, so to speak, upon the premises, nothing of this class being allowed but what veritably illustrates the work-people's industry and success. In addition, there were plenty of good flowers, the predominant kinds being China Asters, Dahlias, Phloxes, and Antirrhinums, with a pretty supplement from friends outside, in the shape of Orchids and other dainty hothouse flowers, contributed with a view to show the strange variety of Nature, and to inspire the hope, no doubt, in some, at least, of these gardeners' hearts, that some day they may have Orchids of their own. We have personal knowledge of the fact that a portion of the Orchid blooms referred to came from the hothouse of a cotton-spinner, now deceased, whose father used to be seen, in bygone days, carrying bundles of yarn for the mill, with his shirt sleeves tucked up to the shoulder. The instance is by no means a solitary one. The history of the development of the wealth which has rendered Manchester and the neighbourhood so good a market for the London dealers in Orchids, and all kinds of costly plants, is full of parallels, to the honour, of course, of those who have supplied them. Fruit was likewise shown, but only in small quantity, the locality of the gardens rendering it difficult to raise anything more in the way of fruit than a few Strawberries and Currants. The spectacle was really a very pleasant one.

Going round the show while in course of arrangement, the half, at least, of those who were engaged in manipulating their Broccoli and Carrots, Cucumbers, Onions and Celery, were discoloured with indoor toil, which had commenced, probably, at 5 or 6 A.M. But the earnestness and simplicity made one quite overlook the claims of soap-and-water, which in another hour or two were fully recognised. On every side were trays or table-compartments full of nice garden eatables, fit for the ordinary wants of any human being; while the Roses, neatly set off with their own green leaves, would have stood well in any gentleman's private garden. The display, as a whole, may have been common-place enough, but what of that, if it were significant of good and useful work? These trays of vegetables, and these pretty little sets of flowers, *plus* about a dozen efforts at bouquet-making, spoke for an immense amount of simple and honest recreation on the part of those who reared and prepared them. Even if the money value were trifling—which, on this occasion, it was not—the gardening has the merit, quite as solid and thorough, of ensuring to the people a large amount of practical and rational pleasure. To contemplate it is a hundred times more gratifying than to see men, for want of kindly aid and direction, seeking their amusement in dogs, and beer, and the public-house. It may be all very well, and possibly enough does good service in its degree, to preach abstract morals to the working classes, and to say, as a precursor to a *finale* of aëriform benedictions, Don't do wrong; but the essentially and practically useful course is to put them in the way of doing something right, and to give them every facility and encouragement. Our English working men are not the insensible fellows some people suppose. Thousands of them are willing enough to do what is worthy and virtuous if they only have the opportunity suitably rendered; and assuredly no better incentive can be offered than that which is supplied in the prospect of a productive little garden. Many a piece of land lies comparatively waste and idle that might easily be made a scene of diligent and profitable occupation. There is nothing peculiar or exceptional in the circumstances at Guide Bridge. The exceptional thing is simply that Mr. Hugh Mason has introduced, and continues to foster, a most salutary design. Gardening, be it ever so simple, is never thrown away. It is never practised in vain, nor does it consume time and money that could be better devoted to anything else in the nature of pastime. Poor men can afford to pay for as much gardening as will be good and advantageous to them every bit as much as wealthy men. A garden never spoils a week's wages a fiftieth part so much as drink will do it. Of course a man cannot have everything he might desire in the way of vegetables, &c; but if one thing won't succeed another is quite sure to, and the pleasure is equal if only that good old behest is put in practice which tells us that, if we cannot always have what we like, it is wise and advantageous to cherish a liking for what we have. It would be a strange piece of land indeed that with fair digging and some manure would not yield a fair return in the course of the year. Nature is uncommonly obliging, if a man will only do his own part fairly and decently.

Besides the horticultural produce proper or that from the factory gardens, there were shown plenty of nice window-plants, such as Fuchsias, loaded with bloom, and contributed from the cottages either of the gardeners or of workpeople who are waiting their turn to be so fortunate us to secure one of the little plots (the number of which of course is limited), though these are too precious to change hands very often. Being somewhat of the nature of a privilege, they constitute one of the best kinds of bonus that we know of upon the exercise of industry and thrift. The small rent that is charged for them is very much more than covered by the revenue, the balance of which latter is virtually an addition to the men's wages. Of course the produce does not profess to be first-class. To look for perfection would be absurd and unfair. Comparisons in matters of this sort are altogether beside the mark; it is enough that the absolute quality is good and praiseworthy. The results of genuine effort on the part of intelligent and painstaking men are always to be measured with regard to their special circumstances, and the difficulties they have now to contend with. In the present case, at Guide Bridge, the hindrances include in-

different atmosphere and scanty leisure, and the wonder rather is that so much that is immensely creditable is accomplished. It is all very well for a man who is gardener to a duke or a lord, with the best of soil and every appliance at his command, to produce Beans and Cauliflowers that shall be at once magnificent and unimpeachable. He is expected to do so, and he ought to be ashamed of himself if he doesn't. The poor man's achievements are *pro rata* quite as praiseworthy; there is nothing to be ashamed of in inferiority, and very, very often his Beans, &c., taste all the better from the simple fact that so much love has been put into the gardening as well as seed and labour. The prizes given at the Guide Bridge show consisted principally of useful domestic articles, bright new copper tea-kettles apparently in the ascendant. Money was also given, the value in all being about £30, the philanthropic promoter of the whole affair providing no inconsiderable proportion. It would be a happy thing had we occasion to speak more frequently of efforts of this description. The idea is different from that of simple cottage gardening, where the ground and the cottage go together. The factory-gardens carry out the same leading idea, but they are established under distinct and altogether supplementary conditions. There is no reason why similar gardens should not be set going whenever there are workpeople, and where land is available for so beneficent a purpose: they would unquestionably give an impetus to intelligent industry, therefore to moral progress, and to the general welfare of thousands of poor families. For where the father of a family takes pleasure in cultivating a garden, the wife and children cannot fail to profit by it, indirectly it may be, but none the less truly. A valuable function of working men's flower shows, by no means to be overlooked, is that in addition to stimulating industry in regard to esculent vegetables, they help to draw out latent perceptions of order and fitness. A man who interests himself in the arrangement of plants and flowers cannot fail to quicken his sense of beauty and gracefulness, and, beginning with these, it gives him a larger understanding of whatever else around him is beautiful and worthy of attention. To add to the pleasing effect of this very interesting little show a number of greenhouse plants were lent by Messrs. Taylor Bros., of Dukinfield, and others by Mr. John Shaw, of Bowdon. People came in crowds to see the spectacle, and all ended as well as it began. (*From a Correspondent.*)

Central Kent and Ashford Horticultural: *Sept.* 2.—A few years ago Ashford, like Maidstone, Tunbridge Wells, Sevenoaks, and other Kentish towns, had its horticultural exhibition, but for some reason or the other it fell through, and no show was held for five years or so; but now a new society has been formed, and the first of its exhibitions was held in the grounds of R. Elliott, Esq., adjoining the Elwick Road, which is one of the prettiest thoroughfares in this thriving town, and being also close to the railway station it was easily accessible. The visitors could, moreover, perambulate about a piece of pleasure ground, and sit under the shade of trees listening to the band.

Two large and commodious tents and one smaller one were well filled—the first with plants, the second with cut flowers, fruit, and vegetables, and the third with the cottager's productions—there being a large number of the artizan class at Ashford, employed at the extensive railway works there.

A fine group of stove and greenhouse plants, and the same number of fine-foliaged plants, were staged, not for competition, by Mr. Durey, gr. to Sir Harry Tufton, Bart., M.P. The former included well-grown and finely-flowered examples of Erica mammosa, Vinca oculata alba, Allamanda Schottii, Bougainvillea glabra, Stephanotis floribunda, Begonia Ingramii, Dipladenia amabilis, and Erythrina Crista-galli. The foliaged plants consisted of Monstera deliciosa, Seaforthia elegans, Croton interruptus, Latania borbonica, Croton variegatus, C. undulatus, Chamærops australis, and Dieffenbachia Bowmanni. As compared with these, the collections of eight varieties competing looked quite small; there were, however, some nice specimens. The best group of eight came from Mr. Williams, gr. to R. Elliott, Esq.; and the 2d best from Mr. Cramp, gr. to G. W. Greenhill, Esq. The best four plants with ornamental foliage were staged by Mr. Wilson, gr. to G. A. Dodd, Esq., and consisted of three well-grown Salvias and Latania borbonica.

Caladiums were nicely shown—not large, but with well-developed and handsomely-marked leaves; and equal 1st prizes were awarded to Messrs. Wilson and Cramp, for four kinds. The former had fine examples of C. Belleymei, C. Chantinii, C. Baraquinii, and C. bicolor splendens. Mr. Cramp had C. Murillo, C. Princess Alexandra, C. Chantinii, and C. Wightii.

Some finely grown and coloured examples of Coleus were staged by Mr. Williams—large, bold plants, showing high-class cultivation; and the best three came also from the same exhibitor. Mr. Taylor, gr. to G. F. Wilks, Esq., was 2d. The last-named had some splendid Cockscombs, of enormous size, and excellently well grown. Several groups of pretty little exotic Ferns were staged, and there were also nice Zonal Pelargoniums from two or three exhibitors, and pretty specimen Achimenes.

The best specimen plant was a fine Dracæna Veitchii, from Mr. Williams; the best flowering plant, Allamanda Schottii.

The exhibition was materially assisted by the neighbouring nurserymen. Messrs. T. Bunyard & Sons staged a collection of plants—some fine spikes of Gladioli (of which flower they are large growers), cut Asters, Clematis, Roses, &c. Messrs. Masters & Kinmont, Canterbury, had capital cut Phloxes, and boxes of Roses. Mr. James Scott, Wellington Nursery, Ashford, had cut examples of French and African Marigolds, Zinnias, Gladioli, Asters, Roses, Verbenas, &c. Mr. W. Seale, Sevenoaks, had a fine lot of fancy and self Dahlias, also fine French and quilled Asters.

In the cut flower classes the best stand of twelve Dahlias was staged by Mr. Seale, including some good flowers, the leading ones being Lord Palmerston, Mrs. Saunders, James Cocker, J. N. Keynes, Ovid, very fine; Acme of Perfection, James Service, Vice-President, John Standish, Bishop of Durham, Lord Derby, and Leah. Mr. Seale had the best twenty-four, twelve, and six cut Roses, nice fresh flowers; also the best hand bouquet. Asters, Gladioli, Zonal Pelargoniums, &c., was also nicely shown, but there was nothing calling for special remark.

The fruit classes were all well filled, and there was a nice display. The best collection of twelve varieties came from Mr. Durey, and consisted of Black Hamburgh and Dutch Sweetwater Grapes, a good Pine, Peaches, Nectarines, Apricots, Plums, Apples, &c. Mr. Wilson was placed 2d with a very fair collection. Mr. Wilson had the best three bunches of Black Hamburgh Grapes, good in size and well coloured; the best single bunch of a black variety was Madresfield Court, from Mr. Basford, gr. to H. Brenchley, Esq. Mrs. Pince's Black Muscat, Black Prince, and Bowood Muscat were also shown in these classes. Some very good Muscat of Alexandria were staged by Mr. Williams, and Mr. Cramp came 2d with Bowood Muscat. The best dish of Peaches was Lady Palmerston, shown by Mr. Blashford, in fine condition, large in size and handsomely coloured. Violette Hâtive, Royal George, and Walburton Admirable were also shown. A fine dish of Nectarines, unnamed, came from Mr. Wilson, to which the 1st prize was awarded.

The classes for Apples brought together some excellent fruit. The best four dishes of dessert Apples was staged by Mr. Durey, and consisted of Kerry and Sugarloaf Pippins, Devonshire Quarrenden, and Duchess of Oldenburg. Mr. Bashford was 2d, with Old Nonpareil, Cox's Orange Pippin, very fine; Ribston and Golden Pippins, the former fine examples. Mr. Durey also had the best four dishes of kitchen Apples, staging Tower of Glamis, Emperor Alexander, Baron Ward, and Lord Suffield, all very fine indeed. Kentish Apples appear this year to be not only plentiful, but fine in quality. Mr. Wilson was 2d with some fine fruit. Mr. Ayliffe, gr. to Captain Saville, had the two best dishes of culinary Apples, showing Lord Suffield and Emperor Alexander, the latter very fine. Pears were also nicely shown, and the same remark holds good of Cherries, all Morellos, but generally very good. Plums were very fine. Mr. Willmore, gr. to J. Foster, Esq., had the best three dishes, consisting of Goliath, Kirke's, and Green Gage; Mr. Durey taking 2d place with Kirke's, Green Gage, and Jefferson. Washington and Princess Beatrice were also shown. Culinary Plums were equally fine. Mr. Wilson had the best three dishes, the varieties being Rex, Magnum Bonum, Goliath, and Prince Englebert. Other good sorts were Huling's Superb, of the Green Gage type, and Pond's Seedling.

Vegetables were also well shown by gentlemen's gardeners, amateurs, and cottagers, the samples being on the whole nice and clean. Onions were very fine, and generally well finished. The best Cucumber was Blue Gown, Telegraph taking 2d honours. An apparently free-bearing white-spined variety, named Yorkshire Hero, was also shown. (*From a Correspondent.*)

Kennington Amateur Horticultural: *Sept.* 1.—This, the first exhibition of the newly-formed society bearing this title, was held at the "Horns" Tavern on the above date. Years ago the "Horns" Tavern was a great meeting-place for the Surrey florists, and severe competitions with the Dahlia and other popular flowers used to take place. At that time the South London Floricultural Society was quite a power in the district; but in the course of time it declined, and it is some five years since an exhibition was held at Kennington. The present society was formed by a few amateurs desirous of promoting a little friendly competition with each other, and prizes were also offered in certain classes that were thrown open. The money to pay these was guaranteed; but the amateurs themselves do not receive any prizes, unless the proceeds of the show should suffice to enable them to be paid.

Some of the amateurs' productions were of a most praiseworthy character, and particularly does this apply to Mr. Banks, St. James' Terrace, Peckham, one of the most active members of the committee, and the leading exhibitor. He set up a group of six beautifully-grown Ferns, consisting of Davallia Mooreana, Adiantum trapeziforme, A. cuneatum, A. farleyense, Lomaria gibba, and Thamnopteris australasica. Mr. Champion, of Harworth Road, was 2d, having smaller but cleanly grown plants, the best being Blechnum brasiliense, Pteris argyrea, Adiantum formosum, and A. cuneatum. The best collection of eight plants in pots, staged by Mr. Lambert, gr. to H. W. Segelcke, Esq., Herne Hill, was well worthy the award made, and materially assisted the effect of the exhibition. It included excellent examples of Calamus Roxburghii, C. asperrimus, very fine; Croton variegatus, Alocasia macrorhiza variegata, A. Lowii, and two standard Fuchsias in fine condition. Mr. Champion was 2d, and Mr. Banks 3d, with much smaller plants, yet in nice condition. There were also Fuchsias, Pelargoniums, Asters in pots, Liliums, &c., but nothing calling for remark.

Messrs. Rollisson & Sons, Tooting Nurseries, sent a very interesting group of plants to assist the show, such as nice little Palms, Dracænas, &c., Adiantum gracillimum, and some pretty Gloxinias, mainly of the erect flowering type. Mr. John Laing, Stanstead Park Nursery, Forest Hill, also had Palms, Lilium auratum, Gold and Bronze Pelargoniums, Asters, &c.

In the way of cut flowers some capital Dahlias were staged by Mr. Steer, florist, Eltham, who took the leading prizes for this flower in the open classes. Asters were also shown by amateurs of the district; there was also a group of cut stove and greenhouse flowers set up in a box, and nicely relieved with Fern fronds and leaves of Caladium argyrites. Table decorations were shown; and a very charming bouquet from Mrs. Chater, of Brixton, took the 1st prize of a workbox for competition by ladies only.

There were collections of fruit, including Pine-apples; and Mr. C. W. Alderson, South Lambeth, sent a basket of fine Black Hamburgh Grapes.

The best basket of vegetables was also contributed by Mr. Alderson—all good, including Celery, Potatos, Onions, Carrots, Vegetable Marrows, Radishes, Beet, Peas, and Tomatos.

As far as the exhibition was concerned, it was decidedly encouraging to the promoters; and if the public interest in the show can be aroused success is certain with the annual holding of the exhibition. (*From a Correspondent.*)

Enfield Horticultural: *Sept.* 8.—This was the second exhibition held during the present summer, and it took place in the Old Park, the residence of E. Ford, Esq., J.P., the Society being very fortunate in securing such a place in which to hold its shows.

Stove and greenhouse plants are always a good feature at Enfield, and, as usual, the best group of four was staged by Mr. W. Wilson, gr. to Mr. Adams, Chase Park. The subjects were Allamanda Hendersoni, Bougainvillea glabra, Ixora japonica, and Vinca rosea. Mr. J. Shaw, gr. to P. Twells, Esq., M.P., was 2d, having Bougainvillea glabra, Allamanda cathartica, Plumbago capensis, and Franciscea calycina. There was also a class for twelve flowering and foliaged plants, staged for effect, and here, also, Mr. Wilson was placed 1st with small, but clean and healthy examples, which included Allamanda Hendersoni, Sarracenia flava, Alocasia macrorhiza variegata, Dracæna Cooperi, D. Guilfoylei, Clerodendron fallax, Lomaria gibba, and Croton interruptus. Mr. Gooderham, gr. to E. Ford, Esq., was 2d, his leading subjects being Phytolacca decandra, Begonia weltoniensis, Adiantum cuneatum, Alocasia zebrina, and Cyperus alternifolius variegatus. The best specimen plant was a fine Allamanda Schottii, staged by Mr. Wilson; and Mr. Shaw was 2d, with a plant only a little inferior to it in merit. Some good Achimenes came from Mr. Wilson, and he was the only exhibitor in this class. Fuchsias were shown by two exhibitors, but they included nothing calling for special remark.

A special prize was offered for six flowering Begonias, not less than three varieties—a very interesting feature, now that so many of these Begonias have been introduced to cultivation, and one worthy of imitation by other societies. The best came from Mr. Gooderham, and consisted of B. weltoniensis, B. nitida, and B. Sedeni. Mr. Tong, gr. to J. S. Law, Esq., was 2d, with some seedlings, the plants neat and nicely bloomed, but small in size.

A feature quite peculiar to Enfield is Pompon varieties of Dahlias grown in pots. The best group of six came from Mr. Shaw, and very meritorious they were, the plants vigorous in growth, bushy, well furnished with foliage, and nicely flowered. The varieties were Little Dorrit, Dr. Webb, White Aster, Mdlle. Patti, Seraph, and My Little Love. Mr. Gooderham was 2d, but his plants were getting past their best. Mr. F. Shaw, gr. to the Rev. F. D.

Hodson, staged some excellent Balsams, the plants large and well flowered, and the blossoms of excellent quality. Asters in pots were well done, and they included one collection of the dwarf Victoria type that had been really grown in pots. The plants were dwarf, and finely bloomed. They came from Mr. Lowe, gr. to J. Collins, Esq. The others had been lifted from the open ground for the occasion.

Mr. Shaw had the best group of six foliaged plants, which consisted of Cordyline indivisa, Dicksonia antarctica, Corypha australis, Chamærops humilis, Yucca aloifolia variegata, and Neottopteris australasica—large examples, but two or three of them getting just a little shady. Mr. Wilson was 2d, with smaller plants, in fresher condition, and his group included Croton interruptus, Yucca aloifolia variegata, Pandanus utilis, Croton variegatus, Hibiscus Cooperi, and Phormium tenax variegatum.

In the class for six exotic Ferns Mr. Wilson took the lead, having Davallia pyxidata, Cyathea exaltata, Platycerium grande, Todea barbara, Adiantum concinnum, and A. formosum. Mr. Farrow, gr. to G. Batters, Esq., was 2d, with a very fine Adiantum formosum, Dicksonia antarctica, Gymnogramma sulphurea, Adiantum concinnum, &c. A nice group of hardy Ferns was also staged.

Some good examples of Lilium speciosum were staged by Mr. Farrow and others, in the class for Lilies in flower.

In the classes for cut flowers Mr. Wilson staged a charming box of twelve bunches of miscellaneous cut flowers, which included such good things as Odontoglossum grande, Vallota purpurea, Begonia nitida, Cypripedium barbatum, Ixora Colei, Dipladenia amabilis, Trichopilia fragrans, &c. Mr. Gooderham was 2d, with some nice flowers also. The special prize offered for twelve bunches of perennials also went to Mr. Wilson, who staged some sterling things in a very effective manner. Other cut flowers consisted of Dahlias, Roses, Gladioli, Asters, &c. Centre-pieces for table decoration were nicely done by some of the ladies of the neighbourhood.

In the fruit classes, the best twelve dishes were staged by Mr. Wilson, who had Black Hamburgh and Buckland Sweetwater Grapes, Barrington Peaches, Downton Nectarine, Moorpark Apricot, Jefferson's Plum, Apples, Pears, Currants, Filberts, &c. Mr. Shaw was 2d, with a few good things in his collection. The best six dishes came from Mr. J. Green, gr. to J. Warren, Esq., which consisted of Black Hamburgh and Muscat of Alexandria Grapes, Royal George Peaches, Bon Chrétien Pears, Violette Hâtive Nectarine, and Brown Turkey Figs. Mr. Farrow was 2d, with some very nice fruit. There was a capital competition, five collections being staged. Peaches were well shown, the best dish being Barrington, from Mr. Wilson. Messrs. Shaw and Torrey were placed equal 2d, the former with Bellegarde, the latter with Barrington. Mr. Wilson had the best black Grapes, showing Black Hamburgh, and the best white in Buckland Sweetwater. Mr. J. Green was 2d in both classes, but exhibited Muscat of Alexandria as a white Grape. The best four dishes of Apples, two dessert and two kitchen, came from Mr. Farrow, and remarkably good they were. They consisted of Blenheim Orange, Ribston Pippin, Dumelow's Seedling, and Alfriston. Mr. Wilson was 2d, with fine examples of Blenheim Orange, Dutch Codlin, Cox's Orange Pippin, and Ribston Pippin. Several collections were staged, and all good. Mr. Farrow also had the two best dishes of Pears, staging Duchesse d'Angoulême and Bon Chrétien; Mr. Wilson was 2d, with very fine Beurré Bosc and Bon Chrétien. Plums were fine indeed—the best two dishes being Goliath and Red Magnum Bonum, from Mr. Hyde, gr. to H. C. R. Bowles, Esq.; 2d, Mr. Green, with capital examples of Goliath and Washington.

Messrs. Paul & Son, Cheshunt, sent a collection of sixty-three dishes of Apples of the leading kinds, of fine quality; also cut branches of ornamental leaved and variegated plants, each in a pot of soil, as if growing there, and most interesting they were; also a fine lot of cut Roses. Mr. W. Rumsey, nurseryman, Waltham Cross, had Roses, cut spikes of Lobelia fulgens, Queen Victoria, very bright; Asters, Zinnias, Phlox Drummondi, and Clematis; and a singularly sweet-scented Verbena named Odoratissima, that is remarkably fragrant, the flowers large and of a pale rosy pink hue, with a conspicuous white eye. It is reputed to be an excellent variety for bedding purposes, and it deserves to rank high among scented flowers. (*From a Correspondent*).

Law Notes.

LOOK BEFORE YOU BUY.—*Carter* v. *Goldsmith.*—This was an action brought in the City of London Court on the 3d inst., before Mr. Besley, Q.C., the Deputy Judge, in which the plaintiff, described as a salesman in the Borough Market, sued the defendant, a retail consumer in the City, to recover the sum of £2 12s. for six sacks of Potatos, supplied to him in July last. Mr. Searle, solicitor—who represented the plaintiff—stated that the defendant called upon his client, and was shown a sample of Potatos, and took a sack away with him, intending to order more, which was subsequently done, and no complaints were made until the defendant was called upon for payment, more than a month afterwards, which he refused, affirming that the goods were unfit for sale, although he had not returned them to the plaintiff within the period mentioned. The evidence as to the delivery of the goods completed the plaintiff's case, when the defendant, being called, stated that nothing could be better than the sample sent, but that when the bulk was delivered they were so inferior that he wrote to the plaintiff to send for them. Henry Towers, a shopman in the defendant's employ, was called to prove that the bulk did not answer the sample, when the learned Judge said that he could not too strongly reprobate the custom of purchasers buying goods unseen from the vendor, as numerous cases had occurred in this Court where the defendants were judged liable for goods so purchased; but in the present instance the case was somewhat different, as the defendant appeared to have relied upon the *bona fides* of the vendor, who had not, from the evidence before him, completed the contract with his purchaser, and, therefore, he should have no hesitation in giving judgment for the defendant, with costs, as under the circumstances the defendant was not compelled to go to the expense of returning the goods, but merely to order the vendor to remove them at his own expense. The defendant had done this, and the plaintiff, perhaps in his ignorance of the law, had failed to comply with it.—Judgment was accordingly entered for the defendant, with costs.

The Villa Garden.

GLADIOLI.—Our little forecourt garden is now very bright and pleasant-looking with some charming varieties of the Gladiolus; and we are led to ask why are these beautiful flowers, with their great decorative value, so persistently excluded from Villa Gardens? We have looked in vain for some in the many gardens which surround ours on every side, but we have not seen any; for with the exception of a stray root or two of the tall-growing crimson G. Bowiensis, or the bright vermilion G. Brenchleyensis, they are almost entirely absent. They are not difficult to cultivate—quite the reverse, for we have now in fine bloom several spikes thrown up by roots left in the ground all last winter, and they are as good as any plants that were lifted in the autumn and replanted in the spring. The Gladioli have come in well to replace the Clove and flaked Carnations and edged Picotees that have gone out of bloom; and mingled with them we have the flowers of Anemone japonica and its white variety, alba—two of the most beautiful of late-flowering hardy perennials. They now form the background to the dwarfer flowering plants in front, and the success of the arrangement is shown in the fact that so many passers-by stop and admire it.

Now we have said that it is not difficult to grow Gladioli, and that is quite true. Some writers have thrown about it quite a halo of mystery, just as if the process resembled some occult science that only the privileged few were permitted to investigate. We have read instructions so elaborate, and so painfully laborious to apply, as to take all the pleasure out of the prospect of growing a few. Some three or four years ago Mr. Kelway, of Newport, kindly sent us some spawn of Gladioli—*i.e.*, the minute bulbs formed round the point of contact with the roots and the bulb. Some of this was planted in a shallow box, and by the end of the summer many of the bulbs had become almost as large as Walnuts. The box was put away under the stage of a greenhouse, and in the following spring, just as they began to put forth the first movement of growth, they were planted out along a border that had previously been dug deeply and pretty well manured. When each bulb was planted a little fine soil was placed about the roots of each as they had begun to show themselves. A goodly number flowered during the summer, and our labours were rewarded with some beautiful flowers. The spikes were large and fine, and there was no trace of the disease of which so much has been said, and which, we shrewdly suspect, arises as much from over cultivation as from any other cause. The roots were lifted in the autumn as before, stored away in a shallow box with some soil about them, in a cool, dry place; and, now, each succeeding year, the same simple process of planting is repeated, and with the happiest results. Simple methods of cultivation often produce great successes. In early spring we called on a friend who had some beautiful alpine Auriculas in pots, bearing large flowers, remarkable for their smoothness and the distinctness of the marginal colours. We at once thought some elaborate system of cultivation had produced such fine effects, and we asked him for his secret. He possessed one of a rather astounding character—"I grow my alpine Auriculas in the greatest rubbish I can get;" that was all. We sometimes are led to think that plants in pots are so highly manured as to be paralysed out of all growth.

LARGE FLOWERING PELARGONIUMS.—The earlier cuttings of these, placed in our cutting-beds, are beginning to make root, and we are already potting them singly into small 60-pots, using loam, leaf-mould, and a little sharp sand to keep the soil open. The great aim is to get them rooted in these small pots before the winter comes on. Even if the cuttings are only callused over at the base, they will soon throw out roots, and establish themselves, as gardeners term it. We had but a few good varieties from which to take cuttings, and they afford so much hopeful promise for another season, that, with all our inconveniences for wintering tender plants, it must be attempted. We shall utilise the insides of sunny windows, where there is sufficient warmth to exclude the frost, and these plants may be kept a long time in a dry state, without injury.

We are requiring the cutting bed for other things, and as it is already crowded we are glad to get rid of those that are rooted in the way just stated. The double red and white Rockets, which are among our most favourite early summer blooming border flowers, having during the past month thrown out side shoots that are putting forth incipient rootlets, these are carefully removed with a knife, and planted closely in the bed. They make nice plants by November. Any Pansies and Violas that we are likely to be short of for early summer display are now increased by cuttings. We insert them in close lines in the cutting bed, and press them firmly into the soil, labelling each so as to identify them at the proper time; and they are left all the winter. By the early part of March they become nicely rooted plants, and are found very useful to supply any vacancies that have taken place in the bed during winter.

ZONAL PELARGONIUMS.—By these we mean all the best varieties, whether nosegay or otherwise, that we have had in the open ground, and also in pots, and which it is desirable to increase by cuttings. Cuttings are now being taken off and planted in a convenient fashion. We obtain from our grocer certain shallow boxes, about 3 inches in depth, which have been used for containing soap and other articles of household use. A few holes are first bored in the bottoms by means of a large gimlet, so that the water may freely pass away. Then we lay in the bottom a half-inch or so of crocks made of broken pots broken up rather finely, and cover them with a thin layer of moss, and on that again an inch or so of rough soil. Then we fill up with the siftings of the refuse soil of pots, or anything fine, and a little sand, and insert the cuttings in lines, putting them firmly into the soil. This is of great importance; and we press the soil down as hard as possible about the cuttings. The boxes are then stood out-of-doors by the side of a walk in the full sun, and occasionally sprinkled so as to keep the soil about the cuttings fairly moist. It should not be allowed to become soddened with wet; on the other hand it is better that they be roasted somewhat. They soon take root, and we shall leave our boxes in the open air as long as the weather keeps fine and dry, and when autumn rains come they will be removed to the upper shelf of the greenhouse, and be wintered as best we can. Boxes of rooted cuttings can be kept safely through the winter if kept dry, even if exposed to a little frost. It is the hard stinging frosts that work so much destruction among them.

The Weather.

DURING the week ending Saturday, September 4, in the vicinity of London the reading of the barometer at the level of the sea decreased from 29.94 inches at the beginning of the week to 29.88 inches by the morning of the 29th, increased to 30.10 inches by the morning of the 30th, decreased to 30.05 inches by the morning of August 31, increased to 30.29 inches by the morning of September 1, decreased to 29.99 inches by the afternoon of the 3d, and was 30.18 inches at the end of the week.

The mean reading for the week was 29.93 inches, being .07 inch higher than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground, as observed day by day, ranged from 68¼° on August 29 to 75° on September 2; the mean value for the week was 71¾°. The lowest temperatures of the air as observed night by night varied between 44¾° on September 1 and 56¾ on September 3, with a mean for the week of 52°. The

mean daily range of temperature in the week was 19½°, the daily values varying from 27½° on September 1 to 12¼° on September 3. The mean daily temperatures of the air, and the departures from their respective averages, were as follows:—August 29, 57°.7, —2°.4; 30th, 59°.3, —0°.7; 31st, 59°.5, —0°.3; September 1, 57°.3, —2°.1; 2d, 63°.8, + 4°.5; 3d, 62°.9, + 3°.8; 4th, 59°.5, + 0°.7. The mean temperature of the week was 60°, being 0°.5 higher than the average of observations extending over sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 127° and 126¾° on August 31 and September 4. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 40° and 46¼° on September 1 and 4; on the 2d 53¼° was the lowest reading. The mean for the seven low readings was 48½°.

The direction of the wind was mostly from the W. and S.W., and its strength gentle. The weather during the week was fine, bright, and the sky generally clear. Rain fell on two days; the amount collected was 0.37 inch.

In England the highest temperature of the air at the height of 4 feet observed in the week was 76° at Sunderland and Cambridge; at Norwich the highest temperature noted was 65°, and at Liverpool 66°.7. The mean from all stations was 71¼°. The lowest temperatures noted were 42¾° at Nottingham, and 43° nearly at Eccles. At Liverpool the lowest temperature in the week was 51°.6, and at Truro and Leeds it was 51°. The mean from all stations was 46¾°. The range of temperature in the week was the smallest at Liverpool, viz., 15°.1, and the largest, 31°, was at Sunderland. The mean of all was 24½°. The mean of the seven high day temperatures was the least, viz., 62¾°, at Newcastle-on-Tyne, and was the greatest near London, viz., 71¾°. The general mean from all stations was 67¾°. The least weekly mean daily range of temperature was 7°.9, at Liverpool, and the greatest was 19¾°, at Sunderland. The general average was 15. The mean temperature of the week varied from 60°.9 at Truro to 57½° at Hull; the average from all the stations was 58¾°.

Rain fell on four or five days at most of the stations, and on two or three at the others. The fall at Manchester in the week was as large as 2 inches; it mostly fell on Monday and on Thursday, on the latter day the fall exceeded 1 inch both at Liverpool and Manchester; the falls in the week about London and at Norwich were the smallest, and were less than 0.4 inch, the general average fall was 0.9 inch.

The weather during the week was, on the whole, fine, the wind was generally from the S.W., and for the most part in gentle motion.

In Scotland the highest temperature in the week varied from 72° at Dundee to 66° at Greenock, the lowest temperatures varied from 38° at Paisley to 45½° at Leith, the general mean of the highest was 68°, and of the lowest 41°. The mean temperature of the week was 55½° at Aberdeen, and 57° at Leith; the average of the several stations was 56°. Rain fell to the depth of 1.96 inch at Greenock, and to 0.59 inch at Leith; the general average was 1.08 inch.

In Dublin the highest temperature in the week was 73.6°, the lowest was 46°, the mean temperature was 60.4°, and the fall of rain amounted to 0.8 inch.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPT. 8, 1875.

Month and Day	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°	°		In.
2	30.03	+0.14	75.1	56.1	19.0	63.8	+ 4.5	56.1	76	S. S.W.	0.00
3	29.84	−0.06	69.4	56.8	12.6	62.9	+ 3.8	55.3	76	S.S.W. : S.W.	0.14
4	29.95	+0.05	73.0	50.0	23.0	59.5	+ 0.7	50.2	72	S.W.	0.00
5	30.09	+0.19	67.0	52.5	14.5	59.1	+ 0.5	52.3	78	S. : W.	0.00
6	30.02	+0.11	73.1	51.2	21.9	60.9	+ 2.5	53.6	77	S.S.W.	0.00
7	29.92	+0.01	75.8	54.2	21.6	63.6	+ 6.3	57.7	63	S.S.E.	0.00
8	29.69	−0.22	76.2	58.5	17.7	65.6	+ 7.3	57.9	81	S.S.E.	0.02
Mean	29.93	+0.03	72.9	54.2	18.6	62.2	+ 3.7	54.7	75	S.W. : S.S.E.	sum 0.16

Sept. 2.—A fine day, but dull and cloudy at intervals.
" 3.—Overcast, dull, and rain fell from 9 A.M. till 2 P.M.; very fine afterwards.
" 4.—A fine bright day. Light clouds.
" 5.—A fine day.
" 6.—A very fine day and night.
" 7.—A very fine day; a remarkably dry atmosphere.
" 8.—A little rain in the morning. Fine afternoon.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

ORCHIDS.—As the end of summer approaches, a more rigid discipline must be commenced. The temperature may still range from 75° to 85° by day in the East India house. This temperature should be maintained until the end of the month, when a gradual reduction must take place. A growing atmosphere must be kept, and every possible encouragement given to such plants as *Aerides*, *Vandas*, *Saccolabiums*, and *Phalænopsis*. The blocks, baskets, and pots must be damped over in the morning, and in the afternoon of fine days a syringing overhead will be of great benefit to them. Care must be taken not to get the sphagnum or peat in a sodden state. The shading must now be used as little as possible, only just to prevent the sun scorching the foliage. Shading on the Cattleya-house may now be dispensed with altogether; the glass should be cleaned, so as to enable the plants to receive the benefit of the light; it is of the greatest importance to have the plants well ripened before the winter. In the culture of Orchids no change of treatment should be brought about suddenly. Let all pseudobulbous plants which have completed their growth receive an increased amount of air. *Lælia acuminata*, *L. albida*, *L. majalis*, and *Cattleya citrina* should be thoroughly exposed to the sun, *Lælia purpurata* and *Cattleya Mossiæ* may now be repotted and kept in the warmest part of the Cattleya-house to enable them to complete their growth as soon as possible. Give *Calanthe vestita* and *C. Veitchii* a little weak manure-water, and encourage them to make large bulbs; the stronger these plants are grown the finer will be the spikes of flower. Sponge the leaves frequently to keep them free from scale. *Calanthe veratrifolia* and *C. Masuca* may be repotted, if not already done. Any of the *Odontoglossums* that have started late into growth and require larger pots may still be done with safety, in all cases the roots must be disturbed as little as possible. The principal thing for an Orchid grower to keep in view is to have the bulbs and leaves well matured before the dull days of winter set in; this may be done by exposing the plants to as much sun as they can bear. *G. Baker, Coombe.*

GREENHOUSE HARD-WOODED PLANTS.—*Heaths* may be potted at any time of the year when their roots are active, yet there are objections against very late shifting, when there is not sufficient time for them to get hold of the new soil before the depth of winter arrives. In the hands of those who have had long experience with the various sections of this family of plants, so different in their requirements, success may attend very late moving, as also carrying the work out at the opposite time of the year, when the weather is hot and dry. But in summer, even with the closest attention, potting will often prove fatal; in the spring it will sometimes interfere with flowering, and cannot be successfully carried out at the time it ought without sacrificing the bloom. If they are repotted betwixt this and the end of the present month these objections do not exist, for at no season of the year are the roots of a healthy Heath more active than through the autumn, which enables the newly moved plants to get their roots into the new soil before winter. Other circumstances of importance are in their favour; thus, the sun is much reduced in power, and the air much more moist, with the consequent lessened demand for water. All these help to safely tide the plants over an operation that, under the most favourable conditions, is attended with some risk.

These remarks more particularly apply to specimens and half-specimens. In the case of any of these that will be short of root-room through the following summer, I should advise that they should be at once re-potted. In all cases the additional amount of room subjects of this description require, or will bear, can best be determined when each individual plant is turned out of its pot, and the quantity and condition of the roots can be seen. Heaths of a free-growing nature that have occupied not less than 12 or 13-inch pots, and are found, on turning-out, to have plenty of active roots, will bear pots 4 inches larger: it is a mistake to give less shifts than this, as it entails the necessity of again moving so much sooner, with the consequent after risk. With small-growing, very hard-wooded varieties it is not well to venture large shifts as the roots increase correspondingly slowly, and are so much longer in getting hold of the soil. In all cases see that the whole of the ball is sufficiently wet before it is potted; if on turning out any plant it is found dry at one side, as sometimes happens if the water has got to follow the opposite side, plunge the ball in water, and let it stand until moistened quite through, after which place it on the potting bench for a day, to let it drain, putting a mat round it, so as to prevent the roots suffering through exposure. In preparing soil for these plants see that there is no woody matter, such as the strong roots of wild Heather, left in it, for this will in some cases (not always) generate fungus, which, although seldom of a nature to affect the roots of the plants by parasitic action, will yet, so long as it exists, make the soil unfit for them to grow in. In the case of plants that are more than ordinarily full of roots, and hard in the ball, it is well, in addition to ramming the soil hard, to leave it sloping up to the side of the pot, a little above the height of the surface of the ball. This will prevent the possibility of the water finding its way down the new material, and so causing the centre to become dry. In the course of two or three months the soil so left above the level can be removed. It is only necessary to do this with any plant that has got in the state above described. On no account resort to the barbarous practice that used to be advised in potting plants—that of taking a pointed stick or skewer and loosening the roots round the outside of the ball; the advocates of such practice labour under the mistake of treating all plants alike, independently of the difference in their nature. It may do for a vigorous growing subject like an Acacia or a Cytisus, but with a delicate-rooted thing such as a hard-wooded Heath, no greater mistake could be committed. They can much better bear a portion of the ball, roots and all, being cut clean away, than to have a quantity of their best feeders broken and left in the soil. As the plants are finished, place them at once in a house where the side-lights are closed, and a sufficiency of air can be given at the top, for two or three weeks.

Azaleas.—If any fixed shading has been used, such as canvas tacked on, or the glass smeared with paste, or any substance to break the force of the sun, it should now be removed, so as to let the plants have all the light possible, which is necessary to thoroughly mature the wood and bloom-buds for another year; where this is wanting it is vain to look for a full complement of large, finely-coloured flowers. When Azaleas are not kept thoroughly clear from insects through the growing season, and the growth is not fully matured, no subsequent treatment will produce a fine head of bloom; inattention to these matters annually leads to the disappointment of those who grow them. Plants that were forced into flower by Christmas last season, and afterwards at once started into growth, would consequently have this completed in good time, and have been moved into a north house or other situation, where they would not receive much sun. If these are required to come in again about the same time, they must not be too long kept in too cool a place, or it might later on necessitate more heat being used to them than would be desirable. A disposition to come in with little forcing makes the flowers of much more use.

SOFT-WOODED GREENHOUSE PLANTS.—*Hyacinths*, *Narcissus*, *Tulips*, and *Crocus* should at once be got in and potted. The early *Roman Hyacinths* are very useful either as decorative plants or in affording flowers for cutting; for the latter purpose they are even more suitable than the larger-growing kinds. When potted they should be placed where they can be plunged in, and covered overhead with 6 inches of coal ashes, until they have made plenty of roots. *T. Baines.*

FRUIT HOUSES.

THE ORCHARD-HOUSE.—Much of the fruit in this structure will by this time have been gathered from the trees, which, if grown in pots or tubs, may with advantage be placed for a time in a suitable situation in the open air, which will assist in the thorough maturing of the young wood, and will allow the foliage to become thoroughly cleaned. To facilitate this they should be well syringed every evening, and the soil in which they are growing should at the same time be kept moderately dry, without, however, withholding water to the extent of making the foliage flag or droop from this cause. During heavy or prolonged rainfalls, to prevent the soil from becoming saturated, the pots may be placed upon their sides; or a still better plan will be to place the turned out trees tolerably close together, and cover up the pots entirely with light littery manure or straw, which will to some extent prevent evaporation from the soil, and render little water necessary, and will also protect it from the effect of heavy rainfall. The removal of a portion of the potted trees into the open air about this time will afford increased space to those planted out, as well as to others which it may be necessary to retain inside the structure for some time longer, to enable them to thoroughly ripen their fruit, such as late *Peaches*, *Nectarines*, and *Plums*, together with *Figs* in pots, which may be swelling off their second crop of fruit; these should be placed in the warmest part of the house, and be well supplied with water: if carrying a heavy crop they might also have occasional

doses of well-diluted manure-water. In the case of late *Peaches*, &c., in order to keep the foliage clean and healthy as long as possible, let them be freely syringed until the fruit begins to show indications of ripening, when it must, of course, be discontinued until the fruit is gathered, when they may, if the season is not too far advanced, be placed for a time in the open air with the others. Such fruit, however, as *Cox's Golden Drop*, *Imperatrice*, and other late *Plums*, will continue to hang for some considerable time upon the trees after they are fairly ripe, and are then very delicious: in their case it will be necessary to retain the trees in the house, so as to be better able to protect the fruit from birds and insects. Where any of the finer sorts of *Pears* are grown in pots in this house, it may also in their case be advisable to place them now (if this has not already been done) in the open air, as this will have the effect of greatly improving the flavour of the fruit—taking the precaution, however, to protect them from birds and insects, should this be found necessary. Planted out trees of all kinds, as soon as their fruit has been gathered, should be well cleaned with the syringe, and should not as yet be allowed to become very dry at the roots, while the ventilators should be allowed to remain open by night as well as by day, unless it be during the prevalence of high and boisterous wind. In order to exclude birds and insects the openings should at this season be covered with the hexagonal netting. *P. Grieve, Culford, Bury St. Edmunds.*

VINES.—The earliest Vines ought now to be pruned; it is not necessary to wait till all the foliage is down before doing this, for if the wood is hard and brown, and the leaves are turning yellow, pruning will induce them to go more thoroughly and quickly to rest. Both the house and Vines should have a good cleaning, and if insects of any kind have been troublesome now is the best time to exterminate them by painting all the woodwork and washing the Vines with a strong solution of soft-soap and sulphur; afterwards remove the loose inert top soil from the border, and replace with good holding loam. Any Vines that are in an unsatisfactory state may be improved by partially lifting their roots and removing the old soil and adding new, and after judicious root-pruning carefully laying them in the new soil; this process is best done before the fall of the leaf. Pot Vines intended to be put in warmth in November ought now to be fully ripe and at rest. They should be kept comparatively dry, but much injury will be caused if allowed to become dust-dry, as is often the case. Later batches of pot Vines should now be turned outside, and tacked to walls or other exposed situations, to fully mature their growth. Young Vines that have made strong growth will take a long time to ripen, and as the season is getting short, fire-heat should be applied forthwith, and continued till the wood is hard and brown; discourage any further growth by removal of laterals as produced. The same remarks apply to late Grapes, which, if not dead ripe by the end of this month, invariably fail to keep well. Of course, plenty of both front and top air must accompany the fire-heat. Ripe Grapes should be frequently looked over, and decayed berries removed. A dry, airy atmosphere is the only preventive of mould. If the roots of late Grapes are in outside borders it will now be necessary to protect from heavy rain by covering them with shutters, tarpauling, or thatching. The Grapes keep much better if not chilled by the autumnal rains. In our case the late Vines are all planted inside, and therefore fully at command, the only drawback being the evaporation arising from the moisture of the border, which, however, is preventible, by covering with mats or a light thatch of straw; such coverings also prevents cracking of the soil, which is at all times desirable. *W. Wildsmith, Heckfield.*

CUCUMBERS.—The weather continues much the same as was noted in the last Cucumber Calendar, the general treatment, therefore, remains much the same. Days shorten, however, and the nights are becoming cooler, and this suggests that the syringe must be employed earlier than was last recommended, and the ventilators be also earlier closed. Remember to have the foliage fairly dry by sunset. There is still no necessity for fire-heat. The cultivator must of necessity adapt himself to the peculiar circumstances and conditions under which he is placed, for so much depends upon the size, elevation, and aspect of the house that it is utterly impossible to lay down any fixed rule which shall apply universally. Thus, houses facing either east or west will require to be opened and closed much earlier and later respectively than those which have a southern aspect. Then, again, small houses are, as a rule, more retentive of moisture than large houses, and thus require less moisture in the atmosphere at all times than the latter. A good deal must, therefore, be left to the discretion of the cultivator. Encourage the autumn fruiters, as was recommended in the last Calendar, and remove the first fruits, together with all male blossoms and tendrils, as fast as they appear. This batch, too, should have the benefit of the full sunshine. Avoid morning syringing as much as possible. A sowing should be made about the middle of this month to ensure a good supply at Christmas. Failing to secure seed of any good variety the cultivator may desire to retain, now is a good time to perpetuate the stock by cuttings or layers. Cuttings should be plunged in a fair bottom-heat, and be covered with a bell-glass for ten days. The large market grower should be collecting his tan or other fermenting material preparatory to a start at the end of the month. He should also provide himself with a small house wherein to raise his plants, and thus save the cost of heating a large area to secure a small, though very important end. *Thomas Simpson, Chelmsford, Sept. 7.*

KITCHEN GARDEN.

MUSHROOM-HOUSE.—Mushroom beds intended for the winter supply must now be formed with all despatch. The best and proper materials are horse-droppings, and next to them are deer, sheep, or cow dung, in a dried state. The whole may be mixed together, though the former is by far the best. The better plan is to collect the horse-droppings directly from the stables of dry-food fed horses, and before any rain or water in any form or other injurious substance has come in contact with them. Where this can be done it is an excellent plan to place a box or wheelbarrow under cover, in such a position that these droppings can be tossed directly into it. If it is not convenient or possible to do this, then the opportunity of shaking over any stable litter during dry weather should not be lost. In shaking it over, do so in such a way as to shake all the droppings into a heap together. It matters not that straw litter and particles fall together along with them, as these are admissible, and not only increase the bulk, but aid also in drying it to the necessary degree, and when dried and the bed is made, to maintain it all the longer in a fresh and non-decomposed state. This remark may puzzle some who read it for the first time, and who think perhaps that decayed material, rotten, unctuous, fatty, or rotten dung are requisites to success. This is not so: wholesome fibrous material, such as the above, best suits the spawn to "run" in. These materials must be so dried, therefore, as not to rot them too much. We are aware that the necessary degree of fermentation induces decomposition: hence our remarks about keeping the materials as dry as possible from the first. In all cases where possible, having procured such materials as these, dry them in an open shed by preference. When only latent moisture can be observed in them under pressure from the hand, then are they ready for bed making. Each bed will require at least one large cartload of materials. We shall shortly again refer to the bed-making, &c. *William Earley.*

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

63. THE HARVEST MOON.—Will some of your correspondents kindly inform me when the harvest moon occurs this year, and the rules by which it is guided? *M. L.*

64. FERNS IN YORKSHIRE.—I should also be glad to know the various species of Ferns to be found growing in the Wharncliffe Crays Wood, Yorkshire. *M. L.*

65. BOOK ON THE POTATO.—Is there any work published which may really be called *The Book of the Potato*, or, failing this, some really standard work on the subject, giving the best available information? I can obtain much scattered information in various quarters, but my enquiries at present have not satisfied me on the subject, and it is a subject maintaining, if not increasing, its importance in every point of view. *Enquirer.*

Answers to Correspondents.

DERBYSHIRE SPAR (Qy. 60, p. 310): *W. W.* Apply to Shutes & Co., Duke Street, Derby.

AMARANTHUS PRINCESS OF WALES: *W. Hender & Son.* Your new seedling is apparently a very pretty thing, judging from the tops sent.

DEODARS: *A. C.* Cut a trench around them this autumn, at about a yard from the stems, so as to sever the coarser roots, and lift them carefully next spring, just when they have begun to push out young shoots, in April or May, according to the season.

GRAPES: *P. W. M.* Pot Vines are no good for forcing the second year. We would not shift the others now, but plunge them into materials in which they can root when they are started.

INSECTS: *F. C.* You have sent the chrysalis and cocoon of the common Puss moth, Cerura vinula. *I. O. W.*—*Delta.* Your Zinnia and Pyrethrum leaves are infested by the mining larvæ of a little two-winged fly (Phytomyza sp.). If you give the leaf a sharp pinch you will kill the grubs, and need not trouble to wash the plant with soda water. *I. O. W.*—*E. G.* The small Oak leaf-galls are quite distinct from the marble-like galls which are always found in the buds of the Oak. The white lines on the Woodbine leaves are caused by the minute larvæ of a little moth, mining between the two surfaces of the leaf, the egg having been laid at the thinnest end of the mine, which increases in size as the larva becomes larger. When full grown it eats its way out of the leaf to become a chrysalis. *I. O. W.*

MR. A. MURRAY: *A. Oliver.* No.

NAMES OF FRUITS: *E. J. P.* 1, Old Windsor; 2, Williams' Bon Chrétien.—*B. R. C.* Much decayed, but apparently a rather small specimen of Cox's Emperor.—*W. G.* 1, Early Harvest; 2, rotten when received.—*D. C.* 1, Royal George; 2 and 3, rotten on arrival; 4, a small specimen of Gravenstein; 5, Tower of Glammis; 6, Œil de Perdrix.

NAMES OF PLANTS: *S. H.* Viburnum Opulus (the Wayfaring Tree).—*S.* Polygonum cuspidatum.—*Rover.* 1, Echinops ruthenicus; 2, Eryngium alpinum; 3, Holcus lanatus; 4, Poa trivialis; 5, Bromus arvensis.—*D. C.* 7, Lychnis coronaria; 8, Clethra alnifolia.—*E. S.* 1, Physianthus albens; 2 and 3, species of Chrysanthemums, which we cannot name without foliage.—*J. C. & Co.* 1, Brachycome iberidifolia; 2, possibly a Cuphea, but it is impossible to name it without flowers. *J. P. M.* Cichorium Intybus.—*R. B.* Taxodium distichum.—*J. Preston.* Escallonia macrantha.—*A. C. P.* Pavia macrostachya.

PETUNIAS: *W. Hender & Son.* Your Petunias represent a very beautiful strain of striped and blotched flowers, in every way the finest we have seen.

POTATOS: *J. Preston.* We cannot undertake to name Potatos.

ROSES: *Early Subscriber.* Nothing in the way of insecticides applied now will be of any avail against aphis and caterpillars next year. The remedies must be applied as soon as the enemies appear.

TREE FERNS: *Colony.* The Tree Ferns should have been protected from damp at the crown to prevent the incipient fronds from rotting, and they would have been better placed in a shady cool-house, the stems being kept damp. We question if the Cucumber-house was a very suitable place for them, being too exciting. If they have been there for "some months," and show no sign of growth, it is not improbable that the crowns are dead.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time.

CATALOGUES RECEIVED:—John Scott (Merriott Nurseries, Crewkerne, Somerset), Catalogue of Flower Roots, &c.—R. B. Matthews (65, Victoria Street, Belfast), Descriptive Priced Catalogue of Dutch Flower Roots.—Messrs. Barr & Sugden (12, King Street, Covent Garden, London), Autumnal Descriptive Catalogue of Bulbs and Plants.—George Yates (Stockport), Catalogue of Flower Roots, &c.

COMMUNICATIONS RECEIVED:—J. D.—E. G., Ireland.—W. Bowman.—T. J. W.—William Pain.—A. H. H.—H. M.—D. Brown.—P. Grieve.—G. M., Broseley.—T. M., Philadelphia (with thanks).—S. J. A. S.—A. D.—B. H.—J. R.—A. N. B.—J. C.—C. E.—I. D.—J. F.

Markets.

COVENT GARDEN, September 9.

The supply of Kent Cobs and Filberts has fallen off this week, in consequence of the Hopping season, and prices are better. Jersey Grapes still arrive in large quantities, and consignments of rough fruit continue heavy. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0	12 0	Hydrangeas, per doz.	9 0	24 0
Bouvardias, do.	9 0	18 0	Lilium lancif., p. doz.	12 0	60 0
Calceolarias, do.	6 0	18 0	Mignonette, do.	3 0	6 0
Cyperus, do.	6 0	12 0	Myrtles do.	3 0	9 0
Dracæna terminalis	30 0	60 0	Pelargoniums, dble., per doz.	4 0	12 0
— viridis, per doz.	12 0	24 0	— Scarlet, do.	3 0	9 0
Ficus elastica	1 6	7 6	Petunia, per doz.	6 0	9 0
Fuchsia, per doz.	3 0	18 0	Rhodanthe, do.	6 0	12 0
Gardenias, do.	12 0	60 0	Solanums, do.	6 0	18 0
Gladiolii, do.	9 0	18 0	Stock, do.	3 0	6 0
Heaths, in var., doz.	12 0	30 0			
Heliotrope, per doz.	3 0	12 0			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, 12 blooms	0 4	2 0	Myosotis, per bunch	0 4	0 6
— Clove, per doz.	0 3	0 9	Pelargoniums, 12 spr.	0 6	1 0
— mixed, 12 bun.	3 0	9 0	— Zonal, do.	0 3	1 0
Cornflower, p. doz. bun.	3 0	6 0	Primula, dbl., p. bun.	0 9	1 6
Eschscholtzia, 12 bun.	3 0	6 0	Roses, indoor, p. doz.	2 0	6 0
Eucharis, per doz.	4 0	9 0	— outdoor, 12 bun.	3 0	9 0
Gardenia, per doz.	2 0	6 0	Spiræa, 12 sprays	1 0	3 0
Heliotropes, 12 spr.	0 6	1 0	Stephanotis, 12 sprays	3 0	9 0
Lilies, white, p. bun.	1 0	2 6	Stocks, 12 bun.	3 0	6 0
Mignonette, 12 bun.	3 0	6 0	Sweet Peas, 12 bunch	2 0	6 0

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 6	Oranges, p. 100	20 0	..
Apricots, per doz.	0 9	2 0	Peaches, per doz.	1 6	12 0
Damsons, per bushel	3 0	5 0	Pears, per doz.	1 0	4 0
Figs, per doz.	0 9	3 0	Pine-apples, p. lb.	3 0	6 0
Filberts, per lb.	0 5	0 9	Plums, per bushel	2 0	6 0
Grapes, per lb.	0 9	5 0	— per punnet	0 6	1 6
Lemons, per 100	8 0	12 0	Walnuts, p. bush.	16 0	..
Melons, each	2 0	5 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Leeks, per bunch	0 2	0 4
Aubergines, per doz.	4 0	..	Lettuces, per score	1 0	..
Beans, French, per bushel	6 0	..	Mint, per bundle	0 4	..
— Scarlet Run., do.	5 0	..	Mushrooms, per pott.	1 0	2 0
Beet, per doz.	1 0	2 0	Onions, young, bun.	0 4	0 6
Cabbages, per doz.	1 0	2 0	Parsley, per bunch	0 4	..
Carrots, do.	0 6	..	Peas, per quart	10	1 0
Cauliflowers, p. doz.	2 0	..	Radishes, per bunch.	0 2	0 4
Celery, per bundle	1 6	2 0	— Spanish, doz.	1 0	..
Cucumbers, each	0 3	0 9	Shallots, per lb.	0 3	..
Endive, per doz.	1 0	2 0	Tomatos, per doz.	1 0	2 0
Herbs, per bunch	0 2	0 4	Turnips, per bundle.	0 8	..
Horse Radish, p. bun.	3 0	5 0	Veg. Marrows, doz.	1 0	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

SEEDS.

LONDON: *Sept.* 9.—We have no striking feature of interest to report this week concerning the agricultural seed trade. In Clover seeds there is scarcely anything doing, and what little there is is on account of export orders. With regard to the American crop of red seed our advices from New York confirm previous reports as to the probable shortness of the yield, and the higher range of values which is consequently anticipated. Trifolium is in improved request, and the tendency of prices is upwards. Trefoils remain quiet but firm. For winter Tares there is an eager inquiry, and the supply being remarkably small very long prices are demanded. Most of the samples are much shrivelled, and also poor in colour. For the season a fair supply of new English white Mustard seed is now on offer, but the holders and manufacturers have not yet come to terms. Rape seed meets a slow sale. Several parcels of new English Canary seed having now arrived on our market, quotations since this day week exhibit a considerable fall. Winter Barley, Oats, and Rye move off pretty freely at unaltered currencies. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday there was a somewhat increased supply of new English Wheat on offer, fine dry parcels being decidedly scarce. For produce of fine quality there was a steady demand at full prices, but inferior descriptions sold slowly at late rates. For good and fine foreign quotations ruled firm, but inferior met with a slow sale on former terms. Barley was rather quiet at former prices. Malt sold slowly at late rates. Oats were quiet on former terms. Beans were without material alteration. There was a moderate sale for flour at previous rates.—On Wednesday choice qualities of English Wheat were held at full prices; but otherwise the trade was slow. Foreign Wheat of good and fine quality was in fair demand at full quotations, while inferior qualities met with a slow sale on former terms. Little business was done in malting Barley, and for grinding descriptions the trade was quiet. Malt sold slowly at late rates. Oats were at about Monday's currency. Beans and Peas were steady in value. For flour the trade was quiet at late rates.—Average prices of corn for the week ending Sept. 4:—Wheat, 49*s.* 3*d.*; Barley, 35*s.*; Oats, 30*s.* For the corresponding week last year:—Wheat, 49*s.* 9*d.*; Barley, 44*s.*; Oats 29*s.* 2*d.*

CATTLE.

There was a deficiency of choice quality beasts at the Metropolitan Market on Monday; trade was dull, but prices could not be quoted lower. For English sheep prices were unaltered. Lambs are nearly out of season, and only a few choicest were saleable. Choice calves were in demand at fully late rates. Quotations:—Beasts, 4*s.* 8*d.* to 5*s.*, and 5*s.* 8*d.* to 6*s.* 4*d.*; calves, 4*s.* 4*d.* to 5*s.* 10*d.*; sheep, 5*s.* 8*d.* to 6*s.*, and 6*s.* 8*d.* to 7*s.* 2*d.*; lambs, 5*s.* 8*d.* to 7*s.*; and pigs, 4*s.* 6*d.* to 5*s.* 6*d.*—On Thursday there was a slow trade in beasts, consequently prices gave way. Sheep were also lower on the average, but choice qualities were cleared off. Lambs went at about the same figure as sheep, and calves were lower. For milch cows trade was very dull.

HAY.

From Whitechapel we learn that a fair supply of hay and straw has been on offer, the demand steady, and prices well supported. Prime Clover, 100*s.* to 156*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 150*s.*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 48*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 140*s.* to 155*s.*; inferior, 90*s.* to 126*s.*; superior Clover, 150*s.* to 160*s.*; inferior, 110*s.* to 130*s.*; and straw, 46*s.* to 52*s.* per load.

POTATOS.

The Borough and Spitalfields markets reports state that arrivals of home-grown Potatos are on a liberal scale, and a steady business is in progress at the following prices:—Regents, 65*s.* to 95*s.*; kidneys, 86*s.* to 110*s.*; and Victorias, 80*s.* to 100*s.* per ton.—There were no imports of importance of foreign Potatos into London last week.

COALS.

In the market on Monday the prices of best house coals remained without alteration, but "seconds" slightly improved. The report for Wednesday is to the effect that prices were without alteration.

FOR SALE, rich TURF MOULD, old and rotten. Put on South-Eastern Railway trucks. Apply W. THOMPSON, Caterham Valley, Surrey.

COCOA-NUT FIBRE REFUSE (newly made), 20 bushels, 6*s.* 8*d.*; 20*s.* per 100 bushels, 45*s.* per 300 bushels. Larger quantities contracted for. J. STEVENS, Fibre Works, High Street, Battersea, S.E.

PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17*s.* per ton. W. TARRY, "Golden Farmer," Bagshot, Surrey.

To the Trade.

RAFFIA FIBRE.—We have received a large importation, in very fine quality. Price low. SANDER AND CO., Seed Growers, St. Albans.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.

BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.

FRESH SPHAGNUM, 10*s.* 6*d.* per sack.

WALKER AND CO., Farnborough Station, Hants.

THE LONDON MANURE COMPANY

(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—

WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass. Retail 1*s.* 6*d.* and 2*s.* 6*d.* per bottle, of the Sole Manufacturers, BELL AND SON, 10 and 11, Exchange Street, Norwich.

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1*s.* 6*d.* and 3*s.* per bottle—1*s.* 9*d.* and 3*s.* 4*d.* per bottle, if packed for travelling, of the Manufacturers, EWING AND CO., Norwich.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6*s.* Supplied to Seedsmen and Chemists.

Prepared by JOHN KILINER, Wortley, near Sheffield.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100*s.*; Petersburg, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

Russia Mat Merchants.

MARENDAZ AND FISHER, 9, James' Street, Covent Garden, W.C., IMPORTERS and MANUFACTURERS, have just received a large consignment of New ARCHANGEL MATS; also Heavy, Close-woven, and Light ST. PETERSBURG MATS. RAFFIA FIBRE, NETTING, CANVAS, TWINES, &c., always in stock.

TOBACCO PAPER (warranted the best), either manufactured or as taken from the machines. Also TOBACCO CLOTHS, JUICE, and WATER. All at very low prices.

WM. GREENHOUGH, Wholesale Tobacconist, 1, Nile Street, Leeds.

West Highland Cattle.

JAMES BRUCE, CATTLE AGENT, Ruthwell, Annan.

WELSH COALS.—The best Welsh Coals for Horticultural purposes. Smokeless and free from sulphur. Prices with analysis quoted, at any Railway Station or Wharf.

R. BENTOTE AND CO., 348, Kennington Green, London, S.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of CHARLES J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C. Retail of the principal Seedsmen. Prices on application.

Notice.

To GARDENERS and OTHERS.

SUPERIOR FLOWER-POTS are now being supplied, Wholesale and Retail, at the low price of 2*s.* per cast.

G. TAYLOR, Southborough Pottery, Hook Road, Surbiton.

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THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

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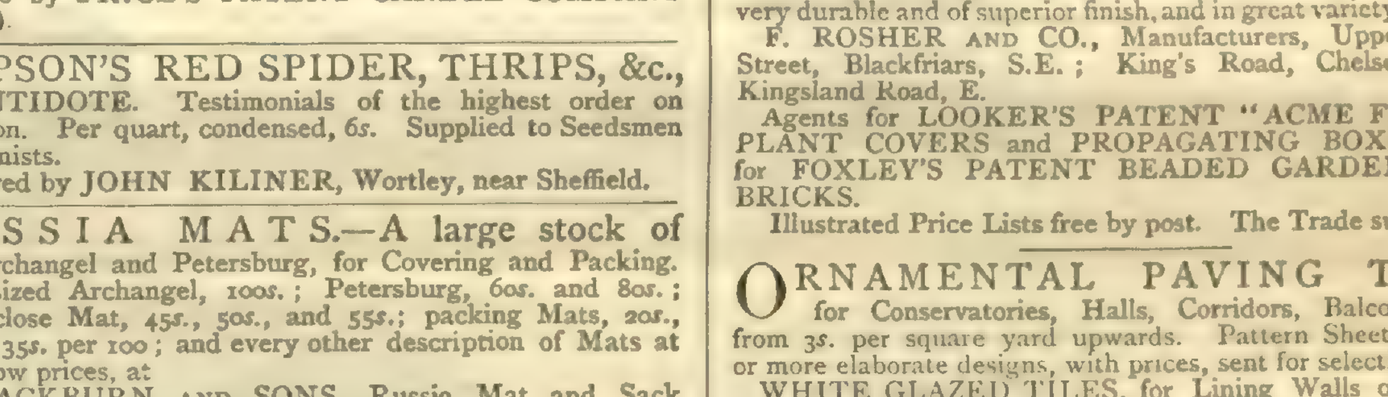

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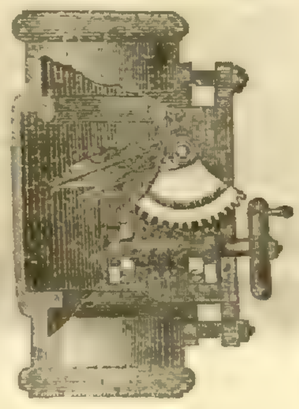

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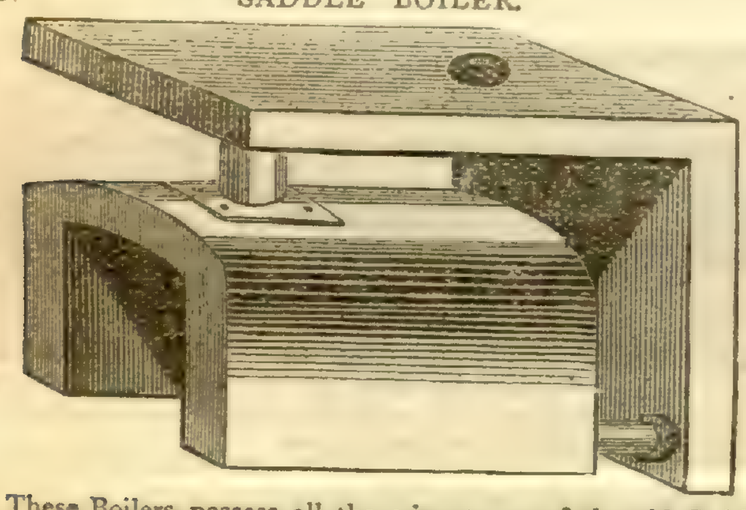

These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.
High.	Wide.	Long.	Feet.	£ s. d.
20 in.	18 in.	18 in.	300	7 0 0
20 ,,	18 ,,	24 ,,	400	8 0 0
20 ,,	18 ,,	30 ,,	500	9 0 0
24 ,,	24 ,,	24 ,,	700	12 0 0
24 ,,	24 ,,	30 ,,	850	14 0 0
24 ,,	24 ,,	36 ,,	1,000	16 0 0
24 ,,	24 ,,	48 ,,	1,400	20 0 0
28 ,,	28 ,,	60 ,,	1,800	25 0 0

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries, Balham Hill, S.W., May 29, 1873.*

"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

PRICE LISTS of HOT-WATER PIPES and CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

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When ordering Boilers please refer to the above advertisement.

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IN THE ISLE OF WIGHT.

MR. A. BLAKE, of Aberdeen, and 9, Norfolk Terrace, London, S W., is now carrying out some new arrangements for T. P. Gassiot, Esq., F.R.S., in his beautiful grounds at St. John's House, near Ryde, whereby it is anticipated that the whole of the splendid varieties of Tree and other Ferns from New Zealand, Australia, and other temperate regions will luxuriate as in their native dells, without the aid of any heating power, save what may be obtained from the sun.

Metallic Hothouse Builder to Her Majesty.
HENRY HOPE
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BOOKS of DESIGNS, 5s. each.

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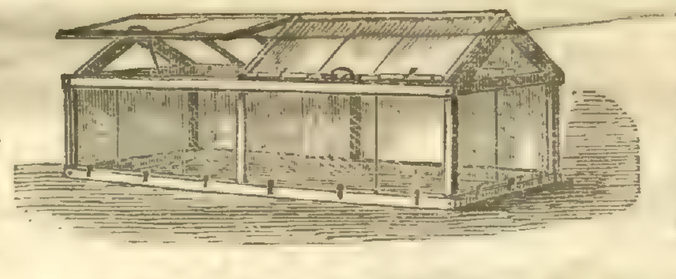
GLAMORGAN WORKS, SHEFFIELD.

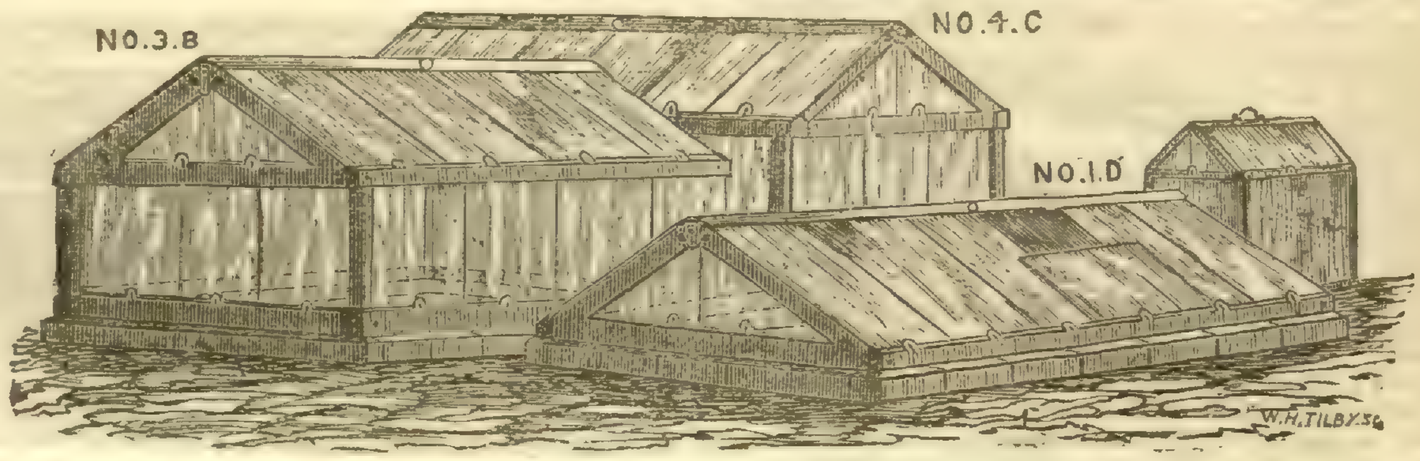
HORLEY'S PATENT ECONOMIC GARDEN FRAME,

For Forcing and Protection of Plants, from 12s. 6d.

The Economic Garden Frame took a Special Prize, offered for garden structures, at the Spalding Flower Show, June 26, 1873.



The late Mr. Glenny, in his *Garden Almanac* for 1873, has, "Horley's Patent Plant Frames are really novel and useful. They are model greenhouses, 4 feet wide, and any length, with thick sliding glass, and may be used on the ground, or raised any height with a few courses of bricks, and, withal, are very cheap."



In use at the Royal Horticultural Society's Gardens, South Kensington, and were exhibited at the Society's Great Show at Birmingham, in June, 1872. The above engraving is from a photograph taken at the Birmingham Show, and represents a portion of the patentee's exhibit there.

The following unsolicited and recent Testimonials are from the many received by the Messrs. HORLEY from their Patrons in reference to their Patent Portable Structures and method of Dry Glazing:—

"Higham Ferrars, July 14, 1875.—Sirs: I enclose Post Office Order for the amount of your account for Garden Frame and Box. I like the appearance of it very much."

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"Memorandum from Purcell & Company, 124, St. Patrick Street, and Lavitt's Quay, Cork (Enclosures), July 23, 1875, to Messrs. M. E. & E. Horley, Toddington.—Gentlemen: We are much pleased with the Greenhouse you made for us. It is a good workmanlike job, and your arrangement of dry glazing is simple and effective. The cost of the house is very much less than those made on the old system, besides being more easily put up.—Yours very truly, PURCELL & COMPANY."

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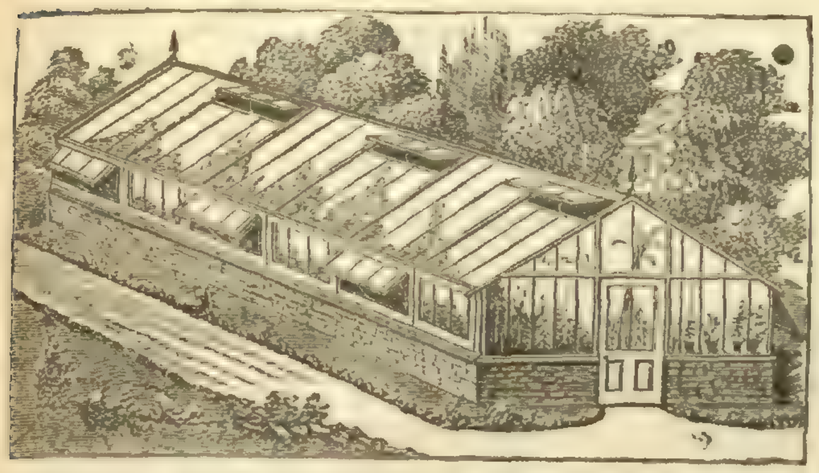
121, Bunhill Row, London, E.C.



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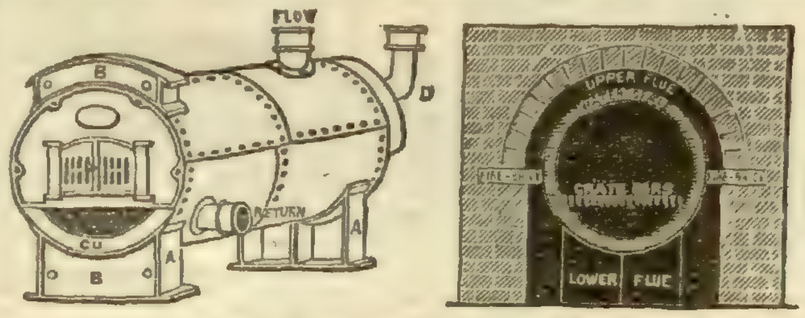

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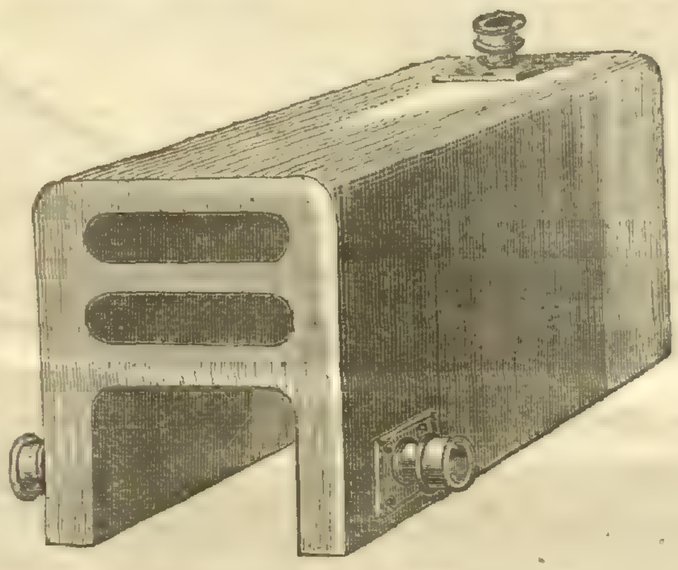

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A siding from the main line of the North-Eastern Railway being laid direct into the Works, W. R. & Co. are in a position to deliver their Glazed Structures *carriage paid to any station in Great Britain,* including risk of breakage.

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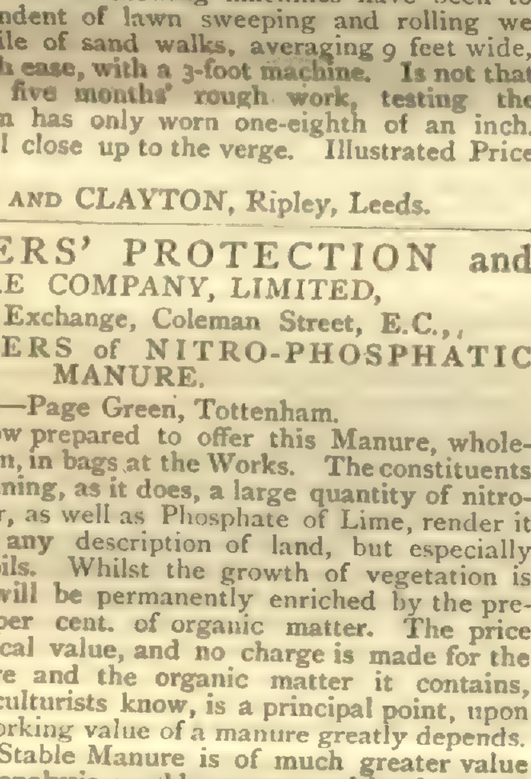

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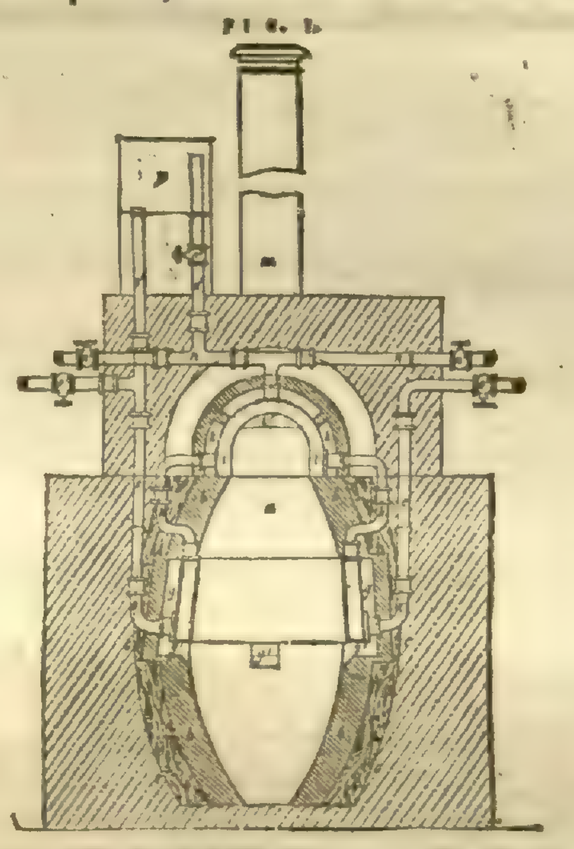

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Including postage to the United States, is **$ 6.30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents :— Messrs. B. K. BLISS AND SONS, Seed Merchants, 34, Barclay Street, New York; Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

ALEXANDRA PALACE.—AGAVE and CACTI HOUSE. The Peacock Collection of Agaves, Cacti, and Succulent Plants Now on View.

ALEXANDRA PALACE.—GREAT INTERNATIONAL POTATO SHOW, for the Encouragement of the Best Methods of Potato Culture and the Introduction and Diffusion of Improved Varieties, WEDNESDAY and THURSDAY, September 29 and 30. About £100 in Prizes.

THE INTERNATIONAL POTATO EXHIBITION will be held at the ALEXANDRA PALACE, Muswell Hill, on WEDNESDAY and THURSDAY, September 29 and 30, under the Presidency of Mr. Alderman and Sheriff Ellis, when Prizes exceeding £100 in value will be awarded.

ENTRIES CLOSE, SEPTEMBER 20.

The Schedule is now ready, and may be had on application to Mr. P. McKINLAY, Hon. Sec., 23, Upper Thames Street, London, E.C.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.

EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Dwarf Roses.

SEE CHARLES NOBLE'S ADVERTISEMENT, *Gardeners' Chronicle*, AUGUST 14 and 28, and SEPTEMBER 11 and 25.

Roses, Roses.

DOWNIE AND LAIRD, Royal Winter Gardens, West Coates, Edinburgh, will be prepared on and after the 15th November to supply the finest Roses in cultivation at 9*s.* per dozen, their own selection.

To the Trade.

ROSES.—STANDARDS—Including Hybrid Perpetuals, Teas, with splendid plants of Maréchal Niel, Noisettes, Bourbons, &c., per 100, 80*s.*

HALF STANDARDS—Including as above, per 100, 60*s.*

DWARFS—Principally Hybrid Perpetuals, per 100, 40*s.*

WILLIAM BRYANT is now booking Orders for the above; all the plants are vigorous and healthy.

The Nursery, Rugby.

Tulip Tree.

A full description of this beautiful tree is given at p. 273 of the *Gardeners' Chronicle.*

H. LANE AND SON beg to offer fine plants, from 5 feet to 12 feet high. Intending Planters should see them. CATALOGUES free.

The Nurseries, Great Berkhampstead, Herts.

DOWNIE AND LAIRD have to intimate that their splendid collection of HOLLYHOCKS is now in full Bloom. Inspection invited. No disease.

Royal Winter Gardens, Edinburgh.

Spring Flowers.

THOMAS S. WARE'S new A. B. C. BULB GUIDE (now ready, free on application) contains a selection of all the best Spring-flowering Perennials and Bulbs in cultivation.

Hale Farm Nursery, Tottenham, London.

N.B.—See Cheap Collections of the above.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, have now and will have, a large quantity of WHITE CAMELLIA BLOOMS to Dispose of.

FOR SALE, large SPECIMEN PLANTS, established in tubs and pots, varying in height up to 9 feet:—Four Azaleas, various; four Camellias, various; three Stephenotis floribunda; four Gardenia floribunda; two Hoya carnosa; and one Scarlet Rhododendron.

Mr. WM. HOWITT, Florist, Ilford, Essex.

Green Walls.

THOS. S. WARE is now offering a quantity of Lombardy POPLARS, 10 to 25 feet, perfect specimens, feathered to the ground. Planted rather thick they make the most beautiful green screens possible. An inspection solicited.

Hale Farm Nurseries, Tottenham, London.

To the Trade Only.

SPIRÆA JAPONICA, 25*s.* per 100, £11 per 1000, for cash.

H. B. SMITH, Ealing Dean Nursery, Ealing, W.

Lily of the Valley (Convallaria majalis).

WIDOW G. CLAESSENS-VANHOOREBEECK, Nurserywoman and Seedswoman, Termonde, Belgium, offers:—

15,000 plants, 3-yr. old, at	.. ..	£ 3 15*s.*
100,000 ,, ,,	.. ..	24 0

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.

Carlton, Tasmania.

New Plant—Kniphofia Macowani.

C. GREEN begs to announce that he is now sending out this very desirable hardy novelty. Strong established plants in pots at 5*s.* each. See *Gardeners' Chronicle*, August 25, 1875. It has received a First-class Certificate from the Royal Horticultural Society.

Botanical Nursery, Holmesdale Road, Reigate.

Bouvardias.

MESSRS. JOHN STANDISH AND CO.'S Stock of BOUVARDIAS, consisting of all the best varieties, is this season the finest they ever had to offer. Magnificent plants at 12*s.* to 18*s.* per dozen. Prices to the Trade on application.

Royal Nurseries, Ascot, Berks.

SPECIMEN FERNS for Sale.—Davallia Mooreana, 8 feet diameter; Davallia elegans, 5 feet diameter, 4 feet high; Adiantum Farleyense, 5 feet diameter; Asplenium Belangerii, 4 feet diameter. All in good healthy condition. The GARDENER, Henbury Hill, Bristol.

TO DISPOSE OF, MAIDENHAIR FERNS (good plants), DRACÆNAS, DENDROBIUM NOBILE, &c., in EXCHANGE for some useful WINTER-FLOWERING PLANTS.

THOS. SIMCOE, The Gardens, Bedford Hill House, Balham, Surrey, S.W.

FOR SALE, about one dozen very healthy ORANGE TREES. Apply GARDENER, Hartrow Manor, Taunton.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.

Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

B. MALLER begs to inform the Trade and the Public in general that his extensive NURSERY STOCK, consisting of Fruit, Forest, and Ornamental Trees, Standard and Dwarf Roses, Evergreen and Deciduous Shrubs, is in the finest possible condition. An inspection is solicited.

The Nurseries, Lee and Lewisham, S.E.

Fruit Tree Culture in Pots under Glass.

THE ORCHARD-HOUSE CATALOGUE is now ready, and will be sent Post Free on application.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Winter and Spring Flowers.—Now Ready

CARTER'S Illustrated CATALOGUE of HYACINTHS, TULIPS, CROCUSES, &c., with all other popular Bulbs and Plants for Autumn Cultivating. It contains practical hints of great value to amateurs. Gratis and post free on application.

CARTER'S, The Queen's Seedsmen, 237 and 238, High Holborn, London, W.C.

Bulbs of All Kinds.

THE NEW PLANT AND BULB COMPANY beg to announce that their AUTUMN CATALOGUE is now ready, and will be sent free on application.

Lion Walk, Colchester.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.

Highgate Nurseries, London, N.

HYACINTHS, TULIPS, CROCUS, GLADIOLI, LILIES, IRIS, NARCISSUS, COLCHICUMS, HELLEBORES, PÆONIES, &c.

Our English CATALOGUE of the above for 1875 is now ready, and will, as usual, be sent post-free to all applicants.

ANT. ROOZEN AND SON (late Ant. Roozen), Overveen, near Haarlem, Holland.

To the Trade.

DUTCH BULBS at Dutch prices.

SANDER AND CO., Seed Growers, St. Albans.

Dutch Flower Roots.

JAMES DICKSON AND SONS will be happy to send, post free on application, Priced CATALOGUE of their large and very superior stock of DUTCH and other FLOWERING BULBS.

108, Eastgate Street, Chester.

Bulbs, Tubers, and Perennials.

THOMAS S. WARE'S A. B. C. Descriptive BULB CATALOGUE is now ready, free on application, containing one of the largest collections of Bulbs and Tubers in cultivation, to which is added a selection of Spring Flowering and other Perennials for Autumn Planting.

Hale Farm Nurseries, Tottenham, London.

Dutch Bulbs.

WILLIAM FROMOW has received his annual supply of the above from the best Continental Growers, in very fine condition.

AUTUMN CATALOGUE of BULBS, ROSES, and GENERAL NURSERY STOCK, now ready.

Sutton Court Nursery and Seed Establishment, Turnham Green, London, W.

Imported Flower Roots.

CHARLES TURNER has received his first Consignment of the above. The Bulbs are very fine and sound.

Descriptive CATALOGUES can be had on application.

The Royal Nurseries, Slough.

CENTAUREA RAGUSINA, seedlings, ready for potting, 1*s.* 6*d.* per dozen, 9*s.* per 100. VESUVIUS GERANIUM, cuttings, strong, 3*s.* 6*d.* per 100, for cash with order.

Mr. MARRIOTT, Mellish Road, Walsall.

WM. POTTEN can still supply select GERANIUMS, COLEUS, and FUCHSIAS, as advertised in *Gardeners' Chronicle*, September 11.

Camden Nursery, Sissinghurst, Staplehurst, Kent.

Pelargoniums for the Million.

JAMES HOLDER can supply Show, French and Fancy Pelargoniums, in 50 or 100 varieties, strong healthy plants, at 25*s.* per 100, during September and October. Also strong cut-back plants for immediate forcing, early sorts, at 9*s.* per dozen, 60*s.* per 100, package included. Terms cash.

CATALOGUES on application.

Crown Nurseries, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

Splendid New Apple,

LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, next autumn 3*s.* 6*d.* each, 21*s.* for seven; 2-yr. plants, 5*s.* to 7*s.* 6*d.* each.

GRAPE VINES.—A fine stock of Black Hamburgh and other popular sorts, including the new varieties—Venn's Black Muscat, Waltham Cross, and Duke of Buccleuch—in strong, well ripened Fruiting and Planting Canes. Prices on application to

FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

SALES BY AUCTION.

Odontoglossum Halli.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 28, at half-past 12 o'Clock precisely, an importation of the above rare and beautiful ODONTOGLOSSUM, many of the plants in splendid large masses, such as have never before been imported of this magnificent Orchid; they are in excellent condition.

On view the morning of Sale, and Catalogues had.

Imported and Semi-established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 28, at half-past 12 o'Clock precisely, an Importation from the United States of Colombia, including a quantity of the handsome BLETIA SHERRATTIANA, the scarlet-flowering AMARYLLIS PYRROCHROA, EPIDENDRUM SCEPTRUM, and a quantity of semi-established plants of ODONTOGLOSSUM ALEXANDRÆ, and various other Odontoglossums; also a number of good plants of PHALÆNOPSIS SCHILLERIANA, and P. GRANDIFLORA AUREA, ONCIDIUMS from Ecuador, and LÆLIAS ANCEPS, AUTUMNALIS, FURFURACEA, and various other ORCHIDS.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids, the Property of John Russel, Esq., of Mayfield, Falkirk.

MR. J. C. STEVENS has been favoured with instructions from John Russel, Esq., to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 30, and FRIDAY, October 1, at half-past 12 o'Clock precisely each day, his entire Collection of ORCHIDS, which has been formed during the last twelve years regardless of expense, and comprising many of the finest plants and varieties in existence. Amongst others grand plants will be found Aerides Veitchii, Fieldingii, quinquevulnerum, &c.; splendid specimen Burlingtonias, rare Angræcums, including Ellisii, sesquipedale, &c., Anguloa eburnea (true), Cattleya amethystoglossa, Dawsoni, Dowiana, Mendelii, Wagneri, exoniensis, marginata, grandiflora, labiata, and the finest forms of Trianæ; Cypripedium Dayanum, caudatum, superbum, Rollisson's var., &c.; Dendrobium Falconeri, Wardianum, bigibbum, &c.; Lælia anceps, Dawsoni, Turneri, Wolstenholmiæ, and others; Masdevallia Lindeni and Harryana, Odontoglossums in great variety, including nævium majus, Day's var., the rare nevadense, blooming plants of coronarium, Trichopilia crispa marginata; grand Saccolabiums, including the whole of S. Russeliana, S. Holdfordiana (true), &c.; fine Vandas, including the rare V. Russeliana, V. suavis, Cathcarti, Dennisoniana, &c., all in the finest possible health.

Catalogues are preparing, and will be ready a fortnight before the Sale.

Auction Rooms, 38, King Street, Covent Garden, London, W.C.

Spring Flowering Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, Importations of first-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, GLADIOLI, and other BULBS, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

Dutch Bulbs.—Extensive Consignment of the finest named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, CYCLAMENS, &c., for absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY next, at 11 for half-past 11 o'Clock precisely, about 800 lots of the above, the whole being of a very superior quality.

On view morning of Sale. Catalogues had at the Mart, and of the Auctioneers, 98, Gracechurch Street, E.C.

Lee, S.E.

FIFTH ANNUAL SALE, of great importance to the Trade.

MESSRS. PROTHEROE AND MORRIS have been instructed by Mr. B. Maller to SELL by AUCTION, without reserve, on the Premises, the Burnt Ash Nursery, adjoining the Lee Railway Station, Kent, on WEDNESDAY, September 22, at 11 for 12 o'Clock to the minute, about 650 Lots of choice GREENHOUSE and STOVE PLANTS, including 15,000 winter-blooming Heaths of remarkably clean growth, full of bloom-buds, and fit for present sale; also 30,000 young Succession Heaths, full of promise, and lotted largely to suit the Trade; 1000 Cyclamens, handsome specimen Adiantum cuneatum, berried Solanums, 150 Dracænas, five Standard Laurustinus, 100 Gardenias, 100 fine Camellias, 250 Azaleas, Veronica Blue Gem, 200 Epiphyllums, numerous Specimen Ornamental-foliaged Plants, Palms, Tree Ferns, Magnolia grandiflora, large quantity of Fruiting Vines, Tea and other Roses in pots, Acacias, Poinsettias, Primulas, Begonias, a Tubular Boiler, &c.

May be viewed any day prior to the Sale.

Kingston-on-Thames.—Clearance Sale.

By order of the Executors of the late J. G. Bruce.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executors of the late Mr. J. G. Bruce to SELL by AUCTION, on the Premises, Bruce's Nursery, Richmond Road, Kingston-on-Thames, on THURSDAY, September 23, at 11 for 12 o'Clock punctually, without reserve (Messrs. P. & M. having Sold the Land to the Kingston Gas Company), about 20,000 GREENHOUSE PLANTS, including many thousands of winter-blooming and other Heaths (lotted to suit the Trade and others), 500 choice Double Camellias, 5000 Tricolor and other Geraniums, 500 Gardenia radicans and intermedia, 1000 Solanum hybridum, 400 Vallotas, Ficus, Stephanotis, 1800 Exotic and Hardy Ferns, 2000 Euonymus, and numerous other plants; also a newly-erected Span-roof Greenhouse, 54 feet by 12; Hot-water Piping, a Weeks' Tubular Boiler, Frames, Iron Roller, Ladders, and other effects.

May be viewed two days prior to the Sale.

Tooting, S.W.

Important to the Trade and Others.

GREAT SALE of Winter-blooming HEATHS and other well-grown and attractive Stock.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Messrs. W. Rollisson & Sons to SELL the above by AUCTION, on the Premises, The Exotic Nursery, Tooting, S.W., on WEDNESDAY and THURSDAY, September 29 and 30.

Full particulars will appear next week.

West Dulwich, S.E.

IMPORTANT SALE of 15,000 Choice STOVE and GREENHOUSE PLANTS, in fine thriving condition, comprising a considerable number of fine Ornamental and Variegated Dracænas, selected Palms, Exotic Ferns, Gardenias, Abutilon Boule de Niege, Yuccas of sorts, many thousands of well-grown winter-blooming and Hard-wooded Heaths, worthy the attention of the Trade, including Hyemalis, ventricosa, Willmoreana, &c.; also fine specimen and other Azaleas, beautifully-grown Camellias, 2 to 4 feet, set with flower-buds, Flowering and Ornamental Vines, Figs, Solanums in berry, fine Epacris in considerable quantities, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. F. & A. Smith to SELL the above by AUCTION, without reserve, on the Premises, the Nursery, West Dulwich, S.E., on FRIDAY, September 24, at 11 for 12 o'clock precisely.

May be viewed the day prior to the Sale.

Stoke Newington Green, N.

CLEARANCE SALE, by order of the Executors of the late Mr. John West, deceased.

MESSRS. PROTHEROE AND MORRIS have received instructions to SELL by AUCTION, without reserve, on the Premises, the Walnut Tree Nursery, Green Lanes, Stoke Newington Green, Middlesex, on TUESDAY, September 28, at 11 for 12 o'Clock precisely, the whole of the choice GREENHOUSE PLANTS, including 60 large Stock Plants of Ficus elastica, 200 Gardenias, 1000 Myrtles, 100 Dracæna terminalis, 400 Pteris, 700 Double Camellias, ranging all sizes (inclusive of six large Double Whites), numerous Trees and Shrubs; together with Seven GREENHOUSES, from 27 to 90 feet long; four Brick Pits, several Frames, a quantity of Bricks, 1400 feet of 2, 3, and 4-inch Hot-water Piping, eight Boilers of various sizes, a large quantity of Garden Pots, a Tumbril Cart, a Spring Cart, Water-cans, Lawn-mowers, Iron Rollers, a useful Cart Mare, &c.

May be viewed the day prior to the Sale.

Preliminary Notice of

FORTHCOMING SALES of NURSERY STOCK, &c., by PROTHEROE AND MORRIS.

OCTOBER 5 and 6.—BRANCH NURSERY, Upper Tooting, S.W. By order of Mr. Young. Sale of Surplus Nursery Stock, Camellias, &c.

OCTOBER 12, 13, and 14.—BRANCH NURSERY, Loughton. A large quantity of beautifully-grown Nursery Stock.

OCTOBER 18.—AUCTION MART, London, E.C. By order of E. L. Morris, Esq. A compact Leasehold Estate, comprising 5 acres of productive Orchard Land, well cropped; also two semi-detached Villa Residences. Lease 75 years unexpired, held at a moderate ground rent.

OCTOBER 19.—HALE FARM NURSERIES, Tottenham. By order of Mr. T. Ware. A large quantity of clean-grown Fruit Trees, Roses, and General Stock.

OCTOBER 19 to 22.—The NURSERY, Woking. By order of Mr. Jackman. A considerable quantity of beautifully-grown Nursery Stock, &c.

OCTOBER 20 and 21.—BRANCH NURSERY, Wallington. By order of Mr. Clark. The whole of the General Nursery Stock, the land being required for building purposes.

OCTOBER 21 and 22.—BALHAM, close to the Balham Station. By order of Mr. Edwards. A quantity of Nursery Stock.

OCTOBER 25 to 30.—SUNNINGDALE NURSERY, Bagshot. By order of Mr. C. Noble. An immense quantity of beautifully-grown Nursery Stock.

OCTOBER 27 and 28.—EXOTIC NURSERY, Tooting, S.W. By order of Mr. R. Parker. A considerable quantity of beautifully-grown Nursery Stock.

NOVEMBER 2, and following days.—At one of their BRANCH NURSERIES, Kingston-on-Thames. By order of Messrs. Jackson & Son. An extensive assortment of about 8 acres of fine Nursery Stock.

NOVEMBER 2 and 3.—NORTHGATE NURSERY, Chichester. By order of Mr. D. Scott. A large and rich assortment of clean-grown Nursery Stock.

NOVEMBER 9.—The HOME NURSERY, Atherstone. By order of Mr. H. Baker. A fine assortment of thriving Nursery Stock, adapted for immediate effect.

NOVEMBER 23 and following days.—ASCOT. By order of the Executors of the late Mr. John Standish, deceased. A very large quantity of Nursery Stock, Plants in pots, &c.

Date not yet fixed.—At one of his BRANCH NURSERIES, Brixton. By order of Mr. J. Peed. The whole of the valuable Nursery Stock, the land being required for building purposes.

Date not yet fixed.—The NURSERY, Dulwich. By order of Messrs. F. & A. Smith. A large quantity of Border Plants and General Nursery Stock.

Catalogues, when ready, of any of the above Sales may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, Essex.

WANTED, to RENT, on LEASE, a NURSERY GARDEN (about 1 acre), with Cottage, a few Pits, and Greenhouses.

T. JONES, Southend School, Catford, Kent.

TO BE SOLD, by Private Treaty, the GOLDEN CROSS NURSERIES, with Dwelling-house, long range of Glass-houses, Pits, &c. Delightfully situated near Stroud, Gloucester. To treat, apply to

Messrs. RESTALL AND FORD, Auctioneers, Stroud.

Freehold, 28 miles S.W.

FOR SALE, a beautiful ESTATE of 250 acres, with elegant Swiss Villa and capital Stabling; gravelly soil, fine views, and nearly a mile of frontage on the London Road; free from Tithe and Land Tax; two-thirds on mortgage. A Plot of about 50 acres, planted with fine evergreens, fruit, and other trees would be Sold separately; also a Plot of 25 acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot.

Six Thousand Pounds.

To Capitalists, Nurserymen, Gardeners, and Others.

In consequence of the death of the senior partner of a very old-established and well-known Nursery Business, the

GOODWILL and LIVE and DEAD STOCK-IN-TRADE, FURNITURE, and EFFECTS, to be SOLD. Possession will be given on completion of purchase. A private Gentleman with a Foreman could profitably carry it on. Letters addressed

Z., Mr. Anderson, Law Stationer, Southampton Buildings, Chancery Lane, W.C.

FOR DISPOSAL, a small, first-class, old-established NURSERY, FLORIST, and SEED BUSINESS, in full working order, doing a sound and profitable trade. All, or a portion only of the stock need be taken, as desired. Part of the purchase-money can remain on security, if wished. To one or two wishing to start in business a more favourable opportunity seldom offers. Satisfactory reasons given why it is offered. Full particulars of

J. W., Messrs. Flanagan & Son, 98, Cheapside, London, E.C.

TO BE LET, a FARM in Bedfordshire—193 acres of Land, with Homestead. The land is tithe-free, and the tenant has the right of sporting.

For particulars and orders to view, apply, SMITH AND ROBINSON, Estate Agents, Hemel Hempstead, Herts.

Fulham, near the Station.

TO BE LET, MARKET GARDEN GROUND, 22 acres. Apply to

Messrs. RICE BROTHERS, Auctioneers, 2, Adelaide Place, London Bridge, City, E.C.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

TO BE LET on Lease, at Michaelmas next, a very desirable SMALL FARM, of about 70 acres of sound Corn Land, in the best corn growing district of Essex.

Particulars of Mr. WOODTHORPE, Glazenwood Nursery, Bradwell, Braintree, Essex.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens, sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.

87, Bishopsgate Street Without, E.C.

GOVERNMENT EMIGRATION.

SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For passages and further information, apply to the AGENT-GENERAL, 3, Westminster Chambers, Victoria Street, S.W.

ROYAL SCHOOL of MINES.

DEPARTMENT of SCIENCE and ART.

During the Twenty-fifth Session, 1875-76, which will commence on October 1, the following COURSES of LECTURES and PRACTICAL DEMONSTRATIONS will be given:—

1. Chemistry. By E. Frankland, Ph.D., F.R.S.
2. Metallurgy. By John Percy, M.D., F.R.S.
3. Natural History. By T. H. Huxley, LL.D., F.R.S.
4. Mineralogy. } By Warington W. Smyth, M.A., F.R.S.,
5. Mining. } *Chairman.*
6. Geology. By A. C. Ramsay, LL.D., F.R.S.
7. Applied Mechanics. By T. M. Goodeve, M.A.
8. Physics. By Frederick Guthrie, Ph.D., F.R.S.
9. Mechanical Drawing. By Rev. J. H. Edgar, M.A.

The Lecture Fees for Students desirous of becoming Associates are £30 in one sum, on entrance, or two annual payments of £20, exclusive of the Laboratories.

Tickets to separate Courses of Lectures are issued at £10 and £4 each.

Officers in the Queen's Service, Her Majesty's Consuls, Acting Mining Agents and Managers may obtain Tickets at reduced prices.

Science Teachers are also admitted to the Lectures at reduced fees.

For a Prospectus and information apply to the Registrar, Royal School of Mines, Jermyn Street, London, S.W.

TRENHAM REEKS, Registrar.

THE RIVERS' PROTECTION and MANURE COMPANY, LIMITED,

Offices—Wool Exchange, Coleman Street, E.C.,

MANUFACTURERS of NITRO-PHOSPHATIC MANURE.

Works—Page Green, Tottenham.

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HORTICULTURE IN ALL ITS BRANCHES.

THE PINE-APPLE NURSERY COMPANY,

MAIDA VALE, EDGWARE ROAD, LONDON, W.,

NURSERYMEN AND SEEDSMEN,

ARCHITECTS AND ENGINEERS.

This Company possess inexhaustible resources for the supply of ORNAMENTAL TREES and SHRUBS, FRUIT TREES, GRAPE VINES, HERBACEOUS and ALPINE PLANTS, ROSES, STOVE and GREENHOUSE PLANTS, &c., in every size and variety.

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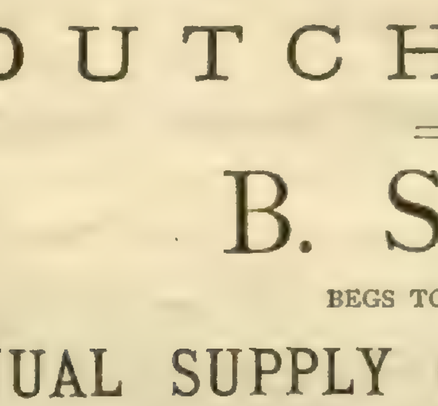

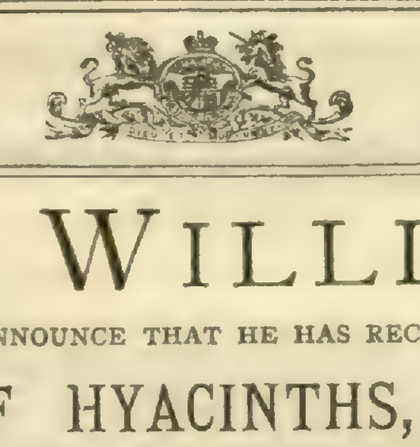

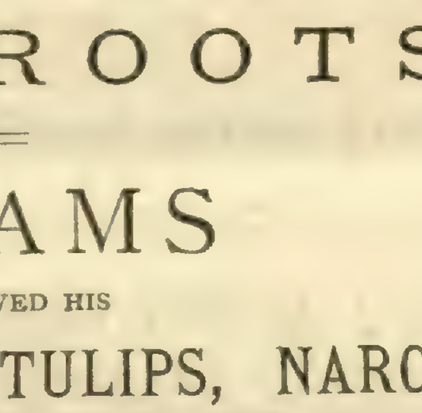

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LACHENALIA PENDULA, 5*s.* per dozen.
MILLA UNIFLORA VIOLACEA, one of the most desirable of all spring flowering bulbs, strong roots, 5*s.* per dozen.

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The above can be had direct from
CHARLES BURLEY, Paradise Nursery, Brentwood.

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FRUIT TREES, of all sizes.
FOREST and ORNAMENTAL TREES, all varieties.
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Collections of all varieties for the garden, very strong.
CHESTNUTS, from 1-yr. to 2-yr., for plantations.
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Prices very moderate, according to quantity.

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EPIPHYLLUMS, grafted, stout, strong stuff, clean and healthy, the best varieties only, 84*s.* per 100. Pot ROSES, Tea-scented varieties, extra strong, 105*s.* per 100.
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W. AND J. BROWN are now sending out strong plants of Mr. Laxton's firm-fleshed and fine-flavoured NEW STRAWBERRIES—Traveller (First-class Certificate, Royal Horticultural Society), £1 10*s.* per 100; and Exquisite, £1 per 100. Also NEW DOUBLE PELARGONIUMS—Emily Laxton (First-class Certificate, Royal Horticultural Society), Guiding Star and Illuminator, £1 the set. Trade terms on application.
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Magnificent New Shrub, with Persistent Foliage.

(Figured and described in *Revue Horticole*, May 1, 1875.)

HYPERICUM PATULUM (Thunberg).—M. Carrière, in describing this beautiful plant, says:—"It is our conviction that this species is destined to make a sensation in the horticultural world. In it, in effect, are found united all the conditions sought for in a plant—robust growth, hardiness, abundant and long-continued blooming [commencing in June, and continuing without interruption until frost sets in], fine persistent foliage, flowers large and numerous," &c.

It was introduced from Japan by M. OUDIN AINÉ, Nurseryman, Lisieux (Calvados), and will be sent out on the 30th September instant. A part of the stock will be reserved for such as make application previous to that date.

The CIRCULAR in which M. Oudin announces the issue of the above fine plant contains also an enumeration of many other novelties in outdoor plants to be sent out at the same time, and will be forwarded free on application.

ROSES, 30,000 Dwarf, on the Manetti stock, at 40*s.* per 100, £16 10*s.* per 1000. The above consists of all the finest kinds, in splendid plants, such as La France, Baroness Rothschild, Alfred Colomb, Francois Lacharme, Mons. Etienne Levet, Countess of Oxford, &c. Also some thousands of Specimen Roses, in 8-inch pots, such plants as H. M. was awarded all the First Prizes for at the Great Yorkshire *Gala* at York and the Leeds Horticultural Society for years past—the only places he has exhibited them at. Price 3*s.* 6*d.* each, 36*s.* per dozen, or cheaper in quantity. The above are well adapted to force, and would make a great display, or for exhibiting; also Tea-scented Roses, in 6-inch pots, very fine, at 24*s.* per dozen. The Roses in pots can be supplied any time, the Dwarf Roses in the open ground as soon as they will remove.

Also 30,000 GOOSEBERRIES, in all the most useful kinds. Price 10*s.* per 100, or 80*s.* per 1000.

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	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 ,,
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 ,,
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 ,,
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POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 ,,
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ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots.

They are without doubt the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.
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NEW ROSES,

Obtained from seedlings of the Establishment, and which will appear in Trade for the first time on November 1, 1875. These new Roses carried the 1st Prizes at the Lyons, Geneva, and Bourg Exhibitions.

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DUCHESS of VALLOMBROSA.—Very vigorous plant; full; soft rosy hue, with vivid centre, shading into rosy white. Seedling of Jules Margottin, extra variety. A Coloured Plate of this splendid flower will be sent free to every purchaser. Price, 25 francs (£1) each.

GUSTAVE REVILLIOD.—Very vigorous plant; flower large, full; beautiful Pæony Rose. First-rate plant. Price, 25 francs (£1) each.

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MADELEINE CHOMER.—Vigorous plant; flower, middle-sized or small, full, well made, carnation-white; splendid variety.

N.B.—All who take four plants of the same variety will receive a fifth gratuitously.

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Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 28, at half-past 12 o'Clock precisely, an Importation of the above rare and beautiful ODONTOGLOSSUM, many of the plants in splendid large masses; indeed, without seeing them, it is difficult to imagine such extraordinary plants of this rare Orchid arriving in so excellent a condition.

On view the morning of Sale, and Catalogues had.

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FOR LAST SATURDAY, SEPTEMBER 11, CONTAINS

NOTES OF THE FOLLOWING PLACES OF HORTICULTURAL INTEREST

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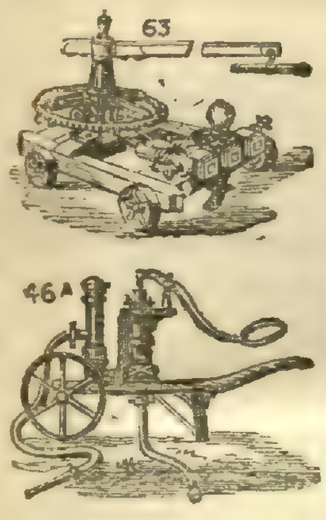

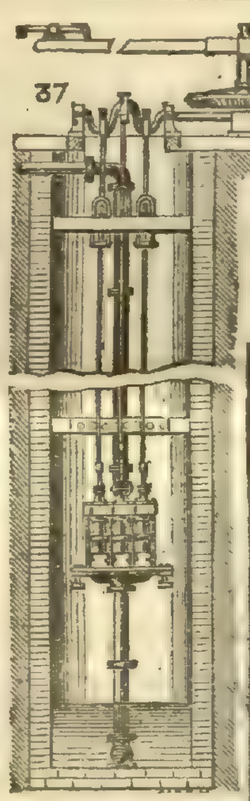

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This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

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Boilers and Heating Apparatus of the best description.

HOT-WATER PIPES and CONNECTIONS and a variety of the best BOILERS always kept in Stock.

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Camellias and Indian Azaleas with Buds.

M. A. VAN GEERT, NURSERYMAN, Ghent, begs to intimate that he has now on hand and ready for delivery, the finest lot of budded CAMELLIAS and INDIAN AZALEAS that has ever been met with.

CAMELLIAS, at from £7, £8, £10, to £12 per 100.
larger plants, 5s., 7s. 6d., to 10s. 6d. each.
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GHENT AZALEAS, with buds, splendid, £6 to £8 per 100.
JAPANESE AZALEA MOLLIS, new, with and without buds, 42s. per dozen or £15 per 100. Strong plants, covered with buds, 5s. to 7s. 6d. each.

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THE KNAP HILL CYPRESS,
Cupressus Lawsoniana erecta viridis.

ANTHONY WATERER

Will be happy to supply beautiful specimens of this famous hardy Evergreen, at the following prices :—

3 feet high, 2½ feet in circumference, 30s. per doz.
4 feet high, 3 to 4 feet do., 42s. to 60s. per doz.
5 feet high, 4, 5 and 6 ft. do., 10s. 6d., 15s. to 21s. ea.
6 and 7 feet high, 6 to 7 and 8 ft. do., 21s. to 31s. 6d. ea.

No cuttings have been taken from the plants here referred to, which are simply perfect in growth and splendidly rooted.

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Evergreen Shrubs for Present Planting.
Rhododendrons, Ivies in Pots, &c., &c.

Hothouse, Greenhouse, and Bedding-out Plants in great variety.

TODEA SUPERBA — several hundreds, among which some magnificent specimens, perhaps the finest ever imported.

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NEW RHODODENDRONS.

BIANCHI.—Bright salmon-pink, changing to nearly white, large blotch of brown spots on the upper petals; splendid truss; foliage large and good.

CAPTAIN WEBB.—Rich deep lake, black blotch on the upper petals; truss large and good; a really fine distinct variety, and one of the best and darkest yet offered.

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MRS. GEORGE BROWN.—Bright rosy pink, bordered, centre nearly white, with chocolate blotch on upper petal, surmounted by a white spot; stamens white; foliage and habit good; a very pleasing and distinct variety.

SALVINI.—Purplish rose, shaded, well marked with chocolate spots on upper petal, spots of same colour regularly disposed over the other part of the flower, which is large and well formed; a fine free blooming variety, with handsome foliage and dwarf compact habit.

WILLIAM MILTON.—Fine dark crimson, shaded with distinct black blotch on upper petal; truss large and good; a fine free-growing variety, with dark green lanceolate foliage.

☞ The above Rhododendrons having been thoroughly tested for several seasons can be confidently recommended to purchasers as really distinct and hardy late-blooming varieties, combining all those qualities most desirable in this attractive class of plants, viz., vigour of constitution, good habit and foliage, and prolific blooming. They are now offered in good plants :—

1st size, nice plants .. .. £4 4s. the set.
2d size, bushy, about 1½ foot .. £6 6s. the set.
3d size, bushy, 1½ to 2 feet .. £8 8s. the set.

The usual discount to the Trade.

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SATURDAY, SEPTEMBER 18, 1875.

THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE Royal Caledonian Horticultural Society, under whose auspices the grand fruit show has been this week held in Edinburgh, dates its origin from the year 1809, when a number of individuals associated themselves to promote the improvement of horticulture among practical men, and encourage a taste for the science in the public at large. Their first efforts were made by suggesting subjects for competition among practical gardeners, and distributing rewards for the best specimens of produce exhibited, or the best modes of culture pursued in the various departments of horticulture, also in the reading of papers prepared by practical horticulturists on all gardening subjects. Their meetings, held quarterly, took place in the old Physician's Hall, George Street, Edinburgh, and were generally well attended, both by ladies, gentlemen, and practical gardeners. The Society became incorporated under royal charter during the year 1824, when great interest seems to have been taken in its welfare. Many new plants, seeds, and grafts were presented to the Society, and as these were generally placed in the hands of practical gardeners for cultivation and afterwards to report on them. As such subjects accumulated rapidly it was felt by many of the most active and experienced members that in order to keep pace with the rapid improvements of the science as well as the practice of horticulture, and to acquire specimens of all the new vegetable productions continually introduced into this country from almost all parts of the world, a garden was indispensable, and to be under the immediate patronage and direction of the Society, not only as a depository for such new plants, seeds, &c., as the Society might procure, but for trial of new methods in the culture and management of those already known. Many members of the Society accordingly subscribed twenty guineas each to raise a fund for the establishment of such a garden, and in this object they were liberally supported by many amateurs of horticulture all over Scotland. In this way, and by an advance from the funds of the society, a sum amounting to £4000 was soon raised, and a piece of ground containing 10 Imperial acres selected on the south side of the Royal Botanic Garden, and in juxtaposition to it. To have purchased this ground for a garden would have exhausted these funds, and therefore application was made to Government to make the purchase and to let the land to the Society at a fixed annual rent. This rent amounted to £140 a year, and left the annual subscription fund free to be applied in enclosing and laying out the ground, raising the necessary buildings, and in stocking the garden. Until the year 1849 the Society went on successfully, building numerous houses, clearing the way, and always keeping out of debt. During 1854 debt began to accumulate, and notwithstanding that the efforts of the Council were constantly directed to reduce the expenses of management and labour, the funds of the Society gradually became unequal to bear the annual rent in addition to the necessary charges of keeping up the garden. Application for relief was accordingly made to the Lords of the Treasury, and it was answered, that although a remission of rent could not be conceded, yet that a grant of £200 per annum, to be paid out of the money at the disposal of the "Trustees for the Manufactures, &c., for Scotland," would be made, but only on condition of the Society being able to show that a sum of not less than £300 yearly was raised by private subscription or otherwise. During the year 1856 the grant of £200 was withdrawn, and as operations could not be carried on, a meeting of the existing proprietors and members took place, and resulted in offering the grounds again to the Government. A large amount of money had been expended from the funds belonging to the institution on the various permanent buildings erected, also on some put up by private subscription. For ten years the garden was in great difficulties, nothing definite having been arranged with the Government, although negotiations were going on. At last a sum of £2000 was given for the buildings, which enabled the Society to pay up the outstanding rent then due to the Exchequer, while the sale of the pot plants and movables was sufficient to pay the other garden expenses which had been incurred.

After the relinquishing of the Society's lease, the ground, in 1867, by special arrangement, was annexed to the Royal Botanic Garden by the removal of the separation boundary wall. This ground is now devoted to arboretum purposes. A very extensive collection of trees and shrubs is now cultivated on it, and notwithstanding the extent of ground occupied, it is still too small for the purpose of developing the specimens as they ought to be. The trees were mostly lifted when of large size, and are all quite capable of being removed again, if done soon, and if any part of the adjoining unoccupied lands (of which many acres at present exist) should be added to the garden. If the adjoining wooded land should be leased for building purposes, the atmosphere of the garden will sooner or later become deteriorated for the growth of many Conifers and plants from high latitudes (for which the garden is at present famous), and its removal to some distant part in another century will become inevitable. Were the adjoining ground secured for anything but building purposes, the atmosphere of the garden would be preserved, and it would prove useful for cultural purposes during several hundred years to come.

The Edinburgh Horticultural Society was founded during the year 1858. On the termination of the old Royal Caledonian Horticultural Society, the Edinburgh Society assumed the title, and received all the minute-books, with a sum of money which remained over after all debts were paid. Unhampered with a garden, the new Society is now going on prosperously, holding exhibitions independent of weather. For many years the old Caledonian Horticultural Society was very fortunate with their open-air exhibitions, latterly they proved a loss, owing to the frequency of wet days, and were ultimately discontinued.

The first President of the Society, in 1809, was His Grace Alexander, Duke of Gordon, followed by Sir James Hall, Bart., of Dunglass, a celebrated horticulturist, and afterwards by Charles William Henry, fourth Duke of Buccleuch, and next by the late Earl of Dunmore. During 1832 the present Duke of Buccleuch was elected President, and has continued to be so in both phases of the Society ever since.

The first Secretary appointed was Mr. Patrick Neill, of Canonmills Cottage, an early and enthusiastic promoter of horticulture; his election took place in 1809, and he continued to hold office till his death, September 3, 1851. In June, 1843, Dr. Neill (having by this time obtained the title of LL.D.), received a handsome testimonial, subscribed for by 600 Scotch practical gardeners, for zealous and long-continued devotion of his time and talents to the cause of horticulture. About the same time a marble bust by Steele was presented to him by the

members of the Society, and which is now preserved in the Royal Botanic Garden. From the time of Dr. Neill's death till the winding-up of the Society and garden, the secretaryship was held by Dr. Balfour, while the secretaryship of the present Society is entrusted to John Stewart, Esq., W.S., and Mr. William Young, a stanch and indefatigable horticulturist.

New Garden Plants.

RESTREPIA REICHENBACHIANA, *Endres.**

Imagine a dense mass of spatulate oblong broad obovate leaves with a well marked margin, on very short small stems with a few white sheaths, spotted with dark brown, and having some bristles on the nerves. That tuft, scarcely 2 inches high, is overgrown by filiform tall peduncles, twice as long, bearing canary-bird yellow nearly cruciform flowers. The inferior sepals, nearly connate in one body, have a blackish or purplish apex, when just a little apex is seen in the lip, two such lines on base of the superior sepal, and one such line on base of each petal. It must be well understood that the late Endres was not of the opinion of the late Harvey, who dedicated the most striking things to those he liked and appreciated, and the most hideous plants to those whom he did not appreciate. Endres admired the plants the smaller their flowers were, and, to be candid, he had no appreciation of the demands of European amateurs till he returned lately to Europe. Yet I cannot deny that my Restrepia is very Saundersian. Since this unrivalled Mæcenas gave up his garden I am afraid no amateur in the United Kingdom would spare a place in his houses for the little plant, that runs no risk of ever being destroyed in his native places, when it grows at 4000 feet. It was discovered in 1868 by Endres in Costa Rica, and has flowered several times in Hamburgh Botanic Garden.

SACCOLABIUM HENDERSONIANUM, *n. sp.*†

This is a very curious and beautiful plant. It has oblong-ligulate bilobed leaves, perhaps not longer than 5 — 6 inches, by 1 — 1½ inch wide. The spike is splendid, very dense. The chief colour of the flowers is light purple, that of the sepals and petals is just that of Rodriguezia secunda and Mesospinidium vulcanicum. There is on the base of each lateral sepal a dark purplish spot. The lip is white; one should better say the "spur is white," for, excepting a big, long, sword-shaped, oblong-obtuse spur, there are but two very small side auriculæ, and the middle lobe is not freely developed, but only represented by a small, triangular, well-defined plane on the spur at the place where the third auricula would be expected. The pedicels are white, and the common peduncle of the numerous flowers is glaucous. The plant has been known among the *crême* of intelligent English Orchidists for, I believe, two or three years, as "the new Bornean Saccolabium," and highly appreciated, though I am not sure whether it has been flowered by any one excepting Messrs. E. G. Henderson & Sons—at least, I have not heard of it. Though the plant is much to be admired, it is very difficult to give it a place among known species. It will be immediately compared by a beginner with such things as Saccolabium miniatum or S. ampullaceum. Regarding the nearly obsolete lip, which is reduced to a spur, it may be compared to Saccolabium roseum (Sarcanthus Walkerianus, Wight), gracile, breviflorum, or chlororhynchum. One may, however, also look to the old Philippinese Saccolabium compressum, which stands very near it—much nearer than the two first-named species. I have to thank for it the proprietors of the Wellington Nursery, St. John's Wood, London, N.W., to whom it is inscribed. *H. G. Rchb. f.*

* *Restrepia Reichenbachiana*, Endres in litt.—(Pleurothalliformes) dense cæspitosa; caulibus humillimis, paucivaginatis, vaginis maculatis supra nervos ciliatis; foliis cuneato-obovatis apice minute tridentatis, vix duos pollices altis, bene marginatis, pedunculis filiformibus bene exsertis apice unifloris; bractea ovario pedicellato non æquali; sepalo supremo oblongo triangulo 5-nervi, sepalo inferiori ligulato apice bidentato 5-nervi, nervis duobus extus minute ac obscurisime carinati; tepalis ligulato-falcatis seu ligulatis acutis divaricatis, sepali superioris vix dimidium æquali; labello oblongo acuta sepala non æquante, basi utrinque auricula falcata; callo triangulo utrinque intus adjecto; columna gracili trigona elongata; flos citrinus vix 8 lineas longus ubi expansus: sepala lateralia apice atropurpurea, stria atropurpurea in basi; tepali utrinque; striæ duæ atropurpureæ in basi sepali summi.

† *Saccolabium Hendersonianum*, n. sp.—Foliis oblongo-ligulatis apice emarginato-bilobis; racemo densifloro; bracteis triangulis latis brevissimis; sepalis inæqualibus; sepalo summo elliptico; sepalis lateralibus cuneato-oblongis extus obtusangulis, ima basi cum labello connatis; tepalis oblongo-ligulatis; sepalo summo bene minoribus; labello prope ad calcar reducto, lamina minima reducto trifida; laciniis lateralibus angulatis minutis; lacinia media planum triangulum in calcaris plano summo antico sistente; calcari compresso oblongo-ligulato obtuso; tertio antico solido, ceterum vacuo; columna nana postello lineari subulato bifido; caudicula recta. *H. G. Rchb. f.*

RARE CONIFERS.

Pinus flexilis, James.—This has been figured in Nuttall's *Sylva*, in one of the Oregon Botanical Association's circulars, and under the erroneous name of Pinus cembroides in Newberry's *Report on the Botany of Williamson's Expedition for the Pacific Railroad Explorations*. As the first of these works is costly, the second out of print, and probably only preserved by a few—although the drawing in it is by Dr. Greville, and very good, and the third is not very characteristically figured, a fresh and thoroughly accurate representation, by Mr. Worthington Smith, taken from Roezl's new specimen, will be acceptable.

We do not know what progress this tree is making in this country, and we are sure that others besides ourselves will be grateful to any of our readers who have grown it if they will tell us how it has thriven. It is an alpine species, growing higher up in the Rocky Mountains and Sierra Nevada, looking like a dark and gloomy Scotch Fir, but not so blue in its black, although, perhaps, even deeper in its colouring, and characterised by fine gnarled and twisted limbs that seem made to strive against the mountain blasts. We saw it between 8000 and 9000 feet above the level of the sea in this bold and defiant attitude, but further to the north, or higher up at the extreme limit of vegetation, where, more exposed to the blast, it dwindles into a mere creeping, tangled mass, scarcely a foot high, but so dense that a man could almost walk over the surface.

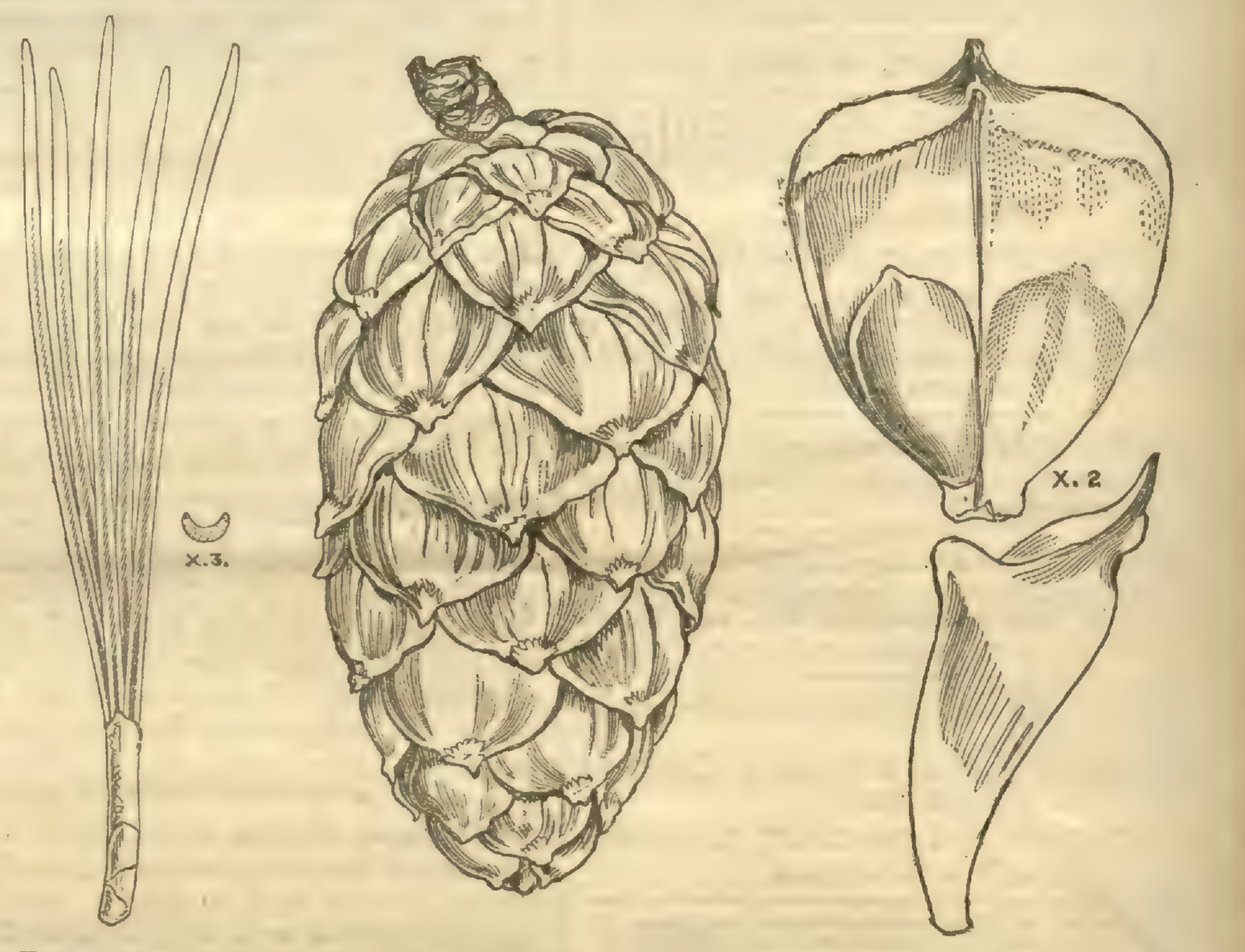


FIG. 75.—PINUS (CEMBRA) FLEXILIS. CONE AND FOLIAGE NAT. SIZE; FRUIT ENLARGED.

It has been abundantly introduced into this country by seeds from Jeffrey's time downwards, and we should therefore, if the tree will thrive in our heavier atmosphere, have trees thirty years of age. It is well worth growing as an ornamental tree if it will thrive, and we do not see why it should not. Certainly in the places where we saw it in its native country it was exposed for five months to a glacial temperature, for other three to constant recurrences of blasts of rain and snow, and for the remaining four to great heat and drought. The latter condition may be that which we can least supply.

It is a Cembra, and, as the figure shows, the cone is exactly that of the common Swiss Cembra; but the habit of the tree, as already said, is very different. *Andrew Murray.*

PEACH BUDDING WITH FRUIT BUDS.

FOR now nearly thirty years we have practised grafting fruit-buds, as the prizes awarded by the Agricultural Society of Aube to M. Baltet the elder testify. Up to this time the Pear has been the special object of our practice, and we still recommend this as a procedure which utilises superfluous fruit-buds, and which gives valuable results.

This year, repeating and improving on trials previously made with success, we have obtained extraordinary results with the Peach. Several precautions being requisite for this process, we deem it fit to mention them at once.

1. The buds should be chosen from small fruit spurs, bearing several closely set flower-buds—*bouquets de Mai*. The terminal bud should be carefully preserved.

2. The bud should be cut in the shape of a deer's foot (shield bud) and as thin as possible. A skilful grafter will readily remove the sap-wood while carefully preserving the bark. This is a cardinal point.

3. The cleft in the bark made to receive the bud should be exactly the same length as the latter, a larger opening would in the case of the Peach cause gumming. The edges of the cleft should be as little separated as possible, consistent with the insertion of the bud.

4. The bud should be tied in and immediately covered by a leaf, so as to prevent the drying action of the sun's rays. This leaf should be removed before winter, when union has taken place, the ligature being cut in spring when the fruit begins to stone.

5. The bud should be inserted at the base of vigorous shoots such as those which are placed near the wood-buds. We have even budded in this manner on those shoots destined to form the double U or four-branched candelabrum. In this way it will be possible to utilise the flower-buds placed on the ends of the long fruit shoots by uniting them by inarching with the base of the reserved branches, instead of removing them in the winter pruning. We may thus also relieve a tree too thickly set with fruit for its strength, by inserting the fruit-buds on another tree more abundantly supplied with wood-buds.

It is hardly necessary here to say much as to the general precautions to be taken in grafting with fruit-buds. The leaves should be removed from the bud, which should be kept in the shade, or covered with damp moss. No time should be lost in inserting the graft. The graft measures about 3—4 inches, of which the shield-shaped end occupies about half.

Nurserymen who plant their varieties in the open air, so as to be able to procure more grafts, will henceforth be able to study the fruit at the same time. The Peach, Baron Dufour, for instance, planted in our nurseries in the spring of 1874, produced buds fit for budding, as well as other buds, called here "cochonets" in the following September. These were removed and grafted on to another espalier Peach tree, in the manner above described. About August 19 of the present year we gathered splendid and very fine flavoured fruits of Baron Dufour, a week earlier than those of the Galande.

In examining the grafts the necessity of removing from the buds the smallest portion of sap-wood becomes apparent. We had an illustration of this in the Madeleine Hariot Peach, a beautiful and fine variety ripening here at the end of August.

Fruit-buds of the Murray Nectarine were budded on it in the usual way, and with success.

The sap of the Peach retains its activity to a relatively late period, hence the best time to bud would be the first fortnight of September, the precise date

depending on the vigour of the stock. Amateurs may avail themselves of this easy operation if they desire to get together in a small space, or with a small number of trees, a collection of Peaches ripening in succession from July to October, from the earliest Peaches, such as Rivers', Beatrice and Princess Louise, to the later varieties, such as Baltet, Smooth (?) Freestone, and Salway.

We owe the knowledge of this procedure to one of our trusted *employés*, Pierre Payn. From whom he received the idea we do not know, at any rate horticultural books do not mention the matter. *Baltet Frères, Troyes, France.*

GREENHOUSE PLANTS.—XXIV.

THEIR CULTURE AND MANAGEMENT.

ACACIAS.—The genus Acacia is represented by a very great number of species, from both the Eastern and Western hemispheres, some attaining the proportions of moderate-sized trees, but most of them are evergreen shrubs, indigenous to New Holland. Many possess great beauty, and take a very conspicuous place amongst decorative flowering plants in our conservatories, where the elegant habit of some make them very suitable subjects for draping the walls, pillars, and rafters, where, in the early spring, their profuse wreaths of yellow flowers are very effective. There are a few that are more than others especially adapted for use as pot plants, and can be so managed as to come in bloom at any time during the winter, through being brought forward in heat. Acacias are amongst the most easy of hard-wooded subjects to grow, being of a vigorous habit, both root and branch not suffering seriously through a little inattention in withholding water, or from a little too much at other times, which in the case of many hard-wooded plants subject to pot culture would be almost certain to cause death. Neither are they particular as to soil, as they will succeed in either peat or loam, but the latter is the most suitable, and in it their natural free disposition to flower is still further increased.

A. Drummondii is in all probability the finest species for a moderate-sized pot specimen; it is from the Swan River, a region that has furnished us with so many valuable hard-wooded subjects for indoor decoration. Plants in 6-inch pots that have been previously well attended to by the necessary stopping, so as to lay the groundwork for the future specimen, and that are in no ways pot-bound, should be procured and wintered in a house where the night temperature is kept from 35° to 40°. In March shorten back the last summer's shoots according to their length from where previously stopped; if these are not more than 3 or 4 inches long, they will merely require the points pinching out so as to induce them to break or double—if longer, they should be shortened still further down to the harder wood, which will throw out a number of shoots. By the middle of March they will need larger pots; move them at once into such as are 4 inches bigger, their free rooting nature enabling them to bear a liberal shift. Use good fibrous loam in lumps the size of Horse Chestnuts. Give efficient drainage, as this, like the other members of the family, is a thirsty subject; consequently provision must be made to insure the large quantities of water they require passing freely off. Add sand in proportion to the nature of the loam, needing more or less, but let it contain enough to prevent any tendency to become adhesive. When the plants are turned out, the roots may be loosened a little from the old ball, gently disentangling them with the fingers, without breaking more than can be avoided, for even with free, strong-rooted things like these, it is a mistake to inflict injury on these their most vital organs. Ram the soil firmly into the pots; at once train out all the strongest branches in a horizontal position, bringing them well down, secured to a few small sticks; place in a light house or pit, do not give them too much air for a few days, or allow them to suffer by going too long without water. As the sun gets more power syringe them every bright afternoon, getting well under the leaves. As this plant is subject to red-spider it requires attention in this matter all through the growing season, for, although its leaves are not tender, or so soon injured as in the case of many things, still, when spider has once been established upon them, they never afterwards gain their fresh green appearance. Give plenty of air through the summer, but no shade will be absolutely needed, yet a little in the middle of the day in bright weather will do no harm if the plants happen to be grown with others that require it. When the roots have got fairly hold of the new soil they will make rapid growth, and should be stopped as soon as they have made shoots 6 inches in length, and any that are stronger than the rest tied out so as to equalise the strength. At the beginning of August give plenty of air in the night as well as the day, but continue the use of the syringe until September, after which there is not much to be feared from red-spider: the plants will not now push much more growth. Keep them as cool through the autumn and winter as can be done without danger of frost. If they are required, a portion may be had in flower by the middle of March. For this purpose they must be placed in a temperature of 50° during the night with a rise of 5° in the daytime, and should be kept near the light. They ought not to be subjected to more heat than this, as it is quite sufficient to bring them into bloom, and it is not desirable to excite growth. When in flower they can be moved to the conservatory where they will have a nice appearance for a month; if wanted, the strongest shoots can be cut when in bloom, shortening the remainder back as soon as the flowering is over. The plants that have been let come in of their own accord will succeed the others, and when they have bloomed may in like manner have all their shoots shortened back. The young growth will break in a few weeks, after which the whole, early and late flowered, may be potted. They will bear moving into 15-inch pots; this may appear a large shift, but their strong free-growing nature is such as to bear plenty of room, and it is better to get them on whilst young than to keep them back. Pot as before, and tie well out, being careful to furnish the base to the rim of the pot, continuing to bring down the strongest shoots; treat as in the preceding summer as to air, light, water at the root, and continued syringing overhead. By the beginning of August those that were brought into flower early will have completed their growth (they will not require stopping this season, as they will now be sufficiently furnished with abundance of shoots, and will look all the better when in flower for having a longer growth), and may be turned out-of-doors and exposed to the open air for six or eight weeks according to the

FIG. 76.—A TOWN-GARDEN, PRINCES STREET, EDINBURGH.

state of the weather; these will again come in for the first blooming, and may be started as before early in the incoming year. The later-flowered plants, if it is desired to keep them back, should, as soon as done growing in the autumn, be placed in a north house or other situation where they will not get more heat in the night all through the season than just sufficient to keep out frost. They will not suffer with this treatment, as they are not subject to mildew. By thus retarding through the winter and spring this Acacia can be kept back until the middle of May, when, from its colour, it makes a good exhibition subject. Even if not required for this purpose, it is well to retard a portion of the plants as late as may be, being much more useful in succession. After flowering, cut well back to within 6 or 8 inches of where they were shortened to the preceding year. This will tend to keep them from getting too large, and will prevent their becoming bare of leaves. When they have broken, a portion may be moved on into larger pots, and some kept for the season in those they already occupy, assisting them whilst making growth with manure-water. Treat through the autumn and winter as before, at the time of tying out being careful to keep them in regular shape. The plant has a natural tendency to a somewhat upright habit; it is well to let it assume this form so long as it is kept properly furnished at the bottom, and so trained it forms an acceptable contrast to other things of more dwarf-spreading growth. This Acacia may, by being well cut back, as advised each spring, and a liberal use of manure water whilst growing, be kept in good condition for years without the necessity for too large pots.

A. armata is another useful plant, a little stronger in habit, the foliage more dense, equally easily managed, and, like the preceding, it is good for winter forcing; it requires similar treatment in every way as to soil, pot-room, water, syringing, and air, but to induce it to flower freely it should always be turned out-of-doors in August. This variety must also have timely attention in stopping, or it will get up naked at the bottom; it requires very few sticks to keep it in shape, the wood being strong enough to support itself, but sufficient forethought must be used at the commencement to keep the centre of the plant open and the base properly furnished. If it happens to get bare at the bottom it will do with cutting well back, and when the young growth has pushed a couple of inches the plant may have a part of the soil shook from the roots, a portion of the latter cut away, and replaced in smaller pots, encouraged to make growth, and the strongest shoots stopped back, as in the case of young stock. There is another form of A. armata, with a decided drooping habit of growth, known as A. armata pendula. It is a most elegant-growing subject, needing the same treatment in every way, and, like A. armata, is an excellent plant for furnishing cut flowers in the winter and early spring. The following sorts are fine for planting-out in conservatories, and very suitable for occupying a corner or wall; so treated, instead of being stopped, they should be encouraged to grow from the first with a clear stem, and the side shoots kept cut in, so as to induce the plants to get up. They look the best when not too closely trained in to the wall, pillar, or rafter, where they may happen to be used, but allowed to hang in a somewhat irregular manner, merely keeping them from encroaching upon anything near them. The great advantage in growing these plants in such situations is that they can be cut in to whatever space they may be required to fill, without suffering any injury; they do not, when so planted out, want a deal of room to grow in, merely needing, as the soil gets exhausted, a portion of the top removing and replacing with new, as also the assistance, through the growing season, of manure water.

A. pubescens: an elegant, fine-leaved kind, with charming bright yellow flowers, produced freely in spring.

A. longifolia: a beautiful slender-wooded species, very handsome; suitable for covering a wall.

A. lophantha: a strong grower, flowers freely; it is equally desirable for its ample Fern-like foliage, than which nothing can be more beautiful or appropriate for mixing with flowers in large vases or epergnes, where it lasts long in water.

Whenever these Acacias are thus permanently grown in a conservatory or other plant-house, care should be taken not to stand anything in contact with them that is affected with that worst of all insects under glass, white scale, for if this pest once gets upon them it spreads rapidly; and the plants in such a position, overhanging others, become the means of affecting all that come near them on which the coccus will live. If they are ever affected with this insect, the only remedy is in the spring to cut off all the branches in to the strong wood, and thoroughly scrub with "Fowler's Insecticide," 8 oz. to the gallon, or something equally effective. Whatever dressing is applied, it should be administered three or four times, at intervals of a few days, before the plants have pushed any buds. Brown scale is more easily dealt with, and may be destroyed by repeated washings of the wood and leaves, with insecticide, during the season of rest. *T. Baines.*

A BEGINNER IN BOTANY.*

MR. RUSKIN, "having been privileged to found the School of Art in the University of Oxford," now proposes to found a new school of botany. Of course it will be a vagarious school. One crying evil to be remedied is "that there are generally from three or four up to two dozen Latin names current for every flower," and "the most current and authoritative names" are "of the devil's own contriving." This is not seemly. As Wesley would not allow the devil to have the singing of all the good tunes, so neither will Ruskin allow him to have the naming of all the sweet flowers. He proposes "to substitute boldly . . . other generic names for the plants thus faultfully hitherto titled." He "will not even name the cases in which they have been made," but will "mask those which there was real occasion to alter by sometimes giving new names in cases where there was no necessity of such kind." That is to say, the evil of a redundancy of botanical names is to be overcome by making more, some of them avowedly needless; and innocent names are to suffer, lest bad ones should become notorious by being discarded without company. For it appears that the diabolical names to be sent to their own place in this reform are not discarded because they are cacophonous, although that is the common charge, but because they are immoral. Of the two evils to be dealt with, the first is simply a superfluity of Latin names; the second, and the worse, a superfluity of naughtiness. As Mr. Ruskin forcibly puts it:—

"The second, and a much more serious one, is of the devil's own contriving (and, remember, I am always quite serious when I speak of the devil)—namely, that the most current and authoritative names are apt to be founded on some unclean or debasing association, so that to interpret them is to defile the reader's mind."

This reminds us of the fine lady who thanked Dr. Johnson for omitting indelicate words from his dictionary, to whom the blunt moralist rejoined:—"I perceive, madam, that you have been looking for them." Now, if the case be really as is represented, the sound practical axiom, *Quieta non movere*, would seem to suggest the proper treatment; for his purposes, one would think the Latin and Greek names might be left untranslated; and the reform might begin, and end, with the popular English names—almost the only ones the author may need to use—some of which are coarse and vulgar enough. Indeed, as to botanical generic names, far from finding any confirmation of Mr. Ruskin's sweeping charges, we can recall barely one or two the translation or etymology of which would be embarrassing at the drawing-room table. Moreover, if the following passages really refer to "nomenclature" (though terminology seems to be meant), our author, upon his own showing, need not waste his time in the endeavour to reform it:—

"The mass of useless nomenclature, now mistaken for science, will fall away, as the husk of a Poppy falls from the bursting flower. . . . When the science becomes approximately perfect, all known plants will be properly figured, so that nobody need describe them, and unknown plants will be so rare that nobody will care to learn a new and difficult language in order to give an account of what in all probability he will never see."

Well, for that matter, the *English Botany*, in its various editions, furnishes fairly good figures of all British plants; and the *Botanical Magazine*—a page of an early number of which, eighty years old, is gibbeted by Mr. Ruskin—has gone on to figure more than 6000 cultivated exotics, and continuing at the rate of nearly a hundred a-year. So that our author's ideal is practically all but realised already. There are well-nigh pictures enough, if one knows how and where to find them. And it amusingly appears, from Mr. Ruskin's trouble with St. Bruno's Lily at the beginning, and from his investigation of moss further on, as well as from scattered statements, that his mode of proceeding in systematic botany is the simple one of searching high and low for a picture to match the specimen in hand. Accordingly, it is not surprising that his "botanical studies were, when [he] had attained the age of fifty, no further advanced than the reader will find them in the opening chapter of this book."

As to this, the conclusions which the reader will draw are all along anticipated by the author. Next to the pervading—well—bumptiousness, nothing is so prominent in the book as the profession, not to say the parade, of ignorance of the topics treated. As to "the elements of the science of botany," "I can scarcely say that I have yet any tenure of it myself." "And meanwhile I don't know very clearly so much as what a root is or what a leaf is." "Some one said of me once, very shrewdly, When he wants to work out a subject, he writes a book on it. . . . This book will be nothing but processes. I don't mean to assert anything positively in it, from the first page to the last. Whatever I say is to be understood only as a conditional statement—liable to and inviting correction. And this the more because, as on the whole I am at war with the botanists, I can't ask them to help me, and then call them names afterwards." So "for many reasons I am forced to print the imperfect statement, as I can independently shape it." To get at the facts "I should have to write a dozen of letters before I could print a line, and the line at last would be only like a bit of any other botanical book—trustworthy it might be, perhaps, but certainly unreadable." The converse is preferred. Readable it certainly is, and in its way interesting, not so much for what it tells about botany as for what it tells about Mr. Ruskin; and the art-student, out of the abundance of golden chaff, may pick some grains of knowledge that might not otherwise fall in his way. But the seeker of botanical information must glean warily, especially where the author grows positive. For almost the only instance in which he does pronounce decidedly happens to be a vexed question in vegetable physiology, and there is reason to fear that he decides it wrongly. At least the recent investigators who have had the matter in hand in the way of experimental inquiry, will not agree with him that the plant can get water from the atmosphere directly and "for the most part does so; though when it cannot get water from the air, it will gladly drink by its roots." Still "our natural and honest mistakes will often be suggestive of things we could not have discovered but by wandering." Very likely; but why invite learners to go forth with him upon his wanderings? In many a book the want of sufficient knowledge is pleaded as an excuse; in this, it is paraded as a recommendation. Ignorance, no doubt, has its uses; but it is questionable whether teaching is altogether the best use to put it to. As the member of Parliament who yawned desperately while delivering his speech was thought to trench upon the privilege of his hearers, so the students of *Proserpina* may complain that the playing of the *rôle* both of teacher and learner at once involves some incongruity and inconvenience.

The second part of *Proserpina* has just come to hand. It treats of the leaf and the flower, in a discursive and oracular way, leading into æsthetical questions, which we need not follow and do not greatly admire. Now and then a scientific topic is taken up and the point missed, as usual. Treating of foliage and its office, we are bid "to think awhile of its dark clear green, and the good of it to you." We look for an exposition of the fact, in which the whole meaning of vegetation inheres, that leaves under the sun's influence create all the food of the world, and are, therefore, the basis of all animal existence. Instead of which we have:—

"Scientifically you know green in leaves is owing to 'chlorophyll,' or, in English, to 'green leaf.' It may be very fine to know that; but my advice to you, on the whole, is to rest content with the general fact that leaves are green when they do not grow in or near smoky towns, and not by any means to rest content with the fact that very soon there will not be a green leaf in England, but only greenish-black ones." . . . "Well, this much the botanists really know and tell us"—that vegetation "is made chiefly of the breath of animals." . . . "So that you may look upon the grass and forests of the earth as a kind of green hoar-frost, frozen upon it from our breath, as, on the window panes, the white arborescence of ice."

Mr. Ruskin evidently has no idea of the essential independence of the vegetable kingdom; that, as all the carbon of the breath of animals comes from plants, so they, in their decay, would furnish this material for succeeding vegetation perhaps as rapidly, on the whole, without the intervention of animals. At most, the latter somewhat expedite the decomposition.

"But how is it made into wood?" As to that and matters therewith connected, "under the impression that it had been ascertained, and that I could at any time know all about it, I have put off till to-day the knowing of anything about it at all. But I will really endeavour now to ascertain something, and take to my botanical books accordingly."

Behold the result of the cram—"the gist of the matter":—

"Hence, generally, I think we may conclude thus much, that at every pore of its surface, under ground and above, the plant in the spring absorbs moisture, which instantly disperses itself through its whole system 'by means of some permeable quality of the membranes of the cellular tissue invisible to our eyes, even by the most powerful glasses'; that in this way, subjected to the vital power of the tree, it becomes sap, properly so-called, which passes downwards through this cellular tissue, slowly and secretly; and then upwards, through the great vessels of the tree, violently, stretching out the supple twigs of it, as you see a flaccid water-pipe swell

* *Proserpina: Studies of Wayside Flowers, &c.* By John Ruskin, LL.D. Part I. George Allen, Sunnyside, Ossington, Kent—New York: John Wiley & Son.

and move when the cock is turned to fill it. And the tree becomes literally a fountain, of which the springing streamlets are clothed with new-woven garments of green tissue, and of which the silver spray stays in the sky—a spray, now, of leaves."

Then as to the blossom :—"The flower exists for its own sake, not for the fruit's sake. . . . But the flower is the end of the seed, not the seed of the flower." "The corolla leads, and is the object of final purpose. The stamens and the treasuries [Mr. Ruskin's new term for pistils] are only there in order to produce future corollas." Without criticising anybody's notion of final causes, we only notice how Mr. Ruskin fails to make his own point. He has seen "among the speculations of modern science, several, lately, not uningenious, and highly industrious, on the subject of the relation of colour in flowers to insects, to selective development, &c." And he proceeds to intimate that even Mr. Darwin must be ranked among "the men of semi-faculty or semi-education who are more or less incapable of so much as seeing, much less thinking about colour," &c., referring merely to the latter's speculations upon the ocelli of the Argus pheasant—in blissful ignorance, it would seem, that he has to deal with Mr. Darwin upon this very subject of colour and use in flowers, and that he is not prepared even to state his own side of the question. *A. G.*

THE ONION: ITS CULTURE AND CHARACTERISTICS.

VERY few members of the vegetable kingdom exist that can boast an older record than the Onion. Theophrastus alluded to it as follows :—"There be divers sorts of Onions which have their syrnames of the places where they grow; some also lesser, others greater; some be round, and divers others long." This is ample proof that, even in his early days, a variety of sorts were grown, and in many places. Pliny adds the questionable information that "none grow wilde." The Onion is also spoken of in Holy Writ, where, in connection with the Leek and other vegetables, it is referred to as a luxury belonging to the Egyptians, at the earliest date we possess any history in regard to them. Though Theophrastus shows by his statement above that distinct sorts existed, we are inclined to believe that there were not more than two or three distinct types then. They derived, however, a variety of names from the various places where they were known to be grown freely. Old authors describe a kind known as "Ascalonitides," a name said by Gerarde to be "of a towne in Judæa, otherwise called Pompeiana." Singularly enough, however, the English name of this kind is given by this latter authority as "Scallions," and along with it is given an illustration and the following statement :—"This hath but small roots, growing many together; the leaues are like to Onions, but lesse. It seldom beares either stalke, floure, or seed. It is used to be eaten in sallads." Both Theophrastus and Pliny refer to this : the latter in the sixth chapter of his nineteenth book, where he says "the one serving for a sauce or to season meate with." Can it be then that in Pompeii of old, Chives, as we know them now, were used popularly.

As to the merit of the Onion from a food supply point of view, there exists no slight divergence of opinion; few use it other than as a secondary kind of food, others there are who have a great aversion to it, and we are personally acquainted with a very learned and an extremely successful doctor and botanist who will not permit any within the bounds of his garden, owing, as he says, to their very unwholesome qualities. Certain it is that the virtues attributed to them are the farthest removed from any resemblance of nourishing. Gerarde says "they are good against scalds, wounds, and bites by mad dogs," &c., and even gives an explanation as to "the hurts" they are capable of.

Regarding varieties, only two, viz., the so-called "white Onion," and the "longish Spanish Onion," seem to have been definitely known. The former is evidently, according to old descriptions, our present popular white Spanish kind; as it says, besides, that a red-skinned form of the same exists which is identical all but in external colour. Taking our Tripoli, or the Giant Rocca of Naples, as the type of these "longish Spanish" varieties recognised so long ago, we fail in contemplating these two distinct forms to perceive that any great stride has been made in improving or extending our lists: as it is well known how very slight is the difference between many of the so-called newer kinds, and that they are but, in most instances, intermediate forms, through in-and-in crosses between the same.

Turning our attention to considerations of culture, we think it desirable to divide the necessary practices, and to place them under the two distinct heads of—1, Summer or main-crop culture; and 2, Autumn and spring culture.

Regarding the first of these, or summer culture, the primary consideration should be as to the mechanical constituents of the soils. Onions delight in a rich and deep free soil. It is not possible to make soils too rich for the roots, so long as the manure is thoroughly amalgamated with the soil.

In practice, therefore, trench all quarters intended for Onion beds as deeply as possible. There are very few, if any, cultivated crops that root so deeply as the Onion; indeed, we have traced their roots in a perpendicular course 4 and 5 feet deep. It is only by encouraging the roots to grow down, and by feeding them in their downward course to the deepest point they may grow to, that relatively large yields and heavy bulbs can possibly be formed; hence it will be seen how all-important in their case becomes the matter of trenching and deep culture generally. Such facts as these point out how necessary it is to place a coating of good dung at the very bottom of the trenches, and to work in more dung, following, or along with every "spit" of soil, as the individual trenches are again refilled onward.

We have said that a "free" soil is also requisite, by which we mean such a soil as will admit all rainfalls to pass and to percolate to its utmost depths freely, and such an one, besides, as will not become too compressed or firm, owing to the fact that the roots are averse to too consistent or stiff soils, and grow with far greater strength where they meet but little opposition.

Special soils will, in view of such considerations as these, require special study and varying treatment. Very light soils, for instance, when heavily dunged—and this they should be, if but to insure the necessary degree of moisture during very dry periods—will have lost much of their natural mechanical cohesion; hence it will be necessary in such a case to trench or dig them up, as long before the time at which the seeds are to be sown as possible, to afford them all the time possible to settle down, and to assume the moderate amount of compression or consistency necessary. This applies to all light, stony soils, and to such as are of a naturally dry and loose sandy nature. Heavy soils, moist soils, and such as retain an undue amount of moisture, or which are situated so low as to receive an undue amount of water, the result of the downflow from upland formations, are not at all well adapted for Onion culture. Where, therefore, drains cannot be constructed to carry off all excess, it is useless to expect fine crops, or to anticipate that such will grow even moderately well. In all such instances, therefore, the better plan is to have resort to an old method of growing the supply upon beds formed by digging alleys at certain distances between them, and so to elevate them as much as possible above the natural conformation of the ground; this for the twofold purpose of draining off superfluous water to the utmost possible extent, and to afford to both sun and wind all the power possible for effectually warming and drying them. The ground whereon such beds are formed will also require equal preparation to the best kinds of soil conformations. The trenching and manuring, &c., should be done first; the beds to be formed thereon subsequently.

In regard to seed-sowing, the best practice is to sow in drill rows; the crop is generally far more regular, the thinning-out can be performed far more quickly and satisfactorily, whilst the necessary subsequent hoeing operations may also be performed far more expeditiously and perfectly. The drill rows should be about 10 inches apart, although, where very fine bulbs are the particular aim, this end will be the better attained by increasing the width by another inch or two, as it is needless to add that the more room the bulbs have to grow in, the finer are they likely to be in consequence. Tread along each drill row after the seeds are sown to embed them more firmly in the soil; now scuffle the soil into each row, by aid of the feet alone, and when all are covered in give to the whole surface a uniform and even raking crosswise of the drill-rows with a wooden rake. Again tread it over evenly, and if possible run a heavy roller over it also, as the firmer the soil is made the better.

From this time and until the rows of seedling Onions show well through the ground, no attention is requisite beyond keeping birds off the bed, at the time when it is anticipated the seeds will commence to germinate, as the birds, including the precocious sparrow, very frequently consume or nip off the tender seed-blades so soon as they show through the ground, if proper precautions be not taken. Strands of thread or worsted stretched across the beds, or other expedients, are had resort to as preventives.

Choose a nice dry day when the young seedling plants are well through the ground upon which to well hoe the bed over amongst them. Move the soil freely, but in such a manner only as not to in anywise disturb or upset the real base of any. It may be possible to again "run the hoe" between the crop in another fortnight's time, and following which the young crop should be thinned out. So thin them—leaving only the stronger plants—that they are 6 inches apart, if a really good base has been prepared aud a fine crop is anticipated. Where quantity and not quality is the desideratum, thin to about 4 inches apart.

Hoe amongst the crop as freely and frequently as possible during the remainder of the season, and until such time as the crop commences to bulb freely, and the bulbs have assumed proportions of about 2 inches in diameter. Then will it be necessary to go through the beds and lay down all strong-necked tops that still stand upright. To do so safely, give a half-twist and jerk the head downwards, otherwise, if done too directly or abruptly, there is a danger of snapping them off at the neck. By laying the heads all down one way the sun will be better able to exert its influence over them, and ripe them off more uniformly.

As soon as the surface green assumes a browned or ripened hue to half its whole extent, it will be well to take up the crop, as they keep much better when taken up before they are fully ripe than if left in their places to assume that state in their natural way.

Autumn sown Onions require similar treatment, in all but the keeping of the young plants through the winter and transplanting them in the early spring. They should be sown about the second week in August, in a row, somewhat thickly together. They should be allowed to remain until about the first week in March, more or less according to the weather. Before transplanting the quarter intended for them should be prepared in the same way as in the case of the spring sown, as before referred to. Tread the ground over firmly before proceeding to transplant on to it: and having taken up the young plants from the rows with care, so as not to injure the younger growing roots, run the line along the surface and dibble them into rows at about 4-inch distance apart. Be particular not to bury the stalks, for Onions never succeed better than when the roots alone are dibbled in, though it looks more workmanlike to see each plant stand upright when a finish is made of the work. Make deep wide holes for the roots, and let them lie straight therein so that they are not cramped or doubled up. It will now only be necessary to run the hoe carefully between the crop, at some future time during fine dry weather, and after the plantation has received the full benefits of a good rain soaking, and to hoe periodically throughout the subsequent spring months. Should any show for seed, as they will frequently do, pinch off the flower-stalk immediately it is perceived. When the bulbs are formed and have attained to a good size, go through the bed and lay them down as previously suggested. This is a practice of more importance in connection with these than with the general crop, or such as are less liable to form, or "run" to neck, as these do.

In regard to the best kinds to grow, we consider the White Spanish the best for summer use and for the main crops—and the kinds or rather selections by name, Naseby Mammoth and Nuneham Park; for autumn sowing and early spring use, the Giant Rocca. Where quick growth and hasty bulbing is a desideratum, the Queen Onion or Neapolitan Marzagole have their advantages; and for good keeping qualities James' Keeping or Brown Globe are worthy examples. *William Earley, Valentines, Ilford.*

NEW ZEALAND TIMBER.

MR. T. KIRK, F.L.S., of Wellington, New Zealand, has drawn up a report on the durability of the timber of that colony, which is both interesting and useful. To the report, which has been published by authority of the New Zealand Government, is added an appendix containing some notes "On the best season for felling timber in New Zealand," and also "On the New Zealand Teredo, or ship-worm." With regard to the question of durability some notes are given on timber preservation, which is said to be of much greater importance in New Zealand than in England, owing to the greater cost both of material and labour. As an illustration of the durability of native timbers being considerably affected by the different situations in which they are grown, Mr. Kirk says that north of the Auckland isthmus the Elæocarpus dentatus affords a small proportion of heart-wood, and is therefore considered of little value. In the province of Wellington the proportion of heart-wood is large, and the timber is valued for its durability. The Metrosideros robusta, when growing in moist places, produces timber of inferior quality to that grown in ordinary situations, and which is liable to become attacked by dry-rot; in fact the fungus is often found on this timber grown in moist places before it is cut down. It is notorious that Podocarpus dacrydioides grown in dry places affords more durable timber than when grown in swamps; although at the same time inferior to the swamp timber for bearing transverse strains. Under circumstances such as these it becomes a necessity that a competent person, such as a practical

forest officer, should be appointed, so that timber intended for public works may be properly selected. A great deal has been said at different times about the strength and durability of the Tasmanian Blue Gum (Eucalyptus globulus), but Mr. Kirk shows that in wet situations, such, for instance, as piles for wharves, no wood can exceed Kauri (Dammara australis), and Totara (Podocarpus Totara.) These two are perhaps the most valuable woods of the colony. The Red Pine or Kium (Dacrydium cupressinum), a tree of some 60 or 80 feet high, with a trunk from 3 to 5 feet in diameter, is found throughout the colony, and its timber has been largely used for public works, such as bridges, &c. Its chief drawback, however, arises from its liability to decay in moist situations, so that it is not well suited for outside work, but it is very strong, and so adapted for beams and girders. Its chief use is for furniture. Fine specimens of this wood are to be seen in the timber museum at Kew. The wood of the White Pine (Podocarpus dacrydioides), a tree growing from 50 to 100 feet high or more, is often used in the colony for building purposes; for indoor work it is durable, but it will not bear exposure: it appears to resist the attacks of insects, and to some extent also the attacks of Teredo. Its special adaptation would seem to be for flooring boards. Specimens of this wood are also exhibited at Kew. The Matai, or Black Pine (Podocarpus spicata), a tree of from 50 to 70 feet, found throughout the colony, but less abundantly north of the Upper Waikato, produces a wood of great durability, which is used for piles for bridges, wharves, millwrights' work, railway sleepers, house building, &c. As in many of the New Zealand timbers great confusion, it is said, has arisen from the crossing and misapplication of the common names of this species and the "Mivo (Podocarpus ferruginea), so that it has been often difficult to ascertain what timber was intended by either name, and to obtain correct information, more especially as the two kinds bear a close resemblance after the timber has been in use for a time, and it is not easy for ordinary bushmen to distinguish the foliage." Another coniferous tree, Phyllocladus trichomanoides, is common in hilly districts in the North Island, and more abundant in the province of Auckland. It is a straight growing tree, 50 to 60 feet high. The wood is very durable, and is specially suited for railway sleepers, planking for bridges, &c. It is of light colour, close grained, and heavy for a coniferous wood, and is said to resemble very closely the best European Crown Memel timber.

The Tea tree (Leptospermum ericoides), a myrtaceous tree, growing some 50 feet high, with a trunk from 1 to 2 feet in diameter, is valued for its hard dense wood, which is used for blocks, fencing, rails, and for small piles for wharves, jetties, &c., as the wood is not obtainable in any very large size. In Otago it is said to resist the attacks of Teredo more successfully than any other timber, but Mr. Kirk says that he has seen it in Auckland attacked within two years, and seriously injured in less than four; nevertheless, it is a valuable wood for many purposes.

Vitex littoralis, known also as New Zealand Teak, on account of its affinities with, and its similarity in density and durability to, true Teak, is a tree from 40 to 60 feet high, its trunk measuring from 3 to 5 feet in diameter. In some parts of the colony it is seen in isolated specimens or in groups, while in other localities on the west coast of the Kaipara it forms the greater part of the forest. The growing tree, it seems, is subject to the attack of the larvæ of the Puriri moth, which bores holes sometimes three-eighths of an inch in diameter, but the durability of the timber is not directly affected, and the timber is never attacked when worked up. It is extensively used for piles for bridges, railway sleepers, and similar work, as in point of durability it is probably superior to any other New Zealand timber. Another illustration of the confusion of native names as applied to timber is to be found in Fagus fusca, which is the Black Birch of Auckland and Otago, and the Red Birch of Wellington and Nelson. Of this tree Mr. Kirk says:—"The true Black Birch is a noble tree, found from Kaitaia, in the North Island, to Otago, but often local, and absent from extensive districts. It ascends the mountains from the sea level to 3000 feet. The tree is usually from 60 to 90 feet in height, with a trunk from 3 to 8 feet in diameter. In many districts it is abundant, and forms a large portion of the forest. So much confusion has arisen from the misapplication of the names "Black Birch," "Red Birch," and "White Birch," that without actual examination it is difficult to say what tree may be intended in any particular instance. In many parts of the colony the small-leaved Tarata (Pittosporum tenuifolium) is called Black Birch, in others the name is applied to Weinmannia racemosa; in fact, the term Birch may be regarded as a generic name applied by bushmen to any small-leaved tree, and qualified with the prefixes "black, white, or red," at the caprice of the individual, or as may be suggested by the colour of the foliage, bark, or timber. It is certain that the reputation of Fagus fusca has suffered from the substitution of other timbers, known as Black Birch, notably of Fagus Solandri, and of the Weinmannia racemosa. The timber of the latter greatly resembles that of the true Black Birch, but may be at once distinguished by its lighter specific gravity.

The remaining woods treated of in this report are all inferior in strength and durability to the preceding. They are arranged as follows, according to their value:—White Birch of Nelson and Otago, Black Birch of Wellington, Canterbury, and Nelson, Fagus Solandri; Red Birch, Fagus Menziesii; Pohutukawa, Metrosideros tomentosa; Iron-bark or Rata, Metrosideros lucida; Rata, Metrosideros robusta; Hinau, Elæocarpus dentatus; Kowhai, Sophora tetraptera; Maire-tawhake, Eugenia Maire; Tawhero, Weinmannia racemosa; Rewa-Rewa, Knightia excelsa; Mapau, Myrsine australis; Tawa, Nesodaphne Tawa; Taraire, Nesodaphne Taraire; Mangeao, Tetranthera calicaris; Maire, Olea Cunninghami, O. lanceolata, and Santalum Cunninghami; Black Maire, Olea apetala; Kohe-Kohe, Dysoxylum spectabile; Titoki, Alectryon excelsum; Kawaka, Libocedrus Doniana; Manoao, Dacrydium Colensoi; Kohutuhutu or Fuchsia, Fuchsia excorticata; Pokako, Elæocarpus Hookerianus; Pukatea, Atherosperma novæ-zelandiæ; Toro, Persoonia Toro. It will be seen from this list that three distinct plants are known by the native name of Maire, besides the Black Maire (Olea apetala), which produces wood of a larger size than the others; all, however, are strong, close-grained, and durable. A fine specimen of the Black Maire is in the Timber Museum at Kew. The heart-wood is of a dark colour, and seems to be readily distinguishable from that of Santalum, though Mr. Kirk states that, "most of the wood sections labelled Santalum Cunninghami in our museums belong to Olea apetala, the Black Maire." Of the Fuchsia (F. excorticata), a portion of a trunk about 8 feet high and 2 feet diameter is contained in the collection at Kew; it forms a durable timber for house building. In Dunedin, house-blocks which have been in use more than twenty years are reported to be still sound and good.

In the article in the appendix, "On the best season for felling timber in New Zealand," Mr. Kirk disproves the idea, prevailing amongst many persons, that trees have no period of rest in the colony—an idea, he says, arising probably from certain fancied resemblances between the climate and vegetation of New Zealand and of tropical countries, but for which there is very slight foundation. This subject is of sufficient interest to justify us quoting it in full. Mr. Kirk says:—

"It is true that on the coast north of the Auckland isthmus, especially on the eastern side, frosts are but little known, so that vegetation does not receive the sudden check which is felt in other places on the approach of winter; but it by no means follows from this that trees are growing as freely as during the spring and summer months. Even at the Bay of Islands deciduous trees shed their leaves. The Oak, Ash, Elm, Sycamore, &c., are as bare of leaves during winter as in any part of Europe; it is, therefore, obvious that a complete cessation of growth takes place.

"At Maugere, only 11 miles from Auckland, I have seen transplanted specimens of the native Puriri (Vitex littoralis) which chanced to make late autumnal shoots, much injured by frost, while older trees in the immediate vicinity were untouched. At Pokeno the Pohutukawa (Metrosideros tomentosa) under similar circumstances is cut back to the old wood, while small established specimens sustain no injury, and in the adjacent forest the Kauri, the most tender of all our native trees, does not exhibit the slightest discoloration. It is, therefore, evident that at least a vast diminution in the activity of arboreal growth must take place during the winter months, and this is demonstrated by an examination of the terminal shoots of any forest tree, when it is found that the soft pulpy condition characteristic of summer growth has become hardened in a greater or lesser degree. Some portion of the herbaceous and fruticose vegetation, under the favouring shelter of the larger forest trees, is doubtless in a more active condition, but even here growth is often reduced to a minimum, and many winter flowering shrubs do not produce new leaves until the spring. The prospects exhibited by summer-felled Totaia, of resisting the attacks of teredines for a longer period than that felled in the winter, appears to be dependent upon causes connected with the greater activity of the sap at the former season as compared with its dormant condition in the latter. There can, therefore, be no question that, even in the warmest parts of the colony, the circulation of the sap in trees is in a much less active condition in the winter season than in the summer, and consequently that the durability of the timber felled in the winter is much less likely to suffer from the process of fermentation than that felled during the spring or summer months. With regard to the southern parts of the colony an examination of the arboreal vegetation at Nelson, Christchurch, Dunedin, and the Bluffs shows that the growth of trees is arrested in the months of April, May, June, and probably July. So obvious is this that I can only suppose observers have been so deeply impressed with the occasional flowering of certain herbs and small shrubs during the winter months, in places near the sea, as to lead to the inference than a similar state of activity must of necessity pervade the forest vegetation—an inference scarcely more reasonable than it would be to suppose that the winter flowering of certain plants in favourable localities in the British islands evidenced similar activity to the Oak, Ash, Elm, and Pine of northern countries. A partial exception to the general rule may perhaps be found in the case of the Kauri, which evinces a decided preference for growing in sheltered places, even in the warm and limited area to which it is naturally restricted. This appears, in ordinary seasons, especially when growing in rocky soils, to suffer an arrest of growth immediately after the hot weather and diminished rainfall usually experienced in January and February. In compensation for this it usually commences its spring growth earlier than the Totara, Black Birch, Rata, &c., in its immediate vicinity. This arrest of growth in the Kauri is probably facilitated by the comparatively shallow depth to which its shoots penetrate, and the absence in Kauri forests of the dense shrubby vegetation so abundant under all other northern trees. I have, therefore, no hesitation in recommending, as a general rule, that timber should not be felled before April or later than July, except in the case of the Kauri, which in many situations may be felled from March to June, but much must be left to the judgment of the forester."

T. R. Jackson.

GRAFTING:

EFFECTS OF STOCK ON SCION.

We have the Gros Guillaume Grape—so long miscalled Barbarossa—in two different houses, grafted on the Muscat of Alexandria, and in another and cooler house on Black Hamburgh roots. In the Muscat-house, and in the cooler Hamburgh-house, we have it also on its own roots. The results under these three conditions are strikingly different. In both houses on the Muscat stock it swells its berries much more regularly and to a larger size than it does on its own roots in the same house, and on Vines of the same age. In the cooler Black Hamburgh-house it neither makes such large berries nor bunches, but it colours much more rapidly than in Muscat temperature on the Muscat stocks, or than it colours on its own roots in either house. We have one vigorous Vine on its own roots, in which there are just two moderate-sized bunches; but these two bunches are not nearly so fine in berry as bunches four times their size on Muscat roots under heavy crops. We consider this one of the noblest-looking, and in every respect one of the best, late Grapes in cultivation; and to those who wish to grow it to the greatest perfection in bunch and berry as well as high finish, we would say, graft it on a Muscat in a Muscat temperature, and allow the stock at the same time to develope either one or two bearing canes, as well as the graft of Gros Guillaume. It must be added, that it fruits more freely under closer pruning on the Muscat than on its own roots, or on the Black Hamburgh. *D. T., in the "Gardener."*

Home Correspondence.

Harvest Moon (Enquiry No. 63.).—I have always considered that the "harvest moon" was guided by the date of the autumnal equinox, being the moon nearest thereto, or the one existing when the sun is about to sink into the southern hemisphere; that is judging the equation from our own hemisphere—hence that the current moon is our "harvest moon." *William Earley.*

—— The moon is seen as a harvest moon when the sun is in the constellation Libra, which occurs about the time of the autumnal equinox, and the moon is in or near the first point of the constellation Aries when at full. At this time of the year the moon, from the first to the last quarter, rises a very short time later each successive night. Seventeen minutes is the least difference of time at London, whilst at the vernal equinox in the spring the difference, at the full moon, is as great as one hour seventeen minutes. The reason it rises so little later each night in the autumn is because its declination north is getting greater; in the spring the declination north is getting less. The present moon is a harvest moon, regulated by the above astronomical facts. *A. E. S.*

—— The "harvest moon" and the "hunter's moon" usually take place in September and October. This year the harvest moon took place on August 17. The moon is full only when in opposition to the sun, and as the sun is in the signs of Virgo and Libra only in autumn, the moon can be full in the two opposite signs of Pisces and Aries only in the above months; there can, therefore, only be two full moons in the year, which rise during a week almost at the same time as the sun sets: the former, occurring usually in September (on August 17, 1875), is called the harvest moon, and the latter in the month of October, being in a similar predicament, is termed the hunter's moon. I write this in answer to the queries of "M. T.," p. 342. The harvest moon rises almost at the same

hour during a week twice a year; it then takes the name of the harvest moon and also of the hunter's moon. The following may be added, and is interesting. The moon is distant from the earth 237,000 miles, so that, seen through a glass magnifying 1000 times, she would appear to the naked eye as if she were only 237 miles distant. The axis of the moon being almost perpendicular to the ecliptic, the sun never sensibly quits its equator: it follows that the moon enjoys no variety of seasons. As it turns only once on its axis during the period of revolution, each of its days and each of its nights is equal to fourteen and three-quarter times of twenty-four of our hours; and, what is very remarkable, one of its hemispheres is lighted by our earth in the absence of the sun, and has no night, while one has fourteen and three-quarter days' duration. By "lighted by our earth," I mean, the earth reflects the light of the sun upon the moon. *W. F. Radclyffe.*

Aristotelia Maqui in Fruit.—A fine plant of the above is now in fruit here—it is literally covered. I have known the plant many years, but never saw it in fruit before. It is loaded with berries in size and colour like the ripe fruit of the common Elder, but the clusters are closer to the stem, and not like those of that tree in shape. *H. Mills, Enys.* [Please send us a specimen of the fruit. EDS.]

Weight and Number of Cells in Fungi.—The enormous number, smallness, and excessive lightness of the cells of which fungi are built up is almost incredible. A large Mushroom like the one described in *Gardeners' Chronicle* for July 22, 1871, p. 937, and which weighed 4½ lb., would require for its construction no less than one hundred and six billions five hundred and ninety-six thousand millions (106,596,000,000,000) of cells. Each of these minute bladder-like bodies is furnished with a coat or cell-wall, and contains within itself protoplasm, water, and other materials. These fungus cells are excessively small, and so inconceivably light in weight that in a species belonging to the same order as the Mushroom recently examined by me, I found that it required no less than one billion six hundred and twenty-four thousand three hundred and twenty millions (1,624,320,000,000) of cells to weigh one ounce troy. How I arrived at these results I hope to report in some detail, with other matters of interest, in an early number of the *Gardeners' Chronicle*. *W. G. Smith.*

Celosia pyramidalis.—With this I send you a plant of the above, which I have taken out of the pot and sent entire, that you may see what a fine thing it is for autumn decoration, when managed well and flowered successfully. The batch of seedlings from which the one sent was taken (which is by no means the finest, though a fair specimen of others at home) was sown in heat about the end of February, and the seedlings were shortly after coming up pricked out and placed on a shelf in a forcing-house. About the middle of April they were potted off into thumbs, in some cases singly and in a few others two in a pot. By the second week in May they had grown too tall for the shelf, and were again repotted into 5-inch pots and stood in a pit with a little heat, where they were kept growing, being treated very liberally—a nice bit of heat and well syringed morning and evening: here they remained for about a month, when their final shift into 8-inch pots took place, and they were moved into the greenhouse. After making a little more growth they commenced to throw up their plumes of flower, and at the present time they are magnificent, many of them having plumes which are much more dense, but where that is the case the plants have not thrown out so many side shoots as the specimen I send you. With this you will also find two pieces of the same thing, but the plants from which these were cut are just thirteen months old. I sowed them last August in heat, and grew them in the stove up till about Christmas, when they threw up their spikes of flower; these were cut in most cases as soon as they were presentable, and the plants continuing to grow were potted on, and after making a short growth threw up a second batch of flower: these again were cut for vases, &c., and now on a few I have saved I have the fourth batch of blooms. You will notice they are not to be compared to the spring sown plants, still for a fourth batch of blooms they are by no means to be despised. I have another sowing just up, which I shall prick off in a few days and grow on in a house at present used for Cucumbers; from these I trust to be able to cut a good part of next winter. *W. Swan, Sept. 7.* [Very fine specimens. EDS.]

Pinguicula grandiflora.—I was greatly interested in the capital cut of this plant published in your number for July 10 last. It is a very common plant in all the mountains round Killarney and Glengarriffe I have also found it about here and elsewhere in quantities, where it often gets trodden down by cattle. The leaves of the plants are crowded in many instances with captured insects in various stages of absorption or decay. P. lusitanica also grows at Glengarriffe, Co. Cork. *James Graves, Inisnag, Stonyford.*

Old Apricots.—A notice was given of the old Turkey Apricot at Malshanger in your paper at p. 1112, 1873. Thinking it worth notice this year, I have kept a daily account of the number gathered. I also enclose a fruit or two, though the earlier fruit was rather finer. (I may mention that the fruit crop at Malshanger this year is most abundant.) Green fruit: May 11, eleven doz.; 14, twenty doz.; 31, twenty-six doz. Ripe fruit: August 16, fourteen doz.; 21, twenty-one doz.; 23, five doz.; 25, four doz.; 26, two doz.; 27, twelve doz.; 29, two doz.; 30, five doz.; September 1, fifteen doz.; 2, five doz.; 3, fourteen doz.; 4, eight doz.; 8, ten doz.; 9, one doz.; 10, seven doz. Total, 182 doz. This is as gathered, not counting fruit that dropped off. The tree is looking well. *Noah Knellor, Malshanger Gardens, Basingstoke.* [The fruit, as might be expected on so old a tree, was small, and of fair flavour. EDS.]

M. Jean Sisley's New Double Pelargoniums.—These varieties are a very great acquisition, all of them being exceedingly beautiful, and quite a distinct race of plants from the double sorts which have originated in this country. I have succeeded in flowering four of them which M. Sisley kindly sent me for trial. They are all of a dwarf and compact habit of growth, with foliage of medium size, and distinctly zoned; the flowers are all semi-double and large, with the centres loosely filled up with smaller petals than the outside ones, and in every instance they form large globular trusses, thrown well above the foliage, supported by stout flower-stalks. In colour they are novel and distinct. Louis Agassiz has light shaded pink flowers, which are really very beautiful. Louis Buchner: flowers with salmon-coloured centre, the outside petals being of a light bright pink colour. Henri Lecoq: flowers of a salmon-shaded pink, the plant being of dwarf habit, with heavily zoned foliage. Sylphide is, perhaps, the most beautiful of all, the flowers being of a rich mauve or rosy pink colour. Of older sorts by the same raiser George Sand is a magnificent variety, being a great advance upon Aline Sisley. The flowers are exceedingly large, with the outside petals well rounded; the colour very light rosy pink, or nearly white. When grown under glass the plant is of dwarf habit, with somewhat small and peculiarly formed leaves, slightly zoned. François Pertusati: centre of the flower salmon, with lighter coloured marginal petals. Talabot: the flowers of this variety are of a rich velvety deep amaranth colour, and are an improvement upon those of the older variety—Gloire de Lyon. *P. Grieve, Culford, Bury St. Edmunds.*

Planting a Wire Fence.—I have here about 200 yards run of 4 feet galvanised wire fencing, six strands of wire, and iron uprights at every 6 feet. It is recently put up, and fences in a couple of acres of ground on the west and south sides. I have permission from my landlord to utilise it in any way, and it seems to me that it would be most profitably employed if planted with fruit trees, to produce good market crops. I am anxious to have the opinion of any of your practical readers on this matter—first as to sorts, and second as to mode of training. I should prefer Apples or Pears, or both, and should also prefer kinds that are not

FIG. 77.—VIEW IN THE ROYAL BOTANIC GARDEN, EDINBURGH.

commonly cultivated in market gardens, and sorts that are known to be suitable for such training. Would single upright cordons or oblique cordons be best? or would it be better to plant a strong tree at each upright, to be trained horizontally, as espaliers? and which would be the best stocks for the purpose? If single cordons were planted, what distance should they be from each other? About six kinds would be sufficient, as a few sorts and plenty of produce is best in market speculations. The beautiful examples of the Red Astrachan Apple I have recently seen leads me to ask whether that variety is suitable for cordon work, as I know that many kinds are sparing of fruit if closely spurred. *A. D., Middlesex.* [We should gladly receive any hints on these subjects from those of our correspondents who may have practical experience. EDS.]

Green Corn.—Referring to Maize (p. 20, July 3, 1875, of *Gardeners' Chronicle*), by far the best way of eating green corn is the Indian one, viz., as "Bhoottas." The cobs are deprived of the bracts and pistillary hairs, and roasted whole, till the grains are slightly browned. While hot, smear with butter, sprinkle with pepper and salt, and eat the grains off the cob, holding one end in each hand. The corn should be half ripe, sweet, and milky. Those who have not tried it Indian fashion need not make any objections till they have done so. *E. B., Lucknow.*

Snowflake and Eureka Potatos.—Having seen several accounts of the crops raised from single pounds of seed of the above-mentioned varieties of American Potatos, I venture to forward an account of the produce grown here from the same weight of seed. As I am a competitor for the prizes offered by Messrs. Hooper & Co., the Potatos for planting were weighed, the sets counted and planted, and the produce weighed in the presence of their agent, besides a number of other witnesses. They were planted on April 13, and Snowflake was lifted on August 13, the produce being 638 lb. Eureka was lifted a week later, and the astonishing quantity of 1082½ lb. was the weight grown from 1 lb. of seed. Snowflake is a remarkably handsome Potato, but with me it has suffered severely from the disease. Eureka is a later and more robust variety than the preceding, and produces very large Potatos, 300 tubers weighing 369½ lb. It appears to suffer less than Snowflake from the disease. *Fredk. Ford, The Gardens, Capesthorne, Chelford, Cheshire.*

Potato Crops.—Having seen a good many accounts of the Potato crops I enclose you an account of the produce of six sorts which I planted for trial—1 lb. each sort. They were all planted same day, and had the same treatment in every way. The result was as follows:—Snowflake, 77 lb.; Early Rose, 56½ lb.; York Regent, 53½ lb.; Hundredfold Fluke, 39 lb.; Jersey Blue, 34 lb.; Paterson's Victoria, 30½ lb.;—total, 290½ lb. *D. Brown, Bagshot.*

Hull Botanic Garden.—On reading over a very interesting article on the Glasgow Botanic Garden (p. 326) I find it placed on record that the Glasgow garden, founded in 1817, is "many years older than the Manchester, Hull, Sheffield, and Birmingham gardens." Allow me to make a slight correction in claiming precedence for the Hull Botanic Garden, when I say that it was established in 1811, very shortly after that of Liverpool, and that it claims the honourable title of the second provincial garden formed in Britain—always, of course, excepting those connected with our Universities. The present garden, which, when first established, was far in the country, has long since become completely surrounded by streets and buildings, almost entirely destroying its value for horticultural purposes. I am, however, pleased to state that the plans for a new and extensive garden are already prepared, and within the last few days the negotiations for the purchase of between 40 and 50 acres has assumed such a tangible shape, that I trust before another year elapses some progress will be made in its removal. Having had, in my juvenile days, many pleasing associations with the Glasgow garden, I am exceedingly pleased to learn by your correspondent's report that they are again, under Mr. Bullen's management, regaining much of their pristine interest. *Jas. C. Niven, Hull.*

Adiantum concinnum.—If "Subscriber" (see p. 278) will turn his pot of A. concinnum over on its side, and with a quill remove all the loose soil, he may discover the cause of the failure he complains of in the shape of a weevil. These insects burrow down in the soil by day, and at night eat all the young fronds as they endeavour to grow. I find this insect is very fond of all the Adiantums. I have found, after taking away all the loose that soil, a sprinkle of silver-sand over the surface will help to discover their hiding places. *H. M.*

On Coloured Leaves.—In admiring richly shaded leaves, I try to forget that they are really disease and imperfectly developed Nature. I confess that the present fashion of displaying such glaring leaves in beds as substitutes for flowers is to me a very ugly fashion. The result is gaudiness and formality, the very reverse of the graceful and picturesque one looks for in flowers and trees. I quite wonder at this vitiated taste for the queer and gaudy having so entirely taken up the place of the natural productions cultivated to their highest natural attainment of healthy form and colour possible for garden ornament. The beauty of Nature consists in the contrast of the natural brilliant colours of natural healthy flowers with the natural various shades of green on their healthy leaves, and the natural grace of their natural growth and forms. Now-a-days artificial and perverted development take the place of all this natural beauty: coloured leaves are, in fact, only diseased and morbid developments, which gardeners have cultivated and propagated. Monstrosities multiplied *en masse* and gardens so laid out, in fantastic forms of geometrical regularity, give me no real pleasure. It is a dazzling glare, that tires the eye instead of recreating it, as the blending of rich colours and pure green leaves does; and, as to form, is not a climbing Rose in high cultivation more beautiful than the same Rose clipped to a standard? Considered in the *ensemble* of form and colour, is not a choice Pelargonium, whose flowers are heightened in colour by the contrast of a background of natural green-shaded leaves peeping out between, a more beautiful object than the fall of bloom without a leaf to be seen lately exhibited as a prize flower. It reminded me of a prize Christmas bullock or bacon pig, compared with the naturally well-fed and exercised animal that has a proper healthy and sufficient proportion of muscle, fat, and coat, to exercise a healthy activity, and show to advantage what Nature intended should be its utmost limits of beauty in form and grace in action. The latter seems almost a joke applied to a pig; but, in fact, a naturally healthy pig is in a way graceful by comparison with a lump whose eyes and legs have disappeared, whose nozzle is a small protuberance lost in a lump of cheeks, and whose belly drags on the ground, while the poor thing cannot stand to feed. *F. C., Brighton, August.*

Rhynchospermum jasminoides.—In reply to the inquiry of "H. H." on p. 272, and to substantiate what P. H. Gosse has written in the *Gardeners' Chronicle*, p. 298, I beg to state that four large plants of this species are growing in front of the conservatory at Lady Prescott's, Stroud Park, Herne, Kent. They receive no protection except a mulching of long litter in winter, and the plants are a picture to behold, full of their snow-white scented blooms dotted over their healthy bright green foliage, and to such perfection as is never met with under glass. The plant is more hardy than many suppose, and when planted in a dry, sandy, or well-drained soil, in a sheltered situation, it is quite a success, and proves itself one of the best and most ornamental creepers we have. *W. G. Miles.*

The Royal Horticultural Society.—In the letter you were good enough to insert last week there are two rather important misprints. I am made to say "perennial" show in June, instead of "provincial," and "Azalea" show as fixed, instead of "autumn" show. Will you allow me to add that the only interests I have thought of in the matter are those of the Society itself? *A Well Wisher.*

Vines at Metheringham.—I planted two Vines in a small greenhouse, April, 1873, one named Buckland Sweetwater, the other Mrs. Pince. The first year the Vines grew but little wood, so I cut them down to two or three buds, but in 1874 the Vines grew strong healthy wood up to the top of the house. Living at a distance, when the leaf was fallen I went to prune them, but first consulted the lady of the house about the quantity of bunches, as I saw the white one was sufficiently strong to bear 12 lb. of Grapes. The next summer I asked if she would like six bunches to weigh 2 lb. each, or twelve bunches of 1 lb. each, or twenty-four bunches to weigh ½ lb. each. The lady preferred the twenty-four bunches, as more convenient for special purposes. I shortened down the shoots with judgment, having an eye to the twenty-four bunches. The Vines slept through the winter. I pruned them three times in the summer. At the first pruning I was surprised to find every bud had broken well, many of the shoots with three and four bunches on, so I cut off 140 bunches, leaving twenty-six (two extra). The last pruning was on September 2. The Sweetwater has ripened to perfection, some of the bunches weighing over 2 lb. each, and but few bunches less than 1 lb., so instead of the Vine bearing 12 lb. there are over 30 lb. of white Grapes. Mrs. Pince has also several bunches weighing over 2 lb., and, what is still more surprising, many of the latter have small bunches, and some of the tendrils 9 inches long, with five or six nice berries, are just beginning to colour a second crop. Many there are who contend for border soil material or situation, but these Vines were planted without any preparation as to border, on a poor scratchy soil. *R. Baker, Gr., Metheringham.*

On Drying Botanical Specimens in Plaster of Paris.—In drying leafy sprays of trees or soft-coated bulbs for museum illustration there is often a great difficulty in preserving them in any tolerable approach to their natural appearance and dispositions of growth, as it is only in exceptional cases that they can be characteristically displayed laid flat as for the herbarium; and, acting on the hints conveyed in some of the earlier numbers of the *Gardeners' Chronicle* of the present year, with regard to the chief point in preparing specimens being to secure their rapid drying, I have recently tried substituting fine plaster of Paris in powder for blotting-paper, with some success. The objects have been in all cases, not flowers, but strong firm textures, such as sprays of Oak leaves, the Bedeguar of the Rose, a bulb with all but the external coats removed, or similar specimens, such as chanced to be required at the time; and now (as far as a few weeks can show) the colour remains very fairly—not perfectly, nor with the brilliance of life, but still very differently to what occurs if the specimens are left to dry of themselves; whilst the firm pressure of the plaster all round insures the correct shape and position of the leaves being retained without the wrinkling and twisting hither and thither, often spoiling such objects as cannot be pressed flat. The method I have tried is simply to place a thick layer of good and dry plaster of Paris powder at the bottom of a box (just to keep it together), laying the spray to be dried on it—or, better still, sticking it upright in the powder—then gently sprinkling the plaster from above, driving it in amongst the leaves from the sides and up from below, till by shaking and pressing firmly in every direction the spray is fixed in a solidly compressed mass, so firmly driven together that it is impossible for the leaves to move into any other position than the one they are secured in. The absorbent powers of the plaster rapidly draw out the moisture from the specimen, and if it is shaken from the powder in about three days, to correct any wrongly placed bit, and supply a fresh surface of plaster for absorbence, and then firmly replaced as before, it will probably be found thoroughly dried in about a week—less rather than more. The chief difficulty is the adherence of some small quantity of the plaster to the dried specimens, the white powder taking away from their beauty, if allowed to remain; but this can be almost entirely got rid of with water gently applied by a camel's-hair pencil, or possibly dusting the leaves with any adherent and darker powder, so as to forestall the adhesiveness of the slightly damped plaster, would probably put it to rights. In the case of a hollow soft bulb like an Onion the shape can be preserved, and also the characteristic smoothness of the outer coats, in a great degree, by removing as much as possible of the inside, and then replacing it with plaster powder, driving it in as firmly as possible, till the outside has its quite correct shape again, lying quite tightly and naturally smooth over the contained mass of dry powder; binding it carefully round with threads before placing it in the surrounding powder is an additional security. As far as a few weeks' trial shows, the method appears to answer sufficiently well to be serviceable, and in some degree meet what is a great working difficulty; and if any brother correspondents should chance to have experimented in the same path, and would be good enough to mention their success, or what might be of service similarly, the benefit of their suggestions would be a great obligation. *O.*

Artichoke Oak Galls.—Referring back to the *Gardeners' Chronicle* for November 25, 1871, p. 1518, and other pages—Muller's Acorns—I note that the inner cell may now (first week in September, 1875) be seen protruding in the form of a cylinder, and of a dark colour, from some few, not many, of the Artichoke Oak galls. It occurs to me that those protruding may produce the rare Aphilothrix, and that those mentioned by Synergus, Callimame and others may be those that do not protrude. *T. J. W.*

Notices of Books.

Vorlesungen über Dendrologie, 1874-75. (*Lectures on Dendrology.*) Von Karl Koch. Stuttgart: F. Enke. 1875.

The Upper Ten Thousand in Berlin, during the last winter, enjoyed an intellectual gratification similar to that which our privileged class used to revel in in the palmy days of the Royal Horticultural Society, when Dr. Lindley explained the subjects exhibited at its fortnightly meetings in its house at Regent Street, and spread botanical and horticultural knowledge among the votaries of fashion. Professor Koch, of Berlin (better known by the more endearing title of Karl Koch), has taken that town by storm in a somewhat similar fashion. He last winter delivered to the general public there a course of lectures on what he called Dendrologie—Horticulture with us—which became so popular and fashionable that he was prevailed upon to repeat the lectures at another hour

to what we should call a ladies' class, thus giving two extra lectures every day, besides his usual university work. No trifle, we should say, for a gentleman well on to 70 years of age, if not beyond it.

The lectures so delivered have since been published, and, on perusing them, we are not surprised at the enthusiasm with which they were received, for more pleasant, instructive, and agreeable prelections it would not be easy to conceive; and, pleasant as they are to peruse, we can also easily imagine that in delivery they must have been still more delightful, for we all know how much it adds to the interest of a subject when the speaker is giving the result of his own observations when he tells the tale of what he himself has seen, or incidents in which he himself has borne a part. In speaking of horticulture Professor Koch is probably better qualified so to interest his audience than any other man we could name. There are men who have had the advantages of farther travel in unknown lands and distant regions of botanical interest, but so far as regards horticulture no man living has had such opportunities for personal observation as Karl Koch. In addition to his early travels in the East, in the Caucasus, Persia, Kurdistan, the Crimea, &c., he has for the last twenty years and upwards been, we may say, officially present at almost all the horticultural *réunions* throughout Europe, and has had occasion, in the execution of his duty, again and again to visit all the great foci of horticulture both of ancient and modern times. In marked contrast with the treatment of our horticultural and botanical chiefs (at least by our late economical Government), the Prussian Government has long since recognised the importance of encouraging the acquisition of information by their public teachers, so as to keep them always at the level of, if not ahead of the general tide of knowledge; and in the case of horticulture has done so by if not actually insisting on their presence at the principal exhibitions and *réunions*, by at least encouraging their attendance there by providing for their expenses by suitable money grants. This has been part of Professor Koch's work, and in consequence he has seen the whole of what many men have seen parts of. When, therefore, he speaks on any point of his larger subject, his audience had not only the guarantee of his personal knowledge for his accuracy, and the advantage of individualised locality, of which we have above spoken, but the charm of his manner and natural eloquence added to his other acquirements.

He divides his subject into three heads. The first is the history of gardens, under which he includes the horticulture of the ancients, the Egyptians, and Semitic races; that of the Persians, Chinese, and Japanese; of the Greeks and Romans, the Italian, the French, the Dutch, and the English styles, &c. Of this a brief sample or two must suffice. Of the ancients we may take his account of the Roman love for Roses.

"Towards the end of the Republic in Rome, to which already almost the whole of the then known world was subject, luxury was at its height. The riches extorted from the subjugated nations were squandered in the most foolish way. There was no knowing what undertakings a man with money might not begin. The poor nightingales must give up their tongues to furnish a *ragout* for a Roman gourmand. A Roman fine gentleman injured his standing if he set before his guests at the sea, sea fish, and in the interior of the country, fresh-water fish. At immense cost sea fish had to be provided here, and fresh-water fish there. Not less foolish was the custom of sleeping on Rose leaves—the couches were heaped several feet high with Rose leaves. Even Cicero must sleep on Roses and Violets. Propertius must even be buried in them, for in that case, as he sings, the earth would lie lightly on him. An effeminate Roman complains of the folded Rose leaves on his couch hurting him. The Proprætor Verres in Sicily was carried about in a litter resting on cushions filled with Rose leaves, and a bouquet of Roses had to be carried before him. The supply of Roses at Rome must at that time have been very great. Pæstum sent most, and after it Egypt, where the Roses of Cyrrhene at that time were renowned. Great vessels came to Rome, which were only laden with Roses. This Rose mania, for by no other name can one call it, contributed not a little to raise the position of gardener in Rome."

When he comes to the style of more modern times he passes many of the gardens of celebrity under review, and we may note *en passant* that although not in all respects rendering it unqualified praise, he accords Battersea Park the first place as the finest specimen of a subtropical garden within his knowledge. He is never blind to the merits of any horticulturist, but his æsthetical taste leads him to dwell with most enthusiasm on those who turned their special attention to landscape gardening, and in that connection he naturally dwells upon the excellencies of Prince Puckler Muskau and the gardens that he with so much taste beautified near Potsdam.

The second division of his lectures is not less, perhaps to many will be still more, interesting, than the preceding. It treats of the growth and life of trees, and their relations to men and to climate. On these points he touches on many subjects of great interest. Speaking of the miasmatic effects of decaying vegetation, he seems disposed to adopt the theory which refers the origin and dispersion of infectious diseases to the minute spores of the lower microscopic organisms which, flying through the air, find a nidus in the animal frame—a hypothesis which for some years past has been greatly in vogue among scientific medical men in our own country, but which, according to our views, is only one of those ingenious mare's nests of which the present age has been so prolific.

Professor Bastian, in an admirable address lately delivered to the Pathological Society of London (and which has since been published in the *Monthly Microscopical Journal*), has gone over the whole subject, and, although it is of course impossible for one man to say how much convincing another man will take, or what doses of proof, inference, and argument he can swallow without their operating, we may at least state our own conviction that Professor Bastian has proved his case, and shown that the Bacteriæ and other minute organisms, on the presence of which in sputa, sores and excreta of patients the spore theory of contagion is based, are in reality produced by heterogenesis or archebiosis. Professor Koch, however, adopts, although obviously by no means very warmly, the prevailing hypothesis; but, whether it be true or not, the facts which he mentions or reminds us of in relation to it are interesting to us all. He says:—

"The Bacteriæ or Schizomycetes play a very important *rôle* in man's economy. They are the bearers and introducers of contagious matter in all our membrane illnesses, as the small-pox, measles, scarlet fever, &c.; further, they bear a part in gangrenes and ulcers, and finally take their share in producing internal ills of an intermittent character, diphtheria, &c. Whether, in the last case, they are the cause of the illness, or only appear in the latter stage, science has not yet determined. The last appears most likely. But the Bacteriæ always contribute to the intensifying of an illness.

"How they themselves are situated with regard to miasma we do not know. By miasma, as with contagion, we understand the producing agent of certain diseases from which man suffers in great numbers at certain times, when, as man himself expresses it, an epidemic appears. To our minds the origin and true explanation of these miasmas, in spite of all man's scientific researches, is still involved in obscurity, but we have an almost intimate conviction that it has one and the same source as contagion, and likewise stands in some connection with the Bacteriæ. The question must be settled by the exact study of single diseases.

As already said, these Bacteriæ abound increasingly wherever putrefaction is going on in nitrogenous substances. Woods and plants of all kinds, animals large and small, and the ground itself into which their elements are received when they fall to pieces, are all spots favourable for their development and increase; and the greater the warmth with sufficient moisture the more intense and rapid will be the putrefaction that takes place, and as much greater the increase of the Bacteriæ. When men, especially if already ill, stay in spots favourable for the generation of Bacteriæ they are most subject to the danger, and will probably be seized. Before I follow the subject further, and try to point out that our collective epidemic maladies apparently originate in or proceed from these Bacterian spots, it may be well to give two instances from my own experience. The east coast of the Black Sea, from the mouth of the Cuba, in the Sea of Azov, to the estuary of the Pontic Mountains, is covered with forest. These are for the most part so thick that in them, even on the clearest day, a certain amount of obscurity always exists. The sun is never able to do more than throw in a ray of sunshine on the tree tops. From where the Caucasian mountains end in the south onward to the Pontic Mountains lies the Delta of Rion, the Phasis of the ancients. Here the water has for the greater part no outfall, and makes the ground very swampy. At such places, in the hot summer days, miasma is engendered, which brings out the justly dreaded fever of the Black Sea, and makes the sojourn of man in the forests very dangerous. At the limit of the Russian Trans-Caucasus towards Turkey, and seemingly lying in the middle of the Rion Delta, when I visited the neighbourhood in the year 1836, there were only some miserable wooden houses in which some Cossacks of the Don and custom-house officers lived. Upon the map also in Russian was laid down a fortress which bore the proud name of St. Nicholas, but a name illspoken of and feared because of the fever. My first reception in one of the best houses was in no way inviting. They took me into a room where the governor of the Cossacks had such a violent fever that he barely escaped with his life.

"This fever raged there in such a way that the Cossacks had to be changed every six weeks. Horses and fowls also, which have only been there a short time, take the fever and die in a short time if they are not quickly taken away. The men without exception were all of a pale grey appearance. St. Nicholas then lay in the midst of brushwood, not far from which, towards the interior, began the thick and unhealthy forest. Towards the sea one met with brackish water in some parts, which was by the enormous tropical heat that prevails there in summer continually evaporating, and soon one might be drawing in miasma with one's breath. Fresh storms were continually bringing down fresh streams, so that the ill-smelling, brackish water was continually renewed.

"When I went through this neighbourhood on a later journey, much had been done by the Russian Government to make St. Nicholas somewhat healthier. A stay there is no longer so dangerous. The natives of the country who have independent residences come here in preference to all other places in their district. In spite of that St. Nicholas remains, as before, a very unhealthy place, into which no European at least should venture.

"I will only add here, that in the east of the great Caucasian mountains a similarly unhealthy place exists exactly where a thickly-wooded plateau is divided into a northern and southern side. In the war with Schamil which was fought here, Russia lost many thousands of her soldiers. I have seen with my own eyes a detachment of troops of 800 men, that had come from the north, in a fortnight before they had marched against the enemy reduced to half its strength through sickness. So murderous is even a short stay in these notorious woods.

"A second instance, bearing upon the point in the south, is afforded by the much-talked-of Maremma between Civita Vecchia and Leghorn, in Italy. It is an erroneous statement to say, as it is sometimes done in books, that the Maremma is a marshy or swampy plain out of which the waters cannot flow. The unhealthy and ill-spoken-of places are, on the contrary, hillocks, and even hilly, lying at some distance from the coast, moderately open and with woody-grown valleys through the heaped up rolling masses of earth, in which the water is unable to find an egress, and, consequently, stagnates, and in that way causes the marshy condition spoken of. This condition has continued for so many years, and the accumulation of earth and *débris* thrown up by the sea has reached such a height that great difficulty would be found in making a regular outfall for the stagnant waters in those valleys."

The third section into which he divides his lectures is devoted to Conifers, and this being of a more detailed nature gives us less scope for quotation, and we should imagine would to all but a few enthusiasts in Conifers be less readable and less interesting to the general body of his hearers; and as we have already exceeded our limits, we conclude by cordially recommending the work to our readers.

Koloniaal Museum op het Pairljoen bij Haarlem—*Overzigt van het Museum als Leiddraad voor de Bezoekers.* (Visitors' Guide to the Haarlem Museum of Colonial Products.)

A few years ago the Nederlandsche Maatschappij ter Bevordering van Nijverheid, or Dutch Society for the Advancement of Industry, established a museum of colonial products at Haarlem, and already in 1872 a descriptive catalogue of the wood collections appeared, edited by the curator, M. F. W. Van Eeden. This is now followed by a general review of the contents of the museum, as a guide for visitors. It is only a small pamphlet, but it possesses some interest on account of the outline given in it of the introduction and cultivation of various vegetable products of the tropical regions in the Eastern Dutch colonies. The Dutch were among the first to attempt the cultivation of various valuable trees, &c., for their products; but for a long time it remained a Government monopoly. This guide, however, is a mere outline sketch of the mineral, animal, and vegetable products exhibited in the museum, which is located in a building that was formerly the summer residence of King Louis Buonaparte. The museum also contains a collection of objects illustrating the native industries of the various colonies, and it is well worth a visit from those interested in the development of the resources of our Eastern Empire and other colonies.

—— We have received from the Rev. Henry Moule, a copy of some *Harvest Hymns*, to which we beg to call the attention of those engaged in organising harvest festivals. The spirit and the tone are admirable, and they are such that any one who has a sense of gratitude and reverence may cordially assent to them quite independently of any sectarian or dogmatic view he may happen to hold. They may be obtained from Mr. Ling, of Dorchester.

—— The September number of the *Florist and Pomologist* contains two coloured plates, one of two varieties of Cherries, the early Lyons and the Ohio Beauty, the former a large and handsome dark Cherry, the latter a yellowish red. Both are said to be worth a place in every garden where Cherries are prized. Mr. W. Miller has an article advocating the planting-out system in preference to pot culture, and no doubt it is only from motives of convenience that pot culture is still predominant. Some woodcuts of Japanese evergreen Oaks are given, with descriptive notices.

—— The *Botanical Magazine* for September contains figures and descriptions of the following plants:—Primula Parryi, a native of the Rocky Mountains of Colorado, described as perhaps the handsomest Primrose ever introduced except P. japonica, and, as we presume, quite hardy; Draba Mawii, a pretty dwarf white-flowered species, suitable for rockwork; Crocus Boryi, a delicate autumn-flowering Crocus, common on the mainland, and in some of the islands of Greece; and lastly, Wahlenbergia Kitaibelii, an alpine plant from Croatia and the Banat, with decumbent stems, linear leaves, and purple bell-shaped flowers. As figured, the plant appears extremely attractive.

HORTICULTURAL EXHIBITIONS, 1875.

SEPTEMBER.

29 and 30.—Potato Show at the Alexandra Palace. Hon. Sec., Mr. P. McKinlay, 23, Upper Thames Street, London.

OCTOBER.

6.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees. Fungus Show, and Exhibition of Cones.

NOVEMBER.

10.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
15 and 16.—Loughborough Chrysanthemum and Fruit Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.
25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

DECEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 18, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Sept. 20—Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY, Sept. 21—Show of Bees and their Products at Crystal Palace (three days).
WEDNESDAY, Sept. 22—Sale of Dutch Bulbs, at Stevens' Rooms.
THURSDAY, Sept. 23—Royal Horticultural Society of Aberdeen: Autumn Show.
SATURDAY, Sept. 25—Sale of Dutch Bulbs, at Stevens' Rooms.

THE GREAT INTERNATIONAL FRUIT AND FLOWER SHOW, held in the Music Hall and Assembly Rooms, Edinburgh, on Wednesday and Thursday last, was certainly one of the best which has been seen in this country, and in the display of high-class Grapes probably the most important which has ever been held. Unfortunately the building in which it was held was much too small for getting it properly displayed, and the space far too limited for the convenience and comfort of the visitors, on account of the crowding and the resulting overheating. Unfortunately, too, the arrangements for directing the course of the throng of people who attended were too complete, since, once in, there was no possible egress, no alternative but to pass up and down the whole series of narrow avenues to the end; whereas, had there been a cross-opening here and there, it might have saved the less horticulturally-inclined visitors many a weary step, and have tended to relieve the pressure of the crowd upon those who were most interested in the exhibits.

The reason set forth for holding this show, which took place under the auspices of the Royal Caledonian Horticultural Society, is that the great London and English provincial societies hold their principal exhibitions only in summer, so that a large and important class of autumn fruits would not be brought before the public in any other way. Hence the Edinburgh autumn show has come to be the best fruit show which takes place in Great Britain, and many of those gardeners who have the opportunity to make a professional tour about this season contrive to take Edinburgh *en route*, so that it has come to be a great gathering place of members of the craft. This brings us to notice one very commendable feature in the arrangements connected with these great shows held by the Caledonian Society. The managing committee provide for having both fruit and plants judged in the early morning now, so that the whole is completed in time to admit gardeners at a reduced entrance fee, between the hours of 9 A.M. and 11 A.M., when they have the exhibition place all to themselves, after which—namely, at 11 o'clock—the gardeners clear out, and the show is opened to the subscribers, and to those also of the general public who are provided with admission tickets. The gardeners have thus an opportunity of discussing the merits of the various exhibits in their own way, without blocking up the passages to the discomfort of the paying public. Some arrangement of this sort is much needed at the great London and provincial shows. It involves some increase of expense for the judges' accommodation, but this should be more than counterbalanced by the increased time available for receipts.

To revert to the show itself. The display of Grapes was its grandest and special feature. Mr. JOHNSTON'S (gr. to the Earl of STRATHMORE, Glamis Castle) bunch of Muscat of Alexandria, and Mr. REED'S (gr. to A. H. MONCURE, Esq., Dundee) bunch of Mrs. Pince's Black Muscat, to which the Veitch Prizes and Medals were awarded, were as perfect examples of Grape growing as one could desire to see; while the sensational element was amply satisfied in the bunch of Raisin de Calabre, weighing 26 lb. 4 oz., which was shown by Mr. CURROR, gr. to J. DOUGLAS, Esq., of Eskbank, and to which the Veitch Prize and Medal for the most meritorious bunch of white Grapes, not Muscats, was awarded; and the seedling from "Barbarossa," weighing 12½ lb., shown by Mr. HUNTER, gr. to the Earl of DURHAM, Lambton Castle, a handsome well-shouldered bunch, nicely swelled, but not fully coloured.

Next to the Grapes perhaps the Peaches were most remarkable for their size and colour; those selected for prizes out of the many which were staged were grand examples of this delicious fruit, and the colour of the 1st prize lot was superb. Nectarines, Plums, and Apricots were all shown in considerable quantities, and were fully up to the average in quality; while Pears and Apples were shown in large numbers, and the Apples especially were remarkably fine, clean grown examples, including some varieties not common in the South. All these matters will be found recorded in detail in their proper place in the report at p. 368.

The prizes for collections of fruit were well contested for, and were highly creditable to the several growers, Mr. JOHNSTON taking the lead; so also were those for the collections of eight sorts of Grapes, in which class Mr. HUNTER took the precedence, beating his opponent through the size and evenness of his bunches rather than by superiority in berry and finish.

The show of plants and cut flowers was remarkably good. Among the former, Palms and Ferns were predominant, and made a fine display, a few flowering plants and Orchids being intermixed. To a plant of Renanthera coccinea with a splendid spike of flowers, and grown by a labouring gardener, the Veitch Prize and Medal for the best Orchid in the show was awarded. Messrs. VEITCH & SONS and Mr. B. S. WILLIAMS, amongst English nurserymen, and the Lawson Seed and Nursery Company, each contributed handsome groups of decorative plants, while in the various anterooms were to be found in profusion first-rate cut flowers of Dahlias, Hollyhocks, Asters, and Gladioli.

With so many attractions, and fine weather to boot, the show should have proved in every way successful. The prizes were liberal, the competition keen in most of the classes, and the admiring lookers-on numerous — numerous enough, let us hope, to compensate the Society for its risk and outlay; for it is well that the recollections of these major horticultural gatherings should be pleasant to all concerned.

IN many instances the GREED of TRADE, or, to speak in more polite terms, the enterprise of commerce, largely benefits the community, but at times it results in shopkeepers placing before the public goods which it is a disgrace to expose for sale. In no instance is such indifference shown as to the quality of the stock as with greengrocers, and at no time is it so apparent as at the present season. At all large markets, and in most of the shops where fruit and vegetables are sold, may now be seen bushels of Plums only just turning colour — Apples that are merely windfalls, or which are gathered so green as to be positively unwholesome. On every side is apparent an unworthy haste to send up to market fruit which, if left on the trees, would have matured into wholesome food, but which in its present condition, full of crude, sour juice, is positively injurious. COBBETT, whose terse and vigorous English was always employed in denouncing shams, and advocating simple, straightforward living, condemns the rage, which even in his days began to be strongly exhibited, of seeking to have things out of season.

By things out of season, we do not wish it to be understood that we allude to the splendid productions of the hothouse and orchard-house, for by such means we bring the cultivation of the fruits of warm climes to our own doors, and produce them finer than they grow in their native habitats; nor, when we mention the shops where fruits are sold, do we allude to the large fruiterers, where the produce exposed for sale is generally a marvel of skilful cultivation, both as regards size and flavour. It is in the ordinary shops, frequented by persons who, if not poor, are limited in means, that there is so often displayed fruit which is not only not tempting in appearance, but absolutely unfit for consumption in a raw state, the only possibility of utilising it being by means of thorough stewing and unlimited sweetening. The sale of unripe fruit is not the worst phase of the trade at this season; in poor neighbourhoods bushels, nay, tons of fruit are exposed for sale which is only fit to be thrown on one side for pigs, or to swell the bulk of the manure-heap. Plums half-rotten, as well as unripe Apples, abound, which should have been confiscated by the first sanitary officer who chanced to see them. Yet such rubbish, ticketed at so much per pound, finds a place in hundreds of our fruit shops. The shopkeepers no doubt consider that those who buy should be the best judges of what they purchase, but such a plea would not save the butcher who exposed bad meat for sale, nor should it be put forth in exoneration of the greengrocer who sells food quite as obnoxious as that of the conscience-lacking butcher, and much more dangerous, for putrid meat obtrudes its unwholesomeness instantly upon sight and smell, while decaying fruit is sold under the euphuistic plea of being over-ripe. Fruit picked while green and artificially ripened never has the flavour of that which is left for a proper time upon the tree; this is verified every day by the fact that imported fruit is never worth so much as English grown.

The power of the solar rays upon the appearance was exquisitely expressed when it was said of a beautiful woman—

> "Her cheek was like the Catherine Pear—
> The side that's next the sun."

Of the superiority of freshly gathered to packed fruit and vegetables there can be no doubt, but so great is the demand in the metropolis that the immediate environs cannot supply its wants, and we are, perforce, compelled to depend upon imported and distant home supplies, which must necessarily suffer from packing and transit. Such things must be, but it is not a matter of necessity that the bulk of the fruit brought to the metropolitan markets should be gathered almost before it has begun to colour, and while it is full of crude, indigestible juices, which in a little time would have been turned by Nature's never-failing processes into nourishing, beneficial food.

It is not fruit alone which is gathered immature, and therefore lacking nutritive qualities, but vegetables, notably Tomatos [vegetables in a kitchen-garden sense], come to London packed in boxes, and only just changing their original green to pale yellow tinged with pink; while the trade is so eager to supply Nuts that they are sent to market almost before

the kernel has formed, certainly long before it is mature; this is very frequently the case with Filberts, Hazel nuts, and Walnuts, indeed these latter are sent up in the green husks so young that the women, who are numerously employed in Covent Garden Market, have great difficulty in cutting off the still adhesive covering.

The rapid rate of living affected by the mass of the population has apparently infected even the market gardeners, who, compelled to keep pace with the demands of the salesmen, outrage the laws of Nature by gathering crops not in their season, but when they will command the highest price. Such haste out-wits itself, and large quantities of useless, pernicious green fruit become a glut in the market.

—— WITH the present number we issue a special supplement, devoted to the ROYAL BOTANIC GARDEN, EDINBURGH, and containing numerous illustrations. Fig. 76, on p. 357, will recall the noble Princes Street to many a visitor. To Mr. M'NAB, the Curator of the Botanic Garden, Edinburgh is indebted for the fine appearance of many of her town gardens. Fig. 77, p. 361, is a view in the Royal Botanic Garden of that portion of the grounds whence a magnificent view over the city and the mountain mass of Arthur's Seat may be obtained, but which is only dimly indicated in the engraving.

FIG. 78.—VIEW OF MR. JACKMAN'S CLEMATIS SHOW, IN THE CORRIDOR OF THE ROYAL BOTANIC SOCIETY (FROM A PHOTOGRAPH).

—— The ONION TRIAL at Chiswick, in so far as relates to the present season, has just been completed, the bulbs being ripe and ready for storage. This has been one of the most successful trials of vegetables carried out in the garden, all the samples being of good size and well grown, indeed many of the bulbs would do credit to any exhibition. Of considerably over 100 assumed kinds, it is found that the whole are reducible into about a dozen that are really distinct: the most prominent being the White Spanish, Globe, Queen, Silverskin, Danver's Yellow, Blood Red, White and Brown Tripoli, and a few others. A sowing of all the kinds for winter trial has been made, and the plants are well through the ground, so that the interest in the trial will be again excited next summer, when it is also proposed to have a trial of all known sorts of Cauliflowers.

—— A very showy border plant at this season of the year is to be found in POLYGONUM GRANDIFLORUM; specimens of this standing singly in good soil make a bushy growth and flower during August and September in great profusion, in rounded spikes of bright rose-coloured flowers. It requires space in which to develope itself, and should find a place in a broad border where it can be displayed to the best advantage.

—— We are informed that Mr. WILLIAM BULL, of Chelsea, has been instructed to supply H.M.S. SERAPIS with two of his PATENT PLANT CASES, to be used during the journey of H.R.H. the Prince of WALES in India, for the purpose of bringing home foreign plants.

—— In the grounds attached to the residence of Mrs. ADAMS, Chase Park, Enfield, are some fine

examples of the DECIDUOUS CYPRESS, two of them being remarkable for their great size and splendid development. The habit of one is quite of a pendulous character, and very handsome. Two of the specimens cannot be much under 55 or 60 feet in height, and considering that they have been planted only thirty-five or forty years they have thriven well. The soil is a stiff clay, the situation a little elevated, and the land was drained some time since, and the plants appear to have derived great advantage from it.

—— Very noticeable in our market orchards amongst Pears for its remarkably heavy crop is BEURRÉ DE CAPIAUMONT, a variety well-favoured amongst growers for its erect robust habit, a form of growth most acceptable where the soil beneath is cultivated and cropped. Beurré de Capiaumont, usually of a rich red russetty hue, is this year specially well-coloured, the Pears being of good size and clean, hanging on the branches literally like ropes of Onions. In some gardens, young trees that have been left unstaked have been borne to the ground with the weight of fruit, and in some instances the stems have broken short off. Of other kinds that are largely grown and have great crops are Williams' Bon Chrétien, Hessle (best known as the Hazel), Marie Louise, Louise Bonne of Jersey, and Gros Calabasse.

—— Several of our correspondents have received a lithographed circular from the other side of the Atlantic. We could wish, for the sake of science, that a few more particulars were given as to "the new discovery in entomology and microscopy," failing which we, like "the entomologists and investigators," take the liberty of doubting :—

"Your name in the *Chronicle*, relating to the Potato disease, suggests this note. Pardon me for the liberty taken. Years ago the microscope revealed to me insects' eggs in the epidermis of the Potato, which are thus hibernated through the winter. When the tubers are planted the eggs hatch, and insects propagate in myriads. These larvæ live suctorially upon the roots and haulms ; they poison the sap, blight the vines—disease and rot follows, showing the true origin of the murrain. It is a new discovery in entomology and microscopy. Published works furnish no such revelation. Entomologists and investigators will doubt ; but I challenge investigators to refute the facts stated. Fungus is the sequence, not the originating cause of this disease. The farmers want a remedy : an agricultural compound which I have prepared (a powder sold by the ton or barrel), and used at planting, proves a success. From its use Potatos are taken sound from the hills and from the cellar in spring free from rot, while crops grown side by side, without 'compound,' are one-fourth rotten when dug, and one-fourth have rotted in the cellar."

—— The MADRESFIELD COURT VINE growing in the cool "Fountaine" house at Chiswick is just now ripening a fine crop of fruit. The bunches are of good size, compact, and of the shape so peculiar to its Muscat parent ; the berries large, oval, and of a rich black hue. In fact, when quite ripe, no example of Grape culture could look better or more perfectly finished. It is evident that cool culture suits this grand Grape remarkably well, and, as evidenced at Chiswick, it can be as easily grown in a cool house as the Black Hamburgh. In the same house the Frankenthal is remarkably fine. The Vines are planted on an inside border, which has during the past season been liberally dressed with Amies' patent manure.

—— Elephants' bones have been found near Vallombrosa in a petrified state, incrusted with oyster shells, and from this phenomenon FORTIS has deduced a very bold hypothesis. He maintains that those bones belonged to animals which had been originally marine ; that the sea left their skeletons on these mountains in a remote period of the world ; that while the continent slowly emerged from the all-creative ocean those natives of the water became gradually terrestrial ; in short, that men, quadrupeds, and birds were originally fish. Thus the wheel of philosophy turns round, and brings up again the exploded tenets of ANAXIMANDER and the reveries of TELLIAMED !

—— The ARTIFICIAL VANILLA, or rather the substitute for Vanilla, discovered by Messrs. HARTIG and KUBEL, appears to possess the qualities first claimed for it ; and, what is of great importance, it can be produced at less than half the price of the true essence of Vanilla. It is a beautifully crystallised kind of glucose, found in the cambium of certain Conifers, and which when treated with certain chemical agents presents the same composition as the aromatic principle of Vanilla. It is sold in the form of an extract or rather an alcoholic tincture, which when diluted has exactly the odour of Vanilla.

—— With reference to the splendid HYBRID LILY, flowered by Mr. ANTONY WATERER, and noticed at p. 237, we have received the following communication from Mr. PACKMAN, the President of the Massachusetts Horticultural Society, the fortunate raiser of this magnificent plant. We have also received a note on the same subject from Professor SARGENT, of the Cambridge Botanic Garden, Boston, Massachusetts, who suggests that the name × L. Packmanni be given to this superb hybrid—a suggestion in which we heartily concur. Mr. PACKMAN'S note runs as follows :—

"I sent last year to Mr. ANTHONY WATERER a small bulb of a hybrid Lily raised by me between L. auratum and a deep coloured variety of L. lancifolium (speciosum). The latter was the female parent. Impregnation took place readily, and the young bulbs were planted in the open ground for the first time in the spring of 1869. There were about fifty of them. Several, as they grew, showed the peculiar spotted stem of the male parent, but when they set flower-buds, as nearly all of them did in the same season, I could distinguish the features of L. auratum in only one of them. The rest, in bud and flower, appear to be merely L. lancifolium, quite unaffected by the pollen of this male parent.

"The one case alluded to was a remarkable exception. The flower opened ten days earlier than any of the rest ; its colour was a deep red ; it had the fragrance of auratum, and resembled it also in form. This first flower measured 9½ inches from tip to tip of the petals. In the following year there were several flowers, of which the largest measured 11½ inches. The bulb was then in a pot : as no special pains or skill was applied to its cultivation, I have no doubt that the flower might be grown to the diameter of a foot.

"This hybrid was the most successful result of a great number of experiments tried by me in the cross-fertilisation of Lilies. This genus is certainly remarkable in the tenacity with which it preserves the characteristics of the female parent, and resists the influence of the male. Thus I impregnated L. longiflorum and its variety L. Takesima with the pollen of L. auratum, L. lancifolium, and six or eight other Lilies, the anthers of the impregnated flower being carefully removed before they ripened. L. Takesima bore seed in abundance, but the resulting plant did not differ perceptibly from its female parent, showing no feature of the male. I removed its anthers, and fertilised it again with auratum and lancifolium, thinking that the influence of the male might appear in the second generation if not in the first; but this double impregnation produced no effect. The same result followed a similar experiment with L. canadense and L. superbum. In this case also the flower resulting from the first impregnation was again impregnated. The result was a very scanty crop of seed, but this seed produced a plant in which no sign of the male influence was visible."

—— The flowering of a fine specimen of AGAVE AMERICANA VAR. VARIEGATA in the Oxford Botanic Garden, which we noticed at p. 238 of our issue of August 21, was preceded, as we learn from Kew, by a plant of about the same proportions, which flowered there in the temperate-house two years ago.

THE SPRING-FLOWERING CLEMATIS.

THE two accompanying illustrations (figs. 78 and 79) will afford some idea of the merit of the modern spring-varieties of the Clematis both as decorative and as flowering exhibition plants. The original parent of this race is the Clematis patens of Japan, which has also been called C. cœrulea and C. azurea, but in the newer varieties there is more or less of the blood of C. Standishii and C. Fortunei, with a slight admixture in the early summer-flowering sorts of C. lanuginosa —all being Japanese plants. The improvement which has been effected has been very great, as will at once be seen by comparing C. patens itself with such sorts as those named Stella and Lord Londesborough, C. Fortunei with Lucie Lemoine, or C. John Gould Veitch with Countess of Lovelace.

The larger of the two accompanying woodcuts (fig. 78) represents the corridor leading to the conservatory in the gardens of the Royal Botanic Garden, Regent's Park, where, last spring, Mr. G. Jackman, of the Working Nursery, made certainly the finest display of these popular spring-flowering plants which has yet been seen. The sketch was prepared from a photograph taken when the exhibition was about at its height ; and it is very fairly suggestive of the rich effect of such an assemblage of star-shaped blossoms —over 20,000—of large size, and of every shade of blue from silvery grey to deep purple, intermixed with a small proportion of pure white and pale pink. The softness of the colouring, the absence of overpowering glare, owing to the preponderance of delicate lilac shades, just sufficiently relieved from flatness by the deeper shades and the white lights which were intermixed, was one of the most striking features of the display, which once seen could scarcely be forgotten. A full account of this remarkable exhibition will be found at p. 602 of our last volume.

The smaller woodcut (fig. 79) shows one of the units of the group, a fairly bloomed plant representing a medium-sized specimen. These plants were trained over slight balloon-shaped trellises of wire, as shown in the figure, and when in full bloom were comparable for beauty and perfection of development to any specimens of greenhouse plants grown for exhibition, while they formed equally admirable objects for the decoration of the home conservatory, corridor, or hall. No cultivator has as yet brought out these Clematises so well-grown and so freely-bloomed as Mr. Jackman, and to him and his *aides-de-camp* much credit is due for having shown the horticultural public that it is to be done. We may here briefly mention, that being naturally free-growing plants, they require, when grown in pots, abundant but judicious feeding : while it is upon the well-ripened young wood of the previous year, trained in, that the flower-buds are to be looked for, and not on the summer growth, as in C. lanuginosa and the varieties of the C. Jackmanni type. *T. M.*

THE FORMATION OF STARCH IN THE SEED LEAVES.

SEVERAL years ago M. Famintzin made the observation that cells of Spirogyra which had exhausted their whole supply of starch in the dark soon produced starch again in the chlorophyll bands when they were exposed to light. This formation of starch occurs only in white or yellow light ; in blue light, on the other hand, no starch is formed, and any that may be present disappears, as in darkness. M. Kraus repeated and confirmed this observation in a series of other plants, and came to the conclusion that the granules of chlorophyll are capable, under the influence of light, of producing starch as an assimilation product. That the starch was not formed out of some organic body already present, he thought was proved by the increase of weight which seedlings of Cress and Flax presented in pure quartz sand, when they developed starch in the chlorophyll granules in sunlight, whereas the weight remained unaltered if they were in the dark and formed no starch. Further, M. Godlewski has shown that starch is developed in chlorophyll granules, previously containing none, more quickly in an atmosphere with 8 per cent. of carbonic acid than in atmospheric air ; and that, on the other hand, in air without carbonic acid starch disappears in full light out of the cells, just as in darkness.

While it was urged from these researches that starch is directly formed from carbonic acid, by the chlorophyll granules under the action of light, M. J. Böhm, in his experiments on the respiration of land plants, found the decomposition of carbonic acid in light, by green parts of plants, so slow, that he could not accept this as the source of the much quicker starch formation in light ; and he expressed the opinion that, in the starchless cells, an organic substance is present (either in their contents or cell wall) which, under the influence of light, is metamorphosed into amylum. He has lately made, in reference to this view, a number of experiments with seedlings of Cress, Radish, and Flax, and has communicated a memoir on the subject to the Vienna Academy, in which he says :—

"The starch appearing in the seed leaves of young plants of Cress, Radish, and Flax is not a direct assimilation-product, formed by immediate decomposition of carbonic acid, but a transformation-product from a reserve of nutriment already present. The special proofs of the correctness of this assertion are afforded by the following results of experiment :—

"1. In the cotyledons of the plants named, formation of starch also goes on in the dark.

"2. In the cotyledons of seedlings of Lepidium sativum and Raphanus sativus, reared in darkness or in weak daylight, the amount of starch is, of course, greatly increased, if the young plants are placed, before complete germination, in full daylight or direct sunlight ; this also occurs, however, if the plants are insolated in air without carbonic acid.

"3. The cotyledons of seedlings, which are cultivated on moist felt, in direct sunlight, over potash lye, are coloured quite black with iodine, if taken at the proper time. That the starch, in such cases, could not be formed by assimilation of the carbonic acid expired by the plants, is proved by the fact that the formation of smoke which takes place, when green leaves inclosed in pure hydrogen gas, along with a ball of phosphorus on a platinum wire, are exposed to full daylight or direct sunlight, quite ceases immediately on potash lye being introduced.

"4. Seed-leaves of Cress and Radish plants, reared in diffuse daylight, the intensity of which, however, was proved to be insufficient for the decomposition of carbonic acid, were found to be much richer in starch, at like stages of development, than the sister plants reared in darkness.

"5. With gaslight green plants do not decompose carbonic acid. Seed leaves of Cress, cultivated in gaslight, and taken at the right time, are coloured quite black with iodine. The hypocotyledonous stems of the plants reared in gaslight are shorter than in equally old plants cultivated at approximately equal temperature in a window with a southern exposure.

"6. That the cotyledons of seedlings of Cress and Radish reared in light are richer in starch than those simultaneously reared at equal temperature in the dark is evidently due to the retarding action of light on cell-wall formation. In the etiolated plants the carbo-

hydrate formed from the oil present is, as a rule, soon used wholly or partially as 'building material;' in those reared in light, on the other hand, it is previously deposited as starch.

"7. Light which is too weak to cause formation of chlorophyll will produce heliotropic curvature. The light intensity, under continuous action of which seedlings can in common develope normally, is less than that required for decomposition of carbonic acid by green plants." *Der Naturforscher.*

A. B. M.

YARROW.

HAVING read with pleasure the articles which you have given on this plant, I still feel that no real virtue or benefit has been pointed out, although the bush has certainly been soundly beaten. Besides the ridiculous tales in ancient Herbals of "vertues" in certain plants, gathered at the nick of time specified, our forefathers and their loving consorts had a good deal of current information about plants that the physician to the French King had never heard of, when he, good soul, wrote his *Compleat Herbal*, no doubt on account of not having Lindley, and Loudon, and others, to convey the information from one country to another. The country people had their resources, and made the most of the means within their reach. Thus, in the absence of soap, wash-balls were made of the ashes of dry Fern; and such as toothache—that "deil o' a' diseases"—had Tormentilla and Mezereon root to ease the pang, and in ordinary cases it did the work well and cheaply.

I recollect visiting with a schoolfellow the farm of Bethelnie, in the parish of Meldrum, Aberdeenshire, and being on the outlook for anything strange or new, I saw the dairy-maid with a tidy sheaf of Yarrow, which she put into the copper of scalding water with which she was about to scald the wooden milk dishes, called there milk cogs; and when I asked what that was for, I was informed that it was an ant acid, and had to do with the sour milk that would otherwise have kept its hold on the wooden cogs. In short it was, whether rightly or wrongly, doing the work of an alkali, and meant to neutralise the acid whose presence and power there was too much evidence of.

When a woollen scourer in Yorkshire gets a web of shawls to scour from the manufacturer, he sees that they are barred with a white stripe, a red one, and a blue one; and that they are greasy with wool oil. Now in order to get out the grease, nothing could be easier than to combat this fatty acid with a strong alkaline ley, but the colour would run with such treatment, and the scourer would have to pay for the web that he had spoiled. This lesson, once learnt, needs not to be repeated; and he has to use strange ingredients, such as stale urine, sour buttermilk, soap, and weak solutions of soda, so that by alternate light strokes—both colours may be preserved, and the white may come out pure. In order to get woollens clean and free from soap and smell, tons of fuller's earth have to be got to absorb what the other cleansing agents have left in. These seem very homely ingredients, but no other article has been found to do the work better, and the manufacturer still adheres to the old practice. But perhaps the best example that I could give of this kind of thing is the boiling of bran to precipitate the lime and some other impurities in water that is to be used for dyeing scarlet, &c. At Stroud, in Gloucestershire, the water is reputed to be pretty nearly pure for dyeing purposes, yet they are said to resort to the use of bran to make sure of good results. Now when practical men like the woollen manufacturers have to medicate the water they use, there is nothing wonderful in matrons skilled in good housewifery using certain herbs, according to some recipe, unwritten, handed down from age to age. As the plant in question is a common weed everywhere, it has the rare merit of cheapness to recommend it, for it clings to the farm like the barnacle to the ship; and although few will know it by its botanical name (Achillea Millefolium), it is strongly marked by its finely cut leaves and pinkish white flowers, that smell rank, and never can be mistaken. Noseblood is one of its names, for what reason I know not, but it needs no other than Milfoil, Thousand Leaf, and its universal appellation, the Flower of Yarrow. *Alex. Forsyth, Salford.*

FIG. 79.—SPECIMEN SPRING-FLOWERED CLEMATIS (FROM A PHOTOGRAPH).

THE FRUITS OF PALESTINE.

(Concluded from p. 272.)

IN former times numerous forests appear to have stood in different parts of Judæa until the repeated invasions and sieges caused their fall, and the bad government of the Turks prevented their restoration. All this vegetation must have re-acted on the moisture of the climate, and by preserving the water in many a ravine where now it is rapidly dried by the fierce sun of the early summer, must have influenced materially the appearance and resources of the country. There is a strange dearth of timber about the central parts; Olive trees are to be found everywhere, but they are artificially cultivated for their fruit, and the Olive is not a tree which adds to the look of the landscape. A few Carobs are also met with in such richer spots as the valley of Nablus, but of all other trees there is a singular dearth. It is this which makes the wooded side of Carmel and the park-like scenery of the adjacent slopes and plains so remarkable. When compared with European timber, the trees are but small, but their abundance is in strong contrast with the nakedness of the neighbouring mountains. Besides the constant destruction of trees there is another cause in the decay of the terraces necessary to retain the soil on the steep slopes of the round hills, and it is hopeless to look for any improvement in the general face of the country until they have been first re-established.

The traveller from England whilst he recognises the Oak, Pine, Walnut, Maple, Juniper, Alder, Poplar, Willow, Ash, dwarf Elder, Plane, Ivy, Arbutus, Rhamnus, Almond, Plum, Pear, and Hawthorn, at the same time misses the Beech, Chestnut, Lime, Holly, Birch, Larch, and Spruce; while he sees for the first time such southern forms as Pride of India (Melia), Carob, Sycamore, Fig, Jujube, Pistachio, Styrax, Olive, Phillyrea, Vitex, Celtis, and many new kinds of Oak, the Papyrus, Castor-oil, and various tall tropical grasses. Of cultivated English fruits he sees the Vine, Apple, Pear, Apricot, Quince, Plum, Mulberry, and Fig, but misses the Gooseberry, Raspberry, Strawberry, Currant, Cherry, and other northern kinds, which are, as it were, replaced by such southern and subtropical fruits as the Date, Pomegranate, Orange, Shaddock, Lime, Banana, Almond, Prickly Pear, and Pistachio-nut. Amongst cereals and vegetables he finds Wheat, Barley, Peas, Potatos, many varieties of Cabbage, Carrots, Lettuces, Endive, and Mustard, and misses Oats, Rye, and the extensive fields of Turnip, Beet, Mangel Wurzel, and fodder grasses. On the other hand he sees for the first time the Cotton, Millet, Rice, Sorghum, Sesamum, Sugar-cane, Maize, Egg-apple, various Beans and Lentils, Melons, Gourds, Pumpkins, Cumin, Coriander, Fennel, Anise, Sweet Potato, Tobacco, Yam, Colocasia, and other subtropical and tropical field and garden crops.

The Vine is abundantly cultivated throughout the country, and produces, as in the time of the Canaanites, enormous bunches of Grapes. This is especially the case in the southern districts, those of Eshcol being still particularly famous. The bunches produced near Hebron are sometimes so long that when attached to a stick, which is supported on the shoulders of two men, the tip of the bunch trails on the ground. The time for the treading of Grapes comes on during the dry months of autumn, and is ordinarily soon over; but in the case of an abundant vintage it is prolonged into the rainy season, when alone the husbandman can begin to sow his seed. The custom of planting the Palm trees in the courts of temples and palaces, and in "all high places" used for worship, is still common. Nearly every palace and mosque and convent in the country has such trees in the courts, and being well protected there they flourish exceedingly. The Jews used Palm branches as emblems of victory in their seasons of rejoicing, and Christians do the same on Palm Sunday, in commemoration of our Saviour's triumphal entry into Jerusalem.

The Olive has become inseparably connected with one of the earliest records of the human race, and repeated references are made in the Scriptures to its beauty. It probably needs an educated eye to appreciate the effect of its silver-like leaf, but it must be refreshing to ride through one of these groves when clothed with flowers, or when bowed down with fat and oily berries. Of all fruit-bearing trees the Olive is the most prodigal of its flowers, but not one in a hundred comes to maturity. The tree is of slow growth, and, except under peculiarly favourable circumstances, it bears no berries until the seventh year; nor is the crop worth much until the tree is ten or fifteen years old, then it is extremely profitable, and continues to yield fruit to extreme old age. There is little labour or care of any kind required, and, if long neglected, it will revive when the ground is dug or ploughed, and begin afresh to yield as before. Vineyards forsaken die out almost immediately, and Mulberry orchards neglected run rapidly to ruin, but not so the Olive. If the Olive bore every year its value would be incalculable, even with this deduction it is the most valuable species of property in the country. Large trees, in a good season, will yield from 10 to 15 gallons of oil, and an acre of them gives a crop worth at least 100 dollars. The fruit is indispensable for the comfort, and even the existence, of the mass of the community. The berry, pickled, forms the general relish to the farmer's dry bread. When he goes to the fields at early dawn, or sets out on a journey, he has no other provision than Olives wrapped up in a quantity of paper-like leaves, and with this he is contented. Early in autumn the berries begin to drop of themselves, or are shaken off by the wind. They are allowed to remain under the trees for some time, guarded by a watchman of the town. Then a proclamation is made by the Governor that all who have trees should go out and pick what has fallen. Previous to this not even the owners are allowed to gather Olives in the groves. The proclamation is repeated once or twice, according to the season. In November comes the final summons, when no Olives are safe unless the owner looks after them, for the watchmen are removed, and the orchards become alive with men, women, and children. The shaking of the Olive, which is always accompanied with much noise and merriment, is the severest operation of Syrian husbandry, particularly in the mountainous regions. The rainy season has already set in, the trees are dripping with the last shower, or bowing under a load of snow, and the shakers below become drenched with an artificial storm of rain, snow, and

Olives. The groves are in common, although this tree belongs to Zaid, and that to Abeid, and so on through the whole plantation, and amongst these many owners at "shaking time" every one must look sharply after his own, or he loses all. There is an utter confounding of the *meum* and *tuum* in the general conscience of Olive gatherers. In different parts of the country there exist remains of ancient oil mills and presses in a state of more or less preservation. These consist of two upright posts, with a transverse stone upon the top. The posts have a deep groove in the inner face, running from top to bottom. In this groove moved the plank on the top of the Olive "cheeses," forced down by a beam, as a lever, acting against the huge stone which lies on the top of these columns. There is a stone trough, into which the oil ran, and close by are two immense basins, in which the Olives were ground to a pulp by the stone wheel that was rolled over them. These basins may have likewise served to tread the Olives with the feet, a process not now in use, but which was the ordinary custom in those days.

The orchards around Jaffa and Sidon are said to be remunerative investments. The *biarah*, or watered garden, which costs 100,000 piastres, will produce annually 15,000; but 5000 of this must be expended in irrigation, ploughing, planting, and manuring. This allows the proprietor 10,000 piastres, which is a very fair percentage on capital invested in agricultural pursuits. The fruits of Jaffa are the same as those of Sidon, but with certain variations in their character. The Oranges of Sidon are more juicy and of a richer flavour than those of Jaffa: but the latter hang on the trees much later, and will bear to be shipped to distant regions. In March and April these gardens are enchanting. The air is overloaded with the mingled spicery of Orange, Lemon, Apple, Apricot, Quince, Plum, and Chura trees in blossom. The people then frequent the groves, sit on mats beneath their grateful shade, sip coffee, smoke the argela, sing, converse, or sleep till evening, when they slowly return to their homes in the city. To the restless inhabitants of the West this mode of enjoyment soon wearies by its monotony, but it is Elysium to the Arabs.

The result of two years' residence, Mr. Farley thus records his experiences. He says:—"Truly Syria is well worthy to be the home of civilisation, possessing, as she does, land fertile even under complete abandonment, fields producing spontaneously cereals for food, and silk and cotton for clothing; timber of every description and of the best quality, from the Cedar to the Oak, from the Plane to the Pine, and which may be had for the felling; while Sycamores of enormous size spread their branches wide enough to cover a whole caravan with their grateful shade. Here are valleys rich and luxuriant, groves of Citron and Olive, and Apple trees of the finest sorts. Whatever in the vegetable kingdom is useful is here found in the natural unforced produce of the soil, spread out in rich and prodigal abundance. Here are gardens where the Rose, the Orange flowers, the Jasmine, mingle their perfumes into one delicious odour almost too powerful for the senses. Avenues of Fig trees shade the roads, growths of Oleanders follow the course of the rivers, red-flowered grass blends its hues with a thousand gay flowers that enamel the meadows; above is the blue vault of heaven, and between stretches the ocean of clear pellucid atmosphere. The loveliness of this favoured region has deserved and obtained the praise of oriental poets—in the poetry of the Turks it has been called the 'odour of paradise;' in that of the Hebrews, 'a garden planted by God for the first man.'" *E. T. B.*

Apiary.

BEES HAVING A CHART.—Have any of your bee-keepers or naturalists noticed that bees, wasps, hornets, drones, &c., seem to fly by a chart? I have noticed that they in going off and on their way to and from, have different points where they call at, as if to become assured of their right track; and in the evenings, although coming from various directions, yet they come in a line one after another, passing the same objects, turning the same points. *H. M.*

NARBONNE HIVE.—The beekeepers in the South of France are very careful to secure excellent honey, though they secure a limited quantity only. A large supply of honey seems to come to the English market from the neighbourhood of Narbonne, judging from the sale in this country of what is called Narbonne honey by Italian warehousemen and chemists; however, those who have travelled over the Narbonne district on foot declare but few bees (compared to what we see about cottages in England) are kept. When over there I inquired both as to the kind of hive in use as well as to the honey supply. The best honey is gathered rather early in the season, when the bees visit the wild Rosemary (Rosmarinus officinalis, L.), which is most abundant—about as plentiful as the Gorse (Ulex europæus, L.) is on our heaths—on the extensive hills to the right of the town. All this honey is sent off, and sold at a high price. The second harvest of honey is inferior in quality. The hives are not unlike the Grecian, with this exception, they are smaller, and taper from the summit more gradually downwards, whereas the Grecian is very wide at the part where the wood bars are fixed. A common English skep could easily be converted into a Narbonne hive. Cut off the top (see fig. 80), and fix a piece of wood to the sides, with spaces cut out by a hand-saw, resembling bars in the frame-hive (Woodbury hive) for the bees to attach the comb, just at the will of the beekeeper. To those fond of experiments with hives, it may offer an inducement to make one for trial.

To cottage beekeepers or gardeners who are compelled to allow their bees to have much of their own way, owing to the little spare time at their disposal, just when the honey harvest is most abundant,

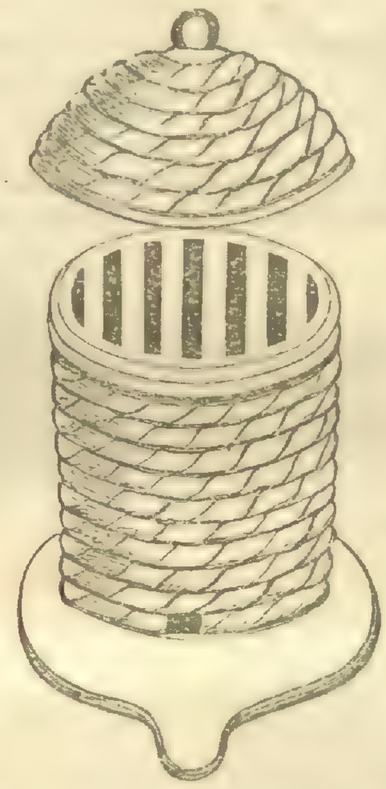


FIG. 80.—IMITATION NARBONNE HIVE.

they would, with a window at the back to allow of their operations being watched sometimes, prove interesting. *R.*

Reports of Societies.

Royal Caledonian: *Grand International Fruit and Flower Show. Sept. 15 and 16.*—Our remarks on the most important, or at least the most characteristic, part of the show extend so far that we must run somewhat lightly over the plants—not that they lacked merit and importance, but that we lack space. They were, however, far too crowded; in fact, both fruit and plants might well have been extended over three times the space available for them. A very large group of mixed plants, from the Lawson Seed and Plant Company, occupied one side of the room. The group consisted of Palms, Ferns, evergreens, Lilies, and various new plants. They had also some fine examples of Todeas, plants of Pernettya candida, with a profusion of white berries, and some extremely elegant drooping proliferous plants of Adiantum caudatum. Messrs. Veitch & Sons had a splendid bank of new plants, associated with which was a remarkably attractive group of Pitcher-plants, one of the most noteworthy of which was Nepenthes cuneata, with its fringe of large saw-like teeth. We also noticed their fine new Adiantum princeps, A. speciosum, and a highly-coloured Rhododendron of the jasminiflorum type, called R. Vesuvius. Mr. Williams, of Holloway, had another fine group, exhibiting, amongst others, a nice young plant of Pleocnemia Leuzeana, Maranta Makoyana; his very curious, mist-like Adiantum gracillimum; Dipladenia Brearleyana, nicely flowered, the blossoms well coloured; and several Nepenthes.

The prize in the class for six small Palms was won by Messrs. J. & R. Thynne, of Glasgow, who showed Metroxylon filare, Kentia Forsteri, K. Belmoreana, Astrocaryon, mexicana, and two plants of Cocos Weddelliana. In Messrs. Lawson's group was a pretty plant of Geonoma gracilis, and in Mr. Methven's a Thuja elegans.

Some fine Ferns were shown by Mr. A. Paul, namely, a fine Todea superba and a grand plant of Davallia Mooreana. Mr. Green, gr. to P. Neill Fraser, Esq., had in one of his groups a remarkably fine Adiantum cardiochlæna, Pteris umbrosa, Adiantum cultratum, and a good Todea superba. The latter Fern had a class devoted to it, the most successful competitor being Mr. Currie, gr. to W. Wilson, Esq., Salisbury Green, who staged a fine spreading plant.

The Lawson Company had in one of their groups a peculiar form of Todea intermedia, in which, we were informed, the young fronds always come up with a golden tinge; it is doubtless one of the many slightly varying forms which go to constitute the plant known under the name of T. intermedia. A very tall Tree Fern in the centre of the room came, with Palms and other subjects, from Messrs. Downie & Laird.

The flowering subjects were comparatively few. Mr. Walker, gr. to Mrs. Mood, Rosehill House, staged some splendid Fuchsias, which were 6 to 7 feet high, and about 4 feet through at the base of the pyramid, showing a mass of flowers. Perhaps one of the most striking plants in the show noble heads of flowers, shown by Mr. E. Lothian, was a Lilium auratum, with eight stems, bearing, Dalrymple Crescent. Mr. Glas, Carbrook, Larbert, had neatly grown plants of three Heaths, including E. Marnockiana and E. Aitoniana Turnbullii; and the Veitch Medal and prize for the best specimen greenhouse plant were assigned to another larger plant of Erica Marnockiana, from Mr. R. Todd, gr. to A. B. Stewart, Esq., Rawcliffe, Langside. Mr. Todd had besides in the same collection a very fine mass of Vallota purpurea, in splendid bloom; while a grand mass of Statice profusa was shown in a competing lot by Mr. Paterson, gr. to J. Syme, Esq., Morningside. A fine example of Allamanda Hendersoni, shown by Mr. Matheson, gr. to A. Paul, Esq., Gilmore Place, gained the Veitch Medal and prize for the best stove plant in flower; and a similar medal and prize fell to Mr. J. Shearer, gr. to — Henderson, Esq., Gracemount, near Edinburgh, for a nicely-flowered plant of Renanthera coccinea.

In the class for twelve new stove and greenhouse plants, Messrs. T. Methven & Sons took the 1st prize, with a collection of neatly grown but not large plants. The collection consisted of Croton Cooperi, Weismanni, and magnifica; Aralia Veitchii, Dracæna hybrida, amabilis, and Hendersoni; Paullinia thalictrifolia, Dieffenbachia brasiliensis, Bertolonia Houtteana, Tillandsia Zahnii, and Anthurium crystallinum; and may be taken as a type of the competing lots. The Lawson Company had a beautiful dwarf plant of Anthurium crystallinum. A tall and effective specimen of Pandanus utilis was sent by Mr. Currie, gr. to W. Nelson, Esq., Salisbury Green. Mr. Todd had a very effective plant of Phœnicophorium sechellarum, which seemed to tower majestically above its surroundings; a very perfect medium-sized Cocos Weddelliana; Thrinax elegans, and Maranta Veitchii, both very fine; and Davallia Mooreana, one of the best of Ferns for exhibition. A grand Cycas revoluta was sent by Mr. Bissett, gr. to Sir T. Moncrieff, Bart., Moncrieff House.

Hardy Conifers in tubs, the plants not of very large size, were sent by Messrs. Methven & Sons, and comprised a very nice specimen, about a yard high, of Sciadopitys verticillata. Mr. Anthony Waterer sent the Knap Hill Cypress, Cupressus Lawsoniana erecta viridis, in the form of a pair of nice plants 5 to 6 feet high, at which size it shows something of its extremely beautiful character. Messrs. Barron & Son, of Borrowash, contributed a collection of small pot plants of some of the newer Coniferæ. The Lawson Company received a First-class Certificate for Juniperus Lawsoniana. From Messrs. Osborn & Son, Fulham, came a new variegated Holly—a golden blotched variety, apparently a sport from laurifolia.

The collections of Dahlias and Hollyhocks filled two of the small anterooms. The blooms of the former were especially fine, and we observed some good Hollyhock spikes. A third anteroom was devoted to Asters and Gladioli. Of the latter more than one 1st prize went to Morpeth. A very beautiful stand of twelve varieties from Mr. W. Codling, Northside, Morpeth, consisted of Shakspeare, Robert Fortune, Virgil, Orphée, Rosa Bonheur, Pactole, Sappho, Madame Desportes, and three spikes of Marquis of Lothian, a very striking seedling, the colour rose flushed with mauve, the lower segment cream-coloured towards the base, with crimson flame—a very distinct and singularly attractive colour, but sometimes having the segments notched at the ends. Mr. Turner, of Slough, received several First-class Certificates for Dahlias; Messrs. Dicksons & Co., Waterloo Place, for seedling Phloxes.

GRAPES.

The exhibition will be remembered above all things for the grand examples of Grapes which it brought out; and on this point it is not too much to say that a larger or better display has never been made, and if we have seen the quality in some instances higher, taken as a whole the promoters of the exhibition have every reason to congratulate themselves on their success. We have become accustomed at these annual exhibitions to witness the production of startling examples of Grape-growing in the shape of monster bunches, and this feature was well maintained to-day; in fact, instead of having one monster example, there were two Richmonds in the field, and the excitement was something to remember when the two heaviest bunches came to be weighed, and it was found that there was only 5 ounces difference between them in weight. As we announced a week or two ago, it was probable that the heaviest bunch on record would be sent from the neighbourhood of Dalkeith, and such actually proved to be the case, although we must admit that the

competition was very close. However, it will be something to say that the two heaviest bunches on record were shown at the same time at Edinburgh in 1875; and here are the details:—The first bunch weighed was that shown by Mr. Curror, gr. to G. Douglas, Esq., Eskbank, Dalkeith, and it turned the scale at 26 lb. 4 oz.; the variety being Raisin de Calabre. Then came the example shown by Mr. J. Dickson, gr. to John Jardine, Esq., Arkleton, Langholme, Glasgow, which it was thought was quite 2 lb. heavier than the Eskbank bunch, but which really turned the scale at 25 lb. 15 oz.; and the prizes were awarded in the order named, Mr. Curror taking besides a Veitch Memorial Medal "for the best bunch of white Grapes, other than Muscats," in the show. Thanks to the courtesy of the two gardeners represented we were enabled to secure early photographs of each, and we hope in our next to be able to place illustrations of the bunches before our readers. In the meantime we may say that Mr. Curror's Raisin de Calabre was by far the handsomest bunch—Mr. Dickson's White Nice being rather loose, though the berries, for such a size, were very good indeed. It may also be interesting to state now that the bunch grown at Eskbank was one of four produced on a cane about 14 feet long, two of the other three of which would weigh about 6 lb. each, and the third about 18 lb. We trust that these bunches may be forthwith despatched to the Ghent fruit show to be held next week at that city in connection with the meeting of the Pomological Society of France. We believe that such bunches would astonish our foreign friends. But more of this anon; we must come back to the show. In the same class Mr. Jones, Wynyard Park, had Barbarossa weighing 7½ lb.; Mr. Hunter, gr. to the Earl of Durham, Lambton Castle, had a seedling from the Barbarossa much resembling its parent, which scaled 12 lb. 8 oz.; and Mr. Magee, Kin Edar, Belfast, staged Trebbiano to the weight of 9 lb. 8 oz.

In the class for eight varieties of Grapes, one bunch of each, the competition lay between Mr. Hunter, Lambton Castle, Mr. Johnston, gr. to the Earl of Strathmore, Glamis Castle, and Mr. G. Reid, gr. to A. H. Moncure, Esq., Rockfield, Dundee, and the prizes were eventually awarded in the order named. Mr. Hunter's bunches ran the heaviest all through, having a solid, massive, and taking appearance, but lacking the perfect finish which distinguished the Glamis Castle specimens. The varieties staged by Mr. Hunter were Seacliffe Black, Raisin de Calabre, Burchardt's Prince, Muscat of Alexandria, Black Alicante, Royal Vineyard, Gros Colman, and Trebbiano, and the bunches we estimated would run about 6 lb. each. Mr. Johnston's varieties were best, judged by flavour, and may be enumerated as follows:—Mrs. Pince's Black Muscat, Royal Vineyard, Lady Downe's, Duke of Buccleuch, Barbarossa, Muscat of Alexandria, Black Hamburgh, and Raisin de Calabre. The Duke of Buccleuch was the best bunch we have seen of this variety, and Mr. Johnston states that it was produced by a bud grafted on the Sweetwater. The berries were of great size, and almost transparent. The bunch of Muscat of Alexandria was a perfect example of Grape cultivation, and the judges selected it for the award of a Veitch Memorial Medal as the best bunch of that variety in the show. The Grapes shown by Mr. Reid were also of high quality, and especially the bunches of Golden Champion, Gros Colman, Muscat Hamburgh, and Mrs. Pince's Black Muscat, the latter being adjudged the best bunch of black Grapes in the show, and a Veitch Memorial Medal was awarded. Thus two of the Veitch Medals have gone to the county of Forfar—a fact which should augur well for the success of the International Show which it is proposed to hold in Dundee next autumn.

The next great competition in Grapes was for the Silver Cup offered by Messrs. Boyd & Sons, Paisley, for a collection of six varieties of Grapes, one bunch of each, and the struggle for supremacy between Mr. Hunter, Lambton, and Mr. Stewart, gr. to Charles Tennant, Esq., The Glen, Innerleithen, was a very tough affair, and the point was only gained at last by Mr. Stewart for the greater finish displayed in his examples. His Black Prince, Mrs. Pince, Black Alicante, Muscat of Alexandria, and Black Hamburgh were very fine, but not so large as Mr. Hunter's White Tokay, Madresfield Court, Raisin de Calabre, and Black Alicante. An extra prize of £3 was awarded to Mr. Hunter, and the other competitors in the class were Mr. Greig, gr. to W. Christie, Esq., Craigend Park; and Mr. A. Bruce, gr. to James Fildes, Esq., Chorlton-cum-Hardy, Manchester. Of two bunches of Black Hamburgh there were twelve exhibitors, and the highest award was well won by Mr. Johnston, Glamis; Mr. Jones, gr. to the Marquis of Londonderry, Wynyard Park, Durham, coming in 2d. The finest of several examples of Muscat Hamburgh were contributed by Mr. D. Dickson, gr. to J. Whyte Melville, Esq., Mount Melville, St. Andrews, and Mr. J. Speirs, gr. to C. Macfie, Esq., Gogar Burn, Corstorphine; and in the corresponding class for Madresfield Court, grandly finished bunches, weighing about 4 lb. each, shown by Mr. Bruce, gr. to James Fildes, Esq., came in 1st; Mr. Potts, Manley Hall, Manchester, came in a good 2d, and Mr. J. Fraser, gr. to Sir G. G. Montgomery, M.P., Stobo, 3d. There were nine competitors with collections of four varieties of Grapes, and the 1st prize went to Mr. Loudon, gr. to T. Baines, Esq., The Quinta, Salop, who put up good sized and perfectly finished specimens of Black Hamburgh, Muscat Hamburgh, Trebbiano, and Black Prince. The other prizes went to Mr. A. Bruce and Mr. J. Whytock, gr. to Viscount de Vesci, Abbey Liex, Queen's Co., both showing well. Out of eight baskets of black and white Grapes the best black came from Mr. W. Brown, gr. to Lady Baxter, Kilmarron Castle, Cupar, and the best white from Mr. A. Bruce. The best bunch of black Grapes, judged by flavour, was a small one of Muscat of Alexandria, shown by Mr. D. Dickson; and next to it came Mrs. Pince's Black Muscat, from Mr. Jones, Wynyard Park. In the corresponding class for white varieties Mr. Methven, gr. to Colonel Campbell, Blytheswood, was 1st, with Duchess of Buccleuch. A fine bunch of Black Alicante, shown by Mr. Curror, gr. to G. Douglas, Esq., Eskbank, was judged the best for bloom, and it would certainly be difficult to surpass the bunch on that score. The best two bunches of Black Hamburgh, in a rather poor class, were contributed by Mr. G. Edgar, gr. to J. Clelland, Esq., Crossgar, Co. Down, very fine berries, well-hammered and coloured. In the corresponding class for Black Alicante, Mr. J. Goodall, gr. to W. Raffin, Esq., Donisla House, Newington, was 1st; and with Lady Downe's, Mr. Brunton, gr. to Sir — Kinloch, Gilmerton, Drem, took the leading award with neat bunches and very large berries. In another class for Lady Downe's, Mr. G. Greig, Craigend Park, was 1st with an excellent sample. The best single bunch of Muscat of Alexandria came from Mr. Stewart, The Glen; and for two bunches of the same variety Mr. Johnstone, Glamis, was 1st with the best, finest, and most even pair we remember to have seen.

Pines.

The acknowledged king of fruits was shown in small numbers, but in fine order as regards quality, and one of the most meritorious features in the show was a collection of nine fruits—Smooth Cayennes, large and handsome, shown by Mr. Stewart, gr. to Charles Tennant, Esq., The Glen, and to which an extra prize of £5 was awarded. In the class for two specimens of the same variety, Mr. Stewart also took the 1st prize, with even better examples. Mr. Ingram, gr. to the Duke of Northumberland, Alnwick, was 2d, with smaller but stiff, good examples; and the 3d award went to Mr. Jones, gr. to the Marquis of Londonderry, Wynyard Park, Durham. For two Charlotte Rothschilds, Mr. Miles, gr. to Lord Carington, Wycombe Abbey, was 1st, in his usual style; and in the corresponding class for two Queens the highest award went to Mr. Sandford, gr. to the Earl of Bective, Kirby Lonsdale, who staged beautiful specimens, weighing about 5 lb. each. In the same class Mr. Ingram, Alnwick, was a good 2d.

Collections of Fruit.

Next to the Grapes the collections of fruit stood highest in point of merit, though in the class for twelve sorts we were somewhat disappointed at the low average of quality displayed. The class for a collection of sixteen sorts brought out three very good collections, and the prizes went to Mr. Johnston, Glamis, Mr. Stewart, The Glen, and Mr. Ingram, Alnwick, in the order named. Mr. Johnston's collection included first-rate examples of Royal Vineyard, Black Alicante, Muscat of Alexandria, and Black Hamburgh Grapes; two Smooth Cayennes and a Queen Pine; Walburton Admirable and Royal George Peaches; Conqueror of Europe, Lord Strathmore's favourite Melon; Shipley Apricots, Murray and Pitmaston Orange Nectarines, Brown Turkey Figs, and Jefferson and Magnum Bonum Plums—a fine assortment of fruit. Mr. Stewart's and Mr. Ingram's collections were both of great excellence. There was a large competition in the class for twelve sorts of fruits, exclusive of Pines, and Mr. W. B. Upjohn, gr. to the Earl of Ellesmere, Worsley Hall, Manchester, was the winner of the 1st prize, with large and good Melons, Peaches, Nectarines, Plums, Pears, Apples, Black Hamburgh and Buckland Sweetwater Grapes. Mr. D. Dickson was 2d, and Mr. G. Cooke, gr. to Major Woods, Holeyn Hall, Northumberland, 3d; and Mr. George, gr. to the Earl of Clancarty. Garbally, Ballinasloe, was highly commended. There were fewer competitors in the class for twelve sorts of fruits, exclusive of Grapes and Pines, and the highest award went to Mr. Mitchell, gr. to Sir David Baird, Bart., Newbyth, Prestonkirk, who had good Peaches and Apricots, Apples, Pears, and Plums, &c. Mr. Shand, gr. to the Earl of Lonsdale, Lowther Castle, was also a successful competitor in the same class.

Apples and Pears.

The show of kitchen Apples was a good one as regards quality, but they were not shown in such numbers as we had expected. The dessert kinds were rather poor, both in numbers and quality, and of Pears the show was fair only. The baking or kitchen Apples were generally of very superior quality, and the best six sorts, shown by Messrs. Cocks Brothers, nurserymen, Donington, were particularly good, the varieties being the New Hawthornden, Lord Suffield, King Apple (?), and Lord Grosvenor. Mr. D. Dickson came in 2d, with very fine Cellini, Lord Suffield, Stirling Castle, Ecclinville, and New Hawthornden; and Mr. J. Edgar was 3d. Lord Suffield was wonderfully well shown, and, together with Stirling Castle, was represented in most of the collections. The six heaviest Apples were of the Lord Suffield variety, and Mr. Gray, gr., Killochan Castle, was the exhibitor, but the weight was not stated. The best six dessert sorts were Javin's Seedling, Nunholme Pippin, Irish Peach, White Astrachan, Woodburn Pippin, and Reinette de Laak, small but clean samples, shown by Mr. J. Culton, gr. to J. Cowan, Esq., Castle Douglas. The rest were of very moderate quality. The best twelve Pears were contributed by Mr. Ingram, Alnwick—nice samples of Passe Colmar, King Edward, Beurré Rance, Marie Louise, Van Mons' Leon le Clerc, Beurré Clairgeau, Beurré d'Amanlis, Josephine de Malines, &c. Mr. Smith, gr. to the Countess of Stair, Bargarry, came in 2d; and Mr. Anderson, gr. to the Earl of Stair, Oxenford Castle. Mr. J. Brunton had the best six Jargonelles, and for six Pears, two sorts, three of each, Mr. McLean, Gosford, came in 1st.

Peaches and Nectarines.

Of the former of these there was a very fine show, and specimens of fine size and high colour were the rule. There were fifty dishes of Peaches altogether, the names of many of which the exhibitors did not seem to know, judging by the number which had no names attached to them. The best six came from Mr. P. Braund, gr. to the Earl of Courtown, Courtown House, Co. Wexford—very large specimens of, probably, Noblesse; smaller samples of the same variety, from Mr. Sharpe, gr. to Sir John S. Richardson, Pitfour Castle. The class for twelve fruits was a fine one, and the highest award went to Mr. J. L. Leyden, gr. to R. B. Wardlaw Ramsay, Esq., Whitehill—very large and highly coloured specimens, not named. A very fine dish of Walburton Admirable, from Mr. Macdonald, gr. to Lady Gray, Kinfour Castle, Perth, came in 2d. In the former class, as well as in this, Mr. J. Brown, gr. to J. G. McKirdy, Esq., Birkwood, came in 3d; and Mr. Jack, gr. to the Duke of Cleveland, Battle Abbey, Sussex, had an extra prize. Elruge and Violette Hâtive were the leading varieties of Nectarines, and in the class for six fine specimens of the former, from Mr. G. Cooke, and of the latter, from Mr. D. Fowler, gr. to P. Swan, Esq., Springfield, were respectively 1st and 2d. Mr. McLean, gr. to the Earl of Wemyss, Gosford, was well 1st in the class for twelve, with fine examples of Elruge; Mr. Jack coming in 2d with Violette Hâtive, and Mr. J. Loudon, the Quinta, 3d, with Elruge.

Melons, Apricots, Plums, and Figs.

Of Melons there were some thirty-six specimens, but this number included none of any particular merit. In the scarlet-fleshed class, Mr. Methven, Blytheswood, was 1st, with Hero of Bath; and an unnamed, but large and heavily-netted fruit, from Mr. W. Manson, gr. to T. Nelson, Esq., St. Leonard's Park, Edinburgh, was best in the green-fleshed class. There were some nineteen or twenty dishes of Apricots, but none of them were particularly good. Mr. Gibson, gr. to Colonel A. C. Dewar, Vogrie; Mr. Harper, gr. to Captain McQueen, Dundas Castle; and Mr. Thomson, gr. to W. J. Pawson, Esq., Shawdon, Alnwick, were the leading exhibitors. The best out of eighteen dishes of twelve Plums, three sorts, were very fine samples of Guthrie's Green Gage (?), Kirke's and Magnum Bonum, from Mr. Loudon, The Quinta; and fine Orleans, Magnum Bonum, and Kirke's, from Mr. Fairgrieve, gr., Dunkeld Gardens. Magnum Bonum was the best represented variety in the show. The class for twelve Figs was a thin one, and the best fine Brunswicks came from Mr. W. Chisholm, gr. to R. C. Taylor, Esq., Broughton Place, Maidstone.

Miscellaneous Fruit.

Amongst the fruits not classified above we must mention a bunch of Bananas, which came from Mr. J. W. Fortune, gr. to R. Jardine, Esq., Castle Milk, Lockerbie; and a smaller bunch from Mr. Brown, gr. to Lady Baxter. Currants and Gooseberries were well represented, both as to numbers and quality. Tropical fruits were represented by a collection from Mr. R. Leslie, gr. to W. Maxwell, Esq., Munches, Dalbeattie, which included Cape Gooseberries, Passiflora macrocarpa, P. vitifolia, and P. quadrangularis; Guavas, Oranges, and a small fruit of Monstera deliciosa. Mr. Turner, Slough, showed some fine samples of Cox's Orange Pippin Apples, Duchesse d'Angoulême and Doyenné Boussoch Pears, gathered from small trees. Six large and splendidly coloured

Cellini Apples came from Mr. W. Sharpe; and examples of Peasgood's Nonsuch came from Messrs. Brown, of Stamford. A named collection of Pears, of considerable interest, came from Mr. Loney, gr. to J. Dickson, Esq., Gothenburg, Sweden; and Messrs. Ormiston & Renwick, Melrose, contributed a collection of Apples and Pears. Here, too, we must mention the competition for Messrs. Sutton & Sons' prizes for Melons and Cucumbers, for which there were three entries. The 1st prize went to Mr. Ingram, Alnwick, who had good examples of the Marquis of Lorne, Telegraph, Duke of Connaught, Alnwick Castle Seedling Cucumbers; and Colston Bassett, Read's Hybrid, Malvern Hall, and Sutton's Victory of Bath Melons. Mr. Bowman, gr. to the Hon. Lord Deas, Pittendreigh, Lasswade, was 2d.

VEGETABLES.

One of the small side rooms was devoted to vegetables, and a small but good display was made. Onions were capitally shown by thirteen exhibitors, and Mr. Marshall, gr. to Miss Hay, Kingston Grange, sent the finest examples. Two collections of salading materials were put up, and both were well done. Leeks in bunches made a very fine class, and were of enormous size. Celery, Potatos, Carrots, French Beans, Turnips, Brussels Sprouts, and Cabbages were shown of grand size, if not always very fine in quality. The best of about a dozen collections of vegetables was contributed by Mr. Sandford, gr. to the Earl of Bective, Kirby Lonsdale, and included very fine examples of Leicester Red Celery, Drumhead Savoy, Veitch's Autumn Giant Cauliflower, James' Intermediate Carrot, Canadian Wonder French Bean, Banbury Onion, Brussels Sprouts, Globe Artichokes, American Late Rose Potatos, &c. The other prominent exhibitors were Mr. D. McBean, gr. to J. C. Cunningham, Esq., Craigend, and Mr. James Culton, Dildawn. Under this heading we must mention the competition for the prizes offered by Mr. Monro, Potter's Bar, for Duke of Edinburgh Cucumber. Twenty-five brace were staged—three were disqualified for not being true, and the remainder varied so much in size and thickness that at least half a dozen types could have been picked out of them. Mr. Stewart, The Glen, sent a nice brace, and easily gained the highest award. A First-class Certificate was awarded to Mr. Allan, Old Manse, Eassie, for a new Pea, called Allan's Champion, a scimitar-shaped, second early, and fine variety.

Among miscellaneous exhibits, a certificate was awarded to Mr. John Milne, Edinburgh, for a steam-spray for destroying insects.

The difficulty of taking notes has somewhat abbreviated our report. This was owing to the arrangement of the plants and fruits, the collections of the former being set across the narrow tables, with the names of the plants facing in two opposite directions. The materials, we have already stated, would have well filled a much larger exhibition place, and we trust that the large glazed exhibition building, which was hinted at as a possibility so long ago as the last international meeting held at Edinburgh, will be completed and available before another show of the same magnitude is held.

To the Secretary and Assistant-Secretary, Mr. Stewart and Mr. Young, great praise is due for the untiring manner in which they worked to make all things run smoothly, and we beg to thank them for the assistance they so kindly rendered us. A word of praise is also due to Messrs. Dunn (Dalkeith), Downie (West Coates), and Lamont (Inverleith Row), who had charge of the arrangement of the plants; and Messrs. McLeod (New Battle), Anderson (Oxenford Castle), and Mr. Thomson (Clovenfords), who acted in a similar capacity in the fruit department; for though we object to the place in which the show was held, and to the manner in which the tables were fixed, these gentlemen were not responsible for either, and their duties were carried out most efficiently.

We are informed that £40 were taken in shillings from the gardeners only, according to the regulation mentioned in our leading article—a regulation which is thus seen not only to be a good one, but a profitable one also.

At the dinner Bailie Methven presided, with Messrs. W. Thomson, David Syme, and R. T. Macintosh as croupiers. About 150 gentlemen attended. The usual toasts were drank with fervour, and the evening passed off very agreeably. We are glad to hear that the exhibition is likely to be a financial success.

Ipswich and East of England Horticultural.—The above Society held its autumn meeting on September 9, in the grounds of the Lower Arboretum, adjoining Christchurch Park. This place is well adapted to the above purpose, being in close proximity to the town and of easy access. The ground is naturally broken up, so that the surface is well varied and diversified, and advantage has been taken of this in forming effective groups of shrubs in suitable positions, so as to make the most of the limited space at command.

In the cut flower department Dahlias were fairly represented, the best twenty-four being staged by Mr. H. Southgate, gr. to J. R. Pettiward, Esq., of Finboro' Hall; and Messrs. Gilbert, of Ipswich, were a good 2d in this class. In the class for twelve, Mr. Gilson, of Ipswich, and Messrs. Lovely, were 1st and 2d. The varieties in the two stands did not vary greatly, the best and most distinct being Acme of Perfection amongst the yellows, Annie Neville the best white, and James Service the best dark. For Fancies, Mr. H. Southgate and the Messrs. Gilbert were again 1st and 2d. The most striking in this class were Parrot, Grand Sultan, John Bunn, and Attraction, all of which were streaked and marked in the most fantastic manner. Roses were fairly good for the season, but the stands of the large growers, such as Mr. Cant, Nichol, and others were conspicuous by their absence, they appearing to stand aloof from exhibiting at this season. In the class for twelve Messrs. Lovely, Southgate, and Boreham took the prizes in the order in which their names stand. For sixes the Rev. J. B. Tweed, of Capel, was 1st, and the Rev. F. de Grey and Mr. Wright equal 2d. The cut Zonal Pelargoniums, shown in bunches not exceeding six trusses in each, made quite a show, and were very brilliant. Many of those exhibited on this occasion show quite new shades of colour, some of which have a tinge of violet, as in Haidée, Ianthe, and others; while all show great advances in the size and substance of the flowers compared with those of a few years back. Messrs. Gilbert, of St. Margaret's Nursery, were a good 1st in the class for twelve bunches, and Mr. Cooper 2d.

French Asters were shown by Mr. Cooper, of Hadleigh, and Mr. H. Southgate, who took 1st and 2d prizes. For the best twelve German the Rev. J. B. Tweed was 1st, with a good dozen.

Herbaceous cut flowers were not so well represented as they usually are at the Ipswich show, but the Messrs. Gilbert were again to the fore with a good dozen.

Bridal bouquets were shown by Miss Philbrick, of Colchester, and the Messrs. Gilbert, of Ipswich, neither of whom showed in their usual style. In the class for ballroom bouquets Mr. Rose, gr. to E. Packard, Esq., outdistanced all competitors by the choice he made of the material and the exquisite taste displayed in arranging the same. The flowers used consisted of Gardenias, Hoya bella, buds of several Tea Roses, such as Homère, Isabella Sprunt, Madame Falcot, and others, with a few pips of Madame Lemoine and Jewel Pelargoniums, and a delicate pink Bouvardia to give a little colour. These, with a few sprigs of Panicum variegatum and fronds of Maidenhair Fern, made a bouquet that was greatly admired. Messrs. Gilbert took 2d and Mr. Southgate 3d. In the class for table decoration Messrs. Gilbert were 1st for a tastefully arranged stand, and Mr. Rose 2d.

For six stove and greenhouse plants Mr. Rose took 1st honours with a half-dozen containing good plants of Allamanda nobilis, Hoya bella, Allamanda Hendersoni, Dipladenia amabilis with highly-coloured flowers, and an Erythrina and Eucharis. The 2d and 3d prizes went to Messrs. Gilbert and Mr. G. Berry, the former contributing a good plant of Oncidium flexuosum and Allamanda Wardleiana.

In the class for eight fine-foliage plants the competition was very strong, the 1st prize falling to Mr. Carey, gr. to F. Fish, Esq. This collection contained a beautiful plant of Maranta roseo-picta, M. zebrina, Caladium Prince Albert Edward, Cissus discolor, and a fine plant of Alocasia macrorhiza variegata. The Messrs. Gilbert and Mr. Southgate ran each other so close as to be placed equal 2d. Messrs. Gilbert's collection contained a highly-coloured plant of Caladium Prince Albert Edward, and a good Latania borbonica. Mr. Southgate contributed a fine plant of Anthurium cordifolium and Dracæna Youngii, a very robust striking variety.

Double Pelargoniums were very poor, and appear to be going out of favour, but the single Zonals were fairly represented. In the latter class Mr. Rose was 1st for six plants, and the Messrs. Gilbert 2d. The ornamental foliage varieties were well done, Mr. W. Sharp showing a very fine dozen, for which he took the 1st prize, and Mr. Rose 2d.

Plants suitable for dinner-table decoration were also well done. These were arranged down the centre of the fruit tent. The six staged by Mr. Rose were of the choicest kinds for this class of work, and perfect in colour and finish. The six plants were of the following varieties:—Cocos Weddelliana, Croton interruptus and C. angustifolius, Dracæna Guilfoylei, D. Shepherdi, and D. Cooperi, all splendidly coloured. Mr. J. Berry and Messrs. Gilbert took 2d and 3d, the latter having two nice Palms—Calamus speciosus and Dæmonorops fissus—and good-coloured Dracæna nigra rubra and D. Cooperi.

Exotic Ferns were well shown, the 1st prize for six going to Mr. G. Berry, who had nice young plants of Cibotium regale, Alsophila australis, and Cibotium princeps. Mr. Carey, gr. to F. Fish, Esq., came 2d for a choice even half-dozen, consisting of Adiantum Farleyense, A. scutum, A. cuneatum and A. macrophyllum, Gymogramma chrysophylla, and Cheilanthes elegans. Mr. A. Harrison came 3d with a collection containing a nice clean young Dicksonia, and a fine Pteris argyrea and Asplenium bulbiferum.

Judging by the great display of Plums and Apples the season has evidently suited that class of fruit; but Pears were small, and altogether very inferior. In the collection of eight dishes of fruit, Mr. Wallis, gr. to Colonel Tomline, of Orwell Park, took 1st honours with a nice lot containing good Peaches and Nectarines, Hamburgh and Muscat Grapes, and a Melon. Mr. Wright came 2d, and Mr. Bennett 3d.

In black Grapes Mr. Wallis, gr. to Colonel Tomline, was 1st with three handsome well-finished bunches of Black Hamburgh; Mr. Sheppard, of Woolverstone, was a close 2d, and Mr. Carey 3d, with three large compact bunches, but a little deficient in colour. In the class for two bunches of any kind of black Grapes Mr. Wright was 1st. White Grapes were poorly represented. Mr. Wright took 1st with three small bunches of Muscat, fairly coloured; and Mr. Scopes, gr. to Colonel Phillips, came 2d with three large bunches of the same variety, deficient in colour. Peaches were well shown by Mr. Blair, gr. to Sir G. Broke Middleton, and by Mr. Sheppard, of Woolverstone, Mr. Blair taking 1st with six fruit of Royal George, and Mr. Sheppard 2d with the same variety. Nectarines were not shown in any quantity, and, excepting those from under glass, were deficient in size, and the same remark applies to the Peaches. The varieties were nearly confined to the Pitmaston Orange, the prizes in every case going to that kind. Melons: Mr. Blair contributed a remarkably handsome fruit named Bellamore Hybrid, weighing over 6 lb., for which the 1st prize was awarded. Mr. Rose came 2d with a nice-looking fruit, and Mr. Clark 3d. Figs were confined to the White Marseilles and Brown Turkey varieties, the 1st prize falling to Mr. Sheppard for the former, and the 2d to Mr. Kiddie, gr. to Colonel Anstruther for the latter variety. Green Gages were fine and well coloured, Mr. Sheppard taking 1st, Mr. P. Boreham and Mr. W. Wright 2d and 3d. In the class for twelve dessert Plums Mr. Sheppard was 1st for a fine dish of Jefferson; Mr. P. Boreham and Mr. Blair being 2d and 3d for the same variety, with fruit but little inferior. Kitchen Plums were shown in great quantity, the best of which appears to be Pond's Seedling. Messrs. Scott, Boreham, and Brixton took the prizes in the order in which their names stand. Dessert Apples were well represented, the prizes in every instance going to the Kerry Pippin. Kitchen Apples were a large class, and judging by the display here made there will be no dearth of this esteemed fruit during the coming winter. The prizes went to the Hawthornden and Lord Suffield varieties.

Dessert Pears were small and poor, the prizes being awarded to that highly popular variety, Williams' Bon Chrétien. Mr. Wallis showed some remarkably fine Morello Cherries, but how he has kept them is a mystery, considering the plagues of wasps, flies, and other enemies with which most gardens are unfortunately visited.

In the vegetable department Potatos made rather a large show, and from the clean appearance and great size of some of the specimens it would appear that some portions of the eastern district have not suffered much from disease. The best rounds were Victoria, Suttons' Red Flourball, and Carter's Champion White Flourball; King of the Kidneys, Bread-fruit and Lapstone, took the prizes for kidneys, the variety named Bread-fruit being of enormous size, very clear and flat-eyed. Red Cabbage and Onions were of large size and weight, one of the former being over 20 lb., and the latter 18 inches round.

Collections of vegetables were not at all remarkable, either for size or quality. Mr. Wright contributed the best, Mr. Sharp the 2d.

The cottagers' show was in every respect a good one, and it may be remarked as evincing the interest some of these take in the cultivation of their gardens, that one exhibitor had gone in for the new and expensive Potato, Snowflake, for which he took the 1st prize. (*From a Correspondent.*)

Brentwood Autumnal: *Sept.* 9.—This, the second show of this highly prosperous society, was a very successful one. Four or five tents were filled with very superior material. The schedule consisted of some sixty-five classes, besides such as were set apart for special farm produce.

In class 1, a "miscellaneous collection of stove or greenhouse plants, foliage plants and Ferns, arranged for effect, not less than twelve or more than sixteen," Mr. J. Miller, gr. to J. Canning, Esq., Halstead, was 1st, having amongst his plants a fine healthy Screw Palm (Pandanus utilis), Alocasia zebrina, a very good Acalypha tricolor, &c. Mr. J. Lane, gr. to Major-General Fytche, Pyrgo Park, was 2d, with amongst others a fine large example of Geonoma Schottiana, a good Lomatia filicifolia, Adiantum Farleyense, &c. Mr. Wilks, gr. to Mrs. Church, Hamlet House, Chelmsford, was 3d. We have rarely

seen a more neat, compact, or meritoriously grown collection than were these; unfortunately, as regards the prize-taking consideration, they were all somewhat small, otherwise their cultural merit was most deserving. Amongst them was a good example of Sanchezia nobilis variegata with bloom spikes, along with neat and effective Dracænas, Adiantums, &c. Extra prizes were also awarded to Mr. Wise, gr. to W. Hogg, Esq., Hampton House, and to Mr. F. Woodhams, gr. to C. Mathews, Esq., the Bower House, Havering.

For six Pelargoniums, "for beauty of foliage," Mr. W. North, gr. to F. Hill, Esq., Brentwood, was 1st, with a good variety and well coloured; 2d, Mr. Wm. Meadmore, nurseryman, Romford, with better finished plants, but less variety; 3d, Messrs. Saltmarsh, nurserymen, Chelmsford. For six Zonal Pelargoniums, single or double, Mr. J. Mann, nurseryman, Brentwood, was 1st; Mr. Meadmore 2d, and Mr. Burley 3d.

In the class for three Fuchsias Mr. Wilks was 1st, Mr. W. North 2d, and Mr. Burley 3d. For best basket of pot plants Messrs. Saltmarsh were a very neat 1st, Messrs. North and Meadmore being respectively 2d and 3d.

The competition in the classes for cut flowers was very keen. For twenty-four Dahlias Mr. Rawlings, nurseryman, of Romford, was 1st; amongst his blooms were fine examples of Harriet Tetterell (blush ground deeply margined with dark purple), Flag of Truce (beautifully white, tipped with slight lilac), James Cocker, a very constant purple, and John Bennet. Messrs. Saltmarsh were a close 2d, though they were weak, with about four blooms — their Prince Arthur was very fine; 3d, Mr. J. Mann.

For twelve Dahlias, amateurs, residing in Essex, J. C. Quennell, Esq., was a good 1st, Mr. R. Wade 2d, W. Harrington, gr. to E. Mitchell, Esq., being 3d. For six Dahlias Mr. Garnett, Romford, was 1st, with a very creditable display; Mr. Saunders 2d, and Mr. Wise 3d.

For twelve Roses, distinct, Mr. Quennell was again 1st, Mr. H. Atkinson being 2d. In the class for six Roses Mr. W. Soder, gr. to W. O. Hanbury, Esq., Weald Hall, was 1st. The class for twelve varieties of cut flowers was well contested; here Messrs. Saltmarsh were 1st, Mr. W. Bones, gr. to D. Macintosh, Esq., Havering, 2d.

For a basket of miscellaneous cut flowers—which resolved themselves into huge, ugly, meaningless baskets some 3 feet across, crammed with cut blooms in all variety—Messrs. Saltmarsh were 1st, Mr. Ford, Junction Road, Warley, 2d.

In the class for twelve Asters—and the display was very fine—Mr. Saltmarsh was 1st, Mr. Meadmore 2d, and Mr. Miller, gr. to J. Canning, Esq., Halstead, 3d. In a similar class for amateurs Mr. Miller was again 1st, with some fine quilled Asters, Messrs. Charter, Atkinson, and Wise dividing remaining honours between them.

Class 16, for the most tastefully arranged table decoration, open competition, was hotly contested between two well known artistic decorators, viz., Mr. Burley, nurseryman, Brentwood, and Mr. Soder, gr. to O. Hanbury, Esq., and it is but just to say both were extremely chaste, light, and elegant; Mr. Burley's, being somewhat the lightest of the two, received the higher award—Mr. Soder being, as might be inferred, an unusually good 2d. Miss Newall took the 1st prize for bouquets, Mrs. Soder being 2d.

For the most tastefully arranged single vase of cut flowers Mr. Wise was 1st, Miss Marian Wallis being 2d. A bunch of double Pomegranate flowers came from J. Boyds, Esq., Bridges Park. The Countess Tasker, staged, "not for competition," an extremely neatly arranged vase of artificial wrought flowers, these latter being the Countess's own work also.

Fruit and vegetables were numerously shown. The best collection of six varieties, Pines excluded, came from Mr. Bones; Mr. Lane and Mr. H. Constable taking the other prizes. Grapes, Black Hamburgh, two bunches: Mr. Page, gr. to Rev. C. A. Belli, Southweald, was 1st; Mr. Tunbridge, gr. to W. Bott, 2d. In the class for any other variety of black Grape, Mr. Farrance, Chadwell Heath, showed well coloured Alicante, and was 1st; Mr. Adams, gr. to A. G. Robinson, Esq., 2d. Two bunches of Muscat: Mr. Adams was also 1st, Mr. Bones 2d, Mr. Lane 3d. Any other variety of white: Mr. Farrance, Mr. Smith, gr. to E. O. Coope, Esq., 2d. The best green-fleshed Melon came from Mr. Murrell, gr. to A. Allerton, Esq.; and for scarlet-fleshed Mr. Bones was 1st. Peaches: 1st, J. Thornton, gr. to R. Walmesley, Esq. Nectarines: 1st Mr. Rank, gr. to J. E. Circuit, Esq. For Figs Mr. Smith was 1st; and for Plums Mr. Lane took a similar award, with Jefferson.

Vegetable were well-contested, and with nine sorts, Mr. Rank took the premier award, good collections having also been shown by Mr. Ford, Crescent Nursery, Warley, and Mr. Bones. For six sorts of vegetables, Mr. North, gr. to J. Hill, Esq., was 1st. Onions were very fine, Mrs. Stone, gr. to C. J. H. Tower, Esq., being 1st with very fine examples. For Tomatos Mr. Smith, Romford, took the premier award. Cucumbers were numerous, Mr. Mizen being 1st, Mr. Quennell 2d. Mr. Payne, nurseryman, Romford, also showed a good brace. For collection of Salads, Mr. Ford took the premier award. Amongst miscellaneous subjects Mr. Rawlings received a First-class Certificate for Dahlia John Bennet, which is a flower of great promise. Messrs. Saltmarsh staged a fine collection of hardy ornamental foliage plants, hardy fruits, &c.; Mr. Burley, Brentwood, baskets of variegated Pelargoniums; Mr. Carter, Ilford, Pansies and Tritomas. The cottagers' produce was very praiseworthy, and especially a bouquet shown amongst them by Mrs. Roast, Crescent Road. *W. E.*

Brighton and Sussex Horticultural: *Sept.* 8 *and* 9.—As we mentioned in our report of the summer show, the existence of this Society depended almost entirely upon the weather during the two days of the autumn exhibition. Fortunately on this occasion the weather was all that could be desired, and, taken as a whole, the display was equal, if not, as some averred, superior to anything ever before seen in Brighton. But leaving comparison with previous flower and fruit shows held at Brighton or elsewhere out of the question, it may be stated that this last one was excellent both as to the quantity and quality of the flowers and fruits exhibited. As usual the first division was open to nurserymen and others in all parts of the kingdom, and the second restricted to gardeners and amateurs in the county of Sussex. Selecting a few of the most interesting classes for comment, we have in the first place to notice the collection of eight varieties of stove and greenhouse plants, the premier prize for which was a cup, value £10 10*s.*, presented by the Corporation of Brighton. Mr. Gilbert, nurseryman, Hastings, secured the cup with very good specimens, tolerably uniform in size, of the following plants:—Allamanda Hendersoni, A. grandiflora, Lapageria rosea, Ixora javanica floribunda, Erica cerinthoides coronata, E. Austiniana, Rondeletia speciosa major, and Statice Gilberti. The Lapageria was very full of flower, and the plant of Allamanda grandiflora was a good specimen of this neglected species. Messrs. Balchin & Nell, of Brighton, took the 2d prize; their collection contained some good plants, notably so a very highly-coloured, well-flowered specimen of Bougainvillea glabra, but rather weak, inasmuch as it included a Heath very much past its best, and the old white-flowered Swainsona. Mr. Morse, of Epsom, was 3d in this class. The class for four varieties of stove and greenhouse plants was equally well represented, Mr. Knight, gr. to Mrs. Shadwell, Fairlight, taking 1st. In the class for ten plants with ornamental or variegated foliage, Mr. Harrow, gr. to Mr. Bessemer, Camberwell, was 1st with nearly the same plants which gained him the cup at the summer show. The collection included a fine plant of Cocos Weddelliana in flower, four Crotons, large healthy specimens; a large Cycas revoluta, a not very fresh-looking Cyathea dealbata, &c. Mr. Gilbert, of Hastings, was a very good 2d; his collection contained several Tree Ferns, including Dicksonia squarrosa, but now that trunks of Tree Ferns are so largely imported, they count for less in the eyes of judges than rare and elegant Palms. Mr. W. Miles, Brighton, was 3d, with a good collection of smaller plants. Pelargoniums were not so good as they usually are at Brighton, and there was little competition. Messrs. Balchin & Nell took the 1st for scarlet-flowered Zonals, for Zonals with flowers of any colour except scarlet, and for double-flowered varieties. Gold and silver variegated Pelargoniums showed much cultural improvement upon what we have previously seen at Brighton. Mr. Howick, gr. to Mr. J. Irving, Withdeane, took 1st for the four best silver-variegated varieties; and Mr. Meachan, gr. to Mr. C. Armstrong, Withdeane, the 1st for four golden-variegated varieties. Among other classes of plants exotic Ferns may be mentioned, for which a cup value £10 10*s.*, the gift of Mr. J. Ashbury, M.P., was given. Mr. Gilbert carried off this one also, having a rather easy victory with healthy plants. Mr. Child, gr. to Mrs. Torr, Ewell, was 2d; and Messrs. Balchin & Nell 3d in this class.

In the class for Lilies there were only two exhibitors, the culture of these incomparably beautiful hardy plants not having become very general yet. Mr. Martin, of Woodmancote, and Mr. Umpleby, gr. to Miss Dealtry, of Bolnore, each showed very fair collections of six varieties. Mr. J. H. Kay took the 1st prize for eight varieties of Palms, Mr. Harrow 2d, and Mr. Knight 3d. No prizes were offered for Orchids in the first division, the funds at the disposition of the committee being inadequate to induce growers to bring good collections.

Passing on to cut flowers, we may mention that there was a very large display, the competitors in some of the classes being numerous. In both show Dahlias (forty-eight dissimilar blooms) and fancy Dahlias (twenty-four dissimilar blooms), Mr. Keynes took the 1st prize with an almost perfect lot of flowers. Pretty close on his heels came Mr. Walker of Thame, whose flowers were very good indeed, and inferior only in shape and finish to those put up by Mr. Keynes. Mr. Seale, of Sevenoaks, and Mr. Pannet, of Charley, also showed some good flowers. Roses were very good for the season. Messrs. Mitchell, of Piltdown, were awarded the 1st for forty-eight varieties; Mr. Piper, Uckfield, 1st for twenty-four varieties; and Mr. W. Knight, Hailsham, the 1st for twelve varieties of the Tea or Noisette classes. There were also some good Verbenas exhibited. The Rev. C. Hales, of Woodmancote, gained the 1st prize for twenty-four varieties in bunches of three trusses. Asters, both French and German, were very good, and the competition keen. And we may observe here that it is very perplexing for judges to have to decide between the merits of Victoria, Pæony-flowered, and other distinct strains of varieties included under French Asters. Mr. Betteridge, of Chipping Norton, was 1st, with his fine varieties of quilled or German Asters; and Mr. Webb, gr. to Mr. Pennystone, of the same place, took the 2d prize. Mr. Walker, Thame, was 1st for French varieties; Mr. Morgan, Reigate, 2d; and Mr. Gosling, Fletching, 3d. Messrs. Kelway exhibited a collection of thirty-six magnificent varieties of Gladiolus; and Mr. Hemsley, of Hassock's Gate, was 2d, with a very good lot. Hollyhocks were represented by one very poor collection.

There were two classes for table decorations, the second for amateurs only. According to the schedule the prizes were offered for three stands, but plants with flowers arranged around the base were permitted to compete with stands. In the open class Mrs. Seale was awarded the 1st for a very tastefully filled set of glass stands, though the thick twisted stem of the centre one was left naked. Mr. Hudson was in the second place this time. He had two stands and a small Palm with a floral base for the centre, which ought to have gained him the 1st prize, but he appeared to have been less careful in the selection of his flowers. At the base of his rather small centre he had several white Water Lilies and a large Cereus flower, which did not harmonise well with the other components. The Hare's-foot grass, Lagurus ovatus, was also too freely used. The winner of the 3d prize, Mr. Downing, gr. to Mr. Allison, Tilgate, had two Palms and a glass centre-piece. The effect of this set was greatly marred by the base of the Palms being thickly studded with the not very elegant panicles of Molinia cœrulea. Mrs. Seale, jun., gained the 1st prize in the class for amateurs; and Mrs. Winn, of Bedford Square, Brighton, the 2d.

This brings us to the fruit, which was very abundant, and good in most classes, Pines and Melons only being less numerous than usual. Mr. Rutland, gr. to the Duke of Richmond, took the 1st prize for a collection of ten dishes of fruit; and Mr. Vickery, gr. to Major-General Sir H. de Bathe, Chichester, the 2d. Mr. Fillery, gr. to Mrs. Sassoon, Walton-on-Thames, was 1st for Queen Pine-apple; and Mr. E. Clarke 1st in the class for any other variety; Mr. Rutland being 2d in both places. In all the classes for Grapes Mr. Kay, of Finchley, and Mr. Bashford, gr. to Mrs. Douglas, Tunbridge Wells, were the principal and most successful exhibitors; and Mr. Spary, the superintendent of the show, exhibited a magnificent basket of Black Hamburgh. It would occupy too much space to give the names even of the winners of all the chief prizes for Peaches, Nectarines, Pears, Apples, Cherries, &c., but they were nearly all awarded for fruit grown in the county. Figs, for which certain parts of the county are celebrated, were very good. There were also some very fine red Currants from Mr. Mustchin, gr. to Mr. H. Gorringe, Kingston-on-Sea; from Mr. Ford, Horsham, and from Mr. Worsfold, gr. to Lady Dickens, Coolhurst. These were all in the second division, for which we have left very little space, though much might be said. The fruit and cut flowers were equal in many classes to the corresponding classes of the first division, and in some cases superior.

It is to be hoped that a few successful shows will enable this Society, which has been in existence nearly a quarter of a century, to lay by a small reserve fund, so that its future will not be determined by a single wet day. Upwards of 3000 persons, we are informed, attended on the second day, the largest number in one day since the foundation of the Society.

Exhibition of the Banbury Onion.—Mr. P. J. Perry, of the Banbury Nursery, held an exhibition of the above Onion at the Corn Exchange, Banbury, on Sept. 9. For the four prizes offered, which were given by the above firm, there were no less than ninety-six entries, to which add five not for competition and we have a grand total of 101 entries. Several of the lots were remarkable for symmetry, weight, and quality. Many of the specimens measured 16 and 17 inches in circumference, and weighed from 1 lb. to 22 oz. each. The Earl of Effingham sent a collection of eighteen varieties, especially good and of splendid quality, not for competition; and Mr. Munton staged twenty-four specimens, which comprised many very choice examples of high culture.

The principal exhibitors were the Right Hon. the Earl of Effingham, the Right Hon. and Ven. Lord Saye and Sele, Sir W. R. Brown, Bart., Lady Charles Bertie Percy, Laura Lady Peyton, the Ven. Archdeacon Holbech, the Rev. J. H. Brookes, Col. Campbell, H. Norris, Esq., R. A. Cartwright, Esq., R. N. Byass, Esq., H. B. Arnaud, Esq., D. Fullerton, Esq., C. C. Dormer, Esq., E. Ramsay, Esq., W. Munton, Esq., W. Chamberlin, Esq., and other distinguished growers in Oxfordshire and adjoining counties.

The judges selected on the occasion were Mr. Temple, The Gardens, Blenheim Palace, and Mr. Hain, The Gardens, Middleton Park, who awarded the prizes as follows, viz. :—1st, £2, Mr. Geo. Ward, Wroxton, Oxfordshire; 2d, £1, C. C. Dormer, Esq., Rousham Park (Mr. H. Pomroy, gr.); 3d, 15s., Captain R. H. Field, Grimsbury; 4th, 10s., W. Munton, Esq., Banbury, whose specimens were the heaviest although not ripe.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPT. 15, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°			In.
9	29.74	—0.16	69.3	56.8	12.5	62.2	+ 4.1	47.2	60	W.	0.00
10	29.80	—0.10	63.5	53.1	10.4	58.1	+ 0.1	56.1	93	S.S.E.	0.00
11	30.05	+0.15	63.0	53.8	9.2	57.2	— 0.6	53.7	83	E.N.E.	0.00
12	30.09	+0.20	72.0	56.0	16.0	62.5	+ 4.9	57.1	83	ENE: N.N.E.	0.00
13	30.06	+0.18	76.1	57.2	18.9	64.2	+ 6.8	51.3	76	N.E.	0.02
14	30.01	+0.14	72.2	58.6	13.6	63.4	+ 6.2	53.1	68	N.E.	0.00
15	29.96	+0.10	71.0	55.0	16.0	61.7	+ 4.6	52.7	73	E.	0.00
Mean	29.96	+0.07	69.6	55.8	13.8	61.3	+ 2.9	53.0	77	N.E.	sum 0.02

Sept. 9.—A very fine day; air very dry till the evening.
— 10.—Dull, cloudy in morning. Fine afterwards.
— 11.—Cloudy day, partially clear at night.
— 12.—Overcast in morning. Clear from noon till 11 P.M., when a very thin rain began to fall.
— 13.—A fine day, overcast from 9 P.M.
— 14.—A fine day. Clear night.
— 15.—A very fine day. Night very clear.

—— During the week ending Saturday, September 11, about London, the reading of the barometer at the level of the sea increased from 30.18 inches at the beginning of the week to 30.34 inches by the morning of the 6th, decreased to 29.76 inches by the evening of the 8th, and increased to 30.31 inches by the end of the week. The mean reading for the week was 29.91 inches, being 0.02 inch lower than that of the preceding week. The highest temperature of the air at 4 feet above the ground was 76°.2 on the 8th, and it exceeded 70° both on the 6th and 7th; on the 11th it only reached 63°; the mean of the seven days was 67°.9. The lowest temperature in the week was 51½° on the 6th; on the 8th the temperature did not fall below 58°.5; the mean of the seven lowest, as observed night by night, was 54°.3. The daily range of temperature was as small as 9°.2 on the 11th, and as large as 21°.9 on the 6th; the mean for the week was 15°.6.

The mean daily temperatures of the air and the departures from their respective averages were—Sept. 5, 59°.1, + 0°.5; 6th, 60°.9, + 2°.5; 7th, 64°.7, +6°.3; 8th, 65°.6, +7°.3; 9th, 62°.2, +4°.1; 10th, 58°.1, +0°.1; 11th, 57°.2, −0°.6. The mean temperature for the week was 61°.1, being 1°.1 higher than that of the preceding week, and 2°.9 higher than the average of observations extending over sixty years.

The highest readings of a thermometer with blackened bulb in vacuo were 130° on the 12th, 129° on both the 13th and 14th. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 50°.

The direction of the wind was mostly N.E. and E.N.E., and its strength gentle. The weather during the week was for the most part fine, and the nights clear.

Rain fell for a very short time at about midnight on the 13th; the amount collected was somewhat less than two-hundredths of an inch.

In England the highest temperature of the air at the height of 4 feet observed in the week was 80° at Norwich, at Newcastle the highest temperature noted was 70°, at Hull 72°, at Liverpool 73°. The mean from all stations was 75½°. The lowest temperature noted was 40° at Truro, and 51° at London. The mean from all stations was 45½°. The range of temperature in the week was the smallest at Liverpool, viz., 23°.5, and the largest, 36°, at Leicester; the mean of all was 29¾°. The mean of the seven high day temperatures was the least at Liverpool, 66¾°, and was greatest at Sunderland, 74°; the general mean from all stations was 69½°. The mean of the seven low night was the lowest at Truro, 46¾°, and the highest at about London, Norwich, and Manchester, about 54°; the general mean from all stations was 51¾°. The least weekly mean daily range of temperature was 13°.1, at Liverpool; and the greatest was 22½°, at Cambridge; the general average was 17¾°. The mean temperature of the week was the lowest at Truro, 56¼°, and the highest was 62°.9, at Sunderland; the next below this was 61°.1 at about London; the mean of all stations was 59¼°.

Rain fell on one, two, three, or four days in the week. At Manchester the only day in the week on which rain fell was the 8th, during a thunderstorm, when 1 inch was collected at Manchester; 1.06 inch at Salford; 0.77 inch at Liverpool; on this day 1.06 also fell at Newcastle, which were the largest falls in the week. The smallest falls were about London, Leicester, Sheffield, and Cambridge, being all less than one-tenth of an inch. The average fall over the country was four-tenths of an inch. The weather during the week was very fine. A severe thunderstorm was experienced on the 8th at Newcastle, Bradford, Manchester, Salford, and on the 9th at Sunderland and Liverpool.

In Scotland the highest temperature in the week was 72½°, at Leith, at Glasgow 67½° was the highest reading. The lowest temperature in the week was 40°, at Perth, and at Greenock 47° was the lowest reading, their respective averages being 69½° and 43°. The mean range of temperature in the week was 26½°. The highest temperatures of the air in the week were 58¾° at Leith, and 58¼° at Dundee, the highest temperatures noted at Glasgow and Perth were both 56¾°. The mean for the week was 57.6°. The amounts of rain measured at the different stations varied from 1¼ inch at Aberdeen to seven-hundredths of an inch at Greenock; the average fall over the country was nine-tenths of an inch.

At Dublin the highest temperature was 72°.9, the lowest 34°.4, the mean 56°.5, and the rainfall 0.22 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—The fine warm weather we experienced at the beginning of the present month has been such as to permit of numbers of flowering stove plants remaining in conservatories and greenhouses longer than usual, but the time has come when it is not safe to allow them longer to stay in so low a temperature as they necessarily are subject to here, for although in bright weather such houses are warm enough in the day, yet the nights now begin to get cold. Stove subjects used in this way will have been kept more than usually dry at the root; this, combined with the lower temperature, will in a great measure have stopped growth, although they will have kept on opening their already formed flowers. In moving such plants back to the stove, care must be taken that they are not excited into growth which would do harm at this season, and which they naturally will be disposed to do when in a higher temperature. This will be best prevented by continuing to withhold water so far as not to injure the foliage, and also by having the atmosphere of the house considerably drier than in the season of active growth. The temperature from this time forward during the next two months may with advantage be kept at the lowest. Stove plants do not require a long season of rest, but should rather have their period of growth extended. Where this is not practised their flowering time is just so much shorter than it need be. To subject stove plants, as is often done, to a rest of some four months or more (similar to the natural season that greenhouse plants are in a dormant state) is a mistake. It therefore becomes a question when to rest them. By close observation over an extended period with most of the subjects generally met with in stoves, I am convinced that the concluding months of the year offer the best time, and sufficient for all purposes. Where this is carried out, and the temperature raised at the commencement of the new year, the plants are two months in advance of those started at the time many growers advise, which is just so much added to their flowering season—an object worth trying for even where they are only required for home decoration, and the production of flowers for cutting. But where this practice is carried out it is not only necessary to have a good light house, but also to get the plants well up to the glass. By this system of putting them early to rest they become disposed to start early with less forcing.

Tuberous-rooted *Gesneras*, *Caladiums*, and *Gloxinias*, as their leaves begin to discolour and the plants evince signs of the growth stopping, should have water gradually withheld, letting them flag slightly before it is given, and only then applying it in such quantity as to slightly freshen them up, at the same time keeping them in the stove. The practice of putting such things in a much lower temperature to stop their growth, and so starving them to rest, is directly opposed to their natural requirements, and produces that weakened condition of the roots that is shown by the puny growth plants so treated make when again started. The *Allamandas*, *Ixoras*, *Bougainvilleas*, and other subjects of similar character that were started the latest into growth in the beginning of the season will naturally keep on blooming the longest, and at no time in the year are they more required than through the autumn. These should be put together now at the warmest end of the stove, and those that were earliest started should be placed at the coolest end, kept as dry as they will bear to be without injury, and all the air that is given to the house admitted at this end. By this means the two objects of keeping a portion flowering and the others ripening off can be carried out. The atmosphere may now be kept considerably drier, without interfering with the well-being of the plants that are wanted to go on blooming for some time longer. Where there is the convenience of two stoves, or a division, so as to keep one end for such plants as require a high temperature and the other for those that want more of an intermediate heat, there will not be any necessity for an arrangement such as above pointed out, but in many places that which was at one time used as an intermediate house has been converted into a hot stove without any provision having been made for the large numbers of beautiful things that require a medium temperature, and will not flower in the, to them, too great heat of the stove; the result is that many of the best blooming subjects that want a temperature somewhere betwixt that of the greenhouse and stove, are now rarely met with, except in the shape of conservatory climbers, in a house that is kept warmer than the ordinary greenhouse; and here they generally exist under such a compromise of treatment as to be unable to display their natural beauties properly. Shading, except for tender-leaved fine-foliage plants, should now be altogether discontinued. Get the blinds thoroughly dry before stowing them away for the winter; they should be kept where they will get plenty of air to counteract damp. The inside of the glass in stoves where much moisture is used soon gets foul with conferva. This should be washed off, and the woodwork scrubbed to remove it, or the latter when so coated over rapidly gets rotten. The plants are much benefited also by the unobstructed light admitted through clean glass.
T. Baines.

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—The splendid weather we have enjoyed for some time has had a very beneficial effect on all kinds of bedding plants, and flower gardens were perhaps never seen in better condition at this time of year than they are just now. In order to make the most of the short season now before us the beds should be carefully gone over and all dead and decaying leaves and flowers should be removed. With a continuance of the present dry weather it may yet be necessary to water freely such beds as contain Violas, Verbenas, Calceolarias, &c., and to enable the latter to throw up plenty of young growth to furnish a good supply of cuttings. Calceolarias are often very disappointing on account of the provoking way they die off, leaving large gaps in the beds just at the time they should be at their best, and when the energies of the plant are being taxed by carrying a crop of bloom. I have paid much attention to this failing in Calceolarias, and I am of opinion that what is generally supposed to be a disease in the leaf arises from the plants being grown in unsuitable soil, or such as contains too much undecomposed vegetable matter. During the spring most of our stock was unfortunately pricked out in soil containing a large admixture of old Mushroom dung and leaf soil, and although healthy when put out, they were not long before they began to show unmistakeable symptoms of disease. The leaves that were previously flat and of the most healthy green showed glaucous looking white blotches of irregular shape and size that twisted the leaves and succulent stems out of their natural form, and soon completely crippled the plants. On examining these, this might readily have been put down for one of the many forms of mildew; but on looking carefully over the soil and amongst the roots I found them coated by a thread-like fungus that had permeated the whole of the soil, and done the mischief. I mention this, in order that those about preparing their frames for Calceolarias may avoid any mixture that is not thoroughly decomposed, or that contains matter likely to breed such a mischievous enemy. That neglected but fine old Calceolaria called amplexicaulis is still one of the best, and when Calceolarias will grow at all, this variety is sure

to succeed. The growth and habit is perhaps a little too straggling, but this defect is made up by the dependence that may be placed on it, and the rich soft lemon colour of its flowers, which always render it very attractive. For large beds where height and habit are not so much a consideration as would be the case in small masses, this variety has no equal.

Foliage plants are now in great beauty, and they certainly have much to recommend them. The public taste for a more subdued style of embellishment is fortunately on the increase, and with such numbers of plants at command having leaves either beautiful in form or colour, or both combined, and sufficiently hardy for outdoor decoration during the summer months, there can be no difficulty in toning down the glare of colour that is by some considered so objectionable. Good examples of what may be done with the above materials may now be seen in any of our public parks or gardens, and gardeners and others seeking new ideas may spend time very profitably in such places.

With shortening days and the genial night dews now falling, grass will, for a few weeks to come, grow thick and fast, and, in order to secure a good solid greensward for the winter, the roll and mowing machines must be plied now almost incessantly. The same conditions that favour a crop of grass will also produce plenty of seed-weeds on gravel walks, and to save endless time and labour in hand-weeding a few pots of salt water should be lightly sprinkled over their surface during sunny days. This not only destroys the growth of seed-weeds, but it likewise has a very beneficial brightening influence on the gravel, besides checking worms from casting up and disfiguring the surface.

Roses should still be stimulated by abundant supplies of liquid-manure, to enable them to perfect pure blooms. The old *Banksians* are highly prized for cutting in early spring, but it is rarely one sees them showing anything like the bloom they are capable of producing when properly pruned. These flower on the short medium-sized wood, and any that is gross or has a tendency to grow beyond a foot or so in length should be cut clean out, and only just sufficient of the medium growth left that can be fully exposed to the influence of sun and air, so that it may become well-ripened. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

MELONS.—The last batch are advancing well up the trelliswork, and are showing both male and a few female blossoms. These first fruits may remain if it be desired to get the crop quickly off hand, or they may be removed and the fruits on the second laterals waited for, provided the requisite degree of heat can be afforded hereafter. The latter course is recommended where room is no object, and where also a full crop is desired. Remember not to earth up the roots till after the fruits are set. Fire-heat must be employed from henceforth, and a mean of summer-heat be secured. Henceforth be sparing in the application of water both at the roots and in the atmosphere, and employ the syringe only on bright warm days, and this but moderately and very early in the afternoon. Now quite dispense with blinds, and, being first properly dried, let them be put away. Continue to observe previous directions in regard to the ripening of the fruits, canker at the collar, cracking, treatment during the setting period, &c. Apply good linings to dung-heated pits and frames, to finish off the last crop. Failing to secure the necessary fermenting materials from the stables, the short grass from the lawns added from time to time, or a good coating of tanners' bark, will answer admirably. Keep the growths fairly thin, and let the fruits now be elevated just above the foliage, and beware of slugs. Cease to wet the foliage in these structures from this time, and apply a fair sprinkling of flowers of sulphur as an antidote to red-spider. *T. Simpson, Chelmsford.*

PINES.—Before the diminishing influence of natural agencies is too much exhausted to be serviceable in insuring and perfecting the growth of plants like Pines which are always under glass, and which make, even under any ordinary treatment, growth of a robust character during the months of August and September, it will be prudent not to take the full advantage of the present conditions. Under favourable circumstances ventilate freely, as before advised, all Pine structures which contain young growing stock, and likewise those in which those plants are placed which are expected to provide the spring and early summer supply of ripe fruit next year. To maintain the sturdy habit and healthful appearance which such plants assume at the present period, it will, in conjunction with the manner of airing advised, be necessary to sustain the heat at the roots regularly at about 80°; to water the plants whenever they require it, using at that time very weak manure-water; to avoid the frequent use of the syringe overhead, and to merely sprinkle the pathways, &c., in the house at morning and evening every day. No fire-heat need be applied under such conditions, except when the temperature in the house falls below 60°. In the case of newly-potted plants allow 10° or 15° more at the roots, in order to stimulate them to penetrate the front material. As soon as suckers which have recently been started have made roots on them abundantly, and as light and sunshine decrease, raise them near to the glass. Those which it is intended to winter in small pots should be brought on very gradually, assuming that all fruiting plants are now brought together, as they should be by the end of this month, where every facility can be afforded to make the best of them by maintaining in the usual way a suitable atmospheric condition about the plants of about 70° at night, from 80° to 90° during the day, closing the house at 85°. *G. T. Miles, Wycombe Abbey.*

FIGS.—The second crop of Figs in the latest house where planted out in the borders will soon be all gathered, and the trees may then be kept drier, and the house well ventilated in favourable weather. As soon as the leaves have all dropped, any shifting or root pruning required should be done before the cold autumnal rains set in. All the pot trees out-of-doors intended for the earliest batch for forcing should soon be examined, to see if any want shifting into larger pots or top-dressing with fresh soil. I find the best soil used here consists of turfy sods taken from the surface of dolomite rock, mixed with some well decomposed manure; but any fresh fibrous loam mixed with a little old mortar rubbish or road scrapings will be suitable for the purpose. After shifting or top-dressing let the trees be well watered and placed in some airy situation until they are wanted to be placed out of the reach of autumn frosts or heavy rains. *William Tillery.*

Variorum.

WAX FRUIT MAKING.—Closely allied to wax flower making is that of wax fruit, some specimens of which are marvellous for their faithful imitation of Nature. Here moulding or casting is of more importance than in flower making, seeing that accuracy of form is the chief desideratum. Most kinds of imitative fruit are shaped in double moulds, one for each half, and if the fruit is irregular in its curvatures a tripartite mould may be needed. Say that an Orange is to be imitated in wax: a smooth, damp surface of sand is prepared, into which exactly one half of a good Orange is carefully pressed; a cordon or border of tin or stiff paper is built up around it at about half an inch distance from the Orange on all sides; plaster of Paris, in a cream-like consistency, is poured into the cell thus made, so as to fully cover the Orange. When quite firm enough to handle, this plaster half-mould is taken up and the Orange extricated; the Orange is turned over in the sand and another half-mould made in a similar way. Whether fruit is cast solid or hollow depends mainly on the size; if large, the mass would be heavy and much wax wasted by solid casting; in this case a core of some rough material is fixed in the middle of the mould, which gives a cavity to the middle of the fruit. Soft kinds of fruit, such as Plums, Cherries, and ripe Pears, and some hard and unyielding fruits, require special management to extricate them from the half-mould without injury to the fruit on the one hand or to the mould on the other. Pomegranates, Medlars, Pine-apples, &c., require moulds in more than two parts. Occasionally, elastic moulds of glue are found advantageous. Generally speaking, the colour of the wax employed is that of the lightest parts of the fruit, the deeper tints being afterwards laid on with brush or pencil. The chief pigments employed are such as burnt and raw umber and sienna, chrome-yellow, red lead, Prussian-blue, carmine, lake, &c., greens being produced by various admixtures of blue and yellow. Certain small varieties of fruit, such as Grapes and Currants, are made of glass bulbs, carefully blown to the proper shape; these are fixed by wax to wire inserted into holes, and are then dipped into melted wax of the proper colour, a very thin coating of which gives the proper kind of semi-transparency to the glass, and at the same time a smoothness of surface not inaptly resembling that of the natural fruit. The fastening of the various fruits to imitative stems, leaves, leaflets, &c., is an affair of wires, silken thread, strips of green paper, white flock, arrowroot-paste, gum-mastic, varnish, with other simple materials and tools employed in artificial flower making. *Boston Journal of Chemistry.*

Enquiries.

He that questioneth much shall learn much.—BACON.

66. ZEPHYRANTHES CANDIDA.—Will some correspondent kindly inform me whether this plant is quite hardy as far north as Shrewsbury on the west or Yarmouth on the east? *Diss.* [Only half-hardy near London.]

67. CLIMBERS WITH IVY.—Would any one kindly give me some information as to what sort of climbers (if any) would succeed along with Ivy on a mansion-house in the north of Scotland? The Ivy is already established over the whole surface of the walls, so that the climbers would have to grow on the surface of the Ivy, using it principally as a trellis to hold by. Any information as to anything likely to succeed will much oblige *Sapere aude.*

Answers to Correspondents.

BIGNONIA CHIRIRE (*S.*) is a native of Guyana, and although by many considered a greenhouse subject, in which temperature it may live, as some plants from warm countries will often grow in a lower temperature than they like; yet it frequently happens that under such condition they do not flower freely. We have seen this Bignonia do best when planted out in a good light house, where there was an intermediate or cool stove temperature kept up, with a somewhat dry atmosphere maintained, so as to get its growth well ripened. *T. Baines.*

FERN CASE: *L. C. W.* Apply to any large seed firm in London or the provinces.

GLASGOW BOTANIC GARDEN: Mr. Messenger, of Loughborough, writes that the amount of piping heated by Mr. Bullen's boiler is 2500 feet, not 1000 feet, as stated by error in our last week's issue.

NAMES OF FRUIT: *E. G.* The Peach is Pourprée Hâtive. The Nectarine was rotten when received. Pears: 1, Josephine de Malines; 2, Beurré d'Anjou; 3, Brown Beurré.—*J. Dell.* The Apples are very good indeed, but not sufficiently distinct from many existing varieties to render them of value to the general public. One great point in their favour is earliness of ripening. You might send specimens to the Fruit Committee of the Royal Horticultural Society.

NAMES OF PLANTS: *C. G. H.* 1, Sedum spectabile; 2, Diplacus glutinosus; 3, Tradescantia zebrina variegata; 4, Anemone japonica var. Honorine Jaubert.—*D. R.* Glaucium luteum and Ononis spinosa.—*Diss.* Acis autumnalis.—*X.* 1, Agrostis vulgaris; 2, Lolium perenne; 3, Holcus lanatus; 4, Galinsoga parviflora.—*A. S. H.* Polygonum cuspidatum, Pyrus Aria var.

ROSES: *A. H. H.* I should think the evils you complain of are due to excess of moisture in your soil. If the soil is naturally wet it should be drained; but the cold spring and wet summer are sufficient to account for the symptoms you describe, and if the soil is good and fairly dry, the plants will most likely come right next year. *W. P.*

CATALOGUES RECEIVED:—E. P. Francis & Co. (The Nurseries, Hertford), Catalogue of Hardy Ornamental Trees and Shrubs, Fruit Trees, Palms, &c., and Descriptive Catalogue of Roses for 1875-6.—James Dickson & Sons (Newton Nurseries, Chester), Catalogue of Select Roses and Catalogue of Bulbous Flower Roots.—Smith & Simons (36 and 38, Howard Street, Glasgow), Catalogue of Dutch Roots.—The New Plant and Bulb Company (Lion Walk, Colchester), Catalogue of Japanese Lilies, Orchids, &c.—Charles Burley (Paradise Nursery, High Street, Brentwood), Catalogue of Pelargoniums, Dahlias, Verbenas, &c.

COMMUNICATIONS RECEIVED:—C. D. Smith.—S. W.—A. E.—H. G. M.—George.—W., Oxon.—R. S. W.—A. A. C.—Thornton Heath Show (many thanks; next week).—R. D.—P. H. G. (enclosure, with thanks).—G. W.—C. H.—C. B. S. E. S. D.—L. G.—A. S. H.—Th. C. B. (with thanks)—J. R. J.—C. L. (enclosure, with thanks).

Markets.

COVENT GARDEN, September 16.

Trade still keeps quiet, with heavy supplies, market Cobbs and Filberts being a shade lower after the temporary rise of last week. The better classes of fruit, such as Peaches and Pines, are realising higher prices, but the foreign supply still keeps common Grapes at the low figure they have been at for some time past. Pears are arriving from the Continent in large quantities and fine condition, consisting of Duchesse d'Angoulême and Louise Bonne. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6	0–12 0	Heliotrope, per doz.	3	0–12 0
Bouvardias, do.	12	0–18 0	Lilium auratum	12	0–30 0
Calceolarias, do.	6	0–18 0	— lancifolium, doz.	12	0–60 0
Cyperus, do.	6	0–12 0	Mignonette, do.	3	0– 6 0
Dracæna terminalis	30	0–60 0	Myrtles do.	3	0– 9 0
— viridis, per doz.	12	0–24 0	Pelargoniums, dble., per doz.	4	0–12 0
Ficus elastica	1	6– 7 6	— Scarlet, do.	3	0– 9 0
Fuchsia, per doz.	3	0–18 0	Petunia, per doz.	6	0– 9 0
Gardenias, do.	12	0–60 0	Rhodanthe, do.	6	0–12 0
Gladiolii, do.	9	0–18 0	Solanums, do.	6	0–18 0
Heaths, in var., doz.	12	0–30 0			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Camellias	6	0– 9 0	Pelargoniums, 12 spr.	0	6– 1 6
Carnations, 12 blooms	0	4– 2 0	— Zonal, do.	0	3– 1 0
— Clove, per doz	0	3– 0 9	Primula, dbl., p. bun.	0	9– 1 6
— mixed, 12 bun.	3	0– 9 0	Roses, indoor, p. doz.	2	0– 6 0
Cornflower, p. doz. bun.	3	0– 6 0	— outdoor, 12 bun.	3	0– 9 0
Eucharis, per doz.	4	0– 9 0	Spiræa, 12 sprays	1	0– 3 0
Gardenia, per doz.	2	0– 6 0	Stephanotis, 12 sprays	3	0– 9 0
Heliotropes, 12 spr.	0	6– 1 0	Stocks, 12 bun.	3	0– 6 0
Mignonette, 12 bun.	3	0– 6 0	Sweet Peas, 12 bunch.	2	0– 6 0
Myosotis, per bunch	0	4– 0 9			

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1	0– 2 6	Oranges, p. 100	20	0 ..
Apricots, per doz.	0	9– 2 0	Peaches, per doz.	1	6 12 0
Damsons, per bushel	3	0– 5 0	Pears, per doz.	1	0– 4 0
Figs, per doz.	0	9– 3 0	Pine-apples, p. lb.	3	0– 6 0
Filberts, per lb.	0	5– 0 9	Plums, per bushel	2	0– 6 0
Grapes, per lb.	0	9– 5 0	— per punnet	0	6– 1 6
Lemons, per 100	8	0–12 0	Walnuts, p. bush.	16	0– ..
Melons, each	2	0– 5 0			

VEGETABLES.

	s. d.	s. d.
Artichokes, per doz.	4 0–	..
Beans, French, per bushel	.. 6 0–	..
— Scarlet Run., do.	5 0–	..
Beet, per doz.	.. 1 0–	2 0
Cabbages, per doz.	.. 1 0–	2 0
Carrots, do.	.. .. 0 6–	..
Cauliflowers, p. doz.	2 0–	..
Celery, per bundle	.. 1 6–	2 0
Cucumbers, each	.. 0 3–	0 9
Endive, per doz.	.. 1 0–	2 0
Herbs, per bunch	.. 0 2–	0 4
Horse Radish, p. bun.	3 0–	5 0

	s. d.	s. d.
Leeks, per bunch	.. 0 2–	0 4
Lettuces, per score	.. 1 0–	..
Mint, per bundle	.. 0 4–	..
Mushrooms, per pott.	1 0–	2 0
Onions, young, bun.	0 4–	0 6
Parsley, per bunch	.. 0 4–	..
Peas, per quart	.. 10–	1 0
Radishes, per bunch.	0 2–	0 4
— Spanish, doz.	.. 1 0–	..
Shallots, per lb.	.. 0 3–	..
Tomatos, per doz.	.. 1 0–	2 0
Turnips, per bundle.	0 8–	..
Veg. Marrows, doz.	1 0–	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

SEEDS.

LONDON: *Sept.* 16.—We have to report this week a slight increase of activity in the trade for farm seeds. Trifolium incarnatum, especially, experiences an improved demand; and, good samples having become scarce, prices have advanced £3 to £4 per ton. Winter Tares come forward very slowly, and the sale for them being brisk, very long rates are easily obtained. There has hardly ever been such a scarcity of Vetches as at present. As noted in our last, Clovers and Trefoils remain quiet but firm. Some fair samples of French red seed are on offer, but the prices asked are too high to admit of business. Canary seed, owing to increased arrivals of English, shows a further considerable drop. Quotations here are now too low to permit of importations from Holland. The total fall on new seed from the opening top price is from 50*s.* to 60*s.* per qr. Only a part of the new English white Mustard seed, mentioned by us last week, has as yet been placed, the makers appearing unwilling to give the price demanded, viz., 14*s.* per bushel. There is some demand for French Buckwheat for feeding purposes. Blue boiling Peas continue steady in both value and demand. Sowing Rye moves off more freely. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

Business at market on Monday was only moderate. Though the supply of English Wheat was short the demand ruled heavy, and prices declined 2*s.* per quarter. Top price of white, about 50*s.*; red, 47*s.*; really fine Talavera, about 54*s.* per quarter. Foreign Wheat sold slowly at a reduction of 1*s.* to 2*s.* per quarter. Malting Barley was steady, but grinding was rather irregular in value. Malt was dull at late rates. Business in Oats was limited, at 3*d.* to 6*d.* per quarter lower on the week. Maize was dull and drooping in value; Beans and Peas unaltered; and flour depressed, at barely late prices.—Wednesday's market was dull for all classes of produce. The supplies of Wheat were moderate, and Monday's rates were asked for both English and foreign. Barley also was about as dear, and Malt in the absence of business was nominally unchanged. Oats were in large supply, and inferior sorts were again slightly easier. Maize had rather a drooping tendency, and the few sales effected in Beans, Peas, and flour were on terms not less favourable to the buyer.—Average prices of corn for the week ending September 11:—Wheat, 48*s.* 8*d.*; Barley, 35*s.* 7*d.*; Oats, 29*s.* For the corresponding week last year:—Wheat, 47*s.* 2*d.*; Barley, 43*s.* 2*d.*; Oats, 28*s.*

CATTLE.

The demand for beasts at Monday's market was heavy; best qualities gave way 2*d.* per lb., and in other descriptions the decline was more marked. On the foreign side trade was dull, at 2*d.* to 4*d.* less money per stone. For sheep trade was quiet, at about late rates. Best Downs brought 7*s.* to 7*s.* 2*d.* Calves sold slowly at depressed currencies, and pigs were quiet. Quotations:—Beasts, 4*s.* to 5*s.* 4*d.*, and 5*s.* 6*d.* to 6*s.*; sheep, 4*s.* to 6*s.*, and 6*s.* 8*d.* to 7*s.* 2*d.*; calves, 4*s.* 4*d.* to 5*s.* 10*d.*; pigs, 4*s.* 6*d.* to 5*s.* 6*d.*—On Thursday trade in beasts was dull, at Monday's quotations. The demand for sheep was limited, and prices on the average were scarcely so good as on Monday. Choice calves were a short supply, and all were sold dear. For milch cows there was an active trade, at an advance of from 20*s.* to 30*s.* per head.

HAY.

The Whitechapel report states that trade has been very brisk, and all classes of fodder, of which there was a fair supply, realised extreme rates. Prime Clover, 100*s.* to 156*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 150*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, £1 15*s.* to £2 8*s.* per load of 36 trusses. Cumberland Market quotations:—Superior meadow hay, 140*s.* to 152*s.*; inferior, 90*s.* to 115*s.*; superior Clover, 170*s.* to 180*s.*; inferior, 120*s.* to 132*s.*; and straw, 48*s.* to 52*s.* per load.

POTATOS.

The supplies on sale at the Borough and Spitalfields markets have been moderate, but were chiefly confined to home-grown produce. For these qualities the demand is steady, at the following prices:—Essex Regents, 65*s.* to 85*s.*; Kent do., 75*s.* to 95*s.*; Victorias, 90*s.* to 100*s.*; and kidneys, 75*s.* to 110*s.* per ton.

COALS.

The market for house coals on Monday was quiet, at last prices. In Hartley's there was no alteration. Steadiness characterised the business of Wednesday in best house coals, without change in prices, but "seconds" were slightly lower.

COCOA-NUT FIBRE REFUSE (H. Wright's Pure), 20 bushels, 6*s.* 8*d.*; 50 bushels, 12*s.* 6*d.*; truck load, 45*s.* Delivered free within 6 miles, or on to rail.
HENRY WRIGHT, Fibre Merchant, 81, Bishopsgate Street Without, E.C.

Fibrous Peat for Orchids, &c.
BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.
BROWN and BLACK PEAT, for general purposes.
Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.
FRESH SPHAGNUM, 10*s.* 6*d.* per sack.
WALKER AND CO., Farnborough Station, Hants.

PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17*s.* per ton.
W. TARRY, "Golden Farmer," Bagshot, Surrey.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1*s.* 6*d.* and 3*s.* per bottle—1*s.* 9*d.* and 3*s.* 4*d.* per bottle, if packed for travelling, of the Manufacturers,
EWING AND CO., Norwich.

BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass. Retail 1*s.* 6*d.* and 2*s.* 6*d.* per bottle, of the Sole Manufacturers,
BELL AND SON, 10 and 11, Exchange Street, Norwich.

Russia Mat Merchants.
MARENDAZ AND FISHER, 9, James' Street, Covent Garden, W.C., IMPORTERS and MANUFACTURERS, have just received a large consignment of New ARCHANGEL MATS; also Heavy, Close-woven, and Light ST. PETERSBURG MATS, RAFFIA FIBRE, NETTING, CANVAS, TWINES, &c., always in stock.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100*s.*; Petersburg, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

COIR YARN, for Thatching and Tyes, first-class, strong, 21*s.* per cwt.
HENRY WRIGHT, Fibre Merchant, 81, Bishopsgate Street Without, E.C.

West Highland Cattle.
JAMES BRUCE, CATTLE AGENT, Ruthwell, Annan.

WELSH COALS.—The best Welsh Coals for Horticultural purposes. Smokeless and free from sulphur. Prices with analysis quoted, at any Railway Station or Wharf.
R. BENTOTE AND CO., 348, Kennington Green, London, S.

Notice.
To GARDENERS and OTHERS.
SUPERIOR FLOWER-POTS are now being supplied, Wholesale and Retail, at the low price of 2*s.* per cast.
G. TAYLOR, Southborough Pottery, Hook Road, Surbiton.

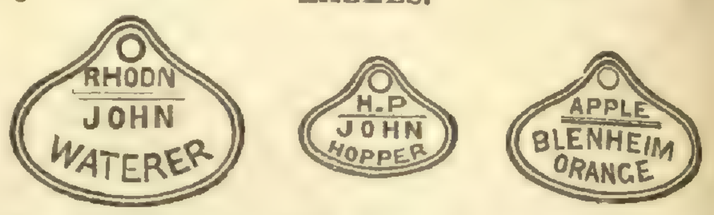
HYACINTHS in POTS.—Pots made expressly for Hyacinths can be supplied by
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List free.

RHUBARB and SEA-KALE FORCING.—Strong well made Pots for the above can be supplied by
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List free.

GARDEN POTS, ORCHID POTS, ALPINE POTS, FERN PANS, SEED PANS, and all kinds of GARDEN POTTERY of the best quality.
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List free.

W. PARHAM'S SYSTEM of GLAZING WITHOUT PUTTY, securing Freedom from Drip and Breakage of Glass, is rapidly superseding all other methods.
WILLIAM PARHAM, Patentee,
Northgate, Bath; and 280, Oxford Street, London, W.
CATALOGUES two Stamps. See Specimens at either address.

Under the Patronage of the Queen.
J. SMITH'S IMPROVED METALLIC LABELS.



The above Labels—which have just been adopted for the Royal Gardens at Windsor—are made of a White Metal, with RAISED BLACK-FACED LETTERS, and are of various shapes and sizes. Samples and Price List free.
Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

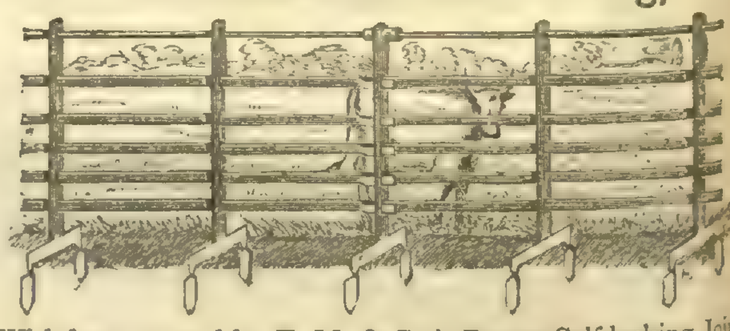
Garden Wall Wiring.

R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.
For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.
For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.
For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.
The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.
Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

Established over a Quarter of a Century.
FRANCIS MORTON & CO'S (LIMITED) LIVERPOOL NAYLOR STREET CABLE FENCING

Is in use over many thousand miles,
And has been awarded the Medals and highest Commendations of all the leading Agricultural Societies.
It is constructed with
POWERFUL WINDING STRAINING PILLARS,
RIGID INTERMEDIATE IRON POSTS,
STRONG and DURABLE WIRE CABLE STRANDS,
Forming the most efficient Strained Iron Fencing known for agricultural and general purposes.

Continuous Bar Iron Fencing,



With bars secured by F. M. & Co.'s Patent Self-locking Joints, which effectually prevent the uprights being pushed aside, and are independent of loose pins, wedges, or staples.

IRON ENTRANCE and FIELD GATES,
IN WROUGHT AND CAST IRON,
Designed for the Mansion, Villa, or Farm.
WICKET AND GARDEN GATES,
In Great Variety of Patterns.
Iron Hurdles, Railing, Tree Guards,
FRUIT ESPALIERS, WALL FRUIT TRAINERS, &c.
☞ *Illustrated and Described in F. M. & Co.'s New Catalogue, sent on application.*

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NEW PALM HOUSE,

LA FLORA, COLOGNE,

HEATED BY ONE OF

WEEKS'S PATENT DUPLEX UPRIGHT TUBULAR BOILERS,

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"ONE BOILER SYSTEM."

Coloured Lithographs of Boilers with Fuel Economiser, also BOOK of DESIGNS (Thirteenth Enlarged Edition), with upwards of Fifty Engravings, sent post free, on application.

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HORTICULTURAL BUILDERS, HOT-WATER APPARATUS MANUFACTURERS AND PATENTEES,

KING'S ROAD, CHELSEA, LONDON, S.W.

Carter's POPULAR COLLECTIONS OF BULBS.

Early Orders Secure the Finest Bulbs.

CARTER'S

"GUINEA" COLLECTION

OF

BULBS

FOR

Conservatory & Window Decoration

CONTAINS:—

12 **Hyacinths,** in 12 extra fine named sorts.
9 **Polyanthus Narcissus,** in 9 varieties.
12 **Jonquils,** sweet scented.
50 **Crocuses,** finest named.
1 **Dielytra spectabilis.**
1 **Lilium speciosum.**
6 **Scilla sibirica.**
24 **Snowdrops,** extra large selected.
6 **Tulips, Tournesol.**
3 " **Rex Rubrorum.**
3 " **La Candeur.**
3 " **Royal Standard.**
6 " **Yellow Prince.**
3 " **Rosa Mundi.**
6 " **Duc Van Thol.**
1 **Amaryllis formosissimus.**
6 **Ixias,** finest mixed.
6 **Sparaxis,** finest mixed.
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PACKING AND CARRIAGE FREE.

Half the above, 10s. 6d.

Larger Collections, 42s., 63s., and 84s.

Carter's "Two Guinea" Collection of Bulbs for Indoor and Outdoor Culture, contains:—

18 Hyacinths, in twelve extra fine named sorts, for pot or glasses; 18 Hyacinths, in 3 colours, for bedding; 12 Narcissus, double white; 12 Narcissus Poeticus or Pheasant-eye; 75 double Daffodils; 25 Tulips, extra fine mixed double; 25 Tulips, extra fine mixed single; 6 Tulips, Tournesol; 6 Tulips, Duc Van Thol; 3 Tulips, Royal Standard; 3 Tulips, La Candeur; 3 Tulips, Rex Rubrorum; 3 Tulips, Yellow Prince; 12 Star of Bethlehem; 12 Scilla belgica, mixed; 100 Crocus, blue; 100 Crocus, striped; 100 Crocus, large yellow; 100 Crocus, white; 50 Anemones, extra fine mixed; 25 Iris, extra choice mixed English; 50 Iris, extra fine mixed Spanish; 18 Campernel Jonquils; 50 Ranunculus, extra fine mixed; 75 Snowdrops.

Packing and Carriage Free.

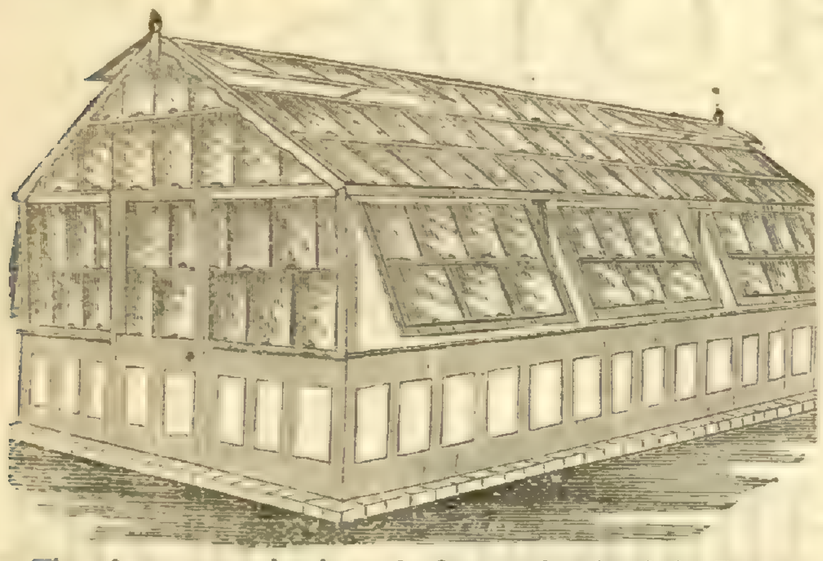
Carter's "Guinea" Collection of Bulbs for the Open Ground, adapted for Ordinary Good Garden Soil, contains:—

12 Hyacinths, in three colours; 12 double Narcissus, white; 12 Narcissus Poeticus or Pheasant-eye; 25 double Daffodils; 12 Tulips, extra fine mixed double; 12 Tulips, extra fine mixed single; 12 Tulips, finest mixed, late; 12 Tulips, Duc Van Thol; 6 Polyanthus Narcissus, fine mixed; 6 Campernel Jonquils; 12 Star of Bethlehem; 6 Triteleia uniflora; 6 Dog's-tooth Violets; 25 Crocuses, blue; 50 Crocuses, striped; 50 Crocuses, large yellow; 25 Crocuses, white; 24 Anemones, extra fine mixed; 12 Iris, extra choice mixed English; 12 Iris, extra fine mixed Spanish; 3 Lilium candidum; 3 Lilium tigrinum; 24 Ranunculus, extra fine mixed; 50 Snowdrops; 24 Winter Aconites.

Packing and Carriage Free. Other Collections, 10s. 6d., 42s., 63s., and 84s.

CARTER'S (The Queen's Seedsmen), **237 & 238, HIGH HOLBORN, LONDON, W.C.**

HORLEY'S PATENT £21 PREMIER GREENHOUSE.



The above engraving is made from a sketch of the Premier Greenhouse, which is constructed on the Patentee's system of dry glazing (minus sash-bar and putty). The size of the house, which is portable, is 12 feet long and 9 feet wide, with 3½ feet glass sides, and 2½ feet framed panelling under (requiring no brickwork); is glazed with 21-oz. glass, fully ventilated, painted three oils, with floor and benches complete. Price £21. The Premier Greenhouse, being a stock size, can in general be sent off on the receipt of an order.

D. G. GLEN, Esq., Silverae House, Largs, states in a letter of March 16, 1874, to the Patentee, in reference to a span-roof house, sent him in the preceding summer, that he found it as proof against frost as any other horticultural structure, and that during the winter he has never seen a drop of rain come in, though he says, "We have had rain of every description, from the mild and gentle that ushers in the spring, to the rain driven on the wild hurricane of our sea-beat coast, not forgetting the Scotch mists that we know so well. The house is light and airy, and I consider it one of the best plant-houses I ever saw. I will be glad to show it to any person, and give it to all my hearty recommendation."

The Patentee's structures are all sent out with the framing numbered, and every screw-bolt in its place, so that the merest tyro in carpentry can put them up. They are fully painted and ventilated; the glass, 21-oz., is carefully packed, and when in position is kept in place by an iron button, each pane being removable at pleasure.

For particulars of the Patent Economic Garden Frame, &c., see advertisement in *Gardeners' Chronicle*, September 11, 1875.

M. E. & E. HORLEY, Horticultural Builders, Toddington, Beds.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.

HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

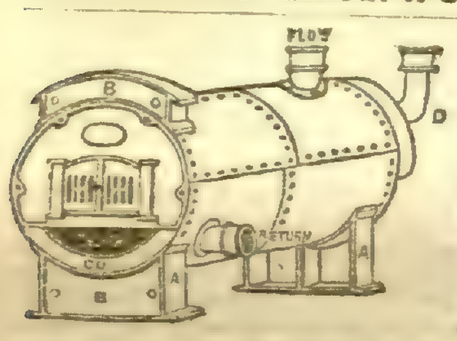
W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works,
121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

BELGIAN GLASS for GREENHOUSES, &c.,
Can be obtained in all sizes and qualities, of
BETHAM & SON,
9, LOWER THAMES STREET, LONDON, E.C.
B. & S. have always a large Stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., in 16 oz. and 21-oz.

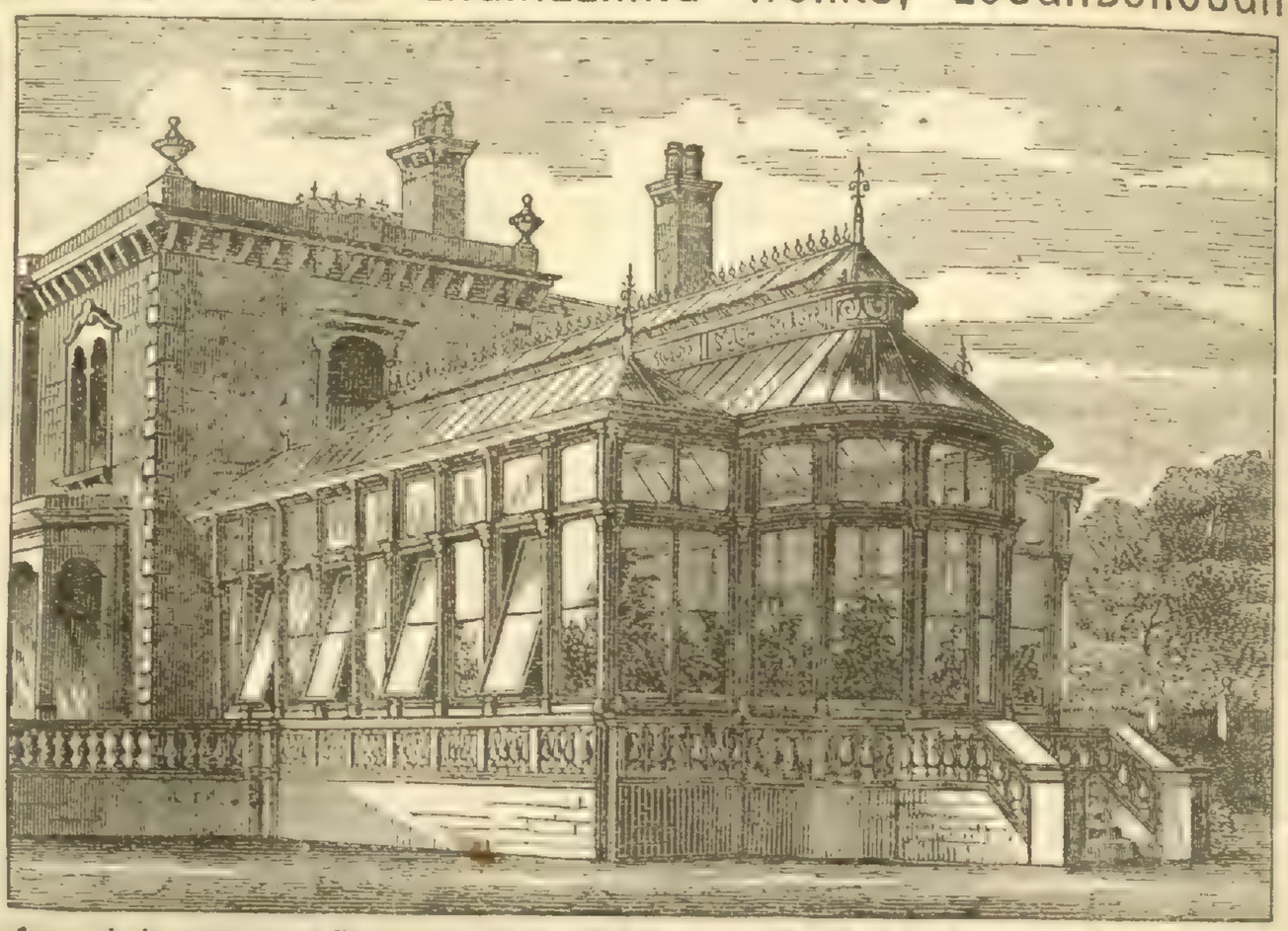
FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

HOT-WATER APPARATUS.
BARNARD, BISHOP & BARNARDS
will be happy, upon application, to furnish estimates for Heating Churches, Conservatories, Greenhouses, Forcing Pits, &c.
NORFOLK IRONWORKS, NORWICH.



STEVENS'
TRENTHAM GREENHOUSE BOILER,
After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved, For Illustrations, with full particulars, apply to the Sole Makers.
F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

MESSENGER & COMPANY,
CONTRACTORS, MIDLAND HORTICULTURAL BUILDING
AND HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH,



Beg to inform their numerous Patrons and the Public generally, that having erected new, more extensive, commodious works, fitted with the best steam-power machinery, for the construction of Horticultural Buildings in or iron, plain or ornamental, large or small, they are in a position, from their great facilities and experience, to out with dispatch, in the best manner, at very moderate cost, the orders with which they are entrusted. thoroughly well-seasoned timber used. Glasshouses erected on Messenger's patent principles are, owing mechanical arrangements, very strong, *most durable*, light, *elegant; perfect efficiency* for purpose intended *guaranteed;* are economical in cost and maintenance. Messenger's Patent Boilers, Flexible Jointed Hot-water and Valves, are now in use in many thousands of instances, with the greatest success. Particulars on application *Plans and Estimates forwarded. Ladies and Gentlemen waited upon. The Plans of Architects and others carried*
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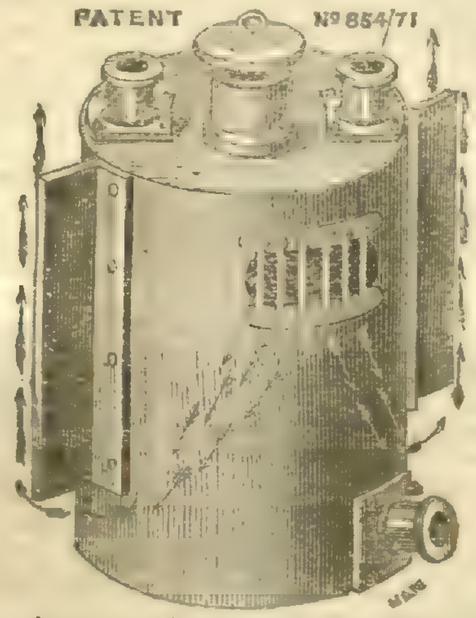
HOT-WATER BOILERS,
NEW PATENT "CLIMAX" BOILER (1874). See p. 666, 1874, *Gardeners' Chronicle.*
"GOLD MEDAL" BOILER (Birmingham, 1872).
PATENT "EXCELSIOR" BOILER (1871).
The largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.



(PATENT "EXCELSIOR" BOILER.)

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"WITLEY COURT" BOILER (Silver Medal 1872).
"TRENTHAM IMPROVED BOILER, with Water End and Smoke Consume
"TUBULAR," and every oth Boiler of known merit excellence.
Prize Medal Awarded the National Contest, Birmingham, 1874.

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PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

HEATING AND LIGHTING BUILDINGS

ALMOST

ENTIRELY FREE OF COST OF FUEL,

The perfect Success of every Apparatus erected guaranteed.

THE SYSTEM IS SUITABLE FOR HEATING GREENHOUSES, MANSIONS, PUBLIC BUILDINGS, FACTORIES, &c.

THE COMPANY HAVE PURCHASED MEREDITH'S VINEYARD,

At Garston, near Liverpool, which is Heated on their System.

THEY ARE PREPARED TO SUPPLY

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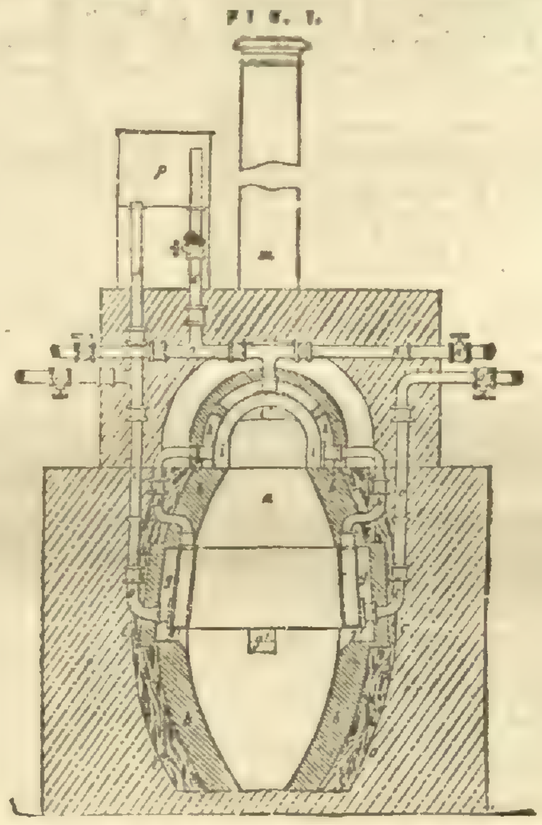
FROM THE *WELL-KNOWN STOCK* at Garston.

ILLUSTRATED CATALOGUES, *Price 2s.*, With Full Particulars, will be sent on application, and Plans and Estimates prepared.



THEY CAN ALSO SUPPLY BEDDING AND OTHER PLANTS *IN GREAT VARIETY.*

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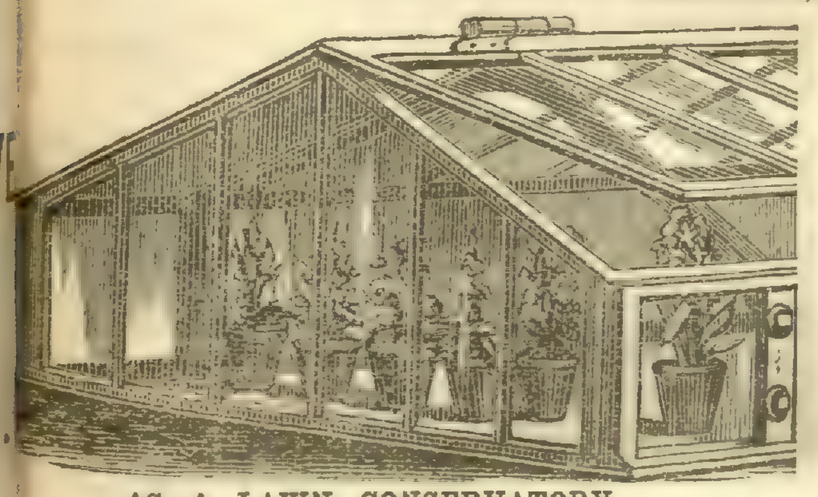
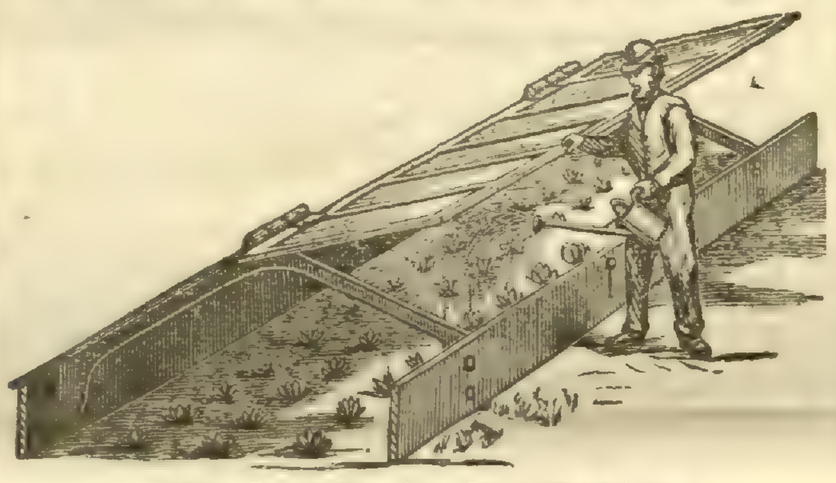
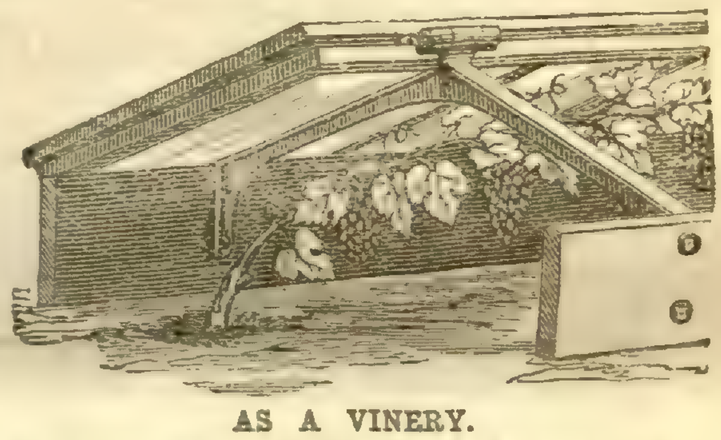
Now Ready, our NEW ILLUSTRATED CATALOGUE of HORTICULTURAL BUILDINGS, containing upwards of 60 Engravings with Prices of Conservatories, Greenhouses, Peach Houses, Forcing Houses, &c., Free by Post for 12 stamps.



AS A LAWN CONSERVATORY.



FOR PLANTS OR VEGETABLES.



AS A VINERY.

The Judges at the Royal Horticultural Society's Great Meeting lately held at Birmingham, pronounced these Patent Plant Preservers and Ground Vineries to be by far the best and most useful articles of the kind they ever saw, and awarded them the ONLY PRIZE.

Instead of having to remove or slide loose glass every time it is necessary to attend to the plants, we attach the glazed lights (21-oz.) with hinges to the frame of each light, thereby doing away with continual breakage of glass and loss of time. Two men can instantly remove a complete length, 12 ft. by 4 ft. wide; thus proving them to be really portable. They are made in the following sizes. One pair of ends is sufficient for any number of lengths, if set in a continuous row.

Cash Prices carriage paid to any Station in England on Orders amounting to 60s. and upwards.

	Price.	Ends per pair extra.		Price.	Ends per pair extra.
6 feet long by 2 feet wide	£1 5 0	5s. 0d.	6 feet long by 4 feet wide	£2 6 0	8s. 6d.
12 feet long by 2 feet wide	2 10 0	5s. 0d.	12 feet long by 4 feet wide	4 4 0	8s. 6d.
6 feet long by 3 feet wide	1 15 0	7s. 0d.	12 feet long by 5 feet wide	5 10 0	10s. 6d.
12 feet long by 3 feet wide	3 5 0	7s. 0d.	12 feet long by 6 feet wide	7 0 0	12s. 0d.

Lawn Conservatories, with Glass sides and ends, 12 feet long by 4 feet wide, £7 5s.; 12 feet long by 5 feet wide, £8 15s.; 12 feet long by 6 feet wide, £10.

PATENT UNIVERSAL PLANT PRESERVERS, Large Sizes to Build on Brick Walls, for use as Span-roof Pits, suitable for Forcing, Propagating, Growing Cucumbers, Melons, and a variety of other things too numerous to mention. Write for New Illustrated List post free.

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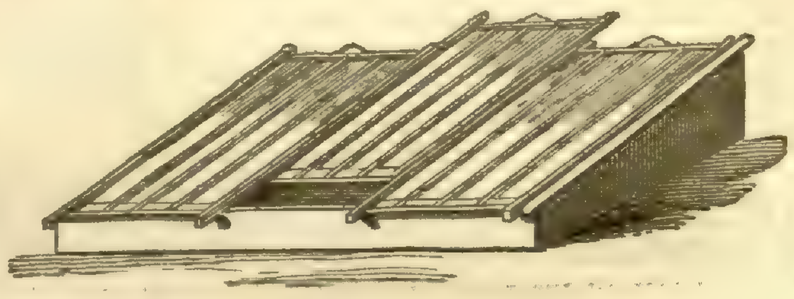
All sizes (glazed with 21-oz.) ready for immediate delivery.

Height at back, 24 inches; at front, 13 inches; sides, inch thick; lights, 2 inches thick. All made of very best red deal. Painted three coats. Every pane of glass nailed as well as puttied in. Each light is provided with iron strengthening rod and handle.

Glazed with 21-ounce.



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8 feet long by 6 feet wide, 2 lights	..	3 5 0
12 feet long by 6 feet wide, 3 lights	..	4 17 6
16 feet long by 6 feet wide, 4 lights	..	6 7 6
20 feet long by 6 feet wide, 5 lights	..	7 17 6
24 feet long by 6 feet wide, 6 lights	..	9 7 6

Two-thirds allowed for Packing Materials when returned free to our Works. Cash or reference respectfully requested with transmission of all first orders.

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8	,,	..	..	0	5	0	19	,,	..	..	0 10 6
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12	,,	..	..	0	7	0	23	,,	..	..	0 12 6
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Gardeners, and others, wanting places, 26 words 1*s.* 6*d.*, and 6*d* for every additional line, or part of a line.

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Advertisements for the current week MUST *reach the Office by Thursday noon.*

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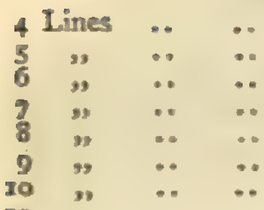
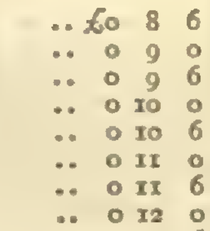
THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.





GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
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SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierly Hill Ironworks, near Dudley; and 118, Queen Victoria Street, London, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

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REDUCTION OF POSTAGE.

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SUPPLEMENT TO THE GARDENERS' CHRONICLE.

THE

ROYAL BOTANIC GARDEN,

EDINBURGH.

BUT a few weeks ago a large contingent of doctors were wending their way to the grand city of Edinburgh, many of them to revisit the scenes of their youth and the college where they gained their education, and whence, duly "capped," they emerged proudly with the title of Doctor, and the privilege of appending the letters M.D. to their names. This week a similar gathering has taken place within the northern capital. But while doctors and surgeons constituted the staple of the one meeting, gardeners were the constituents of the other assemblage. The opportunity offers a great temptation for the drawing of analogies between the art and science of physic and the art and science of gardening. The methods of study are the same, the qualifications required for the successful prosecution of the one are almost precisely those which are demanded for the other. Both are based on observation and experiment—on experience, in fact. In both a large amount of empiricism necessarily finds a place. To both a rational scientific investigation of life, its phenomena and processes, are essential elements if progress is to be made—and in these days progress must be made, or we must be content to lose our place in the world.

Then, again, how many points of contact there are between the doctors and the pro-

THE NEW PALM HOUSE.

fessors of botanical science and of practical horticulture. The large majority of botanists, past and present, have been, or are doctors. Look at the records of those who have advanced botany, horticulture, forestry, and rural economy generally, at home, in India, and the Colonies, and see how very large a proportion of them have been doctors—ay, and what is more, Edinburgh doctors. We have no space to pursue the analogy further. Our present purpose is to lay before the reader a few notes on the Royal Botanic Garden, one of the many fine features of Edinburgh. We make no pretence to treat the matter exhaustively—time and space forbid—but we shall string together a few notes which we hope may serve as a guide to others.

VIEW IN THE ROYAL BOTANIC GARDEN.

THE ROYAL BOTANIC GARDEN is indeed an establishment of which Edinburgh may well be proud, and whose reputation under its existing management transcends even its former good report. From the address of the excellent and venerable Sir Robert Christison, the President of the British Medical Association, we extract the following passage relating to the early history of the Botanic Garden, merely noting by the way what a fine illustration of the connection between the two "faculties," if we may so call them, of physic and of gardening in its scientific, progressive aspect is afforded by the revered President himself, one not only known as a physician but as a physiologist, a botanist, and an arboriculturist. After telling of the foundation of the University by James I. (the sixth of Scotland), in 1582, Sir Robert goes on to say that the faculty of medicine had its beginning in 1685 through the energy and influence of three of the most remarkable medical men of the day in Scotland—Sir Andrew Balfour, Sir Robert Sibbald (Sibbaldia procumbens), and Dr. Pitcairn (Pitcairnia).

"Botany (he continues) seems to have been their first object. Fifteen years earlier, Balfour and Sibbald created the rudiments of a botanic garden, one object of which expressly was to introduce into Scotland the cultivation of foreign plants yielding medicinal products, which, in those days of not easy intercourse among nations, were not readily obtained when wanted. Our modern 'Royal Botanic Garden' of twenty-seven acres, too small for its 340 students, had its origin, in 1670, in a little plot of ground close to Holyrood Palace, measuring forty feet square, in which, nevertheless, were reared no fewer than 900 plants. The site was soon transferred to a large garden, where now flourishes the city station of the North British Railway. Dust and iron, hurrying engines, interminable rows of trucks and carriages, clouds of steam-vapour, and the scent of coal-gas from the neighbouring gasworks, have taken the place of the groves and avenues, the perfumed air and the scientific seclusion of the 'Old Physic Garden.' But one relic survives in a fine Yew now adorning the garden in charge of Dr. Balfour and Mr. McNab, twice transplanted successfully after becoming a considerable tree, and proving its own age by the *modulus* of De Candolle, according to which it must be above two hundred years old. The success of the Physic Garden was so great, owing to the fostering care of its promoters and the ability of its first keeper, James Sutherland, originally a clever young gardener, that, in 1676, an Act of the Town Council of the city, then the founders and patrons of professorships, established in Sutherland's favour a Chair of Botany in the University. But, for some unknown reason, the Act was not given effect to, so that a second Act of Foundation became necessary to make him effectually a University Professor in 1695."

The following extract from the records of the Town Council for 1676, will show that the "Incurradgement" to Sutherland, as measured by pounds sterling, was not great:—

"The same day Councill considereing the usefulnes and necessitie of Incurradgement of the art of [word missing in the text] and planting of medecinalls, and that it were fitt for the better floorishing of the Colledges that the said profession be joyned with the other professions which are publickly taught therein, and in regaird that it is much desyred be severalls of the nobilitie, gentry, and physitians and chirurgeons that the said profession receave all dew incurradgement from them — Therefore the Councill ordains and apoynts ane yearlie selarrie of twenty pounds stirling to be payed be [*sic*] to Mr. James Sutherland, present botanist, who professes the said art; to be peyed be the Thesurer of the Colledge, begining the first termes peyment at Candlemes next to come; and upon the considerationes for said unitts, annexes, and adjoynes the said profession to the rest of the liberall schiences taught in the said Colledge—And recomends to the Thesr. of the Colledge to provyd a conveenient room in the Colledge for keeping books and seeds relating to the said profession, whereanent thir prs shall be warrand."

Sutherland published in 1683 a catalogue of the plants grown in the garden under his charge, and which numbered even then no less than 3000, arranged according to Morison's method. About 1706, as we learn from some notes obligingly communicated by Dr. Balfour, Sutherland retired and was succeeded by Dr. Charles Preston, who died in 1711, to be succeeded in his turn by Mr. George Preston, an apothecary and grocer of Edinburgh, who also published a catalogue of the plants of the garden. A more widely known name is that of Dr. Alston, who next assumed the Professorship. He filled the office for twenty-two years,

and unavailingly opposed the Linnæan doctrine of sexuality. Alston died in 1760, and was followed by Dr. John Hope, under whose auspices, in 1763, the site of the garden was transferred to Leith Walk. Dr. Hope, among other things, turned his attention to the cultivation of Rhubarb for medicinal purposes, and, unlike his predecessor, was so great an admirer of Linnæus that he placed a bust of the great Swede in the garden. Hope died in 1786, and gave place to Dr. Rutherford, at whose death, in 1820, Dr. Robert Graham was appointed Professor. About this time another change was made, and the present garden in Inverleith Row founded, during the Professorship of the amiable Dr. Graham. At that time it comprised 14½ acres—a considerable advance upon the 40 square feet of an earlier period, but destined soon to be extended by the addition of 2½ acres of high-wooded ground to the west, and in 1867 of ten more acres belonging formerly to the Caledonian Horticultural Society, and now chiefly made use of as an arboretum. Dr. Graham, whose memory is revered by many an old Edinburgh graduate, died in 1845, and was succeeded by the present Professor, Dr. Balfour, in his office of Regius Professor, Queen's Botanist, and Director of the Garden. New houses, including the new Palm-house, have been constructed, and class-rooms and museums erected. Such, however, are the demands upon the garden as the greatest centre of botanical instruction in the country, such the ever-growing claims of horticulture and forestry, that additional space is required to illustrate the science of botany and the art and practice of gardening, and especially of arboriculture. In a few places is a good dendrological collection, together with the means for carrying out experiments in tree culture, and of testing the hardihood and economic value of trees and shrubs, of more importance than in Edinburgh. With comparatively little cost a school of gardening and forestry could be instituted in Edinburgh, and we should be spared the reproach of having to send our horticultural and forest students to Belgium, to Germany, or to France, to gain information which they might equally well gain in this country, and more particularly in Edinburgh, where the means of instruction are ready to hand. But whether or no such a school be instituted, it is clear that, even for the purpose of meeting the existing demands on the garden, increased space is desirable. When a claim of this kind is put forward, it is natural to ask what are the grounds on which it can be supported. Those who know and have witnessed the admirable way in which practical botany has been taught for many years by Professor Balfour—those, too, who have seen his crowded class-rooms and the large demand for specimens—will be able to judge of this matter. Again, the practical horticulturist, who sees what has been done and is doing in the culture of hardy plants, of Conifers, of alpine plants, and the like—who knows, too, the part this garden has played in the propagation and distribution to India of such useful plants as the Ipecacuanha—will realise the importance of adding to the means and resources of those who have dealt so successfully with the relatively small space at their disposal. At the present time a peculiarly favourable opportunity presents itself of acquiring several acres of undulating wooded ground in juxtaposition to the present garden, and which could at a very slight cost be utilised, both as an arboretum and a pleasure-ground for the inhabitants of Edinburgh. The land in question would be to the Royal Botanic Garden what the "Pleasure-ground" is to the Royal Garden at Kew. On sanitary grounds also the addition may be urged, for the land in question lies at a short distance from one of the densely-populated districts of the city, to which it would form a park, as valuable in its way as the Victoria Park is in the east of London. The views from hence over Edinburgh and the adjacent mountains are grand, while many of the trees on the ground are fine examples of their kinds. All this will be destroyed and built over if the Government fail to secure the land in question, and which we believe is offered to them at a very reasonable rate by the trustees of Fettes College. Let us hope that the powers that be will take this matter into serious consideration, and not be backward in extending the value of this important institution.

PROFESSOR BALFOUR.

We have already stated that the Edinburgh Botanical Professorship is the most important of its kind in the country. This is borne out by the large numbers of pupils who flock to receive instruction—larger by a great majority than to any other institution of the kind in the kingdom, and by the admirable arrangements made for securing that the pupils shall have practical tuition as well as oral instruction. Professor Balfour has long been known as an accomplished botanist and as a pre-eminently successful teacher. His zeal inspires, his energy maintains, his lucid style facilitates the progress of the students. One meets old Edinburgh students everywhere; they write to us from India, from Australia, from every quarter of the globe, and one and all testify—not as a mere set formality, but naturally, and in an unsought-for manner—to the excellence of the teaching of Professor Balfour, and to their respect for him as a man. In the matter of practical demonstration to the pupils and superintendence of microscopical work by them Professor Balfour is ably seconded by his assistant, Mr. Sadler, well known to many of our readers as the Secretary of the Arboricultural and Botanical Societies. Practical botany in the way it is now learnt by actual demonstrations, by microscopical observations made by the pupils themselves, and by excursions to the country, was not taught till 1826, when it was introduced by Dr. Graham. Now—as our columns often testify—field excursions—or shall we call them alpine expeditions?—form no unimportant part of the session's work. It is necessary to state so much, as the arrangement of the garden, and the duties of its curator, are dependent in no slight degree on the function it has to serve as a teaching establishment on a large scale. To this end large supplies of plants of particular species are required to illustrate the several natural orders, and the species have to be chosen, not only as appropriate illustrations for the purpose, but also so as to secure as far as possible that they shall be forthcoming at the proper time—not always an easy task. Among these "class specimens" we were not a little surprised to see such large quantities of Wulfenia carinthiaca—a plant scarce enough on its native hills, but plentiful in its adopted home. It is curious to see, when large quantities of the same species are grown in this way, what natural variations occur. Every gardener or nurseryman knows this, say, in the case of such a plant as Cupressus Lawsoniana; but here it may be seen in the case, not only of Conifers, but of many herbaceous plants. Orobus vernus in particular struck us from this point of view. The plant is largely grown, and the variations in the size and character of its foliage are endless.

In addition to the living specimens provided for the benefit of the students, a small but well-arranged and rich museum is provided for their use, filled with well-selected illustrations of structural and economic botany. This little museum is one of so interesting a character that we regret to be obliged to pass it over with the mere mention. Close to it are the class-rooms, the microscope rooms, and other structures devoted to the use of the students. Tuition and practical instruction in botany are not, however, the only advantages offered here. Provision is made for original investigation and research in the museum before alluded to, in the library, and in the herbarium, which stands

near the centre of the garden. The British, and, of course, the Scottish collections of dried plants are rich, and there is something more than the nucleus of a good general collection, arranged geographically. In front of the herbarium is a fine specimen of the trunk of a fossil Conifer (Araucaryoxylon Withami), obtained from the Craigleith Quarries, a few miles from Edinburgh. The length of this fine speci- is 36 feet (see p. 8).

One thing we missed, and that is a proper laboratory for physiological research. Progress in vegetable physiology so much depends on the prosecution of observations and experiments in physics, chemistry, and the life history —vivisection, if you like—of plants, that we regret that more provision is not made for them in our schools and universities. As we have already mentioned, Edinburgh and its garden possess unusual facilities for establishing a school for instruction and research in the higher branches of vegetable science as applied to cultivation and forest conservancy, and little addition to what it already possesses is required beyond the physiological laboratory just referred to.

All this time we have, as it were, been keeping the reader on the threshold of the garden. It is time we said something more as to its peculiar features. Its present state may be gleaned from the "Guide to the Royal Botanic Garden," drawn up by the present Professor, and to which we refer those of our readers who may require more systematic and detailed information than we can here give.

Entering the garden from Inverleith Row, the residence of the curator, Mr. James McNab, is on our right hand. We hope Mr. McNab will forgive us for referring to him at the outset. We can hardly avoid doing so, seeing that his house stands close to the entrance gate, and that the first object that met our eyes on a recent visit was Mr. McNab himself. Moreover, the name is historical in connection with this garden. For thirty and nine years after his appointment as curator, through the mediation of Sir Joseph Banks, did Mr. William McNab skilfully manage the Edinburgh Botanic Garden. At the death of his father, in 1849, Mr. James McNab, the present curator, succeeded to the office. How much the garden is indebted to his filial zeal—filial in a double sense, for the garden is loved by him with a personal attachment — will be seen from the following notes. Suffice it to say that many of the specialities and most striking features owe their inception to Mr. McNab. Originality in devising and independence in carrying out cultural procedures, are indeed obvious features of his career as a horticulturist.

We would by no means disparage the indoor gardening at the Royal Botanic Garden, and therefore we hope we may not be misunderstood if we avow our preference for the outdoor departments. We suppose that this preference may arise from the greater novelty and variety met with in the hardy departments as contrasted with those under glass. As it is not practicable, even were it desirable, for us to allude to all the features of interest in the garden, so we need not tie ourselves to follow any special order in the following notes.

Beginning then with the PINETUM, which constitutes one of the most important and interesting features of the garden, we may say that here are gathered together under their appropriate genera most of the hardy Conifers, including many of the type specimens of those introduced by Douglas, Jeffrey, W. Murray, and other collectors. As is well known, Mr. McNab has devoted special attention to these plants, and is a staunch advocate of stem-pruning, when it is desired rapidly to develope the natural habit of a particular tree, to cause it to make a trunk and develope a symmetrical head. Many of the illustrations of the process are placed side by side with others which have not been pruned, and the difference is truly remarkable, as in the case of Lawson's Cypress, the Nidpath Yew, the Deodar, &c. Except under special circumstances, however, and to meet special requirements, we should not commend the practice, though it is one which, in some cases, may be adopted with great advantage and propriety.

Among the Piceas we noticed a rich collection of the better known kinds and others less familiar, such as P. bracteata, P. Lowei, and P. Lowei glauca, of which Jeffrey's original specimens are here. P. nobilis is particularly subject to gouty swellings in its branches, which

THE ROCK-GARDEN IN THE ROYAL BOTANIC GARDEN.

deform and spoil the plant. Mr. McNab thinks this distortion most frequent in British-grown seedlings. Opposite the Piceas is a most interesting collection of no less than thirty-six seedling varieties of Cupressus Lawsoniana, of which the unpruned forms are bushes, the pruned ones already arborescent. The natural variation in habit of this species is very remarkable—dwarf, tall, loose, compact, and other varieties, all coming up in the same seed-bed. Dacrydium Franklinii does well here, as also Libocedrus chilensis. Libocedrus decurrens, the dense columnar-habited plant, which has often been misnamed Thuja gigantea, is represented by one of Jeffrey's original plants. Materials, indeed, exist here for studying the involved questions relating to Thuja gigantea, of which Jeffrey's typical specimen is here. In Mr. McNab's opinion the original T. Lobbii is no other than T. gigantea, while T. Craigana is only a form of the same species with pendent branches turning up at the tips. Adjacent to the Piceas are the varieties of Abies, including A. Hookeriana, A. Pattoniana, with green leaves white on the under surface, A. Parryana and A. Hanburyana, identical with A. Pattoniana, the variegated A. Douglasii (which is not to be recommended), several specimens of A. clanbrasiliana reverting to the normal type, A. Williamsoni, A. Mertensii, A. Bridgesii—which three latter appear to be identical with the A. Albertiana originally introduced by Jeffrey—and many others. The Yews and Yew-like plants are close at hand, and comprise most of the species and varieties, while Golden Yews are dotted about most effectively in various parts of the grounds. Araucarias, Cryptomerias, and Junipers of various kinds, each have their allotted stations; while forming a belt to the whole is the collection of Pinus, including P. tuberculata, Balfouriana—a rare species, with a compact bottle-brush-like habit, the thick-leaved P. Fremontiana, P. monticola, P. umbraculifera, P. Murrayana, beautiful in the contrast afforded by its light-coloured shoots against the darker older foliage, and others. With regard to the soil suitable for these plants, Mr. McNab finds that while some, such as P. monticola, Abies Menziesii and A. Albertiana, thrive in peat, others, notably the South European and Levantine forms, such as Pinsapo and cephalonica, prefer limestone. A group of Wellingtonias is also deserving attention, as showing that as good plants may be made from cuttings as from seedlings. Much variation is to be seen in these cuttings, which were, nevertheless, all put in on the same day.

Near the western end of the Pinetum is a small enclosure devoted to the culture of spring bulbs and early flowering plants. This was past its best at the time of our visit, but enough remained to show that this must in the spring months be a veritable treasure-house of beautiful and interesting plants, such as Crocus, Iris reticulata, Scilla, Narcissus, Lily, Hellebores, &c. Triteleia Murrayana, Chrysobactron Hookeri, and Zygadenus chloranthus were among the most striking plants in bloom in the middle of July.

The Rock Garden.—Another special feature of this garden, and an extremely beautiful one, is the rock-garden, of portions of which we give illustrations. This is the largest and most varied rock garden we have seen, and the most fascinating. Despite a certain amount of formality of arrangement and hardness of outline, which are not pleasing, the rock-garden is charming beyond the power of expression. The number of species grown is very large, not less than 4000 separate compartments being provided for as many species. It may readily be conceived that the beauty, the variety, the interest of such a collection as this are inexhaustible. No season is without its special jewel—not a day passes but the lover of plants may detect in bloom some gem which has previously escaped his notice, or which has a special interest for him. On the 1st of July 273 species and varieties, exclusive of duplicates, were counted in bloom. Amongst the plants yielding the greatest display at that date were Veronica rupestris and V. pinguifolia, Campanula turbinata, and its numerous varieties, Acantholimon glumaceum, Scabiosa alpina, Saponaria ocymoides major, Onosma echioides, many crustaceous Saxifrages, Dianthus alpinus, D. glacialis, D. corsicus, Androsace lanuginosa, Genista sagittalis, and G. tinctoria, Thymus Serpyllum album, Sedum ibericum, Papaver alpinum and its varieties, Silene alpestris, Lithospermum pros-

THE ROCK-GARDEN IN THE ROYAL BOTANIC GARDEN.

tratum, Arenaria grandiflora, Delphinium Belladonna, Potentilla Dr. André, Helianthemums (double and single), also the double Lotus corniculatus. One of the most striking plants on the rockery was a double Dianthus, known as the Fettes Mount Pink; this is a very free-flowering pale rose coloured variety. The general plan is that of a slope facing the north, of sinuous outline, divided into numerous terraces, one above another, and surmounted by mounds and bastions of too regular outline, but clothed with Yuccas, Golden Yews, Araucarias, and other striking plants. The mounds receive appropriate names: thus there is a Mount Jenner, Mount Anderson-Henry, Mount Maw—bringing to mind the names of some of the most enthusiastic botanists and cultivators of the day.

This delightful rockery was constructed of the old building materials taken from the wall which formerly separated the Botanic Garden from the Experimental Garden of the Caledonian Horticultural Society. Basalts from Staffa, and rocks and stones from various other places, have also been utilised in the formation of this rock-garden. It would be impossible even to attempt an enumeration of the thousands of beautiful and interesting plants here brought close under the eye, in a manner most convenient for examination, while the appearance at a distance is rich beyond belief. Each species has a rectangular pocket or compartment to itself, and with such a depth of soil that watering is rarely required. We are not surprised that rock-gardens are popular in the neighbourhood of Edinburgh, or, with such an example as this before us, that in the adjacent villa gardens rockworks are becoming the fashion of the day. One thing only we hope will be borne in mind—that it is the plants, not the stones, which should be primarily considered. Except under very special circumstances, where great resources permit great effort, it is worse than useless to attempt to imitate Nature in her grander rock features, but it is quite practicable in a back yard to arrange and drape a heap of stones with perpetual beauty and interest. Even where the taste or powers of the designer would not enable him to arrange the "rocks" to the best advantage he may soon get them concealed by the kindly aid of luxuriant Sedums and other plants. Reverting to the rock-garden in the Edinburgh garden it must always be borne in mind that utility and botanical instruction are the primary considerations, and thus the necessity of grouping together for purposes of comparison, as far as may be, the Sedums, the Saxifragas, the Sempervivums, the Primroses, the Gentians, the Heaths, including all the hardy Ericaceous plants, and what not, entails a somewhat more symmetrical and formal arrangement than would otherwise be desirable. On the other hand the advantage of having the various species side by side in this manner is inestimably great for scientific purposes. Suppose some unhappy horticulturist to be obliged to limit himself to the sigh t of one thing only in the garden, we would counsel him to see the rock-garden, and be satisfied. Doubtless it does not always present such a scene of interest and beauty as in May or in the middle of July, but at all times it must be most attractive.

THE ARBORETUM occupies the western borders of the garden, and contains specimens of most of the trees and shrubs that will bear the climate of Edinburgh. There are in addition, scattered throughout the grounds, clumps of variegated, weeping, and fastigiate trees, and groups and isolated specimens, according to the taste or exigencies of the landscape gardener. Among the "weeping" trees are some Thorns which are traditionally associated with Mary, Queen of Scots, and called Queen Mary's Thorns. The parent tree, under whose branches the Queen is reported to have sat, is figured in Loudon's *Arboretum*. It grew in a garden in Edinburgh known to have belonged to the Regent Murray. The Golden Thorn is also worthy of notice, if only to call the attention of planters to a variety too much overlooked by them. The leaves in spring are of a brilliant yellow colour.

We can only mention among the trees a specimen of white Beam, Pyrus Aria, alternate branches of which produce flowers in alternate years; thus, if branch A, for instance, be in bloom this summer, its neighbour, B, will be destitute of flower, while next year the arrangement will be reversed.

We have casually alluded to Mr. McNab's

THE LAKE IN THE ROYAL BOTANIC GARDEN.

SABAL UMBRACULIFERA IN THE OLD PALM HOUSE.

artistic skill as a landscape gardener. He has had a grand opportunity in the site of the garden, the undulations of the grounds, and the magnificent surroundings of mountain and city, while his skill and taste have been shown in several of the city squares and gardens. Not satisfied with that, Mr. McNab, following in the steps of his father, thinks nothing of removing from one place to another more suitable for his purpose, almost any tree or shrub he thinks it desirable to move. Season does not affect him much. We had the honour to "assist at" the planting of a good-sized deciduous tree in the middle of July. Indeed Mr. McNab considers that some trees, such as Thorns and Sorbs, particularly when of large size, can only be satisfactorily transplanted in July and August. The leaves soon become yellow, fall off early, the plant goes to rest as gardeners say, and is ready to start in the spring earlier and more readily than those removed later in the autumn or in winter. The removal of the trees is effected, with great ease and rapidity, by a transplanting machine, the invention of Mr. McNab's father. Most of the large trees in the garden have been transplanted by one or other of the McNabs, including the Yew alluded to in the outset of these notes, and which was a tenant of two sites before it found a home in the existing garden. It is over 33 feet in height, the branches having a diameter of 40 feet, and the trunk, at 5 feet from the ground, a girth of 5 feet 6 inches.

In the case of Portugal Laurels and most evergreens, particularly the genus Pinus, Mr. McNab prefers to transplant in May, when the plants are awakening from their winter's rest, and beginning to grow—watering freely at the same time. They have thus time to establish themselves before the winter sets in.

Here and there in the grounds are curiously inarched specimens of Hornbeam, which at one time formed part of a hedge.

In the centre of the garden are the beds devoted to hardy herbaceous plants, British and foreign, of various natural orders, to medical plants; and last, not least, to Roses—the profusion of which says something for the purity of the atmosphere, despite the proximity to a large city. In this portion of the ground is a semicircular pond (shown in one of our illustrations), whose waters partly encircle a mound planted with Irish Yews. Aquatic plants are grown in the pond, and what is remarkable is that the pretty and sweet-scented Aponogeton distachyum flowers and produces seedlings in great abundance. The water in this pond rarely freezes, owing to the presence of some deep springs which maintain the temperature at a pretty uniform level.

It may not be without interest to mention, as showing the climatal conditions of the garden, that neither the Catalpa nor the Paulownia will thrive; nor do the Plane trees do much better. Kalmias, particularly K. latifolia, which used to flower, now no longer do so—a circumstance relied on by Mr. McNab as a support to his hypothesis of a change in the climate of that part of Scotland. On the other hand Chamærops humilis has been grown out-of-doors (with protection in winter) for forty years. C. Fortunei exists, but does not thrive; Arundo conspicua is killed in severe winters, and Pampas-grass is severely hurt. The Bunch-grass, Elymus condensatus, which has been highly recommended for cattle-feeding, however, does well.

GLASS HOUSES, &C.—These consist of a long range of several compartments with a central conservatory, of a variety of low span-roofed houses, with numerous pits and frames, in the rear. Close by are the Palm-houses old and new, now forming one building, while at the opposite side of the garden, facing the rock-garden, is another conservatory for hard-wooded greenhouse plants, &c. The several divisions of the long range are occupied with a general collection of stove and greenhouse plants, including Orchids, Nepenthes, Palms, Tree Ferns, and the like. The larger Palms are grown in large tubs, for facility of moving and for keeping the plants within bounds. The re-tubbing of Palms and other large exotics as here practised is described and illustrated in the *Gardeners' Chronicle* for 1873. A magnificent tuft of Restio subverticillatus (the so-called Willdenovia teres) is to be found here. Sarracenias, Darlingtonias, Dionæas, and Droseras, are grown in baskets like Orchids, and kept near the glass. The houses behind the long range are filled with a great variety of interesting and economic plants, such as Cinchonas, Ipecacuanha, Sarsaparilla, and many others. Carnivorous plants are here in abundance, some of which have been the subject of the experiments by Dr. T. A. G. Balfour, as lately reported in our columns. Hereabouts also are numerous frames for raising and storing alpine plants, and these "back places" which are so interesting to the connoisseur give ample evidence of the skill and activity which pervade the whole establishment.

THE PALM HOUSE.—This has at present a somewhat lop-sided appearance, from the junction of two buildings, one old and one new, which do not perfectly associate one with the other. The older portion is an octagonal structure 60 feet in diameter, the roof originally of wood, being now replaced by one of iron. The total height of this portion is now 50 feet. In this building a prominent feature is constituted by a fine specimen of Sabal umbraculifera, shown in our illustration.

The newer portion of the building, erected in 1856, forms a parallelogram directed nearly north and south. It is of stone, with a curved iron roof and four galleries, two outside, two within. The dimensions of this house are 100 feet by 60 feet, with a height of 72 feet.

We have thus, in a very cursory manner, alluded to some of the principal contents of this excellent and well-managed garden. Our thanks are specially due to Professor Balfour, and to Messrs. McNab and Sadler, for the great kindness they showed us in enabling us to see and collect information regarding an establishment which redounds so much to their credit as administrators and directors.

THE HERBARIUM, WITH THE FOSSIL TREE BEFORE THE ENTRANCE.

THE

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THE ANNUAL SUBSCRIPTION

TO THE

GARDENERS' CHRONICLE,

Including postage to the United States, is **$ 6.30 gold**, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents :—Messrs. B. K. BLISS AND SONS, Seed Merchants, 34, Barclay Street, New York; Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

MR. G. AMBLER, late of William Cottage, Enfield, will oblige by SENDING his ADDRESS to Mr. GEO. E. BAKER, Stanley House, Brownlow Road, New Southgate, N.

CAMELLIA (large—11 feet high, 10 feet through) for sale, through want of room; in good condition. Well set will flower-buds. For prize, &c., apply to The GARDENER, Crosland Lodge, Huddersfield.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, have now and will have, a large quantity of WHITE CAMELLIA BLOOMS to Dispose of.

Herbaceous Calceolaria—Neil's Superb Strain.

WOOD AND INGRAM offer fine new SEED of the above, in 1s. packets. Post free for thirteen stamps.

The Nurseries, Huntingdon.

Tulip Tree.

A full description of this beautiful tree is given at p. 273 of the *Gardeners' Chronicle*.

H. LANE AND SON beg to offer fine plants, from 5 feet to 12 feet high. Intending Planters should see them. CATALOGUES free.

The Nurseries, Great Berkhampstead, Herts.

CABBAGE PLANTS.

All leading sorts to Dispose of, 2s. 6d. per 1000.

SANDER AND CO., Seed Growers, St. Albans.

Cabbage Plants—Cabbage Plants.

MESSRS. W. VIRGO AND SON can now supply in any quantities the following sorts, viz. :—Early Battersea, Pullen's Nonpareil and Enfield Market, at 3s. 6d. per 1000; Robinson's Drumhead, at 3s. per 1000. All good strong healthy plants, and delivered on rail. Post-office Order must accompany all orders from unknown correspondents.

Wonersh Nursery, Guildford, Surrey.

Now Ready.

CABBAGE PLANTS, excellent—Early Enfield Market and Robinson's Champion Drumhead, at 3s. 6d. per 1000; and Red Dutch Pickling, at 5s. per 1000, for cash with orders. Contracts made to supply or to plant any quantity by the acre, on the most reasonable terms. References given if required.

FREDK. GEE, Seed Grower, &c., Biggleswade, Beds.

Imported Flower Roots.

CHARLES TURNER has received his first Consignment of the above. The Bulbs are very fine and sound.

Descriptive CATALOGUES can be had on application.

The Royal Nurseries, Slough.

Bulbs, Tubers, and Perennials.

THOMAS S. WARE'S A. B. C. Descriptive BULB CATALOGUE is now ready, free on application, containing one of the largest collections of Bulbs and Tubers in cultivation, to which is added a selection of Spring Flowering and other Perennials for Autumn Planting.

Hale Farm Nurseries, Tottenham, London.

Dutch Flower Roots.

JAMES DICKSON AND SONS will be happy to send, post free on application, Priced CATALOGUE of their large and very superior stock of DUTCH and other FLOWERING BULBS.

108, Eastgate Street, Chester.

HYACINTHS, TULIPS, CROCUS, GLADIOLI, LILIES, IRIS, NARCISSUS, COLCHICUMS, HELLEBORES, PÆONIES, &c.

Our English CATALOGUE of the above for 1875 is now ready, and will, as usual, be sent post-free to all applicants.

ANT. ROOZEN AND SON (late Ant. Roozen), Overveen, near Haarlem, Holland.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.

Highgate Nurseries, London, N.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., having a large stock of unusually fine and sound DUTCH BULBS, will be pleased to submit Special Prices to Buyers on application.

Dutch Bulbs.

WILLIAM FROMOW has received his annual supply of the above from the best Continental Growers, in very fine condition.

AUTUMN CATALOGUE of BULBS, ROSES, and GENERAL NURSERY STOCK, now ready.

Sutton Court Nursery and Seed Establishment, Turnham Green, London, W.

Bulbs of All Kinds.

THE NEW PLANT AND BULB COMPANY beg to announce that their AUTUMN CATALOGUE is now ready, and will be sent free on application.

Lion Walk, Colchester.

Spring Flowers.

THOMAS S. WARE'S new A. B. C. BULB GUIDE (now ready, free on application) contains a selection of all the best Spring-flowering Perennials and Bulbs in cultivation.

Hale Farm Nursery, Tottenham, London.

N.B.—See Cheap Collections of the above.

STOVE and GREENHOUSE PLANTS and FERNS, several good Specimens and Half-specimens, for Sale. Duplicates and surplus stock.

Address, for full particulars, Private Box, No. 25, Post Office, Llanelly, Carmarthenshire.

PELARGONIUM, QUEEN VICTORIA.—Very strong Plants of the above beautiful Pelargonium at 3s. 6d. each. Special offer to the Trade by the dozen. Price on application to

JOHN SCOTT, Bathford Nursery, near Bath.

Pelargoniums for the Million.

JAMES HOLDER can supply Show, French and Fancy Pelargoniums, in 50 or 100 varieties, strong healthy plants, at 25s. per 100, during September and October. Also strong cut-back plants for immediate forcing, early sorts, at 9s. per dozen, 60s. per 100, package included. Terms cash.

CATALOGUES on application.

Crown Nurseries, Reading.

WM. POTTEN can still supply select GERANIUMS, COLEUS, and FUCHSIAS, as advertised in *Gardeners' Chronicle*, September 11.

Camden Nursery, Sissinghurst, Staplehurst, Kent.

GRAPE VINES.—A fine stock of Black Hamburgh and other popular sorts, including the new varieties—Venn's Black Muscat, Waltham Cross, and Duke of Buccleuch—in strong, well ripened Fruiting and Planting Canes. Prices on application to

FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

Splendid New Apple.

LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, next autumn 3s. 6d. each, 21s. for seven; 2-yr. plants, 5s. to 7s. 6d. each.

WANTED, a quantity of PURPLE BEECH, GOLDEN QUEEN HOLLY, 6 feet, and choice RHODODENDRONS. Say lowest cash price; or can EXCHANGE with some kinds of Forest Trees, Hedge Plants, and Standard Apples for Orchards, having an overstock of many of them.

JOSEPH TREMBLE AND SONS, Nurserymen, &c., Penrith, Cumberland.

ROSES, Dwarf, grown on the Cultivated Seedling Briar.—20,000 good plants, at reasonable prices. CATALOGUES on application to

WILLIAM CORP, 54, High Street, Oxford.

To the Trade.

ROSES.—STANDARDS—Including Hybrid Perpetuals, Teas, with splendid plants of Maréchal Niel, Noisettes, Bourbons, &c., per 100, 80s.

HALF STANDARDS—Including as above, per 100, 60s.

DWARFS—Principally Hybrid Perpetuals, per 100, 40s.

WILLIAM BRYANT is now booking Orders for the above all the plants are vigorous and healthy.

The Nursery, Rugby.

Roses, Roses.

DOWNIE AND LAIRD, Royal Winter Gardens, West Coates, Edinburgh, will be prepared on and after the 15th November to supply the finest Roses in cultivation at 9s. per dozen, their own selection.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.

EWING AND CO., The Royal Norfolk Nurseries, Norwich.

B. MALLER begs to inform the Trade and the Public in general that his extensive NURSERY STOCK, consisting of Fruit, Forest, and Ornamental Trees, Standard and Dwarf Roses, Evergreen and Deciduous Shrubs, is in the finest possible condition. An inspection is solicited.

The Nurseries, Lee and Lewisham, S.E.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.

Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Bouvardias.

MESSRS. JOHN STANDISH AND CO.'S Stock of BOUVARDIAS, consisting of all the best varieties, is this season the finest they ever had to offer. Magnificent plants at 12s. to 18s. per dozen. Prices to the Trade on application.

Royal Nurseries, Ascot, Berks.

Notice.

LATANIA BORBONICA, a magnificent plant, to be Sold Cheap. Suitable for centre of a conservatory. Fifteen leaves, 4 feet high and 6 feet through. Price 3 guineas, a bargain. For further particulars, apply to

JOHN L. GOULD, Nurseryman, Seedsman and Florist, Newport, Monmouthshire.

New Plant—Kniphofia Macowani.

C. GREEN begs to announce that he is now sending out this very desirable hardy novelty. Strong established plants in pots at 5s. each. See *Gardeners' Chronicle*, August 25, 1875. It has received a First-class Certificate from the Royal Horticultural Society.

Botanical Nursery, Holmesdale Road, Reigate.

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.

Carlton, Tasmania.

To the Trade Only.

SPIRÆA JAPONICA, 25s. per 100, £11 per 1000, for cash.

H. B. SMITH, Ealing Dean Nursery, Ealing, W.

Hardy Evergreens.

JAMES DICKSON AND SONS solicit attention to their very extensive and excellent hardy and well-rooted EVERGREENS, as well as all other Nursery Stock, which for quality, variety and extent, is unsurpassed.

"Newton" Nurseries, Chester.

Green Walls.

THOS. S. WARE is now offering a quantity of Lombardy POPLARS, 10 to 25 feet, perfect specimens, feathered to the ground. Planted rather thick they make the most beautiful green screens possible. An inspection solicited.

Hale Farm Nurseries, Tottenham, London.

GREEN HOLLIES, 9 to 12 inches, 12 to 15 inches, 15 to 18 inches, very fine stuff, and splendidly rooted. Also, SILVER VARIEGATED, handsome pyramid plants, 18 inches to 2 feet, 2 to 2½ feet, 2½ to 3 feet, and 3 to 3½ feet. For price apply to

C. WHITEHOUSE, Brereton Nurseries, Rugeley.

LAURELS, One Hundred Thousand, 2 to 2½ feet, good stuff, 40s. per 1000. Trade price on application. General Nursery Stock second to none in England. CATALOGUES now ready.

H. BLANDFORD, The Dorset Nurseries, Blandford.

To the Trade.

ALDER and BIRCH, 1-yr., good, at £10 per 100,000. For particulars and Priced LIST of Tree Seedlings apply to

JOHN BLAKE AND SONS, Dangan Nurseries, Summerhill, Enfield, Ireland.

SALES BY AUCTION.

Odontoglossum Halli.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 28, at half-past 12 o'Clock precisely, an importation of the above rare and beautiful ODONTOGLOSSUM, many of the plants in splendid large masses, such as have never before been imported of this magnificent Orchid; they are in excellent condition.

On view the morning of Sale, and Catalogues had.

Imported and Semi-established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 28, at half-past 12 o'Clock precisely, an Importation from the United States of Colombia, including a quantity of the handsome BLETIA SHERRATTIANA, the scarlet-flowering AMARYLLIS PYRROCHROA, EPIDENDRUM SCEPTRUM, and a quantity of semi-established plants of ODONTOGLOSSUM ALEXANDRÆ, and various other Odontoglossums; also a number of good plants of PHALÆNOPSIS SCHILLERIANA, and P. GRANDIFLORA AUREA, ONCIDIUMS from Ecuador, and LÆLIAS ANCEPS, AUTUMNALIS, FURFURACEA, and various other ORCHIDS.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids, the Property of John Russel, Esq., of Mayfield, Falkirk.

MR. J. C. STEVENS has been favoured with instructions from John Russel, Esq., to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 30, and FRIDAY, October 1, at half-past 12 o'Clock precisely each day, his entire Collection of ORCHIDS, which has been formed during the last twelve years regardless of expense, and comprising many of the finest plants and varieties in existence. Amongst others grand plants will be found Aerides Veitchii, Fieldingii, quinquevulnerum, &c.; splendid specimen Burlingtonias, rare Angræcums, including Ellisii, sesquipedale, &c., Anguloa eburnea (true), Cattleya amethystoglossa, Dawsoni, Dowiana, Mendelii, Wagneri, exoniensis, marginata, grandiflora, labiata, and the finest forms of Trianæ; Cypripedium Dayanum, caudatum, superbum, Rollisson's var., &c.; Dendrobium Falconeri, Wardianum, bigibbum, &c.; Lælia anceps, Dawsoni, Turneri, Wolstenholmiæ, and others; Masdevallia Lindeni and Harryana, Odontoglossums in great variety, including nævium majus, Day's var., the rare nevadense, blooming plants of coronarium, Trichopilia crispa marginata; grand Saccolabiums, including the whole of S. Russeliana, S. Holdfordiana (true), &c.; fine Vandas, including the rare V. Russeliana, V. suavis, Cathcarti, Dennisoniana, &c., all in the finest possible health.

Catalogues are preparing, and will be ready a fortnight before the Sale.

Auction Rooms, 38, King Street, Covent Garden, London, W.C.

Spring Flowering Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, Importations of first-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, GLADIOLI, and other BULBS, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

Expiration of Lease.

IMPORTANT SALE of VALUABLE NURSERY STOCK. Must be cleared by the 18th of December.

MESSRS. WOODMAN AND SON have received instructions from Messrs. H. Lane & Son to SELL by AUCTION, at their Wigginton Nurseries, on MONDAY, TUESDAY, and WEDNESDAY, October 18, 19, and 20, at 11 for 12 o'Clock each day, a fine COLLECTION of TREES and SHRUBS consisting of large specimens of Araucaria imbricata, Wellingtonia gigantea, Picea Nordmanniana, Picea noblis, Cupressus Lawsoniana, Thujopsis borealis, Thuja Lobbii, Thuja gigantea, Cedrus atlantica, Junipers, Retinosporas, Rhododendrons, Hollies, Pinus austriaca, Mahonias, Oaks, &c. Also Pyramidal Pears, Apples, and Plums.

CATALOGUES may be had of Messrs. WOODMAN AND SON, Auctioneers, Hemel Hempsted; or, free by Post, upon application to Messrs. H. LANE AND SON, The Nurseries, Great Berkhampstead.

Conveyances will be provided at the Berkhampstead Station to convey purchasers to the Wigginton Nurseries, if previously advised by Post.

Stoke Newington Green, N.

CLEARANCE SALE, by order of the Executors of the late Mr. John West, deceased.

MESSRS. PROTHEROE AND MORRIS have received instructions to SELL by AUCTION, without reserve, on the Premises, the Walnut Tree Nursery, Green Lanes, Stoke Newington Green, Middlesex, on TUESDAY, September 28, at 11 for 12 o'Clock precisely, the whole of the choice GREENHOUSE PLANTS, including 60 large Stock Plants of Ficus elastica, 200 Gardenias, 1000 Myrtles, 100 Dracæna terminalis, 400 Pteris, 700 Double Camellias, ranging all sizes (inclusive of six large Double Whites), numerous Trees and Shrubs; together with Seven GREENHOUSES, from 27 to 90 feet long; four Brick Pits, several Frames, a quantity of Bricks, 1400 feet of 2, 3, and 4-inch Hot-water Piping, eight Boilers of various sizes, a large quantity of Garden Pots, a Tumbril Cart, a Spring Cart, Water-cans, Lawn-mowers, Iron Rollers, a useful Cart Mare, &c.

May be viewed the day prior to the Sale.

Tooting, S.W.

GREAT TRADE SALE of 25,000 WINTER BLOOMING HEATHS of remarkably fine growth, and promising a profusion of bloom, including 9000 Hyemalis, 1500 Wilmorei, 5000 gracilis, 5000 other varieties in choice assortment, 300 Hard-wood kinds, 1000 fine EPACRIS, 1500 AZALEA INDICA, 1000 nicely berried SOLANUMS, 300 fine CAMELLIAS, 1000 TEA ROSES in pots, and a considerable quantity of other such stock as is in constant demand.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Rollisson & Son, who have not sufficient accommodation to house so extensive a stock, to SELL the above by AUCTION, without reserve, on the Premises, The Nurseries, Tooting, S.W., on WEDNESDAY and THURSDAY, September 29 and 30, at 11 for 12 o'Clock each day.

Now on view and Catalogues ready, and may be had on the Premises and of the Auctioneers.

Dutch Bulbs.—Extensive Consignment of the finest named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, CYCLAMENS, &c., for absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY next, at 11 for half-past 11 o'Clock precisely, about 800 lots of the above, the whole being of a very superior quality.

On view morning of Sale. Catalogues had at the Mart, and of the Auctioneers, 98, Gracechurch Street, E.C.

Upper Tooting, S.W.

IMPORTANT SALE of extra-thriving young NURSERY STOCK, GREENHOUSE PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Young to SELL by AUCTION, without reserve, on the Premises, the Upper Tooting Park Nursery, Surrey, S.W., on TUESDAY and WEDNESDAY, October 5 and 6, at 11 for 12 o'Clock precisely, a large quantity of valuable NURSERY STOCK, particularly well grown, in excellent condition for removal, and well adapted for the London suburbs, comprising thousands of border shrubs, consisting of the choicest Evergreens and Coniferæ in cultivation, and a considerable quantity of other young and thriving stock; also a great number of Ornamental Trees and Deciduous Shrubs, many very fine Fruit Trees in beautiful condition, likewise a quantity of hardy Climbers in pots, some choice Stove and Greenhouse Plants, large Camellias and Azaleas, Ferns, Palms, &c. May now be viewed.

Preliminary Notice of

FORTHCOMING SALES of NURSERY STOCK, &c., by PROTHEROE AND MORRIS.

OCTOBER 12.—FRIMLEY PARK NURSERY, Frimley. A quantity of well-grown Nursery Stock.

OCTOBER 12, 13, and 14.—BRANCH NURSERY, Loughton. A large quantity of beautifully-grown Nursery Stock.

OCTOBER 20.—EFFRA ROAD NURSERY, Brixton Hill, S.W. By order of Mr. J. Peed, the whole of the valuable Nursery Stock, the land being required for building purposes.

OCTOBER 18.—AUCTION MART, London, E.C. By order of E. L. Morris, Esq. A compact Leasehold Estate, comprising 5 acres of productive Orchard Land, well cropped; also two semi-detached Villa Residences. Lease 75 years unexpired, held at a moderate ground rent.

OCTOBER 19.—HALE FARM NURSERIES, Tottenham. By order of Mr. T. Ware. A large quantity of clean-grown Fruit Trees, Roses, and General Stock.

OCTOBER 19 to 22.—The NURSERY, Woking. By order of Mr. Jackman. A considerable quantity of beautifully-grown Nursery Stock, &c.

OCTOBER 20.—BRANCH NURSERY, Wallington. By order of Mr. Clark. The whole of the General Nursery Stock, the land being required for building purposes.

OCTOBER 21 and 22.—BALHAM, close to the Balham Station. By order of Mr. Edwards. A quantity of Nursery Stock.

OCTOBER 25 to 30.—SUNNINGDALE NURSERY, Bagshot. By order of Mr. C. Noble. An immense quantity of beautifully-grown Nursery Stock.

OCTOBER 27 and 28.—EXOTIC NURSERY, Tooting, S.W. By order of Mr. R. Parker. A considerable quantity of beautifully-grown Nursery Stock.

NOVEMBER 2, and following days.—At one of their BRANCH NURSERIES, Kingston-on-Thames. By order of Messrs. Jackson & Son. An extensive assortment of about 8 acres of fine Nursery Stock.

NOVEMBER 2 and 3.—NORTHGATE NURSERY, Chichester. By order of Mr. D. Scott. A large and rich assortment of clean-grown Nursery Stock.

NOVEMBER 4, 5 and 6.—GROOMBRIDGE NURSERY, Tunbridge Wells. A large quantity of beautifully-grown Nursery Stock.

NOVEMBER 9.—The HOME NURSERY, Atherstone. By order of Mr. H. Baker. A fine assortment of thriving Nursery Stock, adapted for immediate effect.

NOVEMBER 8 to 13.—The NURSERIES, Streatham Place, Brixton, S.W. By order of Geo. Clark, a fine stock of large Evergreens and Coniferæ, &c., for immediate effect; also bearing Fruit Trees, &c.

NOVEMBER 16, 17 and 18.—The NURSERY, Twickenham. By order of Mr. Lairy, a beautiful assortment of well-grown Nursery Stock.

NOVEMBER 23 and following days.—ASCOT. By order of the surviving Partner of the late Mr. John Standish, deceased. A very large quantity of Nursery Stock, Plants in pots, &c.

Date not yet fixed.—The NURSERY, Dulwich. By order of Messrs. F. & A. Smith. A large quantity of Border Plants and General Nursery Stock.

Catalogues, when ready, of any of the above Sales may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, Essex.

Shore Road Nursery, Victoria Park, E.

Expiration of Lease.

EIGHT SPAN-ROOF and other GREENHOUSES, with Staging, Brickwork, and about 600 feet of Hot-water Piping, Coil Boilers, ranges of Pits, Twelve 3-light Boxes, several THOUSANDS of PLANTS in pots, Herbaceous Plants in beds, Compost, Manure, Old Iron, Lights, Firewood, and Sundries.

MR. F. W. SEARLE has been instructed by Mr. Ison to SELL the above by AUCTION, on the Premises, on TUESDAY, September 28, at 12 o'Clock, in Lots.

May be viewed prior to Sale. Catalogues may be obtained at the Nursery, or of the Auctioneer, Tottenham and Enfield.

Freehold, 28 miles S.W.

FOR SALE, a beautiful ESTATE of 250 acres, with elegant Swiss Villa and capital Stabling; gravelly soil, fine views, and nearly a mile of frontage on the London Road; free from Tithe and Land Tax; two-thirds on mortgage. A Plot of about 50 acres, planted with fine evergreens, fruit, and other trees would be Sold separately; also a Plot of 25 acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot.

TO BE LET, a FARM in Bedfordshire—193 acres of Land, with Homestead. The land is tithe-free, and the tenant has the right of sporting.

For particulars and orders to view, apply, SMITH AND ROBINSON, Estate Agents, Hemel Hempstead, Herts.

FOR DISPOSAL, a small, first-class, old-established NURSERY, FLORIST, and SEED BUSINESS, in full working order, doing a sound and profitable trade. All, or a portion only of the stock need be taken, as desired. Part of the purchase-money can remain on security, if wished. To one or two wishing to start in business a more favourable opportunity seldom offers. Satisfactory reasons given why it is offered. Full particulars of

J. W., Messrs. Flanagan & Son, 98, Cheapside, London, E.C.

To Florists, Market Gardeners, Cowkeepers, AND OTHERS.

TO BE LET, TWO ACRES of LAND, at Shepherd's Bush. Well adapted for either above or other purposes. Apply,

J. H. GREEN, Auctioneer, 72, King Street, Hammersmith, W.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

THE RIVERS' PROTECTION and MANURE COMPANY, LIMITED,

Offices—Wool Exchange, Coleman Street, E.C.,

MANUFACTURERS of NITRO-PHOSPHATIC MANURE.

Works—Page Green, Tottenham.

The Company is now prepared to offer this Manure, wholesale, at £3 10s. per ton, in bags at the Works. The constituents of the Manure, containing, as it does, a large quantity of nitrogenous organic matter, as well as Phosphate of Lime, renders it a good fertiliser on any description of land, but especially valuable on light soils. Whilst the growth of vegetation is stimulated, the soil will be permanently enriched by the presence of 25 to 30 per cent. of organic matter. The price is fixed by its analytical value, and no charge is made for the nature of the manure and the organic matter it contains, although this, as agriculturists know, is a principal point, upon which the practical working value of a manure greatly depends. It is well known that Stable Manure is of much greater value to the farmer than its analysis would warrant, and in the same way the above fertiliser, whilst containing phosphoric acid and ammonia, whose analytical worth can be ascertained, contains likewise those excremental matters which are of such great agricultural importance.

Letters to be addressed to JAMES A. RATFORD, Manager, at the Offices of the Company, or the Works, Tottenham.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double, with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

SPECIAL OFFER of SEED POTATOS to the TRADE of the following sorts, viz:—Alpha and Eureka, by the pound or stone; Snowflake, Early Gem, Early Vermont, Nonsuch, Brownell's Beauty, Compton's Surprise, Early Rose, Late Rose, Climax, Bresee's Peerless, Bresee's Prolific, Mona's Pride Ashtops, Rivers' Ashtops, Lapstone Kidneys, by the cwt., sack, or ton. Prices on application.

CHRISTMAS QUINCEY, Potato Grower and Merchant, Peterborough.

ADIANTUM FARLEYENSE, strong, stocky, well established plants with good fronds, 18s. per dozen.

PHORMIUM TENAX VEITCHII VARIEGATUM, strong, well established plants, in 6 and 7-inch pots, 60s. per dozen; large plant, 7s. 6d. and 10s. 6d. each.

J. MORSE, Nurseryman, Dursley.

TH. MULIÉ, NURSERYMAN, Neuville-en-Ferrain (Nord), France, offers the following:—

FRUIT TREES, of all sizes.
FOREST and ORNAMENTAL TREES, all varieties.
Young PLANTS for HEDGES and PLANTATIONS.
Collections of all varieties for the garden, very strong.
CHESTNUTS, from 1-yr. to 2-yr., for plantations.
AILANTUS GLANDULOSA, 1-yr., do.
BEECH, Common, 1-yr. to 2-yr., do.
ELM, 1-yr. to 4-yr., do.
ACER NEGUNDO, for Stocks, 1-yr. to 3-yr.
THORNS, transplanted, of all sizes, by the 100,000.
OAKS, 1-yr. | ACACIAS, 1-yr.

Prices very moderate, according to quantity.

TO THE TRADE.

BOUVARDIAS, best sorts, fine plants, 12s. per dozen.
LIBONIA FLORIBUNDA and L. PENRHOSIENSIS, extra fine plants, 9s. and 12s. per dozen.
GREVILLEA ROBUSTA, fine, 12s. per dozen.
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CLIANTHUS PUNICEUS, fine stuff, 60s. per 100, 9s. per dozen.
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CEANOTHUS AFRICANUS, 9s. per dozen.
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MUHLENBECKIA COMPLEXA, nice little plants, 25s. per 100, 4s. per dozen.

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INTERNATIONAL EXHIBITION OF FRUIT AT GHENT.

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Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

For Present Sowing we now offer, only in Sealed Packets:—

CINERARIA HYBRIDA FLORE-PLENO, fair quality as to doubleness, 20 Seeds, 3*s.*; 50 Seeds, 6*s.*; 100 Seeds, 10*s.*

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Seeds will be sent Free per Post. Remittance can be made per Post-office Order.

The usual allowance to the Trade.

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ODONTOGLOSSUM HALLI.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 28, at half-past 12 o'Clock precisely, an Importation of the above rare and beautiful ODONTOGLOSSUM, many of the plants in splendid large masses; indeed, without seeing them, it is difficult to imagine such extraordinary plants of this rare Orchid arriving in so excellent a condition.

On view the morning of Sale, and Catalogues had.

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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 28, at half-past 12 o'Clock precisely, an Importation from the United States of Colombia, including a quantity of the handsome BLETIA SHERRATTIANA, the scarlet-flowering AMARYLLIS PYRROCHROA, EPIDENDRUM SCEPTRUM, and a quantity of semi-established plants of ODONTOGLOSSUM ALEXANDRÆ, and various other Odontoglossums; also a number of good plants of PHALÆNOPSIS SCHILLERIANA and P. GRANDIFLORA AUREA, ONCIDIUMS from Ecuador, and LÆLIAS ANCEPS, AUTUMNALIS, FURFURACEA, and various other ORCHIDS.

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New Strawberries and Double Pelargoniums.

W. AND J. BROWN are now sending out strong plants of Mr. Laxton's firm-fleshed and fine-flavoured NEW STRAWBERRIES—Traveller (First-class Certificate, Royal Horticultural Society), £1 10*s.* per 100; and Exquisite, £1 per 100. Also NEW DOUBLE PELARGONIUMS—Emily Laxton (First-class Certificate, Royal Horticultural Society), Guiding Star and Illuminator, £1 the set. Trade terms on application.

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WHITE ROMAN HYACINTHS, true, pure white early variety, price very low.
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HELLEBORUS NIGER—Christmas Rose.
GLADIOLUS BYZANTINUS.

Snowdrops	Star of Bethlehem
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Narcissus poeticus	Cyclamen persicum.
„ double Roman	Lilium bulbiferum
„ paper-white	„ excelsum
Dielytra spectabilis	„ martagon
Hepatica, single white	„ tigrinum
„ single blue	„ candidum, fol. var.
„ single red	„ chalcedonicum
„ double red	„ eximium
Iris pumila azurea	„ lancifolium roseum
„ germanica	„ Humboldtii
Hyacinth, blue grape	„ Washingtonianum
„ blue feathered	„ Szovitzianum
Cyclamen europæum	„ tenuifolium
Triteleia uniflora	„ pulchellum
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Jonquils, double	„ lancifolium rubrum
Dog's-tooth Violets	White Garden Lilies
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Rhododendrons, Ivies in Pots, &c., &c.

Hothouse, Greenhouse, and Bedding-out Plants in great variety.

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3 feet high, 2½ feet in circumference, 30*s.* per doz.
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5 feet high, 4, 5 and 6 ft. do., 10*s.* 6*d.*, 15*s.* to 21*s.* ea.
6 and 7 feet high, 6 to 7 and 8 ft. do., 21*s.* to 31*s.* 6*d.* ea.

No cuttings have been taken from the plants here referred to, which are simply perfect in growth and splendidly rooted.

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Purchasers will find a REAL ADVANTAGE in procuring one or more of Hooper's assortments of Bulbs, which are prepared as under:—

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No. 1, £4 4*s.* (containing 1345 bulbs); No. 2, £3 3*s.*; No. 3, £2 2*s.*; No. 4, £1 1*s.*

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DIELYTRA SPECTABILIS, strong plants for forcing, 6*s.* per dozen, package free.

The money must accompany all orders.

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	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 ,,
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 ,,
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 ,,
,, Scarlet, 10 to 14 feet high	8 to 10 ,,
,, Double, 10 to 14 feet high	8 to 10 ,,
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 ,,
ELMS, 15 to 18 feet	7 to 9 ,,

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots.

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(Figured and described in *Revue Horticole*, May 1, 1875.)

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The CIRCULAR in which M. Oudin announces the issue of the above fine plant contains also an enumeration of many other novelties in outdoor plants to be sent out at the same time, and will be forwarded free on application.

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SPECIMEN CAMELLIAS, from 1 to 30 guineas each.

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THE CORINIUM GUINEA COLLECTION OF BULBS

WILL PLEASE EVERYBODY.

THESE COLLECTIONS, which gave so much satisfaction last season, are suitable for Outdoor, also Conservatory and Greenhouse. They contain great variety, and are the best and cheapest ever offered.

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25 HYACINTHS, choice for borders.	200 CROCUS, assorted.
6 Ditto, choice for pots or water.	100 SNOWDROPS.
12 NARCISSUS, for pots.	50 ANEMONES.
12 Ditto, for borders.	4 IXIAS.
12 JONQUILS.	6 SCILLAS.
25 TULIPS, assorted.	6 TRITELEIA ODORATA.
25 RANUNCULUS.	50 WINTER ACONITES.

Carriage Paid to any Railway Station in England.

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HORTICULTURE IN ALL ITS BRANCHES.

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The *Morning Post* thus refers to it:—"The Pine-Apple Nursery at Maida Vale has a history and reputation of its own. It is now a place of pleasure as well as of utility, and is in such a state of perfection probably not surpassed throughout the world. The Exhibiting Department is a superb conservatory, of colossal dimensions, enriched with a profusion of the most beautiful plants."

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NITRATE of SODA, SULPHATE of AMMONIA,
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KENT PEATS or LOAM supplied at lowest rates in any quantities.
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E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle; Prince Christian for Frogmore Lodge; the Royal Gardens, Kew; the late Sir Joseph Paxton; and the late Professor Lindley, &c.

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A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied.
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SATURDAY, SEPTEMBER 25, 1875.

WISTMAN'S WOOD.

THIS singular Oak wood of Dartmoor is the oldest wood in England, and Wistman was a very ancient personage, who came over here from Scandinavia with the first English settlers, and was noted in Dartmoor for his pack of hounds. No other pack in the world has ever hunted over such an extensive country as Wistman's famous Wish hounds. Their pace, too, was tremendous, and it was a peculiarity of this pack that they always met at night. They could run or drift through the air, or among the branches of trees, and Wistman (who is known by many names, and is sometimes called the Black Huntsman) could follow in the same fashion. In approaching the wood one feels that the "lord of waste and mountain" must have been at home in such a spot. It is about 7 miles above Dart Meet, on the steep slope of West Dart, near its rise, and near the highest tors of Dartmoor. Trees generally, on this part of the moor, are only found in the deeper valleys, and they usually bend before the blast, and away from the most exposed aspect. The wood hangs on the eastern side of the narrow valley, which is open at the south, and blocked and completely sheltered at the north end, immediately above Wistman's Wood, by high ground rising at several points in rugged tors.

Most of the lions of Dartmoor are encompassed round about by rocks which may be scrambled over by a tourist with two good legs, and which his pony will find so exceedingly inconvenient that he should be left behind at some inn or cottage, or tied to a block of granite; for if he be left on the moor, you may expect to find him again at his manger, many miles off perhaps.

According to the Guide Books, every tor on Dartmoor should be ascended, and from each succeeding tor you may expect to behold the waste under a new and still more charming aspect. With plenty of time and ponies, and with good legs, a great deal may be done no doubt, but suppose you have *impedimenta?* At the edge of Wistman's Wood I met a gentleman, who seemed extremely lively, and who assisted me in measuring the Oaks. He had left the inn at Two Bridges with a baby, a nurse, and a wife, and the two former had broken down at the first half mile, and the latter at the mile—at the beginning of the boulders—the distance from Two Bridges altogether being 1½ mile. In stretching the cord round a noble little tree, one of the largest, with a trunk nearly 3 feet high, I observed a scare upon the gentleman's face. "Did you think you heard the Wish hounds?" I asked. "No," said he, "but the fact of the matter is, my wife—— Good morning!"

I took a seat upon the Oak awhile. There was food for meditation in what had passed; besides, it is a novelty to sit down at the parting of the branches of an aged Oak without having to climb. A main limb, much riven and gnarled, extends on either side to a distance of 12 feet, and being overgrown with moss, each is soft to lean upon whichever side you may prefer. A footstool was provided in a block of granite nicely felted with soft moss. The height of this tree was 15 feet, and the trunk being hollow and gaping, it now measures 6 feet in girth. It may have been a tree of solid timber, and in its prime at the period of the Norman Conquest; it is now a weird and exceedingly twisted specimen, as tough as many another dwarf, and apparently as unlikely to come to a speedy end of its career as Quilp himself was that dark night when he walked over the edge of his wharf at the river side. The slope of this hill is so great that the footstool beneath this old arm-chair—a block of granite many tons in weight—rises level with your knee at its upper end, as it lies upon the ground stretching longwise up the steep; and as you look up from the outer and upper edge of the wood, similar blocks are thickly scattered to the top of the hill. Without these friendly rocks there would be no Wistman's Wood. From a period antecedent to that when English history began, they have defended it, and they will probably continue to do so at a time when many generations of trees, which have not yet been planted, shall have been felled for timber or overturned by storms. The protection from cattle is rendered complete by the roughness of the site and surface. There were horses, cattle, and sheep grazing on the moor, but not a single animal wandered among the Oaks, tempting as their green leaves may appear. The wood at the end of August is a perfect mass of green upon the hillside. The trees stand near enough together that at a short distance only a sheet of green can be seen, covering up completely all the aged, sere, and time-worn limbs and stems below. They grow out of the interstices of slabs and rocks of granite, which are piled together at every possible angle, or lie up edgewise, or down flat, and which cover all the ground. It is a piece of Dartmoor Petræa which the animals turned out to graze upon the moor during the summer never venture to intrude upon. There is one domestic animal—the goat—which can bring its four legs together in standing upon the point of a stone, so as practically to get rid of three-fourths of the difficulty of walking in stony places. But even a goat in Wistman's Wood would do better drifting through it like the Wish hounds. Speaking from experience, I am satisfied that after only 40 or 50 yards of slipping and sliding over sharp angles, with uncomfortable climbing and doubtful jumping, any person would be only too glad to exchange their legs for a pair of wings. The green covering I have referred to consists of the flat heads of trees, which frequently spread 10 or 12 feet in either direction, the trunks being unseen among the piled slabs, and the branches often resting upon the stones. This is very snug for the trees in such a stormy aspect, and upon a site so cold as that around the sources of the Dart, where "mine host" ordered a fire in the parlour on the evening of August 26, and guests from a distance were surprised to find it so welcome. The lower side of the wood, which faces the opposite and bare slope of the narrow valley, is exposed to the cutting wind that pours up from the south, and it has its outer branches shaved off; the rest of this flat-headed little forest is tilted towards the opposite slope by the dip of the ground, like the hat of a person who binds his head, and no breakage or injury of the limbs takes place, each tree protecting its neighbour. Many of the branches actually rest upon the stones, and the trees, being all dwarfed, all the branches spread comparatively close to the ground, and much below the height at which unprotected branches, on ordinary sites, are shorn off by animals browsing upon them. There is one tree—and there are scores in similar positions—growing from among several slabs of granite, which are tilted against one another. The trunk may be 3 feet high, but it is too much blocked up for an exact measurement to be effected. The horizontal branches rest upon the upper portion of the slabs, which support them when old, and chafe the tough bark if they happen to be young

and green. But there is very little young wood in Wistman's Wood. The specimen of one of the little trunks, which has been placed in the museum at Exeter by command of the Prince of Wales, to whom Dartmoor belongs as part of the Duchy of Cornwall, is as tough as it is old, and the annual rings of grown are so small that no reliable estimate can be formed of the probable age of the tree. I send you a young branch, 9 inches in length, with a notch cut near the lesser and older end, which is six-eighths of an inch in circumference, while the younger end is an eighth more. The anomaly in the size of the older compared with the younger ends of this diminutive branch may be due to the compression of the mass of moss in which it was imbedded. There are, I believe, eleven or twelve years' growth in this branch of 9 inches, and they are of unequal lengths, according to the character of the season. I am unable to count, with the aid of a pocket microscope, the concentric and annual layers of wood at the two ends, so as to determine the age of each end, and the number of years of intermediate growth; but I can distinctly make out eight layers next the bark, and the central and harder portion appears to consist of many annual layers. A three-year-old branch of slow-growing Oak, cut from a hedge and enclosed, does not show the annual growth under such small magnifying power as I am able now to subject it to. Acorns are scarce this year in Wistman's Wood, and they are immature at present. There is a bunch of three on the foliage tied to the enclosed branch I send, and from these it would appear that the species of Oak is Quercus pedunculata. [Yes.] The other enclosed branch, cut 14 miles further down the Dart, where the valley is beautifully wooded, is of the same species, as may be observed by the foliage and Acorns which I have attached to it. I do not think it would be easy to find, in Wistman's Wood, a more growing "young" branch than that which I have sent you. There are many such branches lying on flat stones and sopped and matted in wet moss under very favourable circumstances for inducing the emission of roots, and I was surprized to find that no part of the wood has been propagated in this manner, so far as I could discover. Most trees would put out roots freely under such circumstances. A large limb of a Mulberry lying on the ground will take root. An Elm of 6 feet girth, covered up by a yard of earth, will take root at the surface. But the Oaks of Wistman's Wood appear to have grown from seed only, and I did not observe any succession of young trees. One might perhaps discover seedlings among the blocks of stone, but I omitted to make a careful search, and my impression is that the wood consists entirely of old Oaks. Many of the trees are covered with Ferns, moss, and the Whortleberry. The soil in which they grow is a poor granitic gravel, like the adjacent moor and the bare sides of many a hill around. The site is damp, producing Rushes and Bracken in patches, growing among the stones. Below the wood the water oozes from beneath the stones in several spots, and collects here and there into a tiny rill, which feeds the river a few yards distant. *H. Evershed.*

New Garden Plants.

MILLA (EUMILLA) MACROSTEMON, *Baker, Linn. Journ.* xi. 381.*

A native of Buenos Ayres, lately imported by Mr. Tyerman, and flowered by him this present summer at Tregony, in Cornwall. In general habit and appearance it closely resembles Nothoscordum striatum and fragrans, but differs by its petaloid filaments and perianth segments joined at the base into a distinct cup. It is interesting botanically as connecting the two genera Milla and Nothoscordum, but is not worth growing for decorative purposes.

Bulb ovoid, with brown membranous tunics. Leaves developed with the flower, numerous, suberect, fleshy, glabrous, narrow linear, 9—12 inches long, 2—3 lines broad, deeply channelled down the face. Scape 1½—2 feet long, naked, glaucous, terete. Spathe valves two, lanceolate, ½—¾ inch long. Flowers six to twenty to an umbel. Pedicels erect, 6—30 lines long. Perianth ½—¾ inch deep, pale lilac or whitish, the base a green cup ⅛ inch deep, the oblanceolate blunt segments permanently connivent, ¼ inch broad, with a green-purple keel on the back. Filaments six, uniseriate from the mouth of the tube, white, oblanceolate, petaloid, 4 lines long; anthers oblong, yellow; ovary clavate, green, ¼ inch deep; style filiform, 4 lines long; stigma capitate. Capsule obovoid-trigonous, with the ovules densely packed in two rows in the upper half of the cells. *J. G. Baker.*

MASDEVALLIA IONOCHARIS, *n. sp.**

This is a pretty little thing, in the way of M. floribunda, Lindl., surpassing the flower of Masdevallia Estradææ. It has an oblong leaf, with a very long narrow petiolar part. The flower-stalk is nearly equal to the peduncle, and bears a nice whitish yellow flower, with a large purplish violet blotch, and a few similar smaller ones, all with smaller darker dots of the same lovely colour on the under lip of sepals, which are highly connate, have nearly no free triangles, and bristles shorter than their own body. It is one of the most recent Peruvian discoveries of Mr. Davy, and has just flowered in the Royal Exotic Nursery of Messrs. Veitch. *H. G. Rchb. f.*

FIG. 81.—VIEW IN THE GROUNDS AT CASTLE ASHBY.

CASTLE ASHBY;

THE SEAT OF THE MARQUIS OF NORTHAMPTON.

THIS fine old Northamptonshire residence is worthy of a prominent place among the "stately homes of England." It is situated on the right bank of the river Neve, overlooking the valley along which the river takes its course. Nature and art have combined to make the seat and its surroundings one of the most delightful spots in the midland counties. In close contiguity to the castle—for such is the appellation by which the mansion is known, although it possesses few of the characteristics of the fortress generically known by that name—are clustered the few cottages and the two or three houses of the well-to-do that make up the village of Castle Ashby. The residence is said to have been considerably altered and improved by Inigo Jones in 1624, and it is thought that the original pile may be presumed to have been completed when King James I. and his queen honoured its noble owner with a visit in 1605.

The castle is most conveniently reached from the Castle Ashby station, a few miles beyond Northampton on the Northampton and Peterborough Railway. On entering the lodge gate a broad sweep of well-wooded park land stretches away to a considerable distance on the left, with a somewhat abrupt hill side on the right hand; and following the carriage drive the visitor proceeds for a considerable distance, rising gradually up to the finely wooded slope on which stands the village of Castle Ashby, which is immediately contiguous to the castle, but shut out from view by the dense growth of trees. The principal entrance is from the Yardley Hastings side, and here the mansion is approached on the south side by a grand avenue of trees, commencing at Yardley Chase, and extending in length nearly three miles. The residence occupies a commanding position, and around it in every direction can be seen prospects of great natural beauty, pleasant slopes, irregular undulations, huge arboreal giants in plenty and in glorious luxuriance, with charming glimpses of the exceedingly picturesque ornamental water. A marked diversity of attractiveness is thus presented to the view of the visitor.

The architectural characteristics of the entrance gates and of the residence are of considerable archæological interest, but this is not the place to refer to them. The external accessories of park and woodland surrounding this noble structure have not always been in keeping with its dignity, and although at all times it must have been very impressive in its stateliness, yet the present Marquis, who in taste and judgment is a thorough artist, has with loving thought and care year after year added new beauties to one of the fairest spots in the midlands.

On the south side the grounds are laid out in a series of terraces, with sunk gardens, at various levels, and connected by flights of steps. Terra cotta has been employed to the greatest advantage in the mass of elaborated decoration displayed on the various pedestals, balustrades, bastions, and fountains. The balustrade which margins the terrace garden has been filled in with texts in terra cotta, in letters of considerable size:—"The grass withereth, the flower fadeth; but the word of our God shall stand for ever."

* *Milla* (*Eumilla*) *macrostemon*, Baker, Linn. Journ. xi. 381.—Bulbo tunicato; foliis pluribus pedalibus viridibus carnosis glabris anguste linearibus facie canaliculatis; scapo glauco tereti sesquipedali; spathæ valvis lanceolatis; umbellis 6—20 floris; pedicellis elongatis; perianthii lilacino-albidi 6—9 lin. longi, tubo brevi campanulato, segmentis oblanceolatis obtusis dorso viridi-purpureo carinatis; filamentis ex fauce tubi uniseriatis, perianthio duplo brevioribus oblanceolatis petaloideis; antheris luteis; stylo filamentis æquilongo; capsulis obovoideo-trigonis. — *Nothoscordum macrostemon*, Kunth, Enum. iv. 463.

* *Masdevallia ionocharis*, H. G. Rchb. f., n. sp.—(Clausæ porrectæ) folio longissime attenuato; lamina æquilonga oblonga acuta tridentata; pedunculo subæquilongo; bractea arcte tubulosa pedicellum non æquante; floris cupula ampla, inframediam intrusa hinc bigibba; sepalo summo libero, prope tantum ex cauda constante; sepalis inferioribus minutis ex triangulis latis incaudas filiformes floris corpore breviores extensis; tepalis ligulatis apice obliquis emarginatis, supra basin deorsum angulatis; labello ligulato, basi cordato, apice subtridentato; carinis geminis longitudinalibus, parallelis, carinula tertia apice tantum interjecta; androclinio minute pauciserrato.

"Consider the Lilies of the field, how they grow; they toil not, neither do they spin; but yet I say unto you that even Solomon in all his glory was not arrayed like one of these."

During the spring and summer months—for spring as well as summer flower gardening is a great feature at Castle Ashby—the terrace garden is aglow with a subdued splendour and soft beauty only to be realised by those who can look upon it. The masses of flowers at each season of the year are arranged under Lord Northampton's personal direction in most elegant patterns, and in a rich succession of contrasts of colours, but with an absence of offensive glare or garish display. Seen in the month of May, when all the spring flowers were at the height of their beauty, the effect, when viewed from the upper rooms or roof of the mansion, was most charming.

The beds are all figured on turf panels, and are edged with Box, with a margin of white spar on the outside, between the Box and the turf, which greatly assists in throwing the pattern out to view. Each bed represents a monogram, or something of the sort, but there is a perfect symmetry and completeness in the general appearance of the whole. In the arrangement of the spring flowering plants, bold dashes of colour in the larger beds alternate with exquisite combinations of minor groups and lines; and were

FIG. 82.—VIEW IN THE GROUNDS AT CASTLE ASHBY.

any attempt made to describe them it would convey but a very inadequate idea of their effect. A fine purple hue was found in Cliveden Purple Pansy, and this most efficient and telling; orange in Erysimum Peroffskianum, pegged down; yellow in a good variety of Viola lutea grandiflora and Lasthenia californica; cream in Limnanthes grandiflora, which is both dwarfer and larger than L. Douglasii; pink in Silene compacta, rubella, and pendula; white in Cliveden White Pansy; blue in Myosotis dissitiflora, very effective indeed; and in addition there were crimson, rose, and white double Daisies. Pink, blue, and purple were the prevailing hues, but all exquisitely toned and balanced.

Beyond this garden, but within the balustrade, is a lower one, known as Lady Northampton's Garden, with low beds of Laurel representing the Rose, Thistle, and Shamrock, and other designs. Standard Portugal Laurels in tubs fall into the arrangement in the upper terrace garden, and fine Irish Yews alternate with them. It was too fair a scene to depict in sober prose, and these bare details must give the best shape possible to the imaginings of the reader. On the south-west side of the terrace, but raised above its level, was a line of beds of shrubs and double furze flanking the garden, and alternating with these beds of Forget-me-Nots and purple Pansy. From the terrace, looking away across the park, were exquisite peeps through skyey loops in trees; and the glorious sun above, and the overarching heavens bending blue, let fall soft beauty on every hand. On the south-west side of the mansion is a wonderful example of the old red Chinese Rose, which flowers profusely during the summer months.

Almost within a stone's-throw of the terrace garden, embowered in noble trees, stands the church—"a gem set in a profusion of foliage." The well-kept pleasure grounds are all around it, and the outlines of architectural beauty mingle with the forms of natural loveliness. The churchyard wall, very antique, is mantled and festooned with Roses and other flowering plants. The church has recently been restored at an expense of nearly £5000, under the superintendence of Mr. Street, the eminent architect. Some of the memorials to the noble dead lying in the church are grand works of art, and are well worthy inspection. In the small churchyard is a wonderful old Yew in vigorous growth, though of great age, having one main stem, with branches issuing from it all round, each of which has rooted into the soil and become a huge tree, with side branches spreading out below, feathering to the ground, and which covers a large space of the churchyard. One tombstone records the death of Alexander Sanders, who died in 1818 at the advanced age of 102 years.

Near to the church is a palatial conservatory, 140 feet in length by 30 feet in width, designed by Sir Digby Wyatt, and completed in two years. The pillars are formed of solid Bath stone, supporting iron beams. The centre is a large dome, and a massiveness of execution is characteristic of the building, while it is well adapted for the growth of the plants in it. The dome is 40 feet in height, with a fountain in the centre, and Orange trees round it. The occupants of this fine building are varied in character, and include Palms, Tree Ferns, Phormium tenax, Lasiopetalum parviflorum or quercifolium, a New Holland greenhouse evergreen shrub, bearing crimson flowers, and whose leaves when they age become margined with yellow, &c. These occupy the east end of the building; at the west end is Phormium tenax variegatum, which has thrown up a fine branched flower-spike; and trained against the wall and to central pillars, Fuchsia Dominiana, Clianthus puniceus, with clusters of crimson-coloured flowers, very showy in character; Abutilon Boule de Neige, Ruscus androgynus, Lapageria rubra, a deep red variety of rosea; Sparmannia africana, a fine old greenhouse evergreen shrub, bearing clusters of white flowers; Pittosporum Tobira, exquisitely fragrant; Royena lucida, Clethra arborea, Hibbertia dentata, the young growth handsomely coloured crimson, light yellow flowers, and pale red calyx, a very free and pretty greenhouse creeper; Clematises, &c. It also included an old Orange tree, with an immense stem, said to be 200 years old.

The walks near the conservatory pass by and under the spreading boughs of Cedar of Lebanon, Chestnut, Beech, &c. Among them a magnificent Horse Chestnut of enormous dimensions, having huge spreading branches on every hand and a perfect carpet of winter Aconites beneath, and Mr. Beech stated that it was a literal carpet of bright yellow blossoms in early spring. There is a fine Purple Beech close by.

Next comes a spacious Italian garden in sunken panels in a large space of turf, with coloured gravels, such as crimson, red, white, black, grey, &c., that is quite in keeping with the surroundings. Here a broad gravel walk leads from the conservatory to a fine new walled-in kitchen garden, recently formed at a considerable expense, and about 4½ acres in extent. The walls, which are very massive, have a broad tile coping. There are vineries, Peach-houses, &c., and one striking feature is a raised herbary on one side, in the form of a half circle. The Gooseberry trees are trained in the form of upright cordons, from 2½ to 3 feet in height, five cordons to a plant, and Mr. George Beech, the gardener at Castle Ashby, states that he gets immense crops of fruit in this way. Previous to entering the kitchen garden, a most striking floral picture met the eye. This was two beds, each 68 feet in length by 4½ feet in width, planted with spring flowering plants, cable fashion, in diagonal bands, each about 2 feet in width. The colours ran as follows:—Cliveden Blue Pansy, Silene pendula compacta, pink; Viola Blue Perfection, white double Daisy, red double Daisy, Cliveden Purple Pansy, Viola lutea grandiflora, Pansy, purple, margined with white, and again repeated the whole length of the bed. When looked at from a distance, with the sunlight playing on it, the effect was strikingly beautiful, and it afforded another illustration of what charming effects can be wrought out with simple elements.

There are many other features in the gardens at Castle Ashby well deserving of an extended notice, such as a most pleasant old-fashioned Rose garden, a long mixed herbaceous border containing many interesting subjects, plant-houses, &c., all full of interest to the visitor, but space forbids any lengthened remarks. In an old-fashioned conservatory, Passiflora quadrangulare was very fine, hanging down in large wreaths from a back wall, and blooming finely. Indigofera floribunda was also flowering freely on a south wall, and yielding an abundance of its rosy purple flowers.

The woodland walks and semi-wild ways at Castle Ashby are a most remarkable feature; and to be thoroughly appreciated they should be seen in the glorious spring-time. They wind in every direction for a considerable distance. At many points of advantage Mr. Beech has planted early flowering bulbs, Primroses, Polyanthus, &c.; while such things as winter Aconites, Narcissi, Crocus, &c., are found in plenty. On the margins of the ornamental water are some beautiful slopes, on which pretty spring gardens are formed, but art is so lost in Nature that they never lose a semi-wild appearance. Mr. Beech shows great taste and skill in arranging these, and a whole day might be spent at Castle Ashby in these woodland ways, and fresh charms would spring up on every hand. The whole place is full of exquisite pictures of natural beauty; there is a wonderful wealth of them, and our illustrations (figs. 81, 82) show glimpses of the water from two points—in the one case with a grand foreground of Water Lilies, which are remarkably fine and most effective. Primroses and Polyanthuses grow here in abundance, the former in many shades of colour, and they are constantly being introduced along the grassy margins of paths, in openings under trees, and by masses of underwood, &c. He who would endeavour to do full justice to these scenes would be certain to incur the charge of undue exaggeration; but when seen it is instinctively felt how inadequate language is to transcribe scenes so fair, soft, and truly beautiful. *D.*

ONIONS AT CHISWICK.

THE trial of Onions made this season at the Royal Horticultural Gardens at Chiswick having proved so successful, an excellent opportunity was afforded for comparison, and also for ascertaining the distinctness and relative value of certain assumed new varieties. The following notes were made after a very careful and critical examination of the various samples, all of which were growing under the same conditions. They are grouped under the head of types, and in this manner their relative value will be best understood. The season has proved on the whole very favourable to the production of fine samples of Onions; and the trial at Chiswick may be said to furnish relative evidence as to the character and relative position of the numerous varieties submitted for cultivation. Such trials are always very instructive, and the results are eagerly looked for by many interested persons throughout the country.

White Spanish Type.—Taking now that best known of our ordinary garden Onions, the White Spanish or Portugal, we are face to face with several assumed new varieties that are simply selections made from time to

time. All selections of this character are to be encouraged, because they tend to advance the type towards a higher stage of perfection, and if we have to sometimes pay an advanced price for them, we invariably get our money's worth in the form of a fine stock.

The best type we are acquainted with is the Banbury Improved White Spanish, a very fine Onion indeed, of great size, handsome in shape, and a good keeper. The Banbury district is remarkable for the capital Onions it produces; and at the annual exhibition of the Banbury Horticultural Society, generally held during the last week in August, magnificent Onions are exhibited—weight and symmetry being the two main points by which the Onions are judged. In and round Banbury there are a number of persons who make quite a pet of the Onion, just as one would of the Rose or any other popular flower; and these growers compete together at the show, the large number of twelve or fourteen prizes being awarded among a larger number of competitors. The competition is very keen and even exciting, and it is remarkable how much care the cultivators take of their plants—nursing them, and encouraging their development in every way in their power. One of the leading Onion cultivators at Banbury is Mr. J. A. Taplin, a printer in the town, who has published a valuable little pamphlet on the cultivation of the Onion, which sets forth the practice of the Banbury growers. The Nuneham Park Onion is another selection, and perhaps a little more globular in shape than the foregoing when the true type is presented. Cantello's Prize Onion, the Oxonian, and Naseby Mammoth are all selections from the White Spanish, and all of good quality; but they are nothing more than selections.

Danvers' Yellow Onion has a distinctive appearance, because of its yellow-brown outer skin, which gives it a hardy appearance. It is no doubt a selection from the White Spanish, as it has all its characteristics of shape and appearance, but it is of a deeper colour. It is a good keeper. The Yellow Flat Onion is an American variety, and appears to be a flat type of Danvers' Yellow merely. What was being grown under the name of Covent Garden Pickling was but Danvers' Yellow; but as it is unusual to pickle brown Onions there was, perhaps, some mistake as to its real character. The Improved Reading appeared to be a good type of the White Spanish, carefully selected, handsome, and of good size. The very large Straw-coloured was the same as Danvers' Yellow; and an Onion named Oscar was of the White Spanish type, half globular in shape, and a brown skin, but of no particular value. Cutbush's A 1 was very like Danvers' Yellow. Two Onions from Teneriffe, one whiter in the skin than the other, were of the Spanish type, but both quite worthless. The two-bladed Onion, a variety that appears to be quite distinct in character in some respects, is after all but a poor representative of Danvers' Yellow, which it much resembles. At one time it was cultivated as a salad Onion, but it is now to be found only in some of the wholesale seed lists.

The Globe Type.—The Globe type has two distinct forms—the Brown Globe or James' Keeping, and the White Globe; the former is considered to be the best keeping Onion in cultivation. These Onions have a spherical globular shape; the former has quite a reddish brown skin, the latter a pale straw-coloured skin, and both are very handsome in shape when the stock is good and true.

One of the finest types of the White Globe Onion was that grown under the name of Magnum Bonum—a first-class selection, because so handsome in shape and regular in size, but it also partakes somewhat of the character of the Brown Globe. Bedfordshire Champion is a globular form of the White Spanish, but flatter than the White Globe, and there is no real necessity for keeping it as a distinct variety, as a good many revert to the flat shape of the White Spanish. The new White Intermediate could not be separated from the White Globe, and the Brown Intermediate was a half-flat form of the Brown Globe. The Pear-shaped Onion is no doubt a pyriform selection from the Brown Globe, and it is not worth cultivation as a garden variety. The Trebons Onion is a large form, intermediate in character to all appearance between the Globe Tripoli and the White Spanish; it grows to a great size, and makes a fine display on the exhibition-table when well grown, but it cannot be depended on as a keeper. It might perhaps be best described as a large pale-coloured Globe Tripoli.

Brown Spanish Type.—From this the well-known Deptford Onion, as also the Strasburg, cannot now be separated. It might have claimed some distinctness years ago; but the only difference now discernible is that between the products of imported and home-saved seed. It is a good useful main crop Onion, but not to be preferred to the White Spanish. The Yellow Cambria is the same as Brown Spanish, and the Yellow Lescure is a coarse type of it. The new German Onion, on the other hand, is a good type of it. Pale Red Niorte and pale red St. Brieuc are also Brown Spanish, and the light red and French Strasburgs are the same.

The Tripoli Type.—This is a very distinct type, and represents a section of large Onions of mild flavour, well adapted for sowing in the autumn for use in early summer before the ordinary crops turn in. There are two forms, the globular shaped and the flat shaped, the Globe Tripoli being the best known representative of the former. This is on the whole a handsome shape, good clean-growing Onion, but none of the Tripoli type must be set down as keepers. The largest Globe Madeira, the Giant Rocca, and Naples Giant Rocca are all Globe Tripoli, the former having a rather flatter shape. The flat Tripoli type has many representatives claiming to be distinct varieties. The Onion is a large brown-skinned variety, inclined to be rough in appearance, but solid and heavy when good. The Red Flat Geneva Tripoli, Red Mammoth, Large Red Sallon, Large Round Giant Madeira, Largest Flat and Very Large Flat are all Flat Tripoli. They take up a few more lines in a catalogue, but all can be weighed out of the same drawer. It used to be, and probably still is, the practice of some of the Italian Onion growers to make a red selection from the Flat Tripoli, under the name of the Red Italian Tripoli, and having a deep bright red flesh, and redder skin than the Flat Tripoli. This form, though not very distinctly manifest, appeared in the Naples Giant Red Tripoli, the large early Red Italian Tripoli, the large late Red Italian Tripoli, the Red Italian Tripoli of France, the same of Naples, and the same of Geneva—a smaller size and redder colour generally prevailing. An Onion bearing the name of the Egyptian Bulb-bearing is a large brownish red type, much resembling the Flat Tripoli.

The White Italian Tripoli is a very distinct flat Onion, and a fine variety to sow in the autumn for coming into use in early summer, handsome in shape, and with a white skin. The Naples Giant White, Giant White Tripoli, Early White Tripoli of France, and large Early White Italian are all included under this heading.

The Neapolitan Marzajole Onions.—As a rule, the Marzajole Onions appear to be smaller than the White Tripoli, but they are the same type. It may be that the Marzajole is an early selection from it, but that is but a surmise. Piccirillo's Marzajole is a very large variety of it. All these come somewhat ugly in shape when ripe, and split into two or more. The White Lisbon has a large white bulb when matured, but it is seldom allowed to stand to bulb. It is a good hardy Onion, and the practice is to sow it in autumn to stand through the winter for pulling as "young Onions," or "Cibouels," as they are sometimes termed.

Silver-skinned Type.—One of the best of these is undoubtedly the Queen, as it bulbs in very quickly, making a nice sized head suitable for pickling. The Silver-skinned Onion, as generally grown, is later, making more top than the Queen. The very Early Paris Silver-skinned, Early White, White Round Early, Hard Dutch, Nocera, and Early White Naples, are all silver-skinned, and may, perhaps, ripen earlier or later, according to the selections made. When allowed to stand, the ripened bulbs are of large size, but by no means handsome.

Blood-red Type.—This is a very distinct flat Onion, having a deep claret-coloured skin. Some American types, especially the large Red Wethersfield, of Messrs. Hovey & Co., were the finest, being of great size. The very deep blood-red, or purple, was finely coloured, and the bright red Mezieres is a kind of brown-skinned blood-red, but a somewhat coarse-looking variety.

There is yet the Welsh Onion, which is a perennial type, not forming a bulb, but sown annually to be drawn young for salads, and the young growths of older plants are chopped up small for the same purpose. The tree, or bulb-bearing Onion, is a curious feature among the Chiswick trials. It is said that it came originally from Canada, where, the climate being too cold for Onions to flower and seed, it becomes viviparous, and bears bulbs instead of flowers. It is remarkable to see these bulbs producing a second and even a third aërial growth. *R. D.*

HEAT WITHOUT COST.

THIS is no longer a fancy, but a fact; and it is fact, the horticultural importance of which cannot be overrated. Never since the cheapening of glass, by the abolition of the excise duty with which it was burdened and fettered, has any boon of such value as cheap or free heat been brought within reach of horticulture. The chief obstacle to enlarged and profitable production is the cost of fuel. That cost is also being now severely felt daily. Not only has coal been dearer, but more of it is wanted by horticulturists every day. For the most prominent characteristic of modern horticulture is its determination to have things out of season, or rather to make the season of all the choicest fruits, flowers, plants, and vegetables continuous. It aims at girdling the year round with the choicest products, and, if there is to be any difference, the best of everything is to be produced in the worst weather: like the nightingale, that sings its sweetest songs in the darkest nights, so horticulture is called upon to produce its richest, sweetest, best products in the coldest and most wintry weather. This demand, which grows stronger day by day, not only taxes our skill to the utmost, but clears out our coal-cellars with alarming rapidity. Horticultural skill is sure to rise to the occasion, but, unfortunately, this cannot always be affirmed of the coal heap; and there cannot be a doubt that the high price of fuel has limited, and does still very much limit, horticultural production. Paterfamilias, whether rich or poor, grumbles over coal bills, especially as the most profitable residue left behind after the coal has yielded up its heat has been but dust.

Fortunately, just as the coal famine was coming upon us, a partial antidote to it dawned upon the mind of an observant Scotchman, Mr. Cowan, of Dromore, in Ireland. This gentleman lived in a limestone district, and was struck with the amount and intensity of the heat that ran to waste from the crown of the limekilns around him. The happy and intensely practical thought occurred to him, why not place a hot-water boiler astride the kiln, absorb the heat, and thus turn the wasted caloric to the intensely useful purpose of heating horticultural buildings? With a certain class of minds to think is to act, and very soon the glasshouses at Dromore were heated from a limekiln. Here with many the matter might have rested, but not so with Mr. Cowan. Having discovered the great horticultural boon of heat without cost for himself, only very few of us know how perseveringly he worked to make it known to others. With a patience and an energy almost without precedent Mr. Cowan forced limekiln heating on the attention of the horticultural world. One would have supposed it would have needed no forcing—on the contrary, it encountered severe opposition; the supposed interests of the powerful trade of hot-water engineering men was considered to be imperilled by the limekiln, and hence the trade looked coldly on the heat of kilns. The learned in the chemistry of combustion gravely assured us that there could be no profit in the new plan, inasmuch as it was physically impossible to get more heat out of the limestone or chalk than we put into it, forgetting apparently that were the statement true the boiler astride its crown would nevertheless utilise an immense amount of heat hitherto utterly wasted. Unable to gainsay this, as illustrated at Manchester, Birmingham, Hatfield, and the many other places in England, Scotland, and Ireland where limekiln heating had been applied, rumour, with its thousand-and-one reports, was busy in all directions running down the new system. Silence on the part of any that used it was interpreted to mean failure; did a gardener change his situation, the limekiln was the cause of it. The Hatfield kiln especially was said to have failed again and again, and I owe a journey or two there to that rumour—as unscrupulous as it was untrustworthy.

Having been convinced by Mr. Cowan's first illustration of the soundness of the theory and possibility of the practice of limekiln-heating, and the obvious saving of fuel, incident to the diversion of so much wasted heat into useful heating channels, it was with much pleasure and confidence I heard of the bold purchase of the Garston Vineyard, Liverpool, by the company formed to work Mr. Cowan's patent. This immediately placed limekiln heat on a cash or commercial basis—the only foundation believed in by the majority of mankind. Show your faith by the amount of your money invested, is the modern creed of trade. The company have acted on this canon. From £12,000 to £20,000 is not a small material guarantee for the company to offer the public of their good faith in the matter.

But they have done more, and have recently enticed to Garston several hundreds of horticulturists of all classes from all parts of the three kingdoms, to thoroughly examine into and test the system for themselves. In response to their invitation a very large and representative gathering of horticulturists spent last Friday, and several of them some days more, at the Garston Vineyard, to carefully examine into the actual working of the system night and day. Their testimony may be said to be unanimous in its favour. This unanimity was by no means the result of any preconceived notions in favour of the system. On the contrary, I found many, when they arrived at Garston, were sceptical alike as to the practicability or profitableness of limekiln heating. And yet I venture to affirm that no one left the Vineyard without being convinced of both. The irresistible logic of facts of the most impressive and tangible nature banished all doubt, and changed scepticism into faith firm and strong.

The most notable fact was to see nearly 4 miles of 4-inch pipe heated to temperatures ranging from 110° to 140° Fahr., according to their distance from the kilns, and the fierceness of the fires, by the kilns

alone. Such a temperature of pipe is sufficient for all horticultural purposes. I am well aware that a higher temperature was reached in some of the boiler trials at Birmingham, but it must be borne in mind that the volume of water to be heated in these trials was a mere drop, relatively to this river, as it may be called, heated by the three limekilns at the Garston Vineyard. The Birmingham trials had only 500 or 1000 feet of hot-water pipe attached to the boilers; each of the larger kilns at Liverpool had nearly 2 miles of piping attached to it. Under these heavily-weighted conditions the high temperatures reached were most satisfactory, and fully sufficient for all horticultural purposes, and the heating of public buildings, factories, churches, &c.

The three limekilns at Garston have taken the place of sixteen boilers, and the arrangement of stop-cocks, pipes, &c., are so complete that each limekiln may heat any part of the establishment at pleasure. Practically, only two are intended to be employed in a general way. The third kiln is a gas apparatus as well, and will only be used in cases of emergency, or when gas is required. It was a most happy thought of Mr. Cowan's so to arrange and connect the hot-water pipes that all the kilns may be employed in cases of emergency, or two, or one only, as required. There need thus be no waste of heat in summer; there can be no lack of power in winter.

It was impossible to look into those glowing masses of fire, either by night or day, and have any misgiving of the enormous power of limekiln heating. It is equal to anything that can be required of it. The constancy and durability of the heating power is one of its highest recommendations for horticultural purposes. Gardeners who know anything of the miseries of stoking will thoroughly appreciate the testimony on this point of Mr. Bennett, late of Hatfield. In expressing his perfect satisfaction with the Hatfield kiln at the dinner, he said that he had slept sounder last winter than he had done for years. The kiln impressed him with confidence that was never misplaced, the houses seldom falling more than 5° in the night. It seems it is no uncommon thing for them to rise. Of course, the lower the temperature the more oxygen finds its way into the kiln, and the fiercer the lime burns.

Mr. Cowan deserves a testimonial from the craft, had he done nothing more than provide a permanent and reliable source of heat for horticultural purposes. The night fires have burned out thousands of lives dear and valuable to horticulture before their time. Neither is there any difficulty of meeting sudden emergencies and changes of the weather with lime-kiln heating. To some extent the heat is self-adjusting, as we have seen. The colder the weather the fiercer the fire without our interference. By selecting the best time for recharging the kilns the times of maximum heat can also be measured to a nicety; and besides this, a blaze of coal or wood may be made over the lime in cases of sudden and unexpected depression. Mr. Bennett, however, only found it necessary to resort to the expedient once during the last trying winter, and it would seldom be needful. There is but little difference in the heat of a limekiln for twelve hours or more at a stretch.

Financially, the limekiln heating is also an undoubted success. Whether it will absolutely furnish heat free of cost must of course depend upon several conditions, such as the distance from lime or chalk, the cost of conveyance, the price of lime, which varies more than cent. per cent. in different localities, and the relative price of limestone to coal or coke. At Garston everything seems against the system paying. All the limestone has to come by train, at a cost to the company of 7*s.* 6*d.* per ton—almost as much as coal. One fact, however, tells most powerfully in favour of the limekiln heating. Mr. Cowan assured me that independently of the worth of the lime made, the coal consumed in it would not, he believed, reach to one-half the quantity burned in heating the sixteen boilers displaced by the kilns. This is most important, as most of the objectors to the system have affirmed that the heating force of the coal must needs be, partially at least, absorbed in the burning of the lime. On the contrary, that heat seems to be so much augmented as to reduce the coal bill by one-half.

The same cumulative benefits arise from placing gas retorts between the crown of the kiln and the base of the boiler. At first sight it might be thought that in the conversion of the coal in the retorts into coke or gas, there must needs be a loss of heat to the boiler astride of both. On the contrary, as the white heat of the kiln enwraps the retorts in its glowing embrace, the heat of the coal inside leaps forth to add to the intensity of the glow without, and the gas limekiln afforded the most vivid and striking illustration of the enormity of the heating force placed by Mr. Cowan's patent at the service of horticulture. If simple limekiln heating is a good and strong system, use it. It was impossible to look into that glowing heat that licked the base of the boiler above the gas retort, and not feel that the combination of the two was yet better and stronger. The gas made, with which the Vineyard was lighted on Friday night, was also of excellent quality, and such high candle power as to excite the envy and admiration of gentlemen from Liverpool and London and other large towns. I look upon the mode of working one or more retorts over the kiln as likely to prove one of the most valuable features of the system, that will be largely used in gardens, public and private. Nothing could well add more to the comfort and enjoyment of private and country mansions than the lighting of the houses and gardens when wanted with gas; and this new mode of heating horticultural and other buildings brings cheap light as well as heat within easy reach of all. It may be stated, in conclusion, that at the dinner in the spacious new workshop for the company, devoted to carrying on the business of erecting horticultural buildings in all its branches, the utmost confidence was expressed in the success of the system. It would be easy to indulge in bright visions of the future, and to paint in language forcible as eloquent what horticulture may, and probably will, become under the stimulus of fire, or at least cheap artificial heat. But it will be a little service to the company and the public, to state that those who know most of the system were loudest in its praise. Mr. Bennett, in proposing success to the company, spoke in the most emphatic terms of its perfect success at Hatfield. The boiler had too much to do, yet it had done it well. It gave him good Grapes in May, Cucumbers all winter, French Beans *ad libitum*, &c. If he was not so close to the water he would at once use it in his own nurseries at Rabley.

Mr. Gordon, gardener to A. Wauchope, Esq., Niddrie Gardens, near Edinburgh, who has had two winters' experience, spoke in the strongest terms in its praise and of its profits. His apparatus heats 3000 feet of piping with no trouble, the heat is ample, the labour light, and the cost *nil*.

Mr. James Garnier, of Kylemore Castle, county Galway, came all the way from the nearest point of Ireland to America, fifty miles west of the Galway packet station, to testify that he had had the system in use for two years, heating 9000 feet of piping. This gentleman stated that, though the price of lime is low—only 1*s.* 6*d.* per barrel in that out-of-the-way place—yet the lime sold paid for the coal bought, and left a balance of over £60 to pay for carting, &c.; thus effecting a clear saving of about £300 for his employer, Mitchell Henry, Esq., M.P. Mr. Garnier also paid the high price of 27*s.* per ton for his coal, and burned about £200 worth in his lime, whereas he used to burn about £300 under his old boilers.

It was also mentioned, among other things, that the Messrs. Thyne, of Glasgow, had had the system in operation for two years, and reported a probable saving of £300 a year from its adoption. Numerous facts of a similar class were stated at the meeting. Limekilns are also being erected in various directions—one, which will be useful for the inspection of gardeners visiting Edinburgh, being in process of erection at the winter garden there of Messrs. Downie & Laird. An estimate has also been sent in for heating part of the Crystal Palace, where the coal bill is over £2000 a year, and where, it is reported, it takes three months to get up the heat. A few gigantic kilns there might warm the building in fewer days for starting, and keep it warm, with a minimum of labour and anxiety; while the high price of lime near London might enable the company actually to reap a profit from the combined methods of heating and lighting included in Mr. Cowan's patent system.

One can but wish success to every invention that facilitates or cheapens horticultural production, and those who have known how bravely Mr. Cowan has clung to his idea, through evil and good report, must congratulate him on his present position and future prospects. As one of the company at Liverpool perhaps I may be permitted to thank him in these columns for his courtesy, kindness, and fairness in affording me the free run of the place for days and nights that we might satisfy ourselves on any point wished, and also for his genuine hospitality. Surely the Royal Horticultural Society have a gold medal to spare for the man who, almost single-handed and alone, has forced heat without cost on the horticulturist and general public. *D. T. Fish.*

BRITISH ASSOCIATION.

AT the recent meeting at Bristol, Dr. I. Bayley Balfour read a paper, in Section D., "On the Flora and Geological Structure of the Mascarene Islands." He said that in Bourbon there was a great contrast between the flora of the older north-western portion and that of the south-eastern district within the area formed by the volcano now acting. Here the soil was very barren, with only a few Composites and other plants that flourished in a dry soil. The flora was not most closely allied to that of Africa, but rather to that of India and the Indian Archipelago. There was a great profusion of Ferns, Mosses, and lower cryptogams; and evergreens were abundant. The species were few in proportion to the genera, and the genera in proportion to the orders. The proportion of indigenous plants and of species to any area was generally small; but in Bourbon there was the great number of 1700 species. The most remarkable genus in the group, perhaps, was Pandanus, the Screw Pine, which had species peculiar to each island, though the commonest, P. utilis, occurred on all three islands. Certain genera were found to be endemic to the group, especially in the Rubiaceæ and Compositæ. In addition, in each island there were certain genera endemic to that island alone. In North-western Bourbon, although, as in Mauritius, settlers had produced much alteration by cutting down trees, &c., there was still an abundance of plants which flourished in a moist climate. The flora of Mauritius exhibited affinities with that of North-western Bourbon, although possessing endemic genera. Perhaps no place in the world had had its flora so much altered by settlers, especially by means of fires through carelessness. The original flora had been almost exterminated. The few plants now remaining included one new genus; and there were certain peculiar Pandani, but the general type was allied to that of Mauritius. In many of the small volcanic and coral islands which surround Mauritius and Rodriguez, very often little more than rocks, there were genera which were peculiar to those islands, or else species that were representatives of other species existing on the main islands. Round Island, a mere cone near Mauritius, had three genera of Palms represented by different species, which were found nowhere else; and exhibited many other peculiarities in its flora. Dr. Balfour reserved his opinion on the vexed question of the origin of these islands by independent volcanic action or by the submergence of an ancient continent connected with Africa; but stated that soundings taken between Mauritius and Rodriguez, about 50 miles west from the latter, gave a depth of 2000 fathoms; while 100 miles south-west of Mauritius the depth was 2700 fathoms.

Prof. Williamson remarked on the parallel between these facts and those first brought to light by Mr. Darwin relative to Galapagos. It appeared that these modifications of species and genera were such as must necessarily have resulted from modifications in a long course of time; and they compelled naturalists to accept Mr. Darwin's views whether they liked them or not. Coupled with the facts derived by Mr. Wallace from the Indian Archipelago, he thought considerable probability was given to the submergence theory.—Prof. Dickson could not see that the occurrence of representative forms on different oceanic islands was any stronger proof of evolution than the facts relating to the grouping of plants about geographical centres; but Prof. Williamson maintained that the occurrence of distinct yet analogous species on contiguous islands of very recent geological age was a striking evidence of modification produced by new physical conditions, unless indeed distinct new creative acts were admitted within a comparatively modern period.

ON PLANTING ON CHALK SOILS.—I.

THE relation of a flora to the geological formation upon which it flourishes is a very interesting matter botanically, and it involves many important questions for the consideration of the practical planter.

I am not acquainted with any comprehensive treatise on this subject—any work which will say to a gardener, "If you are on such and such a soil, you may plant this and not that: if your soil is of one kind, here is a list of plants that will grow; but if it is of that other kind these same plants will fail you."

Many of your readers must have found the want of such advice when laying out grounds for ornamental planting. It is a difficulty not easily to be met by one author, or one observer, for very few men have opportunities of testing the suitableness of trees and shrubs in a variety of geological formations. Most planters are confined to one locality and one formation. But if competent persons, who are laying out and planting ornamental grounds in different parts of the country, on various soils and under different physical conditions, would contribute their experiences, a collection of evidence might be obtained of the highest value to those who hereafter are engaged in the pleasant, but now somewhat anxious, occupation of selecting the trees and shrubs which are to shelter and adorn some future home.

It is sadly disappointing to make mistakes in such selection, and to find after two or three seasons have passed that the plants and the soil are at enmity, and that, where one had hoped to see beauty and shelter, all still remains barren and bleak. I have made such mistakes, and have suffered accordingly.

In planting in untried ground there is one somewhat trustworthy source of aid—ascertain the orders and genera of wild plants which flourish best in the immediate neighbourhood, and then select ornamental

species as nearly allied to them as may be. Not that this will be a certain and infallible guide, for I have found, as I shall by-and-bye show, that in some instances different species of the same genera are very unequally suited to the same soil. This I have noticed particularly the case with the Coniferæ on the chalk. Still it is some guide.

The true chalk districts of England do not vary much in their physical characters—large, bold, undulating hills of great breadth and extent, with open valleys, all much exposed to the action of the wind. Here and there these large massive undulations jut out upon the plateau of a lower formation in the form of escarpments, whose exposure to the storm is complete, and where the action of the wind upon vegetation is without mitigation. The soil of these chalk hills and downs is very uniform, a thin crust of brown loam immediately overlying the pure chalk. Here and there on the highest hills and most elevated flats are a few patches of plastic clay, forming the basins of those perennial ponds which one sees on the South Downs, and which no drought can destroy. These clay patches are very valuable and important in many ways. The chalk and the loam are very definite and sharp in the line where they meet; there is no mixing-up, no transition from one to the other; but the line of union is often irregular, for in a section it is sometimes seen that the loam will be only 5 or 6 inches deep at one spot and 2 or 3 feet at another close by.

Chalk consists almost entirely of carbonate of lime with some silica, and a trace of alumina. It, therefore, very imperfectly supplies the mineral elements necessary for vegetable growth.

The loam on chalk consists of carbonate of lime, some clay, sand, and a considerable quantity of decayed vegetable matter. There is also a notable amount of animal matter upon the surface of the chalk downs derived from dead insects and mollusca. The remains of the former are easily detected with the microscope in the washed soil; and the multitudes of snails that annually perish and give their bodies to the earth, are attested by the countless empty shells that cover the surface. Moreover, the chalk downs of this country have been sheep-walks for a very long series of years, and this has been another source of supply both of ammonia and phosphates. The loam upon the chalk is, therefore, a fair supporter of vegetable life.

Previous to planting trees in blocks or masses, it is absolutely necessary to trench the land, and this upon chalk soils is a matter in which very serious mistakes may be made, as I know to my cost.

There is a prevailing idea that trees *require* a deep soil for their growth; but this is an entire fallacy as regards the greater proportion of them. That trees will prosper more in a good deep soil than in a similar soil that is superficial is no doubt true; but a thin rich soil is better than a deep poor one; and the most fatal mistake that can be made in trenching land preparatory to planting, is to throw up a barren subsoil, and bury the better elements beneath it. This is particularly the case on the chalk lands.

That trees of very large size will grow upon the very thin soil may be rendered evident to any one who travels through the chalk cuttings on our southern railways. In many places the soil is not 6 inches deep above the chalk, and yet splendid trees, especially Beeches, are seen clothing the hills.

But the most remarkable demonstration of the occurrence of large tree growth upon the thinnest top soil is shown by geological sections. Any one who will go to the Isle of Portland, on the Dorsetshire coast, and inspect the cut rock surface on the top of the upper oolite, may see this truth displayed as distinctly as on a map, where large forest trees are seen *in situ* growing on a soil (the "Dirt Bed") not more than 10 or 12 inches in thickness.

In the winter of 1870-71 I planted some chalk land in the neighbourhood of Basingstoke with an extremely varied collection of trees and shrubs. I took everything that came to hand that was hardy, excepting Rhododendrons and their allies, which I knew would fail. As to all the rest, it was a matter of speculation and trial.

In the autumn of 1870 I had the land, which was to be planted, thoroughly trenched: then and subsequently I learnt an important lesson in thus dealing with this kind of soil.

Trenching.—In trenching chalk land, such as I am referring to, the trench should be carried to the bottom of the loam, but no further. However superficial the top soil may be, even 3 or 4 inches, it alone should be turned over in the trench, and not a grain of chalk should be raised. The chalk may be broken up into large lumps with a pick-axe, and left at the bottom of the trench; but there it should remain. Through a misunderstanding on the part of the foreman of the gang of trenchers, a mistake was made, which has been most disastrous to me.

The first trenching on my ground was for a belt of trees and shrubs. Irrespectively of the soil at the particular locality, the foreman commenced by trenching 2 feet deep, the top-soil being only 8 or 10 inches thick at that part. When I first inspected progress, to my dismay I found 60 yards of the belt of land as white as snow; the whole of the loam had been buried and covered over with more than a foot of fine powdered chalk! I remonstrated with my man, but he had a ready answer—"Oh, sir, it is just as it should be: the roots will go down and find the soil below." And this is the common fallacy—that roots inevitably go down for their food. So wedded was the man to his sub-soiling ideas, that he might, for aught I know, have received his cultural education from Mr. Smith of Woolston! However, I put a peremptory stop to the subsoil process, and no more chalk was brought to light; the loam was turned over in the trench for the remaining 600 yards of the belt, and for sundry clumps and corners, however thin the crust might be in some places, and the result of the subsequent planting and growth or failure has confirmed my judgment. The 60 yards of subsoiled land has been a region of vegetable sickness, of death and barrenness; while the whole of the rest of my plantings has been a complete success.

If any of my readers are going to plant upon chalk land during the coming winter, let me advise them to trench the land at once, so as to expose the soil to the weather till planting time, but remember—*Don't throw up the chalk!*

In future communications I intend to enumerate—I. The Trees and Shrubs that have best succeeded on chalk land; II. Those that grew fairly well, and may be tried; and, III. Those that failed, and should be avoided. After my enumerations I shall have something to say about many which fall under the first two heads. *James Salter, F.R.S.*

Natural History.

THE FOLKLORE OF SNAKES.—The following notes upon the popular English superstitions regarding snakes may be taken as a pendent to the interesting chapter on the nature of these reptiles which has lately appeared in the *Gardeners' Chronicle.* It may be doubted whether any class of creatures is regarded with so wide-spread a dislike as that of the reptiles in general and snakes in particular. As a term of contempt, it may be doubted whether any expression is more forcible than that of "reptile," or a "most unparalleled and unmitigated viper," which, it will be remembered, was one of the culminating epithets heaped by the editor of the *Eatanswill Gazette* upon the manager of the *Eatanswill Independent*; and a "snake in the grass" is a familiar type of a treacherous friend. It is from snakes that the Jesuits have learnt that dreadful habit of "gliding" which they possess so frequently—in books, if not in real life; and readers of *Lothair* will remember that this serpent-like mode of proceeding is gaining ground, as is clearly shown by our esteemed Prime Minister when he attributes it to the "Monsignor Catesby" whose name is so cleverly misprinted (?) in the third volume of that striking romance. Again, ingratitude is typified not only by Æsop but in popular parlance by the viper cherished in the bosom which turns upon its benefactor. Nor is this unpopularity of the serpent surprising when we consider how serious an influence it has exercised upon the destinies of mankind—that is, if we may take the book of Genesis as an authority in such matters. At any rate even the most sceptical will be willing to admit that the biblical narrative of the "old serpent" and the curse pronounced upon him accounts in a great measure for the natural antipathy to reptiles manifested even in this enlightened age by the great majority of people.

One of the most popular and widely spread traditions regarding snakes of all kinds is that they cannot die until sunset. This first came under my notice in Buckinghamshire, when a friend of mine who had a dead slow-worm in his hand was warned by a sagacious peasant to be careful, for the creature could not die until sunset, "no, not if you was to cut it in pieces." Since then I have found that the same notion is current in Devonshire, Cornwall, Somerset, Sussex, Northamptonshire, and other counties; but in Cornwall it is said that this rule is broken if the serpent be struck with an Ash stick, as it then dies immediately. This antipathy of snakes to the Ash tree is of very old standing. Pliny says that a serpent will rather leap into the fire than rest under its shadow, and that if a circle be drawn round it with an Ash rod the reptile cannot escape; a similar notion is current is Devonshire and Cornwall. This belief in the longevity of snakes in some neighbourhoods takes the form of the statement that they will recover from any blows, no matter how severe, if they can reach their holes before nightfall; and hence may have arisen the custom of hanging their dead bodies upon the branches of trees.

Another general belief regarding serpents is that they cannot live in certain localities. Ireland will at once occur to every one as an instance of a country where these reptiles are not to be found, and of the fact itself there can be no doubt; moreover, attempts have been made at different times to introduce them there, all of which have failed. It is to be feared, however, that that part of the legend which attributes their absence to the good offices of St. Patrick is not equally to be relied upon, inasmuch as it appears that Solinus, who flourished at the end of the second century, notices the immunity of Ireland from reptiles; and Isidore and Bede, in the seventh and eighth centuries, repeat the assertion, although as St. Patrick died about 465, his curse might by this time have taken effect. The probable interpretation of the legend is that it graphically represents the dispersion of evil by the Christianity preached by the saint. That "there are no snakes in Ireland" has almost passed into a proverb, but it may not be so generally known that Malta is equally destitute of them, and that for a reason similar to that which accounts for their absence from Ireland. It is said by the Maltese that St. Paul cursed them after his shipwreck, and banished them from the island; and vipers which have been brought from Sicily have died almost immediately upon their arrival. The fossil commonly known as a "shark's tooth" is often referred to in old MSS. as *lingua serpentina.* In an inventory of goods belonging to Robert Holgate, Archbishop of York, we find, "Item, a serpent's tongue set in a standard of silver, gilt and graven." "In former days," says a correspondent of *Notes and Queries*, "few pilgrims returned from the East without bringing at least one of these curious stones. Being principally found in Malta, it was said they were the tongues of the vipers which once infested that island, and which St. Paul had turned into stone. Considered to be antidotes, and of talismanic qualities, they were set in cups, dishes, knife-handles, and other requisites for the table." They were also known as "tongues of St. Paul."

The belief in the absence of snakes from particular localities is connected with many places in England. Such absences are often to be received with caution. It is frequently said, for example, that neither nightingales nor Cowslips are known in Devonshire, although both undoubtedly occur in that county; but it is no doubt correct in some of the localities thus associated with snakes. The Isle of Thanet (on very old authority), Dorchester in Oxfordshire, Badminton in Gloucestershire, Irchinfield in Herefordshire, and Bletchington in Oxfordshire, may be mentioned as places in which snakes are said to be unknown. Plot, in his *Natural History of Oxfordshire*, has the following passage in reference to the last-named locality:—"At Blechington 'twas confidently believed that a snake brought from any other place, and put down there, would instantly dye, till I made the experiment, and found no such matter: whereupon I got leave (in the absence of the family) to inclose my snake in the court before the Right Honourable the Lord Anglesey's house, to see what time would produce, leaving the gardener in trust to observe it strictly, who found it indeed, after three weeks' time, dead, without any sensible external hurt."

Another superstition, also very widely diffused, explains to us the meaning of the markings upon the belly of the adder. The interpretation of these markings varies somewhat in different localities; but its general character is the same. In Sussex it is—

> "If I could hear as well as see,
> No man nor beast should pass by me."

While in Norfolk it runs:—

> "If snakes could hear and slows [*i.e.*, slow-worms] could see,
> Nor man nor beast would ever be free."

In both of these couplets we may trace a coincidence or connection with the passage in the book of Psalms, which speaks of "the deaf adder which stoppeth her ears," which always seemed an unnecessary precaution on the part of a creature already incapable of hearing. But we are gravely told by old writers that this "work of supererogation" is an ordinary performance of the adder, which is accomplished by pressing one ear close to the earth and stopping the other with its tail!

In Cornwall it is said that if you kill the first adder you see it is a sign that you will triumph over your enemies. The cast skin of an adder hung on the rafters is regarded in the same county as a preservative against fire; and if hung over the mantelpiece it is said, in Leicestershire, to "bring luck." In North

Lincolnshire a snake's skin worn round the head is a cure for headache. To eat a snake was in former days regarded as a means of renewing youth, to which notion we find frequent allusions in old writers. Thus Fuller, in his *Holy States* (1642), says that:—"A gentlewoman told an ancient batchelour, who looked very young, that she thought he had eaten a snake;" and Massinger, in *Old Law*, says:—

"He hath left off o' late to feed on snakes;
His beard's turned white again."

Pliny and other old writers versify to the medicinal properties of vipers' flesh; and Dr. Donne, in his *Devotions* (1624) has a prayer in which he says that "even the flesh of vipers" has been "made to assist in cordials." It is said that Sir Kenelm Digby used to diet his wife upon capons fattened on the flesh of vipers; and in Madame de Sevigne's letters is an order for ten dozen of these reptiles, two to be daily taken in stuffing in a fowl. In France the vipers of the Bas-Poitou district were formerly in great request for use in the confection known as Venice treacle.

The curing of the bite of a viper has brought forward some remarkable remedies. From Pliny downwards it seems to have been considered that a "hair of the dog that bit you," or, in other words, the flesh or fat of the viper taken inwardly, or applied to the wound, was the only cure. Thus an old English divine says that "the true Christian not only kills the viper, but, like the skilful apothecary, makes antidote and treacle of him"; and in Warwickshire at the present day the fat of the reptile is applied to the wound which it has made.

The following curious illustration of the well-known saying, "Fiat experimentum in corpore vili," was extracted from the vestry book of the parish of Nailsea, Somerset, by a correspondent of *Notes and Queries*, 1762:—"At a vestry meeting held ye 14th day of January it is agreed that the viper woman do make a trial on John Lovell at a guinea per week." John Lovell, who was a pauper, was no doubt selected as the "vile body" on which the experiment was to be made by the "viper woman." An editorial note on this extract tells us that William Oliver and his wife, of Bath, had, twenty-eight years before, discovered that the common oil of Olives, or salad oil, was an effectual remedy for the bite of a viper. Their experiment was first tested at Windsor, in May, 1734, before Dr. Denham and Dr. Waterland, and again on June 1, 1734, before several Fellows of the Royal Society. Of this a long and detailed account, by Dr. Cromwell Mortimer will be found in the *Philosophical Transactions* for 1735-36. It appears from this that the salad oil was successful when "the usual known medicines, even the oil of vipers" had failed. An interesting account of a viper-catcher will be found in Hone's *Table Book*, p. 796.

Another mode of cure for the bite of a viper is practised in Devonshire. A person bitten on the hand thrusts the wounded member into the stomach of a chicken which has been hastily killed for this purpose. If the flesh of the bird when cold assumes a dark colour, it is a sign that the poison has been extracted from the sufferer, but if it retains its natural hue, the poison will take its effect upon the bitten man. An almost exactly similar mode of proceeding is common among the Hottentots on the eastern frontier of Cape Colony.

It was formerly regarded as "unlucky" to meet a snake; Bishop Hall, speaking of a superstitious man, says:—"If he see a snake unkilled, he fears a mischief." A combat between "land snakes" and "water snakes" was supposed to foretell approaching calamities amongst men. According to Borlase, "In most parts of Wales, and throughout all Scotland, and in Cornwall, we find it a common opinion of the vulgar that about Midsummer Eve (though in the time they do not all agree) it is usual for snakes to meet in companies, and that by joyning heads together and hissing, a kind of bubble is formed, which the rest, by continual hissing, blow on till it passes quite through the body, and then it immediately hardens and resembles a glass ring, which whoever finds (as some old women and children are persuaded) shall prosper in all his undertakings. The rings thus generated are called Gleinan Nadroeth; in English, snake-stones." The subject of these snake-stones is, however, too lengthy to enter upon here. *B. M.*

GEESE.—I am much obliged to "O." for the useful hints given in reply to my statement of failure in feeding goslings, and I hope to adopt the suggestions next season. I cannot throw much additional light on the matter beyond my former statement, but as far as a tub of water (in which one was drowned) and the giving a variety of food in the shape of sharps and Oats, I have in part adopted "O.'s" suggestions; and by sowing seeds in the meadow, and shutting a portion of it off from both geese and pigs for a time, I hope to have better success next time. The failing birds certainly lost power a few days before death, but they were not paralysed or giddy. *C. L., Hounslow.*

ADDERS SWALLOWING THEIR YOUNG.—I have no interest in Joseph Rust, of Eridge Castle, or in that part of the country, but his statement need not be doubted. Some years ago I knew a place in Sussex, not twelve miles from Tunbridge Wells, which I may say was an adders' home, for they were numerous—and one instance of the act in question I vouch for, which is the best I know of. The young were distinctly seen to enter the mouth of the old one, which was killed and opened, when not six, as stated, but sixteen young ones were found. It was no delusion, because there was more than one eye-witness. I know the eye deceives at times, but it did not in this case, as we saw too much of them. *H. Post, Gr. to Sir W. H. Humphrey, Bart., near Andover.* [We may be excused for stating that the evidence is still insufficient. EDS.]

BRITISH GARDENERS.—XXVI.

THOMAS BLAIR.

MR. THOMAS BLAIR, whose portrait we publish to-day, was born in the year 1819, at Aberdour, Fifeshire. He was early sent to the parish school, where he remained until he was fifteen years of age, at which period he went to Fordell, the seat of Admiral Sir Philip C. H. Durham, and there he served his apprenticeship under Mr. Robert Foulis, who is still head gardener and land steward—a situation which he has filled for nearly fifty years.

After going through the different departments of

the garden establishment, under the careful direction of Mr. Foulis, he removed, for further improvement, to Whittingham, in East Lothian, then noted as one of the best kept gardens in Scotland, and here he commenced to collect the native plants and to study their names and peculiarities, with the assistance of a companion, who has now been for many years in America. After spending nearly two years at Whittingham, he engaged to go as foreman in the flower garden at Castle Temple, in Renfrewshire, and the year following had charge of the forcing department, which was extensive, and included the cultivation of various kinds of tropical fruits. He still, however, continued to pay some attention to the collecting of wild plants, the west of Scotland affording a good hunting-ground for them, so that he and his companions had frequent rambles over hill and dell in their pursuit, and they were, he tells us, always rewarded with something interesting.

"Having served two years at Castle Temple, I left Scotland," writes the subject of our memoir, "and went to Mr. Jackson's nursery, Kingston-on-Thames, at that time famed for its fine collection of Cape Heaths and other exotic plants, and, indeed, the Kingston nursery has not lost its good name, but still maintains a high position as a plant nursery. After being over a year among the plants, I was sent by Mr. Jackson to take charge of the exotic department at the Royal Gardens, Claremont, under Mr. Malleson, the head gardener, and I remained nearly four years there, which ended my period of probation.

"In November, 1845, I was engaged as head gardener to Mr. Dundas Durham, Largo House, Fifeshire, where I spent nine years comfortably; but, being desirous to advance in my profession, I entered the service of G. C. Arbuthnot, Esq., Mavis Bank, near Edinburgh, whose gardens were about to be renovated and improved, and remained there between two and three years, when Mr. Jackson, of Kingston (who had not forgotten my former services), offered me the situation at Bank Grove (the late W. Byam Martin), near Kingston-on-Thames, well known for its fine collection of Camellias, Roses, American plants, and rare Coniferæ.

"I left Bank Grove in the spring of 1862, and was recommended by Dr. Lindley to Admiral Sir George N. Broke Middleton, Bart., as head gardener at Shrubland Park. Of the gardens here it is not necessary that I should speak, their extent and variety being well known, and their keeping being admired by all who have seen them. Sir George Broke Middleton's taste for the beautiful is well known, and he is also a liberal supporter of the horticultural and agricultural societies in the neighbourhood."

Foreign Correspondence.

BOTANISING IN THE SOUTH-EASTERN ALPS.—I have been so pressingly occupied since my return from the South-Eastern Alps that I have not till now been able to find time to give you an account of my journey, which has been very successful in its results; and, as I was in good trim for mountain work, I managed to do a good deal of climbing (about 29,000 feet) during the three weeks I was away. I left London on July 7 and reached Lans le Bourg on the following evening. Early on the morning of the 9th I walked up to the top of the Mont Cenis Pass, and stayed for three days at the little inn enjoying the rich flora, which I had never before seen in its full summer beauty. The meadows on the summit of the plateau were yet uncut, and seemed to be almost entirely composed of flowering plants—thousands of Lilium Martagon, intermixed with Paradisia Liliastrum, Campanula rhomboidalis, C. barbata, Centaurea uniflora, Onobrychis montana, and several species of Pedicularis, &c.; but the most beautiful plant of all was Aquilegia alpina, abundant on the west side of the lake. I had never before seen it in flower, and had no idea it was so conspicuous and ornamental. On the same afternoon I ascended the mountains south-west of the Pass to an altitude of about 9000 feet, and obtained some local species, including Saponaria lutea, Primula pedemontana, Saxifraga planifolia, and S. petræa; also Eritrichium nanum, Lychnis alpina, and several alpine Gentians. It was raining and blowing hard, and so bitterly cold that I could with difficulty use my digger.

On July 10 I made a careful examination of the mountains overlooking the Susa Valley on the south-east of the Pass towards the Roche Melon. The weather was clear and brilliant after yesterday's storm, and the view down the valley grand beyond description. Many plants, new to me, and not found on the Mont Cenis plateau, presented themselves. Campanula Allioni, very dwarf, with large conspicuous flowers; a plant which ought to have a place in every alpine garden. Saxifraga diapensioides, on tufaceous rocks, in company with S. valdensis; the latter I had never before seen, and out of flower it might be mistaken for S. cæsia: it is, however, less floriferous, each tuft throwing up but three or four pubescent flowering stems. The flowers are cream-coloured, and the foliage leathery and rigid to the touch. The screes descending from the cliffs and snow patches as I approached the Roche Melon abounded in rare plants, including Saxifraga biflora, Campanula cenisia, and Viola cenisia—the latter a lovely little species resembling V. nummulariifolia of the Alpes Maritimes, and will, I fear, like it, be impatient of cultivation. I returned to the inn after a walk of eleven hours, with, perhaps, the richest load of plants I ever carried.

July 11.—Rested most of the day, took a short walk in the morning, and in the evening descended to Susa in a little rough carriage (two hours), through a violent storm of rain, thunder, and lightning, accompanied by dense rolling mist and swollen torrents, till about half-way down the Pass, when I suddenly emerged from the clouds into bright sunshine, with a magnificent rainbow far below me in the deep rich valley of Susa. The sudden contrast between the storm behind and above, and the brilliant, quiet scene beneath was indescribably grand.

I reached Turin at 7 P.M., and at 5.20 on the morning of the 12th started by rail for Cuneo, and thence by carriage to Limone (3340 feet). From Limone I walked over the Col di Tenda (6158 feet), and descended to Tenda (2680 feet), and thence to St. Dalmazzo de Tenda (about 2000 feet), where I obtained tolerable quarters at the *stabilimento*. On the morning of the 13th I started at 7 A.M. up the Miniera Valley to obtain the Orange Lily, which grows there in the greatest profusion; I also observed it on both sides of the valley between the village of Tenda and the Col di Tenda. This may be the Lilium croceum of some authors, but it is certainly distinct from the Orange Lily of English gardens and the L. croceum of Corsica. The Corsican plant, which

I have twice found in the neighbourhood of Bastia, attains a height of from 3 to 3½ feet, bearing from ten to fifteen flowers arranged in whorls. The St. Dalmazzo plant is much dwarfer—from 12 to 16 inches high, generally bearing but one, sometimes two, and very rarely three flowers; its flowering stem has a tendency to be bulbiferous underground, in some cases (especially under cultivation) running a foot or 15 inches from the parent bulb, and bearing a small bulb below the point of ascension. I obtained a good supply of bulbs, which I have distributed to those interested in Lilies, so hope that cultivation will soon decide the question of its specific rank. Linum hirsutum grows abundantly at the entrance of the Miniera Valley, and is one of the most ornamental species of the genus, with lilac flowers, much larger than those of its ally, L. viscosum.

In the afternoon of the 13th I returned on foot to the summit of the Col di Tenda, and slept at the *auberge* ostentatiously styled the "Grande Ricovero," consisting of a dirty stable on the ground floor, and a few rooms over. The *padrone* is tolerably acquainted with the plants of the district, and obtained for me a supply of bulbs of the yellow and purple forms of Fritillaria delphinensis. The yellow (F. Moggridgei) is in the wild state, and under cultivation larger than the purple (F. Burnati), and a fortnight earlier in flowering, and it may be questioned whether they are not specifically distinct. Primula marginata and Saxifraga lantoscana are abundant at the summit of the Col, and occur in the valleys on both sides of the watershed. I had also on a previous occasion seen P. Allionii below the village of Tenda.

On the morning of the 14th I started from the Col di Tenda on foot to Limone, and from thence by carriage to Cuneo, and rail *viâ* Turin; I reached Milan soon after midnight.

On July 15 I left Milan for Desinzano, on the Lake of Garda, at 5 A.M., whence I started for Riva, at the head of the lake, at 4.15, reaching Riva at 9 P.M. The lake is a fine sheet of water, but, on the whole, not so beautiful as Como. I believe it is the lowest of the Italian lakes, and only about 200 feet above the sea level—wide, with flat shores at its southern end, gradually narrowing up towards Riva, between steep mountain chains. Monte Baldo, for the greater part of its length, forms its eastern boundary, with a long monotonous dip-slope of from 6000 to 7000 feet running straight down into the lake, and contrasting with the high and steep cliffs on the west shore, which present the upturned edges of the strata to the lake. The water is evidently sustained at its present level by the great masses of drift, which are heaped round its southern end bordering the Lombardy plain, but, as its bottom is much below the sea level, its bed must be either a rock-basin or submerged valley.

I never saw water so full of fish, immense barbel, trout, &c., which come up to the garden of the hotel at Riva to be fed. I understand that there are also several marine species, including the sardine, probably left behind when the lake-valley was an arm of the sea, at the time of the post-pliocene submergence of the Lombardy plain. Lemons are extensively cultivated on the west shore, under the partial protection of curious structures, consisting of tall columns of masonry, about 2 feet square, supporting a rough timber framework, upon which mats are thrown during frost. Some of these open conservatories are of immense extent, and form important features in the scenery of the lake, looking at a distance like large towns or rows of factories.

I slept at Riva on the 15th, and on the morning of the 16th ascended to Pieve di Ledro, where I had the good fortune to meet with Mr. and Mrs. Churchill. The road from Riva goes up the almost vertical limestone cliff, zigzagging up to a mere ledge, and through numerous tunnels for the first 1300 feet, and then by a long ascent above Ponal to the pretty lake of Ledro. Moehringia Ponæ was abundant on the cliff face above Riva, but I had not much opportunity for plant collecting, as it was raining heavily all the morning. In the afternoon I took a short walk round the Lake of Ledro with Mr. Churchill, but we found nothing of particular interest, excepting an Epipactis (gathered by Churchill) allied to latifolia but certainly distinct, and a non-bulbiferous Orange Lily, with the habit of the St. Dalmazzo plant, but richer in colour and with narrower petals. These Orange Lilies are most perplexing. I dug up a score of bulbs, and shall hope to compare the plant under cultivation with other forms from the Tyrol, &c.

July 17 I devoted to Monte Tombea (Monte Guardia of the Austrian map). We started at 5 A.M. down the Val Ampola: our driver was an enthusiastic Garibaldino, and pointed out with undisguised pride all the topographical details of Garibaldi's campaign against the Austrians, culminating in his capture of Fort Ampola, now in ruins. Soon after passing the fort I turned out of Val Ampola into Val Lorina, a narrow and picturesque gorge, resembling the narrow part of Dovedale, the ascent of which was difficult, from the incessant downpour of rain and swollen torrents. Primula Auricula, Aquilegia Boheni, and Phyteuma comosum were abundant; and higher up I obtained Aguilegia atrata, Senecio nemorensis, Carex baldensis, and a pretty pink Allium, allied to carinatum. Pæderota Bonarota was also abundant on the cliff sides.

After getting out of the gorge of the Val Lorina I ascended over some alpine meadows and through a Pine forest to the foot of Monte Tombea, and during a steep but easy climb obtained nearly all the plants for which the mountain is so famous. Primula spectabilis is widely distributed above an altitude of 5500 feet. Silene Elizabethæ, with its sumptuous red flowers just expanding, was sparingly scattered over the mountain from an altitude of 5500 feet nearly to the summit. Of Saxifraga tombeana I found but a single specimen, on a loose block, at an altitude of about 6000 feet. I gathered S. arachnoidea, a most remarkable annual species, the whole plant covered with fluffy down, in two or three places, but always under dry rocks, protected from the direct rainfall. Daphne rupestris was abundant near the summit of the mountain, on dry cliffs, at an altitude of from 6000 to 6500 feet. Ranunculus Bertolonii and Viola heterophylla on screes at the foot of the higher cliffs, at an altitude of about 6000 feet, and a Dentaria, said to be a hybrid between D. digitata and D. pinnata, was also abundant towards the upper part of the mountain. This south-west corner of the Tyrol seems to be the headquarters of Primulas, and I obtained from Mr. Churchill much valuable information as to localities, &c., but more especially with reference to hybrid Primulas, which heretofore I had not believed in, but as far as my subsequent experience goes the evidence relating to intermediate character and the association of alleged hybrids with the parent species seems so clear that I must confess that I am a complete convert to the views of Kerner and Churchill—that there are at least twenty forms of European Primulas that are clearly demonstrable as hybrids.

Pieve di Ledro, July 18.—I rested here nearly the whole of the day, and in the afternoon started for Pieve di Buono, *viâ* the Val Ampola, Storo, and Condino, arriving at 6 P.M.; went to bed at eight, in anticipation of the longest mountain excursion I have ever made.

Pievo di Buono, July 19.—Got up at 2.30 and started at 3.35 for the Alp Magiascone, first by carriage up the Tione Valley as far as Ronconi at the entrance of the Val Breguzzo, and thence on foot with my guide up the valley, a long strath at an altitude of about 1800 feet, between low mountain chains. Several very ornamental species of Dianthus were abundant. I also observed Streptopus distortus (Uvularia amplexifolia). At 6 A.M. we turned out of the main valley, through a Pine forest, towards the watershed separating the Val Breguzza from the Val di Daone. The first plant new to me was Struthiopteris germanica, growing in the greatest abundance and luxuriance in all the open spaces in the forest, and in the alpine meadows as dense as our English Brake. Higher up in the Pine forest I observed in several places the beautiful Cystopteris montana. The last part of the ascent was very steep by a zigzag path through the forest, which brought us at a height of between 6000 and 7000 feet to an open amphitheatre surrounded by white cliffs of soft fine-grained sandstone, containing a good deal of calcareous matter. At 8.30 A.M. I started for the watershed known as the Alp Magiascone, which forms a sort of base to the higher point of the Cima del Frati. The soft white rock was particularly rich in plants—Primula minima and P. spectabilis most abundant, the former only growing on the very ridge of the watershed, where I obtained a single specimen of an evident hybrid between the two species. On the white rock near the Col I also found Saxifraga Vandellii, S. mutata, Primula auricula, P. longiflora, and many other alpine species. At 3 P.M. I dismissed my guide to Ronconi with a heavy load of plants, and in the afternoon ascended nearly to the summit of the Cima del Frati, where, on its south-western face, I found in great abundance Primula daonensis (P. œnensis of Thomas), a neat little species with deeply-toothed leaves, resembling P. viscosa in miniature. It seems to have a high range, and goes up to about 9000 feet. I had intended to sleep out on the mountain, but a dense mist coming on I made the best of my way across the watershed into the Daoni Valley, which I reached at sunset. The scenery here was grand beyond description, and different to anything I had ever before seen. The mule track to Daoni runs for miles through a magnificent Pine forest, with a lofty range of cliffs to the left and the deep Val di Daoni to the right, the side intersected with narrow lateral cañons running right up to the higher cliff-boundary, and fringed with immense Spruce and Larch.

I saw the sun set and the full moon rise over the lovely scene, but as the way was not clear I decided to wait in the forest till daylight, and slept for a short time under a Spruce. I started again at the first dawn of day and reached Pieve di Buono at 4.45 on the morning of the 20th, after a walk of more than 30 miles and twenty-five hours' absence.

Pieve di Buono, July 20.—Went to bed till midday, and after packing my plants started at 7 P.M. for Condino, a village about 6 miles lower down the valley.

Condino, July 21.—Left Condino at 2 A.M. by diligence for Brescia, *viâ* the Lake of Idro. Scabiosa graminifolia and Cyclamen europæum were most abundant between Vestone and Brescia. Reached Brescia at 10.45 and left by rail at noon for Lecco, where I arrived at 4.20, and went on by diligence during the rest of the day and the following night and following day, *viâ* Sondrio and Tirano, up the Val Tellina to Bormio and Santa Catarina, which I reached at 4 P.M. on July 22. I found capital accommodation at the *stabilimento* (5720 feet above the sea), where I stopped two nights. On July 23 I made an excursion to the Gavia glacier, for the purpose of obtaining Primula glutinosa, which Mr. Ball informs me here reaches its western limit. I found it in the greatest profusion, generally in wet places, at the foot of the snow fields. It is one of the most beautiful of Primulas, here and there forming complete sheets of rich purple. I also found P. œnensis in profusion from 6500 to nearly 8000 feet. Senecio carniolicus, Soldanella minima, Ranunculus glacialis, Woodsia alpina (abundant), and a host of other alpine plants.

It was pouring with rain without intermission the whole of the day, till 6 P.M., when it cleared up after a fresh fall of snow, which reached down to the upper limit of the Pine forests. The exact line of demarcation between the upper limit of the Pines and the fall of summer snow was remarkable, and it seems probable that the upward range of the Pines is restricted by the lowest limit of summer frost, which would cut back the tender growing shoots. I have noticed in my garden that the young shoots of Pines are very liable to injury by late spring frosts.

Santa Catarina, July 24.—A clear bright day; descended on foot to Bormio, and thence by diligence down the Val Tellina to Tirano, where I turned off to the North, entering Switzerland *viâ* La Prese and Poschiavo, across the Bernina Pass (6780 feet, Primula viscosa and P. integrifolia most abundant), and the Engadine to the Albula Pass (7579 feet), where I stopped a night at the Weissenstein Hotel (6824 feet) on the north side—a capital centre for a botanist, but charges extortionate, considering the nature of the accommodation.

Primulas are most abundant all over the Pass, especially viscosa, integrifolia, latifolia, and dinyana. P. dinyana is said to be a hybrid between latifolia and integrifolia, and the evidence seems to me conclusive. It is exactly intermediate in character between the alleged parents. It is scattered about sparingly in small patches of a few dozen plants, and never occurs except in proximity to both parents. P. integrifolia grows everywhere and latifolia less frequently, but dinyana never occurs except in proximity to latifolia. I also observed Androsace chamæjasme, Ranunculus parnassifolius, and many other alpines. I hope at some future time to spend a week in thoroughly exploring the Albula. The last week in June would be the best time for Primulas. I left the Weissenstein for Chur on July 26, and reached London on the 28th.

In descending from the alpine region above Bormio, close to the high watershed of the Stelvio, I was much struck with the fact that many species, especially the Pines, seem to have a higher range of altitude the nearer you get to the watersheds; in fact, that the zones of vegetation are not uniformly level, but slope away from the watershed centres down towards the lower mountains, so that in a mountainous region near the coast you will get the zones of alpine and subalpine vegetation at a lower level than in the centre of a great mountainous district. I am not aware that this has ever been noticed, nor do I see how it can be explained, but I think it will hold good the test of careful observation.

As an illustration of what I mean, you get in the British Isles such plants as Gentiana verna, Dryas octopetala, Lychnis alpina, Cystopteris montana, Woodsia alpina, &c., several thousand feet lower than in the Alps, where there are greater mountain masses and main watersheds further removed from the coast. Differences of latitude and climate are certainly insufficient to explain the low range of altitude of alpine species with us. *Geo. Maw, F.L.S., Benthall Hall, Broseley, in a letter to Dr. Hooker.*

WONDERFUL PLANTS.

A SKETCH of the various horticultural swindles which have from time to time been perpetrated upon gardeners and lovers of flowers by unscrupulous and knowing members of the fraternity would form an interesting chapter in the history of gardening, whenever that much-needed work shall be written with a completeness worthy of the subject. A chapter, indeed, will hardly suffice, for, sad as it may appear, plants seem to offer special temptations and facilities to the swindling crew.

Our own columns have from time to time testified to the varied and misplaced ingenuity exhibited

some of these adventurers. It is not very long ago since a leading horticultural firm published a letter which they had received from a correspondent, in which an offer was made to supply them with any quantity of material suitable for the purpose of adulterating seeds; and many of our readers will remember Mr. Hullett and the various wonderful discoveries which he purported to have made. "They manage these things," however, "better in France," as the history of the Brothers Balme can testify. These worthies were in the habit of making periodically a tour through France, Spain, &c., disposing, by means of a fluent tongue and a collection of brilliantly coloured drawings of entirely imaginary plants, of a large stock of common wild flowers, at almost fabulous prices. One customer alone, a General in the French army, invested the sum of 2400 francs in the purchase of treasures of this kind; and the Princess Matilde was victimised to the amount of between 7000 and 8000 francs. Some of their swindles were so audacious that one can hardly help admiring not so much the ingenuity of the perpetrators as the ingenuousness of the dupes. There was a shoemaker who invested in a plant (which, alas! proved to be only a very common Fern) which was to produce a blue flower, from which a light equal to that of a candle would proceed, by which he could see to read and write; while a Spanish gentleman purchased a common Gentian, under the firm conviction that it was the Victoria Regia. These worthy brothers have been arrested and imprisoned at least once, but they have been none the worse for their temporary incarceration, and have continued, and are probably still continuing, their ingenious, if unprincipled, career.

Whether they have migrated to America or not it would perhaps be difficult to ascertain; but we should imagine that either they or Mr. Hullett must be concerned in the production of a paragraph which has recently appeared in the American *Horticulturist*, and which we reproduce *in extenso* for the benefit of our readers, more especially of Mr. Baker and Mr. Burbidge, both of whom will be interested in the description of novelties so closely connected with the groups upon which they have bestowed so much study and attention.

"One is a black Lily in Santa Clara, California, with three large blossoms, each 9 inches long, and perfectly black outside of the green petals. The other is to be seen at Constantinople, and is described by an eye-witness as belonging to the Narcissus genus of bulbs. The flower represents a perfect humming-bird. The breast, of a perfect emerald-green, is a complete copy of this bird, and the throat, beak, and eyes are a perfect imitation. The hinder part of the body and two outstretched wings are of bright rose colour, one might almost say flesh-coloured. These wondrous bulbs should have been sent to the Vienna Exhibition. They will be in abundance by the time of our Centennial celebration in 1876. And yet they can hardly be greater curiosities than the strange and mysterious Sancta spiritu (*sic*) flower from South America, with its life-like representation of doves."

The state of excitement into which horticulturists will be thrown by these startling announcements, and the anxiety with which they will look forward to "our Centennial celebration in 1876" can only be equalled by a schoolboy's anticipation of the Christmas holidays, or something as vast in its scope as such anticipations are wont to be. "The Narcissus genus of bulbs" has certainly surpassed itself; indeed, if we might venture to make a suggestion, the characters of both plants described, especially the latter, would warrant their being considered as distinct genera. No doubt the *Gardeners' Chronicle* will figure both of them, and by this time next year our readers may be in possession of figures of both of these novelties, which would be well worthy of a coloured supplemental plate.

Another group of wonderful plants consists of those which produce stupendous and almost miraculous effects upon the suffering mortals who fly to them for aid. Instances of these are of such frequent occurrence in quack advertisements among ourselves that we need not cite them, but it is astonishing how widespread is the belief, especially among the lower orders, in remedial agents, which must owe all their efficacy to the faith of the recipient. It was not until the other day that we were aware that a belief in the cure of hydrophobia by "a hair of the dog that bit you" was really entertained among the poorer classes; but such is the case, and other superstitions equally strange are still in full force among us. But the following cutting from a Hong Kong paper will show that the Celestials are by no means behindhand in their mode of advertising their wares. It is headed "a prescription for counteracting the effects of poison," and runs thus:—

"In the middle decade of the sixth moon I came from Tungkoon to Hong Kong in a passage-boat. In the boat there happened to be a woman, who stealthily put poison into the water-tank. The cook, having watched her movements, and seen what she had done, took the woman, tied her up, and searched her. On her person were found a large packet of poison and several fresh garlic bulbs. When questioned she refused at first to speak out, but after much hard pressing ('boiling and frying') she began to speak. She declared that the Garlic bulbs were necessary for the safety of her person (? a charm, or ? a medicine), and told other stories to the same effect. Everybody hearing what she said thought that the Garlic bulbs must be an antidote to the poison. Accordingly, on taking a peep into the water-tank, we positively saw innumerable little worms. Catching some of these worms, we took them out and smeared them with blood. They suddenly became very large. Even when put into hot-water and boiled they were not killed, but when a few Garlic bulbs were placed among them, the bellies of all the worms burst and they died. Several trials were made, and were followed with the same results.

"I, therefore, take these words of mine and disseminate them, so that when any one gets poison he may know that the proper thing to do is to eat fresh Garlic bulbs, and its effects will be immediately counteracted. The expense is small; the benefit immense.

"All you good people who see this are requested instantly to spread it far and wide. Inestimable will be your merit and your virtue.

"Respectfully issued from the 'Household of Accumulated Goodness.'"

B. M.

Notices of Books.

THE *Flore des Serres* for the current month contains coloured plates of the undermentioned plants:—Nemastylis geminiflora, Hyacinthus candicans, Tigridia? Van Houttei, Alströmeria peruviana, with variegated leaves; Bomarea chontalensis, Melon Noir des Carmes, Rose Duchess of Edinburgh, Paradisia liliastrum, Convolvulus mauritanicus, Pelargonium Queen Victoria, Senecio macroglossus, Eucalyptus cornuta, Lilium canadense parvum, Lilium japonicum? Colchesteri and Agacia nemu. This publication has also descriptions of the plants above-mentioned, and illustrations of a variety of pruning scissors, also a lithograph of the International Exhibition of Philadelphia, &c.

—— The last issued part of the *Belgique Horticole* contains an article on some new Marantas introduced from Brazil by MM. Makoy, of Liège. The plants figured are Calathea Kummeriana, Stromanthe amabilis, Calathea Oppenheimiana, C. Bachemiana, Maranta Kegeljani, M. pulchella, M. Wioti, Calathea Lietzi, and C. applicata. Two articles on insect-catching plants are contributed by M. Morren, who doubts the absorption of the dissolved insects.

—— The *Revue Horticole* of the 6th inst. has a coloured plate of Cattleya guttata, var. Keteleerii; an article on Bamboos, by M. Naudin; one on the effects on plants of the recent inundations at Toulouse, &c.

—— The *Bulletin d'Arboriculture* for the present month contains a coloured plate of a Grape—Chasselas de Falloux, a variety of Chasselas Rose. It has the good qualities of the Chasselas, with a fine rosy tint.

—— According to the *Belgique Horticole*, M. Teinturier, of Rouen, alleges that, in the case of the Balsam, old seeds reproduce the characters of the type whence they originated, hence the practice of sowing seeds eight years old. These yield feeble plants, which, in spring, produce very double flowers, but in summer, after they have been well watered, they produce single flowers, and in autumn, when the growth is less active, double flowers are again produced. Thus, to produce double flowers, the vigour of the plants is diminished. This is the exact reverse of our own experience, as recorded in the Report of the Botanical Congress of London, 1866, p. 140.

—— Publications received:—The Duty of States in the Teaching of the Science and Technology of Plant Life: an inaugural address at the meeting of the Acclimatisation Society of Queensland, by L. A. Bernays.—The Journal of Education (Brooklyn, New York).—Vine Culture for Amateurs, by Practical Hand (Bazaar Office).—The American Garden: a quarterly journal devoted to garden art.

Apiary.

THE second annual exhibition held by the British Beekeepers' Association was opened on Wednesday at the Crystal Palace. It was continued on Thursday and Friday last. Sir John Lubbock is the President of this Association, which has now members in every part of England. Its objects are the encouragement, improvement, and advancement of bee culture in the United Kingdom, "particularly as a means of bettering the condition of cottagers and the agricultural labouring classes, as well as the advocacy of humanity to the industrious labourer—the honey bee." The hives and honey which the exhibition of last year drew forth excited great interest, and hundreds of persons made their first experiences of bee keeping in 1875. Unfortunately, it has been a very bad season. Rain is an old enemy of the bees, and the rains of this year had the indirect effect of making the flowers late, in addition to the direct damage they did in cramping with cold the bees which stopped in the hive, or beating down to the ground those which happened to fly abroad. The bees have had to be fed a good deal by their keepers, and the honey which is exhibited is not on the whole a good show, although there are some fine combs. In this class Mr. Bagshaw was pronounced 1st, while Mr. Fox, with a gross weight of 93 lb., not 86 lb., was held to be disqualified. George Neighbour & Sons had the best and clearest honey extracted from the honeycomb, and Mr. T. W. Cowan took a prize for the best machine for whirling the honey instantaneously out of the cells in which it is stored. A large number of ingenious contrivances for feeding bees, for housing them, furnishing their houses, and transferring them from hive to hive were shown. Mr. Abbott, Mr. C. W. Smith, Mr. Cheshire were the most successful in these inventions, and Mr. J. S. Wood sent from Denmark the cheap and elegant hives used there. Special prizes were given for cottagers, and the best super of honey in an open class was shown by a cottager whose wages do not exceed £1 a week, but who adds to them by the produce of fifty busy hives. Another excellent super was produced in the populous London quarter of Notting Hill. The show was provided, as all such exhibitions should be, with a convenient handbook. The catalogue contained some information, but, in addition, Mr. John Hunter, Hon. Secretary of the Association, has recently published a little manual of bee-keeping which gives just the particulars a beginner requires. Thus he may learn from this that in the present month of September he must finish all the honey-taking, bring home his stock from the moors, and feed them with sugar and water, for they go to the moorland country in August and September, as do other hard workers, to feed upon the heather. In the bee counties of Scotland and abroad you may see cartloads of hives travelling to and from the mountain pastures. In October the bee-master puts warm covers and padding to the hives to keep them warm for winter. So the bees live till February, when the Crocus blooms and the bees begin bringing pollen home, unless some unfortunately warm day tempts them earlier abroad, and the tomtit, waiting at the door of the hive, suddenly seizes them and swallows them, leaving only the sting. In March more food is given. The young bees of the season begin to be born; and as the fruit trees blossom feeding is discontinued. May brings valuable swarms. In June the whole hive is busy honeymaking. In July and August the harvest is reaped from the supers, and the honeymaking still goes on. As to the uses of the honey, it is never absent from the breakfast-table in Switzerland and South Germany, and in its manufactured states it is useful, as prizes given yesterday to Mr. Desborough for sack-mead and to Mrs. Jones for honeycakes, testify. Honey bread, spiced bread, fruits preserved in honey, jellies, sweetmeats, cakes, bonbons, pastiles, and chocolates occur in Mr. Hunter's list of the delicacies to which honey can contribute, together with brandy, hydromel or metheglin, champagne, liqueurs, syrups, and vinegar. The bees which help us to some at least of these good things feed upon the unconsidered blossom of forest trees, upon Limes and Sycamores, Beans or white Clover. Their pleasant hum is heard upon the Hawthorn, but the bee-keeper will sow in his garden Mignonette, Honeysuckle, Hyacinths, Laurustinus, Lavender, Lily, Primrose, and especially Borage, useful also for claret-cup. The bees which are so easily fed are also not difficult to manage with the modern methods of driving, of which Mr. Abbott gave illustrations during the show in the north corridor overlooking the gardens of the Crystal Palace. They are so profitable that a swarm of black English bees, which costs 15*s.*, will return in its first year one swarm of the same value and 20 lb. of honey besides, value 20*s.*, while 5*s.* a year is enough to allow for food and interest on capital expended in the purchase of a good frame hive. Bee-culture should, therefore, be urged upon their poorer neighbours by those residing in the country, and improved methods should be taught. But the Alp or Ligurian bees, with their golden bands, are still more profitable than the common sort, though expensive. These foreign working bees labour earlier and later than their English rivals, and are less ready to use their stings. *Times*.

HORTICULTURAL EXHIBITIONS, 1875.

OCTOBER.

6.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees. Fungus Show, and Exhibition of Cones.

NOVEMBER.

10.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

15 and 16.—Loughborough Chrysanthemum and Fruit Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.

25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

DECEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 25, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Sept. 27—Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY, Sept. 28—Sale of Imported Orchids, at Stevens' Rooms.
WEDNESDAY, Sept. 29—Potato Show at the Alexandra Palace (two days). Sale of Dutch Bulbs, at Stevens' Rooms.
THURSDAY, Sept. 30—Sale of Mr. Russel's Collection of Orchids, at Stevens' Rooms (two days).
SATURDAY, Oct. 2—Sale of Dutch Bulbs, at Stevens' Rooms.

NO sooner is the Edinburgh Fruit Show a thing of the past than another of great magnitude calls for notice. This time it is our Belgian neighbours in association with our French friends who have made the display. The Exhibition, which closes this day, was organised by the CERCLE D'ARBORICULTURE of GHENT—that little band of zealous pomologists—in association with the POMOLOGICAL SOCIETY OF FRANCE. The show is enormous, as far as Apples and Pears are concerned. Peaches and Plums are naturally not so well represented, owing to the lateness of the season and the duration of the show. Grapes are well shown by Messrs. LANE, of Berkhamptead, who received an unanimous award of a gold medal for their collection of fifteen varieties, in addition to other exhibits.

No one on the British side of the Channel needs to be reminded of the excellence of Messrs. LANE'S Grapes, and we thank those gentleman for their spirit and patriotism in showing what British Grape growing is like. Nevertheless, we can but regret that some of the wonderful Grapes shown at Edinburgh last week were not sent across the Channel. What would our Belgian friends have said to two bunches of Grapes, the one weighing just over the other just under 26 lb.—say 11 to 12 kilogrammes? Think of that, MM. les Belges. As we have said, the great strength of the Ghent fruit show lies in its unrivalled display of Apples and Pears, in which M. BALTET, of Troyes, and M. GRÉGOIRE, of Jodoigne, took a most prominent part.

We must, however, refer to our detailed report in another column for fuller particulars than it is necessary to give here. If Edinburgh had its "sensational" Grapes, Ghent had its corresponding Apple, in the shape of Ménagère, measuring 1 foot 7½ inches in circumference, and weighing over 1 lb.

For effect sake, it would have been far better if some of the foliage plants, of which there are such prodigious quantities in the city, had been made use of to break the uniformity, caused by rows of plates numbering not less than 12,000. Still, we do not overlook the fact that the primary object of this exhibition is instruction. Certain fruits and groups of fruit are set apart for special "study," and will be reported on in due course.

In addition there is a Congress, whose meetings have extended over four or five days. Lastly, there is the same overflowing heartiness of welcome and hospitality not more profuse than cordial, which is a never-failing characteristic of the Belgians. It seems as if publicly and individually they can never do enough for their foreign guests. The Burgomaster, Comte de KERCHOVE DE DENTERGHEM, his son, M. OSWALD DE KERCHOVE, MM. RODIGAS, VAN HULLE, PYNAERT, BURVENICH, and the members of the committee, have had the lion's share of the work, and they have added to their labours by the most bountiful and warm-hearted hospitality. We congratulate these gentlemen heartily on the success of their endeavours, and thank them *de tout cœur* for the great kindness shown to our representatives, and the facilities that were offered them in the preparation of the report which appears elsewhere.

WE trust that the article of M. BALTET on BUDDING the PEACH with FRUIT BUDS will receive the attention it merits. It is, indeed, singular that so little advantage is taken of the process of grafting with flower or fruit buds. With the exception of some plants intended for forcing we scarcely ever meet with illustrations of the practice, and yet it is neither new nor difficult, while its advantages are obvious. To remove a fruit-bud or a fruit-spur from one tree and transfer it to another is no more difficult than budding or grafting with leaf-buds or scions.

It is only lately that M. BALTET, the eminent pomologist and the able writer, has tried this process with the Peach, at the suggestion, as he says, of one of his *employés*. M. BALTET, in his most praiseworthy desire to render credit where credit is due, takes none to himself, or even to his assistant, who, as he supposes, must have gained the idea from some one else, though he is not able to say from whom. That assistant has a name which suggests that he is of British nationality or descent; at any rate, it is certain that, so far from the practice not being noticed in horticultural works, it is mentioned in several of the leading English works. M. BALTET, of course, had French works especially in mind, and he may thank us for telling him that THOMAS ANDREW KNIGHT has the credit of introducing the practice into this country. In support of our remarks we transcribe the following passage from LINDLEY'S *Theory of Horticulture*:—

"Indeed, Mr. KNIGHT ascertained that it is possible to transfer the blossom-buds of one plant to another, so as to obtain flowers or fruit from them immediately. He thus fixed on the wild Rose the flower-buds of garden Roses, 'and these buds being abundantly supplied with nutriment, afforded much finer Roses than they would have done had they retained their natural situation.' He repeated many similar experiments upon the Pear and Peach tree with similar success, but in the case of the Pear he found that, if the buds were inserted earlier than the end of August or beginning of September, they became branches, and not flowers."

IN some interesting remarks on the INSECT-KILLING POWERS OF PINGUICULA, contained in a recent number of the *Belgique Horticole*, Professor EDWARD MORREN, after describing the structure of the plant, relates how he cultivated some specimens in pots in a spongy soil, keeping them always in the shade, and placing them under glass in winter. In the spring of this year they were perfectly healthy, and flowered from the beginning of April. The plants were developed early in the spring, in the frame in which they had been placed for protection. Nothing very special occurred until they were planted in the open air in a northern but somewhat sheltered situation, when they immediately began to entrap flies. Their favourite food, it seems, is a small black fly, two or three millimetres long, found in moist places; but this does not prevent their availing themselves of the greenfly, which infest the peduncle of the plant.

M. MORREN repeated the experiments made by others relative to the action of the leaves of Pinguicula upon coagulated albumen. On May 28 he placed upon some well-developed leaves some hard white of egg in four little pieces, about 2 millimetres square. At the same time he placed other fragments upon the leaves of a young Poplar close by. He moistened two of the last-mentioned leaves with the liquid which percolated from an Æchmea nudicaulis, and placed some other pieces of albumen, moistened, some with pure water, others with water sweetened with sugar, on a china plate. The pieces placed on the plate, and those upon the Poplar leaves, which were not moistened, were unchanged in appearance. All the others, on the contrary, became more or less transparent in the course of a day or two. They were becoming dissolved then at the thinnest edges, while others were covered with mildew. On examining under the microscope an insect which had been caught on the leaf, together with some of the mucus surrounding it, M. MORREN found numerous monads and Bacteria, together with mycelial threads, Torula, &c.—in a word, the usual accompaniments of putrefaction and fermentation. M. MORREN was further struck by the fact that it was always the same insect that was entrapped by Pinguiculas. He applied to M. PULS, of Ghent, one of the first Belgian entomologists, who recognised the insect as a Mycetophila, which he believed to be the Exechia fungorum of GEER. The larvæ of these flies usually exist in Mushrooms, even in Agaricus muscarius. All those found on the Pinguiculas were females. There is doubtless the same sort of special attraction exercised as that which is undoubtedly possessed by certain plants for certain insects. The growth of the Pinguicula goes on altogether independently of the capture of insects, and no relation can be traced between the nutrition of the plants and the number of insects caught. M. MORREN alludes to many other instances wherein plants serve as insect-catchers by reason of their viscid secretions. On the whole, the author concludes that the Pinguicula has a structure (carefully described by him) similar to that of the pitcher of Nepenthes; but he doubts the direct digestion of animal matter by the leaves, and finds only the evidence of putrefaction.

In another article in the same number, M. MORREN gives his experience in the case of the Drosera, which was almost precisely the same as in the case of the Pinguicula. In neither case could he trace either digestion or absorption of the products of digestion.

M. MORREN does not seem to have made use of litmus paper to test the acidity of the secretion from the leaf after the capture of the insect, nor does he seem to have observed the curious aggregation in the protoplasm of the hairs as described by Mr. DARWIN.

—— THE illustration which we give on p. 397 (fig. 83) represents the interior of the WINTER GARDEN in the Flora Gardens AT COLOGNE, the scene of the recent International Horticultural Exhibition. The structure is of iron and glass, elegant in design, and of fine proportions. The central Palm, raised on a mound of rocks covered with appropriate plants, is Phœnix dactylifera. In this building was given one of the multitudinous banquets which the Society offered to the Crown Prince and the jury. We have had occasion to speak previously of the imperfect arrangements of this show; and, as another illustration, we may add that, up to this moment, we have received no official intimation of the prizes that were awarded. We believe that, in addition to the prize awarded to Messrs. VEITCH, and to which we have already alluded, Mr. B. S. WILLIAMS received sundry awards which, in any case, were certainly well-deserved.

—— An EXHIBITION OF FUNGI and a Conference of Cryptogamic Botanists will be held at Perth on September 29 and 30 and October 1. The secretary is Dr. F. BUCHANAN WHITE, Rannoch, Perthshire.

—— We hear of a case which, if our information be correct, illustrates very forcibly the necessity that exists on the part of exhibitors not only to keep strictly to the conditions of the SCHEDULE but also to avoid even the appearance of an infringement. A very respectable grower had some time since purchased of a well known firm of plant exhibitors a large Ixora, which was to be delivered at the earliest opportunity, and singularly enough that opportunity offered when the

vans of both these firms met at the show in question, when the plant was transferred. Watchful eyes, however, had noted the exchange, it was reported to the committee, and the purchaser's collection of course disqualified. Whether the story of a prior purchase was correct or not, at least it was evident that there was a pre-arrangement that the plant should be found at the show, otherwise another to have completed the collection would have been taken from home. Looking at the fact that it took two exhibitors to carry out this arrangement it seems questionable whether it was complete justice to disqualify one party only.

—— A large clump of the beautiful hardy PLUMBAGO LARPENTÆ is now a conspicuous object in the perennial border at Chiswick; having made a dense growth, it covers a good space, and is now flowering with great freedom. In a full sunny position, where the soil is not too damp and heavy, this plant thrives and displays its beauty in rich profusion. It used to be a fine feature—and possibly is so now—in the gardens of Worton Cottage, Isleworth, the residence of the late Mr. EDWARD BECK, where it grew on a piece of raised rockery on the south side of one of the Pelargonium houses; and though the position must have been dry at times its beauty did not appear to be in the least diminished. It is amongst the most lovely of the hardy blue-flowering plants to be found in the garden, and it is particularly valuable for covering rockwork.

—— From a paragraph in the *American Gardeners' Monthly* we learn that the so-called NEW POTATO DISEASE, which was first noticed at Chiswick in Potatos of American descent, is not known in that country.

—— Mr. R. GILBERT, of Burghley Gardens, speaks in the highest terms of the MADRESFIELD COURT GRAPE as a remarkably fine and rich flavoured variety. He has it now finely in fruit in a house that is carrying a grand crop of Black Alicante, Barbarossa, Trebbiano, and Lady Downe's. The bunches of Barbarossa are very large, but promise this year to colour badly. Trebbiano is doing well, the bunches large, and the Vines carrying a heavy crop. The Black Alicante is very fine, the bunches large and plenty of them, berries of good size, and as black as Sloes. Mr. GILBERT esteems the Black Alicante as the king of late Grapes. Such a house of Grapes as this one at Burghley is worth a long journey to see.

—— The ORANGE TREES IN ST. MICHAEL'S, which suffered exceedingly from drought in 1873, experienced a somewhat similar visitation in 1874. In the spring of last year the trees are described as having shown but little blossom, so that only a moderate crop of fruit was expected. As the summer advanced, however, the want of rain began to be felt, and matters assumed a worse appearance, and it was foreseen that the crop would not only be a very limited one, but of very inferior quality. In November heavy gales prevailed, which further reduced the quantity, so that the season of 1874-75 will long be remembered in St. Michael's, as well as in the islands of Terceira and St. George, to which the foregoing remarks equally apply. The show of flowers upon the trees in the spring of the present year was so abundant that, with a moderate fall of rain during the summer months, it was confidently expected that the fruit crop of 1875-76 would be a most abundant one, and that shipments from St. Michael's will take place up to May, 1876.

—— AMPELOPSIS TRICUSPIDATA (Veitchii) can be strongly recommended as a rapid-growing creeper, with which to cover walls, &c., in a shady as well as exposed aspect. On the east side of the residence of Mr. DUNN, surgeon, of Stevenage, it was planted some two years or so ago, by the side of the front door, where but little sunshine falls; and here it is growing rapidly and most luxuriantly, and has attached itself to the porch over the doorway, and crept over and above it in the most picturesque manner. It attaches itself so firmly to walls, &c., that no nailing or fastening of any kind is required, but simply a little judicious directing and thinning.

—— A few days since, in pursuance of an ancient civic custom, the Lord Mayor of London, and the Lady Mayoress received at the Mansion House the Master and Wardens of the FRUITERERS' COMPANY, who presented to them a splendid assortment of choice fruit, including Pine-apples, Melons, Pears, Apples, Plums, Peaches, and Green Gages. The gift was laid out with much taste in the saloon. Some cordial expressions of goodwill were interchanged between the company and the Lord Mayor, and the interview terminated, as usual, with an invitation to the Court of Assistants to dine at the Mansion House before the close of the mayoralty. In olden times the annual gift of the Company to the chief magistrate consisted of 12 bushels of Apples "of various kinds, and of the finest description that can be procured." The purchase used to be made in state at Farringdon market, and the fruit was thence carried in baskets covered with white napkins to the Mansion House. The records add that the Lady Mayoress handed the fruit to the housekeeper, and placed in each of the porter's baskets a bottle of wine. The men were then "regaled" with a dinner in the Lord Mayor's kitchen, and "having satisfied themselves retired, taking with them the fragments for their evening's supper." This old ceremony has not been observed for many years.

FIG. 84.—INTERIOR OF THE COLOGNE WINTER GARDEN.

—— As might naturally be expected, the perusal of Mr. DARWIN'S work on insectivorous plants has given a great impetus to the study of other exceptional phenomena exhibited by members of the vegetable kingdom. The movements of so-called SENSITIVE PLANTS are among the first of these which are likely to occur to the naturalist, and we find in the last number of the *Field* an interesting note on the probable cause of the movements in Mimosa pudica,

or, rather, of the object which is served by these movements. That some protective purpose was insured by this means was a natural supposition, and the writer referred to appears to have satisfactorily established this from his own observations. He states that he had been in the habit of raising the Mimosa from seed, keeping the young plants in a small glass case in the conservatory. This case swarmed with woodlice, which injured other plants contained therein, but did not touch the Mimosa, and this suggested the possibility that its sensitiveness defended it against insect attacks. Several caterpillars of three different kinds, and a slug, were placed upon the plants, with the following results :—

"The caterpillars and slug, in experiments lasting over twelve hours, invariably showed signs of the greatest discomfort directly they were placed upon the leaves. The instant the insect began to move the leaves commenced closing, and it invariably got as soon as possible on the other side of the leaves, and then crawled on to the footstalk which unites the leaves to the stem ; except in the case of those caterpillars whose habit it is to drop down to the ground, attached by a thread, in case of alarm. These dropped from the extremity of the folded leaves. The only place where the insects showed any sign of comfort was on the stalks bearing the flower-bud, which are not sensitive, so far I can judge, and on which several of the caterpillars, after remaining quiet for a time crawled along until they reached the flower-bud, on which they proceeded to feed. In no case were they observed to eat its leaves, whether folded or unfolded. I had not an opportunity of observing whether the caterpillars would feed on the expanded flower. On attempting to account for the fact that none of the caterpillars attempted to eat the closed leaves, I found that not only was each leaf surrounded by a fringe of thorny hairs, but that the stalks to which the leaves are attached also have some formidable looking ones. The three or four sets of leaves on each little branchlet also fold together in such a manner, when irritated, as to form a perfect *chevaux-de-frise* of thorns, and to offer a most formidable obstacle to any soft-mouthed animal feeding upon them. These thorny hairs are continued along the stem on a larger scale, and are there interspersed with sharp thorns. Both the hairs and the thorns on the stem curve downwards, and the thorns are so arranged as almost to bar access to the branchlets when an insect is climbing up the stem. This I found it extremely difficult to induce them to do, in consequence of the obstructions offered to their progress by the downward-pointing hairs and thorns ; indeed, it was only by touching the insects repeatedly with a stick that they could be induced to climb up at all. I am led to think, therefore, that none of the ordinary plant-eating pests—such as caterpillars, slugs, snails, woodlice, &c.—would climb up the plants in a state of Nature, and that the hairs and thorns have been acquired as a defence against them. At first sight it appears very singular that the flower-stalks do not possess this irritability, and that they were found to be harbours of refuge by the caterpillars, who straightway proceeded to feed upon the flower-buds. But these caterpillars had been placed by hand on the higher parts of the stem, where the thorns are less formidable than below, and they would not have been likely to venture so far if left to themselves. It appears pretty clear, indeed, that in a state of Nature the flower-buds would not be reached by rodent insects."

—— In *Forsyth's Travels in Italy*, 1802 *and* 1803 (printed for JOHN MURRAY, Albemarle Street, London), we read at p. 79 that there was in a museum containing some curious objects connected with the place an astonishing variety of MUSHROOMS all natives OF VALLOMBROSA, painted by Don TOZZI. It is clear, however, that our Italian neighbours have been in the field before us. The collection has a motto—

"Naturæ fœtis mirare, sed aufuge fungos,
Namque a fungendo funere nomen habet."

—— The trial of CARMINE PAIESANO, the gardener who murdered his employer at Naples, because, as is supposed, he was enabled to undersell the native gardeners, has resulted in the condemnation of the prisoner to sixteen years' hard labour, with the addition of five years of police surveillance for robbery.

—— CINCHONA BARK continues to be brought to this country in large quantities FROM COLOMBIA. Next to Tobacco it forms the principal item in the list of exports from Santa Martha, the bark being brought to that port from the forests of Cundinamarca, Tolima, and Santander. The supply, however, during the past year was considerably less than that of the preceding—the exports for 1874 showing 3213 serons against 14,829 in 1873. Of these 3000 odd serons, 2876, it appears, were sent to England and 337 to the United States.

—— BOXWOOD, about which so much interest has of late years been felt, in consequence of the falling off in the quantity shipped to this country, as well as deterioration of quality, is, we are assured by the British Vice-Consul at Poti—a port on the south-east coast of the Black Sea—becoming annually less in quantity and inferior in quality. The prevailing high price of this wood for engraving purposes has caused artists and engravers to introduce other woods, many of which have been tried and reported on in these pages, but none of which has proved so suitable as the old-established Box. Box, however, is used for a variety of other purposes, a large quantity being consumed in the manufacture of shuttles for spinning machines. The wood brought from the Black Sea often runs to a very large size, sometimes measuring 8 or 10 inches in diameter. The Boxwood forests of Mingrelia in the Caucasian range are, it is said, almost exhausted. Old forests, long abandoned, are now explored in search of trees that may have escaped the notice of former proprietors ; and wood that was by them rejected is now brought forward, and eagerly purchased at high prices for England. During the last year 1300 tons of Boxwood, cut on the south coast of the Caspian Sea, in Persian territory, was shipped from thence in small vessels to Astracan, at the mouth of the Volga, thence *viâ* Tzaritsin to the Don, and down that river to Rostoff, for shipment to England. The export of Boxwood, it appears, is prohibited from Abkhasia and all Government forests in the Caucasus, and unless a relaxation of this stringent measure is obtained, it is estimated that the trade must soon dwindle away entirely.

—— We owe to the kindness of Mr. BERNAYS a series of photographs taken in the garden of the Acclimatisation Society of Queensland. This Society makes it its special object to introduce and multiply plants and animals likely to be useful in the colony. Much good work has been done in this way. We propose at some future time to lay before our readers some engravings from these photographs, when we shall have another opportunity of calling attention to this useful Society.

—— The ROYAL RUSSET APPLE is a well-known variety of large size, and of a yellow russet hue when fully ripe, and when in good condition is much esteemed for culinary purposes. It, however, has a tendency to go soft after being gathered, in which state it is almost useless. If the fruits be stored away, buried in dry sand, they will keep fresh and plump for some time. It is a sort that has been much planted in gardens, and many are found bewailing its want of keeping quality.

HYBRID AROIDS.

As nearly as I can remember it is about fifteen years since Kellermann's hybrid Aroids were first exhibited at a flower show in Erfurt, the metropolis of German gardening ; and even then they were objects of great interest, especially to botanists and gardeners. In the first place let me say a few words respecting M. Kellermann himself. Between 1850 and 1860 he held the position of under gardener in the Imperial gardens at Schönbrunn, near Vienna, where Dr. Schott, the director, in his preference for Aroids, had gradually brought together the richest collection in existence of this interesting family, numbering upwards of 400 species. This collection was the basis of Schott's comprehensive investigations and numerous works on the Aroideæ ; and M. Kellermann also, under such a leader as Schott, had the best opportunities for watching the growth and development of different species, and making a special study of their life-history. He soon arrived at the conclusion that these plants were peculiarly adapted for giving an insight into the true nature of hybrids. This induced him to commence a series of cross-fertilisations, which by degrees led to highly interesting results, the exposition of which is the object of this article.

Respecting the fertilisation of Aroids, it should be observed that, as in many of the cereals, self-fertilisation does not take place, but the flowers of one spadix are impregnated by pollen from the flowers of another plant, or by pollen from the flowers of a different spadix of the same plant. The stigma of Aroids is susceptible while the pollen is still securely enclosed in the anther, and before it has reached perfect development. The length of time during which the stigma is capable of receiving the pollen varies according to the season, but, as a rule, only for the short period of at most four or five hours. Usually this occurs during the night, when the spathe begins to open, or more frequently when the heat of the spadix is most perceptible. It rarely continues sensitive for a longer period, as in the genus Caladium. The pollen never retains its power of impregnation for a very long period, as a rule only two or three days. Like most tropical plants in our hothouses Aroids are seldom fertilised without aid, and if good seed be desired, it is necessary to resort to artificial impregnation.

The susceptibility of the stigma appears to be of the longest duration in Caladiums (perhaps in all species of Caladium), hence the chances of fertilisation are proportionately greater. More significant is the fact that they never appear to intercross with one another ; at least, M. Kellermann never succeeded in effecting a cross between different species of Caladiums. Moreover, whilst Caladiums in general vary very little, or not at all, in the shape and colour of their leaves, one species exists which, even in the wild state, as first demonstrated by Wallis with the specimens he sent to Paris, gives birth to numerous varieties. We may, therefore, assume that in this case there is no necessity for fertilisation with the pollen from a variety with differently coloured leaves, and that the pollen of the same variety, though of a different individual, is sufficient to give birth to a series of new varieties of the most diverse colours. Of course great praise is due to the Parisian druggist, M. Bleu, for what he has done in the way of raising new varieties of this class ; but his claims are by no means such that we should have awarded him the large gold Imperial medal at the Paris International Industrial Exhibition in 1867, when Kellermann's hybrid Aroids were in competition with them. Moreover, Kellermann's hybrids have a decided horticultural value in addition to their botanical interest, for they belong to the most ornamental of plants with fine foliage, and they will thrive well in a dwelling-house, which is more than can be said of the variegated Caladiums. And then equally beautiful variegated varieties of Caladium have been raised in Belgium, Germany, &c. Among others, Skopitz, of Petschka, in Bohemia, raised and sent out a long series of varieties, which were in no respect inferior to those raised by M. Bleu. Unfortunately they are very little known abroad, though one of the chief ornaments of most Austrian gardens.

Three varieties of Caladium with coloured foliage were known long before Miquel described the green-leaved type under the name of C. surinamense, namely, C. pœcile, pellucidum, and picturatum. The next variety of remarkable beauty was raised at Schönbrunn, and published under the name of C. hæmatostigma. Like C. surinamense and C. pellucidum, it was raised from seed, but in all cases the plants were fertilised with their own pollen. Therefore M. Kellermann is right in saying that Caladiums naturally possess a tendency to vary in the markings of their leaves. No better proof of this is required than that furnished by the green-leaved C. surinamense, whose seeds produce variegated varieties.

An interesting observation is that recorded by M. Kellermann, to the effect that the plants introduced as Caladium Schmitzii and Schœlleri, subsequently described by myself as doubtful forms of Alocasia, to which I gave the names of argyroneura and erythræa, sometimes under generous culture produce leaves with a heart-shaped base. This fact would seem to indidate that both species (or forms of one and the same species) really belong to the genus Alocasia. But the crosses between species of Philodendron and species of Anthurium are of far greater interest. The numerous species of these two genera, which exhibit parallel series of forms, are frequently confused, even by botanists, though they are readily distinguished in the absence of flowers by the different structure of their leaves. In Philodendron, the simple pinnate or compound leaves are furnished with a midrib, diverging from which are numerous more or less parallel, crowded, slender, lateral ribs, whereas in Anthurium the leaves have a much more complex netted venation, especially prominent on the under-surface ; and in most species of Anthurium there is a slender vein running round the blade of the leaf a few lines from the margin. Finally, the aërial roots in this genus are very tough, and often used as cordage, whilst in Philodendron they easily break.

Although I here give Kellermann's observations on the crosses effected by him between different species of Philodendron and between different species of Anthurium, as they were communicated to me, and some of which I have since had opportunities of confirming, the experiments are still of far too disconnected a character to furnish any conclusive results ; and, therefore, I would recommend all those interested in the subject, especially those having the direction of scientific establishments, to procure his hybrids and repeat the experiments.

M. Kellermann, who has established himself as a nurseryman in Vienna (26, Weihburggasse), has continued his experiments from pure love for the subject, but unhappily not without considerable detriment to his business, and, as may be supposed, not without some pecuniary sacrifices. At length he finds himself under the necessity of parting with his small stock of these hybrid plants for decorative purposes, for which they are indeed admirably adapted—that is, in case the collection is not otherwise purchased before the end of this winter. Their dispersion would be a great loss to science. I possess only a portion of the more important of M. Kellermann's hybrids, which he presented to me some years ago for scientific investigation, and I shall continue my experiments ; but I again repeat that it is desirable such investigations should be conducted by as many different people as possible, in order to obtain satisfactory and convincing results.

According to what has been communicated to me, and my own observations, these hybrid Aroids possess no little resemblance to Cytisus Adami, inasmuch as it often happens that one branch of a plant is like the male parent, whist in another the female parent is

reproduced, and a third exhibits a blending of the two. Unfortunately the Aroids are not so easily dried as Cytisus Adami, of which I have some very instructive specimens from Donaueschingen.

I will now proceed to the description of the several hybrids :—

1. *Philodendron Simsii* × *pinnatifidum*.—The first leaves of both species are elliptical in shape. In the female parent, P. Simsii, the basal part of succeeding leaves is gradually broader, becoming lanceolate, with arrow-shaped auricles at the base. In the male parent, P. pinnatifidum, on the contrary, the succeeding leaves are broader in the middle, and withal much larger. Gradually the margin shows indentations, which are deeper in each successive leaf until the latter assumes its perfect pinnatifid form. So far as the hybrid or mongrel form is concerned it resembles the female parent up to the ninth leaf, indeed, does not appear to differ from it in any way. In the tenth leaf, however, traces of the male parent appear, in the form of two or three slight lobes, which in succeeding leaves are more numerous and more distinctly developed, until at length there are about eight or nine on each side, with an average depth of $2\frac{1}{2}$—3 inches. In the hybrid, as in the parent plants, three years are consumed in reaching this stage, after which it begins to produce flowers. Unfortunately I have no information respecting the characters of the flowers, but M. Kellermann states that the fruit resembles that of the female parent.

These hybrids differ from others in this, that all the plants raised from the same cross are exactly alike in the characters observed. As is well known, the seed of a cross usually brings a variety of forms and colours: witness many of our florists' flowers.

2. *Philodendron pinnatifidum* × *Selloum*.—Here the two parents are so much alike that I formerly described P. Selloum, which I saw growing in the gardens at Sans Souci, near Potsdam, under the care of M. Hermann Sello, as a variety of P. pinnatifidum. Nevertheless their first leaves are very different. While the first leaf of P. pinnatifidum is, as I have already remarked, of an elliptical shape, that of P. Selloum is cordate. Further P. Selloum is distinguished by its larger mostly bipinnatifid leaves, with lighter coloured veins on a blueish green surface. In the hybrid the first leaf is elliptical, as in the female parent. The three following are also of this shape; but in the fifth the colour begins to change, approaching the male parent, the lighter-coloured transparent nerves forming part of the change.

3. *Philodendron Wendlandii* × *Selloum*.—This hybrid is extremely interesting. P. Selloum belongs, as I have said, to the species with large pinnatifid leaves. P. Wendlandii, on the other hand, has undivided leaves on a short, broad, fistulose petiole, about 7 inches long. The blade is about 6 inches broad in the middle and narrowed towards the base, where the petiole runs into it in the form of a thick midrib. The entire length of the blade is about 18 inches. The first leaf of P. Wendlandii is narrow elliptical (lanceolate, according to Linnæus), and it is of the same shape in the hybrid. The first indication of the influence of the male parent is not seen till after the fifth leaf, and then only in the paler colour of the slender, more transparent veins. Later on this influence becomes more apparent in the larger leaves furnished with eight or ten primary veins diverging from the midrib. After the twelfth leaf two or three slight lobes appear, increasing to nine as the plant developes. Concurrently the base of the leaf becomes broader, and eventually cordate; and the petiole lengthens considerably.

Almost four years were required to bring the hybrids to this stage, in which they remained for a period of nearly the same duration before they produced their first flowers. Notwithstanding all the deviations in the leaf characters, the flowers did not differ outwardly in the slightest from the female parent, P. Wendlandii. With the appearance of the first flowers there was a curious change in the disposition and folding of the leaf-buds. Hitherto they were folded from left to right, but afterwards each half of the leaf was separately folded — the anterior and larger portion from left to right, as before, the hinder smaller part from right to left. At the same time the whole development of the leaf began to be more vigorous, attaining much greater breadth, especially at the cordate base. The auricles lengthened out, exceeding 4 inches, and were completely turned downwards; the length of the blade reaching 2 feet, or even more, with a breadth of about a foot in the middle, increasing slightly towards the base—ten or twelve strong lateral veins proceeding from the midrib. The petiole attains a length of 2 feet, and is half round in shape, with the flat surface upwards.

After the lapse of another four years, when the plant was twelve years old, it again flowered; but this time the flowers were of the same type as the male parent. Thus far the observations of M. Kellermann. Now, it would be a great pity if these investigations should end here, and nobody come forward to purchase this twelve-year-old specimen. A period of twelve years gained is an immense advantage in experiments of this nature. What further changes the leaves may undergo is as little known as the nature of the next flowers. Whether the latter will be intermediate between those of the two parents, or approach those of one or the other more closely, is a question of the utmost importance.

4. *Anthurium leuconeurum* × *pedatoradiatum*.—Anthurium leuconeurum belongs to a group of species with entire cordate leaves, the texture of which is more like parchment than leather. Eventually the blade hangs downwards from the summit of a rather long petiole. The surface is of an almost black-green velvet-like colour, traversed by the white-green scarcely raised nerves. A. pedatoradiatum belongs, on the contrary, to a set with lobed leaves, in which the prominently-nerved divisions are given off in a radiate manner. The substance of the leaf is rather thin, and the surface is of a light shining green colour. For the information of those unacquainted with the structure of Aroids, I may add that Anthurium belongs to the division with hermaphrodite flowers.

The first leaves of the hybrid are like those of the female parent. With the third or fourth leaf the nervation begins to change to a grey colour on the dark velvet-green ground. Simultaneously there are indications of the lighter shining green of the male parent, which begins to preponderate in the fifth or sixth leaf. Of course, as this goes on the dark green ground and nearly white nerves of the female parent gradually disappear. In the eighth or ninth leaf the light green of the male parent is almost exactly reproduced, with only here and there a faint tinge of the darker hue.

A similar progressive change takes place in the nervation of the leaf. Even in the third and fourth leaves there were indications of the appearance of nerves on the under surface. At first they are angular, afterwards rounded. In the seventh and eighth leaves the principal nerves begin to show on the upper surface. In connection with this the transformation of the base of the leaf goes forward, which gradually becomes heart-shaped, and is fully so in about the twelfth leaf. The arrangement of the leaf-buds changes likewise. In A. leuconeurum the leaves are folded up from left to right, while in A. pedatoradiatum most of the upper lobes are separately folded together, and all of them spirally twisted inwards, and the lower ones horizontally folded over each other, or directed upwards. The leaves of the hybrid were rolled up from left to right, and the margins crossed each other at a certain point. Then the anterior half is rolled from left to right, and the posterior half from right to left, over each other. As soon as the leaf unrolls itself a slight indication of lobing is apparent at the point where the two margins cross. In succeeding leaves the margins cross each other in two, and then in three, places, the same number of lobes appearing, which eventually develope into so many divisions. Finally the base of the leaf is formed in such a manner that the two auricles incline towards each other.

All the plants required three years to attain perfect development, and they then flowered. Unfortunately M. Kellermann was unable to give me any exact information respecting the nature of the flowers, beyond the fact that only in a few isolated instances were the stamens and stigmas perfectly formed and good seeds matured. Usually one or the other was imperfectly formed. Perfectly developed pollen from other plants failed to effect impregnation. *Karl Koch, Berlin.*

CAMPSEA ASHE,

THE RESIDENCE OF J. G. SHEPPARD, ESQ.

THIS place is situate about a mile from Wickham Market Station, and adjoins the princely demesne of Lord Rendlesham. The house is built with plain red brick in the Elizabethan style of architecture, and is approached from the high road through a well wooded park, stocked with a mixed herd of the spotted and dark fallow deer. The principal features of the place are the gigantic Cedars of Lebanon that stand on the lawn near the house, and the grand avenue of Limes, extending far away into the park on the right. This, probably, at some former time was the carriage approach, but, if so, the road has been done away with, and grass has taken its place. By a judicious raising of the level of the lawn leading to this grand avenue it is made to form a continuation of the same. The two are separated by a deep ha-ha, with a retaining wall, which is kept just below the level of the turf, giving one the idea, when seen from a short distance, that both are connected. Unfortunately, the public road runs parallel with the front of the house, and at only a short distance from the same, giving but little scope for pleasure ground or flower garden in that direction. The most that could possibly be done has, however, been made of the ground, as here we found a charming fernery, with intricate pathways hidden away amongst the shrubs, and leading on into a neat and thriving rosery, planted principally with dwarf perpetual varieties. Passing on from here we next enter the bowling ground, the turf of which is of the most velvety texture, and almost as level as a billiard table. Surrounding this, and forming the boundary thereto, is a Yew fence, varying considerably in height, and clipped into various fantastic shapes, some of which look like miniature mountains, solid enough for one to climb and walk on. Standing immediately at the back of this, and overhanging the road that forms the boundary in that direction, is one of the grandest old Cedars of Lebanon to be met with anywhere in the kingdom. This tree has a peculiar glaucous green hue, which at this season is so intense as to lead one to suppose that it must be a distinct variety. The trunk of this tree measures some 25 feet round, and the branches spread over an immense area of ground, each individual branch being almost a tree in itself. Near the house are four others of gigantic stature and size, one of which has a beautiful polished-looking stem of between 20 and 30 feet before coming to the branches. This tree measures over 20 feet in circumference, and some of the others are even larger, sending out huge branches that are supported by iron bands and bolts, showing the care exercised by the owner for their preservation. Standing near this is a handsome Copper Beech of large size; but these ponderous Cedars appear to dwarf all else into insignificance, and even make the house look small by comparison. In front of the house is a neat flower-garden with well filled beds, the centre one of which was most striking and attractive, and contained plants of the Acer Negundo variegatum, amongst which Clematis Jackmanni was rambling and flowering in the greatest profusion. The contrast of these, as may readily be imagined, was of the most pleasing description. This should be made a note of by those seeking harmonious and effective combinations of colour.

Mr. Keen's fame as a grower and exhibitor of Roses is well known, and at a sheltered part of a portion of the kitchen, where they can be easily protected, we found huge plants of the Tea varieties, that afford those marvellously fine blooms that have helped to place Mr. Keen's stands so many times amongst the winners. These are planted in double rows, which are backed up by reed hurdles, that afford the necessary protection from the cutting winds of early spring, and from which glass, such as old lights or other temporary covering, can be put on to protect them from the severity of winter, or to forward or retard them at pleasure. Near here, growing in stiff unctuous loam, are large quantities of Perpetuals, from which Mr. Keen obtains his show blooms and supplies the house. These are all on the Briar stock, the stems of which are as clean and polished as a walking-stick, and such as are only to be found growing in real Rose soils. About 500 fresh Briars have just been budded ready for working next season.

Mr. Keen was the fortunate raiser of Miss Jolliffe, Monsieur Baldwin, and other first-class winter-blooming Carnations that are now of established reputation and much sought after. The former is rarely out of bloom, and may be had in any quantity from properly prepared plants all through the winter, provided they are accommodated with a temperature of from 40° to 50°. It is deliciously fragrant, perfect in form, and of the most delicate flesh colour, and is altogether just the *beau ideal* of a lady's flower. When better known it is sure to become in greater demand, and will be grown largely for the London market. Gardeners who have to keep up a large supply of cut flowers during the winter should not lose sight of this very desirable variety. The kitchen-garden is of small extent, the bulk of the vegetables being grown in a field, where they do much better than when confined in close walled-in gardens. On the south wall are some useful lean-to vineries, containing good crops of moderate-sized well-coloured bunches of Grapes. A new Peach-house has been recently erected, in which the trees are making fine vigorous wood that is fast filling the trellis, and the fruit they are bearing is of the finest description. The roof is a fixed one, and glazed in with 21 oz. glass in large squares, and the house is well ventilated back and front by means of a lever and rod running its entire length. The house is a lean-to, and trees are planted both back and front. Those planted to fill the front trellis are worked very low, and have been trimmed up to form clean stems of 2 feet 6 inches or so. This is deserving of note, as the Peach stem swells much faster than the ordinary Plum stock, and the latter may often be seen starving the plant by its slow growth. When kept low, as in this case, and almost buried beneath the soil, the growth of the stock is more rapid; and in working fruits of this kind it may be worth while keeping the union as low down as possible, as with Pears on the Quince.

In front of the gardener's house that stands in the grounds are some long, well-filled beds of the old Calceolaria rugosa, and in another that much neglected but valuable old hardy Verbena venosa, a plant that is not nearly so much used as its merits deserve. When associated with such soft colours as Mangles' Variegated Pelargonium, and plants of that class, the effect is most pleasing, and it lasts much longer in bloom and stands the weather better than any other variety. Seed of this sown now will make good plants for blooming next season. *J. S.*

THE EDINBURGH MONSTER GRAPES.

We are able to publish to-day illustrations, prepared from photographs, of the two monster bunches of Grapes exhibited at the recent International Fruit Show in Edinburgh, and of which mention was made in our report of the show, published at p. 368.

Fig. 85 shows the bunch of Raisin de Calabre grown and exhibited by Mr. Curror, gr. to G. Douglas, Esq., of Eskbank, Dalkeith. This was a handsomely formed bunch, the berries closely and solidly packed so that the shoulders stood out firmly in all directions, and the bloom was perfect. It was, in fact, shown in first-rate condition, and was very properly awarded the 1st prize in the class for the heaviest bunch of white Grapes, and received besides the Veitch Medal and Prize for the most meritorious bunch of white Grapes, not being Muscats, produced in the show. Its weight was 26 lb. 4 oz., which it maintained within an ounce or two when weighed in the exhibition room.

Fig. 86 shows the rival cluster shown by Mr. Dickson, gr. to John Jardine, Esq., of Arkleton, Langholme, Glasgow, and a very formidable rival it proved, since the weight was within a few ounces of that of the Eskbank bunch. The Arkleton bunch was a specimen of the White Nice, and was a much looser one than the former. It had also unfortunately travelled badly, and was much rubbed and bruised. The weight, when tested in the exhibition room, was 25 lb. 15 oz.

It is no little credit to the gardeners of Scotland to have thus produced the two largest bunches of Grapes upon record; and truly the evidence furnished by this show indicates that the North is, in the matter of Grape growing, in no way behind the South.

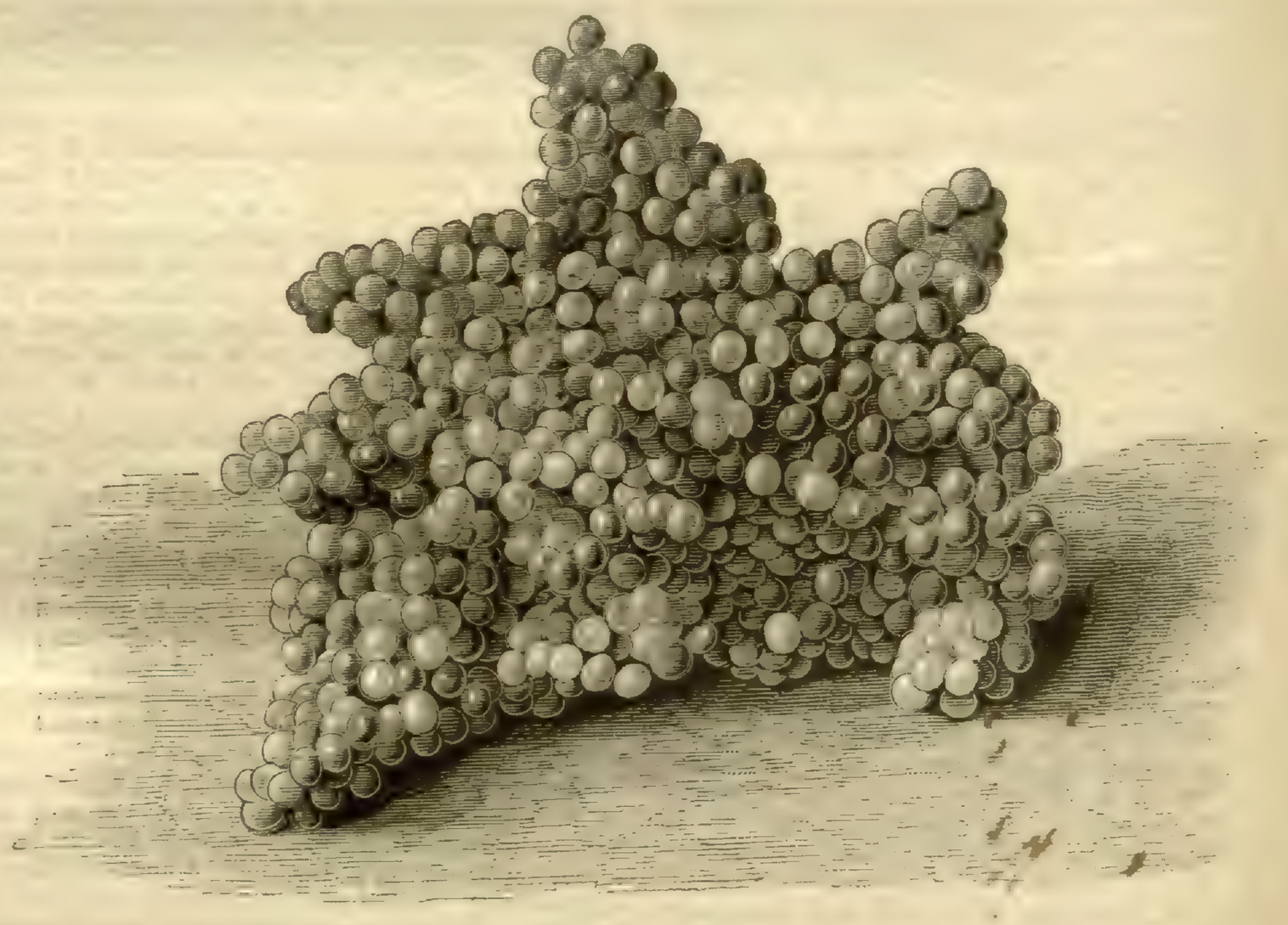

FIG. 85.—RAISIN DE CALABRE: WEIGHT, 26 LB. 4 OZ.

Home Correspondence.

Smith's Curly versus Hogg's Coldstream Early.—"A Reader," p. 337, takes umbrage at the latter name. What I know about it is this. I believe I was the person who gave the name, Hogg's Early Coldstream. I have got Mr. Hogg's correspondence among my piles of Potato lore, though I cannot spare the time now to refer to it; but it must be quite one-eighth of a century ago Dr. Hogg wrote to me from the *Journal of Horticulture* office to say his brother had got a precocious Potato, which he had a great opinion of, and that Mr. Hogg, of Coldstream, would feel greatly obliged if I would give it a fair trial, and report my opinion of the variety in regard to its adaptability for frame culture. I did so, but my first year's trial of the variety did not prove it to be sufficiently dwarf in the foliage for forcing purposes. I thought it excellent, however, for early border work. Mr. Hogg, as I remember, felt much disappointed at my not being able, even on a second year's trial, to advise it as a sort peculiarly adapted for frame culture. I found no difficulty in recommending it as an excellent early garden variety, and I believe my verdict gave it an extensive fillip for that purpose. Some five or six years afterwards I heard of a sort, in my correspondence with a Potato friend near Aberdeen, named Smith's Early, as being synonymous with Hogg's Coldstream Early, and now I learn for the first time, from "A Reader," of a sort called Smith's Curly. Hogg's Early Coldstream and Smith's Early were found to be synonymous at the Chiswick trials of Potatos three years ago, and it is rather late in the day now to be claiming priority for Smith's Curly. Surely Hogg's Coldstream Early made itself notorious long enough ago to have got knocked on the head had it been an imposter? Long live one and both, if they are the same, but it is quite possible for two Richards to be in the field, and in order to try to dispel irritation in the matter of synonyms anent Potatos, I will, with your permission, relate a case or two in point. Some fifteen years since I made a lucky cross with Jackson's Seedling (the old Cambridge Kidney?) and the old Fluke; it resulted in producing for me my Onwards, giving me a flesh that I had been trying after for years previously, and the only sort I thought worthy of keeping out of the whole batch, of which, amongst many types, came one with a synonym with a vengeance—a black variety "spotted with white." I took this up to the Royal Horticultural Society's Fruit and Vegetable Committee to exhibit it, as I thought, as a unique curiosity, but only to find that its exact prototype had been sent from Peru, and it was then growing in the Royal Horticultural Society's gardens at Chiswick in all its primitive innocence! Consider this, "A Reader," and all claimants for precedence of names, and ye theorists of the "natural selection of the best!" And yet further, and analogous to the Chiswick trials, the Blanchard Potato, which gained a First-class Certificate last year, has got its prototype in a seedling of mine from a cross of fifteen years ago between the old Red Regent and a Potato I had then, an immense cropper, called the American Black Kidney. I was off the Vegetable Committee in 1874, and, consequently, did not attend the trials, but Mr. Alex. Dean wrote me to say that "a Potato had gained a certificate which he thought very much resembled a condemned seedling of mine I called the Purple Blush," and this spring he sent to me for a few tubers of it to grow side by side with the Blanchard. Mr. Dean reports that "the difference between them in every respect is so slight as to be scarcely distinguishable." I have never seen the Blanchard. Well, it remains for me to say that I condemned the whole batch of the half-American crop above, after some years' trials, as being too large and ill-flavoured for my purpose; and I also suddenly took a dislike to all the "whoppers," white or coloured, and you yourselves in these pages advised me to "chain up" one of the seedlings, called the Irrepressible Nigger, which I sent for your opinion. By some chance, however, my Purple Blush got into a cottager's hands, at old Woodstock, and he, finding that it suited his stone brashy allotment, has distributed it amongst his neighbours, and so it has long had a local standing. I have kept another of the batch also, which I call the Cricket Ball. I keep it for its shape only, and also because another Potato friend here has accidentally got it mixed up with his Early Emperor, which he has been selling to the "trade;" so if the "trade" happens to distinguish it, perhaps it may "come out" as somebody or others "Round." I could distinguish it by some private peculiarities it possesses, and which are its bane, according to my "Cocker." Neither this nor the Purple Blush are more than second-rate, but as the taste for "whoppers" prevails, I feel sorry now that I destroyed their brothers. Moral: If Smith's Curly be or be not Hogg's Coldstream Early, allow me to propose that persons live happily with either or both. In my cases I shall certainly not question Mr. Blanchard or Dame Nature. I see in your Enquiries an "Enquirer" enquires for a "book on the Potato." I fear such is not at present to be found. I heartily wish such a work could have been had five-and-thirty years ago. I suppose, though, it will be found to be easier to gain a knowledge of the noble tuber after some of us old stagers are gone, for may I just hint that some of our young men are working from the old ones' shoulders. It always must be so, but I pray the youngsters to give just a "leetle" acknowledgment to their seniors. Should "Enquirer" not be already conversant with them he may find some chapters going into the pith of Potato cultivation in Nos. 6 and 13 of the *Gardeners' Chronicle* for 1871, and in Nos. 163, 164, &c., of the *Journal of Horticulture*. I think I could write a book on the Potato, if I had not the fear of the buttershop so before my eyes. *Robt. Fenn, Rectory, Woodstock, Oxon.* [Butter is a very appropriate dressing for the Potato, but in the case of the book proposed by our correspondent the butter would come to the Potato, not the Potato to the butter. Such a book is greatly wanted, and we know of no one better acquainted with the subject than Mr. Fenn. *Verbum sap.* EDS.]

Rating Nurserymen's Greenhouses.—I have been anxiously waiting to see whether any of the leading men in the trade are likely to take this matter up, as from the correspondence published in your journal I was led to think that some action was about to be taken in the matter, and should be only too glad to contribute my quota towards having the matter tried in some of the Superior Courts. If all the sufferers would do the same it would be a very small matter. I have been a sufferer for many years, my rateable value being trebled owing to the extension of my trade houses. I am under the Local Government Board, as well as the Poor Law Board, the rateable value in the former being only one-half of the latter. I have tried to reason the matter with the overseers time after time, to no purpose; and to carry a case before the magistrates, where they are all Poor Law Guardians, would be like fighting with the wind. What I should like to see is say three of the leading tradesmen in the metropolis to form a committee and appeal to their brethren throughout the country for support. I feel confident they would not appeal in vain. *H. W. B.*

Royal Caledonian Horticultural Society.—In your article on this Society in your last number you state: "On the termination of the old Royal Caledonian Horticultural Society, the Edinburgh Society assumed the title, and received all the minute-books with a sum of money which remained over after all debts were paid." This is a mistake. The Royal Caledonian Horticultural Society did not come to a termination; they disposed of their garden to Government, but continued as a society, and in 1866 they elected the members of the Edinburgh Horticultural Society as members, thus infusing fresh vigour into the Caledonian. At the same time the constitution of the Council was altered, and it now consists of four amateurs, four nurserymen, and four gardeners. *John Stewart, Secretary, 4, Albyn Place, Edinburgh, Sept. 21.*

Impatiens fulva.—I enclose a few specimens of what I believe to be the Impatiens fulva, and which may be interesting as giving a new locality to a somewhat rare naturalised American plant. A few specimens are now growing vigorously somewhat more than a mile from Isleworth, at the water level, in a stream called the Yeddingbrook [It has been there for years. EDS.] and a large number close by on both sides of some stagnant water, apparently a dammed-up ditch, forming in this case such a complete bed of some feet in length as to suggest the idea of the seed having been thrown by some passing botanist. The localities given by Hooker and Arnott, and by Babington, are the banks of the Wey, Basingstoke Canal, and "the Thames from Guildford and Woking Heath to Chiswick;" but though the spot where the plants are now growing is scarcely 2 miles from the latter river, their passage from it seems unlikely, both from the direction of the watershed, and also by a grating fixed across the small stream at Isleworth. I have not had named specimens to compare with those enclosed, but this species (fulva) seems clearly distinguishable from the Impatiens Noli-me-tangere by the spur being closely, instead of loosely, reflexed, and its tip emarginate, instead of entire, at the point. Its height is also greater, and the stem 2 or 3 feet high, with tumid joints and ovate-serrate leaves; and its orange-yellow

flowers spotted with red, of a kind of triangular shape, about an inch in vertical measurement over the mouth, and more than an inch in length, make it a conspicuous object that might be useful as an addition to the ornamental water-plants in the garden. *O.*

Wire Fence.—In answer to your invitation, and in reply to "A. D., Middlesex," I trust the following remarks may prove useful:—I planted a wire fence, 4 feet high, with pillars at 6 feet apart, 5 years since, with Apple trees. The situation was high, and the soil a good loam on clay subsoil; they are now in bearing, and the fruit upon some of the trees is thicker than Onions are usually strung for sale. The plan I adopted was, to place a young, well-trained tree, with six or eight healthy shoots between the pillars, and to train the branches along the lines. The following year, fearing they would not cover the trellis fast enough, I planted a strong maiden tree against each pillar, pruning it at the height of the top wire, and have since trained the shoots produced to the right and left of said wire. The whole now forms a fine stiff, fruit-producing Apple hedge, which combines the elements of protection, productiveness, and ornament. I planted Early Stibbert, Lord Suffield, Red Quarrenden, King of the Pippins, Ribston Pippin, and Royal Russet, thereby securing a succession of fruit. I do not know why the Red Astrachan (which is an early and richly coloured fruit when exposed to the sun) should not succeed, or, indeed, most other varieties, exception being taken to the Cornish Gilliflower and such slender-growing varieties, which usually produce their fruit upon the extremities of the branches, and are not adapted to the process. Should "A. D.'s" situation be elevated, and the soil be stiff and clayey, I would recommend him to plant Apples worked upon the Paradise or intermediate stock; but, if the site be low and damp, Pears worked upon Quince stocks would suit the purpose much better. The question of adapting the trees to the object in view, and maintaining it, depends entirely upon the pruning. I have simply led on the shoots, and attached them with Willow tyes to the wires, shortening the laterals during the summer months by pinching and pruning the superfluous growth with scissors during the winter. I have Pear trees trained in the same manner, giving the most satisfactory results. *C. B. S., Jersey.*

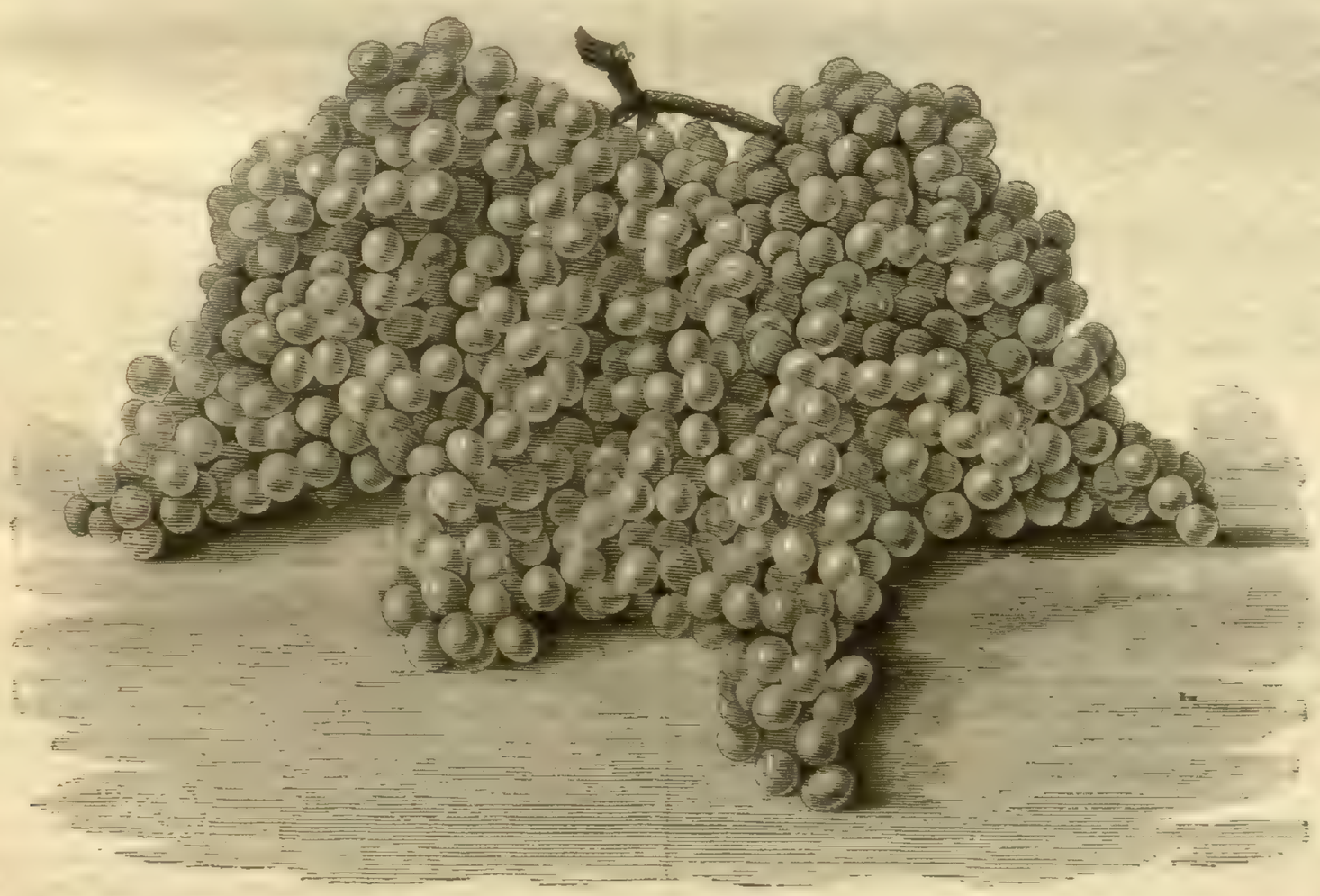

FIG. 86.—WHITE NICE: WEIGHT, 25 LB. 15 OZ.

Hybridising Liliums.—The interesting communication received from your correspondent, Mr. Packman (p. 366) respecting the hybrid Lilium raised by him from a cross between speciosum and auratum, serves to show how little the pollen of the one variety affects the other. For the last seven or eight years I have been trying to effect a cross between a dark seedling L. speciosum and a seedling L. auratum with a deep red band, making the speciosum the female parent. I have flowered some of the seedlings from the cross, but they have invariably turned out to be of the speciosum type. I have likewise flowered some seedlings raised from the red banded seedling auratum, making the speciosum the male parent, and they have all shown on flowering the auratum shape, but vary much in their markings, some being with red bands, and some with yellow. All these crosses were carefully performed, the anthers being all removed before any pollen appeared on the stigmas of the flowers crossed. I have likewise flowered between 500 and 600 seedling Lilies of the speciosum and auratum varieties within the last few years, and it is remarkable how they vary in shape of the petals and markings, but, as mentioned above, they have never shown any decided cross between the two kinds. Of the speciosum type I have raised pure white kinds, and pink spotted ones on a white ground, like speciosum punctatum, up to very dark spotted on a deep crimson ground. In raising seedling Lilies of the auratum and speciosum kinds it is very easy to see if there is a cross between them by the shape of the leaves and markings on the stems long before the flowers appears, the leaves of auratum being much narrower than those of speciosum and the stems spotted. *William Tillery, Welbeck.*

Potato Culture.—We have now lifted our Potatos, and find the crop good, tubers clean, with very little disease. The plan adopted in this neighbourhood for growing Potatos is to open the drills with a double-furrow plough, cart the manure down the drills, when it is spread; the sets are then dropped, the plough run down the drills, splitting them, and covering the Potatos. I do not agree with the plan of putting raw manure immediately under the tubers, as they seldom come out clean, are more liable to be affected by disease, and are often badly flavoured. I invariably grow them without directly manuring (the soil being enriched for the previous crop); I find this has a tendency to lessen the evil, and adds greatly to the good qualities of the Potato crop. *W. A. Emery, Mageney.*

The Vine Mildew.—The question your correspondent, Mr. Dean, asks with reference to Vine mildew, and its connection with root drought, is worthy of consideration at the hands of all Vine growers, although his supposition may turn out to be incorrect. I have had a case of mildew myself this season in a young vinery, which was planted from eyes on July 10, 1874. The house is a span-roof, running north and south, and was originally intended for a plant-house, but owing to the necessity for a wholesale clearance of the old Vines here, last year, I decided upon planting a house temporarily, for the purpose of giving the Vines in the permanent vineries a fair chance to establish themselves before fruiting them. The borders are, of course, inside, with a foot deep of brickbats, for drainage. The young Vines did well last year, considering the short season they had to grow, and as they are intended for rather early work, and simply a makeshift lot, we started them pretty early this season, and a finer lot no one could wish to see; in fact, our only difficulty has been to get the wood ripened, owing to the vigorous growth they have made. I am no believer in starving Vines into ripening, but, for the reasons given, I ordered the supply of water to the roots to be considerably diminished. About three weeks ago I noticed a very slight attack of mildew, but with an inside border thoroughly drained, and more or less air on day and night, with fire-heat whenever it was necessary, who would have thought of the case becoming serious? But it did, and a few days afterwards I was not a little surprised to find out the alarming rapidity with which the pest spread itself. I then made a minute examination of the border, which was thickly mulched, and I found it by far too dry to meet the demands of so many hungry roots, which in their turn had to pump up food for a mass of healthy foliage. I at once had the borders watered at two different waterings, the wood and foliage of the Vines were washed with soft-soap water at the rate of 6 oz. to the gallon; then I had some sulphur, mixed in water, with which the Vines were syringed, and finally, to make sure of dissolving partnership with our friend, the hot-water pipes were painted over three nights in succession with sulphur. This latter operation is next to useless unless the pipes are hot enough to send the fumes of the sulphur in all directions through the house, which will be when the thermometer in the house stands at 90°, or the water in the hot-water pipes at from 165° to 170°. I have given the facts in my case as truly as it is possible to do, and it has driven me to the conclusion that Vine mildew can be brought about by excessive dryness as well as by a too moist confined atmosphere, with water in excess of the requirements of the roots; but of course the most fertile cause of mildew arises from the latter cause. Mildew is simply a fungus, and in a close atmosphere, charged with sulphuric fumes, it cannot survive, but it is a terrible enemy if allowed its own way too far. *W. Hinds, Otterspool Gardens, Liverpool.*

—— Mr. Dean's inquiry is an interesting one, but, as you suggested, his case is not supported by facts, for I can point to a garden at the present time where the mildew has completely spoilt two beautiful crops of Grapes, where it was never known before, and that in a locality where the rainfall last July exceeded 5 inches; so that root-drought has no more connection with this pest than has the oft-repeated damp confined atmosphere, which some jump at as the sole reason of Vine mildew. From many years' experience I am perfectly satisfied that no man can with certainty point out the true cause. He would be a clever man, and would deserve well of his craft, if one could be found, who could point out the true cause and a certain cure. *James Clarke, Cothelstone, Taunton.*

—— In your issue of the 11th instant Mr. A. Dean inquires whether summer drought and Vine mildew are connected? The most direct answer to such a sensible question is "Yes." The Vine, above all other plants, is a most generous feeder and producer, but, unless it is supplied with a fair amount of moisture, there is no hope of the second result being satisfactorily attained. Drought is a specific cause of more than half the maladies and afflictions plants are subject to. Excessive moisture and cold bear no comparison with it. It developes red-spider, thrips and mildew, mealy-bug and scale (in its obnoxious variety of forms) luxuriate in it. Leaves become scorched, and the roots give up, the necessary supply of moisture not existing in the soil to sustain the plants they are supporting. I venture to say that the principal cause of these afflictions lies in the want of care and nourishment for the plants which suffer by them. As far as the Vine is concerned the short period of the youth and development of its branches, leaves, and fruit must command a great amount of care. Ventilation being good, the next principal means for preventing mildew is a sufficient amount of moisture. Excessive moisture, without sufficient drainage, will produce shanking, which is a most objectionable feature in Grape growing, as it often spoils the end of "a story" otherwise "pretty well told." *C. B. Saunders, Jersey.*

Strawberry Armstrong's Garibaldi.—I herewith forward you a sample of Armstrong's Strawberry Garibaldi, picked this day in the open ground. I have grown this Strawberry beside a great number of other sorts, and have always found it the earliest and I think the best I have ever grown. Through this summer I have picked a splendid crop from them, and they are now ripening lots of fruit. I think everybody should grow it. *W. Dixon, Goring, Sept.* 20.

Standard Peach Trees.—It may be interesting to many amateur gardeners to know what abundant crops can be obtained from trees generally supposed to ripen their fruit only on walls. I have for several years had on my back lawn, facing the south, six trees, consisting of three Peaches and three Nectarines; they are young trees, and are well protected from the north wind, though open to the east. This year they have given large crops of fine fruit, and look well after the gathering. The Peaches were quite as good as wall fruit, and from one Nectarine I gathered twelve dozen very fine fruit. Is not this a profitable crop? *An Old Subscriber, Chiswick.*

Climbers with Ivy.—In reply to "Sapere aude," who inquires about climbing plants to grow with Ivy in the North of Scotland, I beg to inform him that no plant makes a more lovely and continuous display in such a situation than Tropæolum speciosum. It does not appear to succeed in England, but grows most luxuriantly in most parts of Scotland. It should be planted

in February or March, in a mixture of loam and peat. It will not make much show the first year, but will increase year by year in beauty, and takes care of itself. Its glowing carmine blossoms contrast well with buff Gloire de Dijon Roses and Clematis Jackmanni, both of which take kindly, if well manured, to an Ivy-covered wall. The berries of this Tropæolum are bright blue, and, at the time of their ripening, the graceful leaves turn to a clear yellow. *Salmonicepts.*

Potato Shaw.—I have sent you to-day, per rail, a Potato shaw, measuring over 7 feet, raised in ordinary soil in my garden from a Continental variety. There were four or five Potatos of about the same size as the one still on the shaw. I should like to know if the length is extraordinary, for I do not recollect ever having seen one so long. *A. Paterson, M.D.* [We think the length quite unusual. EDS.]

Wellingtonia gigantea Branchlets Dying Off.—A somewhat unusual occurrence in connection with the Wellingtonia (Sequoia) gigantea is taking place this season. Upon young trees many branchlets and the points of leading side branches are dying off, somewhat seriously. Some four trees I have planted at this place are doing so, notably a large specimen 15 feet high, which I planted four years since, and which seems in all besides to be in the most robust health. I should not have drawn attention to the subject but that I have ascertained larger specimens some four miles distant have recently been subject to the same peculiarity. I therefore enclose examples, and ask whether this has been the case elsewhere? The examples sent are cut from the tree with a portion attached not subject to the injury, as will be seen. *William Earley, Valentines.* [It is not an uncommon occurrence, and is generally caused by the roots having got into an uncongenial soil. EDS.]

Seed Measures.—The want of a series of very small measures has long been felt in the seed trade, more especially for the fine and expensive flower seeds. The annexed illustration, fig. 87, represents one of

FIG. 87.—SEED MEASURER.

the smaller of a series of measures that I have lately contrived for all small quantities. They are made of brass tubing with tin or zinc bottom, the smaller ones with brass wire handles as seen in the figure, and the larger ones, that can conveniently be held between two fingers, have no handles. They are sold in sets of ten (7*s.* 6*d.*) and twenty (15*s.*); the smaller sizes are the most useful and the most difficult for seedsmen to make. They measure from the smallest upwards, in depth inside and diameter outside :—$\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{11}{16}$, $\frac{3}{4}$, $\frac{7}{8}$, 1 inch, $1\frac{1}{8}$ inch, and so on, increasing by eighths. Also still larger, to supersede weighing quantities of vegetable seeds, sold in great numbers, such as $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, and 1 lb. *F. J. Drechsler, Hampstead Road, N.W.*

Reports of Societies.

International Fruit Show at Ghent: *Sept.* 19 *to* 25.—This exhibition opened in the Casino at Ghent on Sunday last, and our Belgian friends have much reason to be gratified with the success of their undertaking, and especially when we consider, in spite of the reputation of Belgian Pomology, that Ghent is the city of plants rather than fruits. In connection with the show of fruits, organised by the Cercle d'Arboriculture de Belgique, the seventeenth session of the Congress of the Pomological Society of France is held, and this fact has been the means of bringing here a considerable number of French, Dutch, and German pomologists, together with examples of the pomological produce of those nations, without which, of course, the show would have been a poor one. English fruit cultivators are represented only by Messrs. H. Lane & Son, who show Grapes, and who, it is needless to say, have been very successful. Apples and Pears are represented in great numbers and grand quality, but most other fruits rather sparsely. The number of dishes employed is about 10,000, and the base of the large hall of the Casino seems at first sight a mass of fruit, no attempt at grouping for effect having been made, which is the more surprising when we consider the vast floral wealth of the town. The jury was organised at 10 o'clock on Sunday morning, M. Mas, President of the Pomological Society of France, being unanimously elected President, and M. Charles Baltet, of Troyes, secretary. Six sections were then drafted off for duty, each with its president and secretary, and the work of judging was soon accomplished. At mid-day the exhibition was opened to the public, and at 2 P.M, the jurors sat down to a banquet given in their honour, under the presidency of the Burgomaster, M. le Comte de Kerchove de Denterghem, and which passed off with the utmost cordiality and enthusiasm. On Monday the members of the Congress had a reception at the Hôtel de Ville at 11 A.M., and at mid-day were duly installed at the Casino, the following officers being elected :—Hon. President, the Comte de Kerchove de Denterghem ; President, M. Mas ; Vice-Presidents, Dr. Ed. Lucas, Director of the Pomological Institute at Reutlingen ; M. Kickx, Dr. Hogg, and M. Visser van Hazerwonde, Amsterdam. Secretaries, MM. Cusin, Michilin, Rodigas, and Pynaert. At 1 o'clock the members left the Casino and visited the gardens of M. le Comte de Kerchove de Denterghem, whose princely hospitality was subsequently enjoyed by foreign visitors. While we are writing the members of the Congress are visiting the grounds of Madame la Baronne van Loo-Malfait and those of M. J. de Poorter ; and here we must leave them while we say something about the show.

The class which created the most interest in the exhibition was that for the LARGEST, most varied, and most meritorious COLLECTION of FRUITS, the 1st prize in which was a gold medal offered by the Royal Society of Agriculture and Botany of Ghent, and which was well won by MM. Baltet Frères, of Troyes. In the same class, M. Maurice de Ghellinck de Walle, Wondelgem, and M. Hage, Huissier-Audiencier, Courtrai, took as 2d prizes a gold medal each ; the Société Dodonée, Uccle, a silver-gilt medal as 3d prize ; and the Société Ste. Dorothée, Malines, a silver medal as the 4th prize. The Messrs. Baltet's collection was a very large and most admirable one, made up of over 600 dishes, as follows :—Apples, 171 ; Cider Apples, 36 ; Pears, 263 ; hardy Grapes, 25 ; Plums, 23 ; Peaches and Nectarines, 28 ; Quinces, 4 ; and Nuts, 4, &c. In M. Maurice de Ghellinck de Walle's collection were—1 Pine, 11 Melons, 157 Pears, 17 Peaches and Nectarines, 11 Plums, 123 Apples, 25 Grapes, and other small fruits—a grand display to be made by a private establishment. The gold medal offered by the committee of editors of the *Bulletin d'Arboriculture* for the best collection of varieties of fruits, of which coloured plates have been given in the *Bulletin d'Arboriculture*, brought no competition.

PEARS.

In the class for the most complete collection of Pears, distributed by such Belgian raisers as Hardenpont, Van Mons, Esperen, Coloma, Bivort, Grégoire, &c., the 1st and 2d prizes were withheld, silver-gilt medals only being awarded to the Société Van Mons, Antwerp ; M. J. de Poorter, Evergem ; and M. J. L. Van Leekwyck, Antwerp. The last named gentleman was also the winner of the gold medal offered by the Federation of Belgian Horticultural Societies for the most complete collection of dessert, baking, and exhibition Pears ; the Société Ste. Dorothée, Malines, being 2d, and M. Capenick 3d. M. Van Leekwyck's collection included 231 sorts ; all the leading varieties were represented, but the fruits ran small. The two finest collections of 100 dessert varieties came from M. V. Biebuyck, President of the Horticultural Society of Courtrai ; and M. Verhille, Neuve-Eglise, M. Struelens, Grammont, contributed the best seventy-five varieties ; and M. le Comte de Kerchove de Denterghem the best fifty varieties. M. Verstraeten, Lokeren, had the finest collection of twenty-five sorts ; and M. Dugniolle, Ghent, the best twelve.

The gold medal offered by the Government for the best collection of fifty varieties, arranged in the order of their ripening for the months of September to April, inclusive, was taken by M. Hage, of Courtrai, and the other winners in the same class were M. Jos. Panier, gr., Ath ; M. Gits, gr., Wavre, and M. de Poorter, Doorzeele, Evergem. The most numerous and best collection of winter Pears came from the last named gentleman and M. Van Leekwyck, and the Horticultural Society of Steenhuyzen-Wynhuyzen contributed the best collections of Pears for trading or commercial purposes, including fifteen fruits each of Duchesse d'Angoulême, Beurré Diel, William, Fondante des Bois, Louise Bonne d'Avranches, Catillac, Le Cure, Beurré Bosc, Double Philippe, &c. Orchard Pears were not well represented, and in the class for varieties best adapted for cultivating along public roads the 1st prize was withheld ; while in the class for the most complete collection of local varieties not classed in pomological lists, there was no competition at all.

The class for the best collection of SEEDLINGS little known to commerce was a very good one, and the prizes were awarded to the following in the order named :—M. X. Grégoire-Nélis, Jodoigne, MM. Baltet Frères, Troyes ; M. Jacobs, St. Josse-ten-Noode ; and M. Sannier, nurseryman, Rue Morris, Rouen ; and for the best collection of new or little known Pears MM. Baltet were 1st, taking the gold medal offered by the town of Ghent ; and M. V. Hage, 2d.

To enumerate the best varieties in each of the winning collections would be both tedious and useless, so strong is the family likeness between one collection and another, and we have thought it best to indicate those varieties which are most numerously shown and best represented, including a few of the very best newer ones. These were Souvenir de Léopold I., a large handsome fruit like a Beurré Diel ; President Mas, a fine Pear of the Glou Morçeau type ; Prince Impérial, large ; Soldat Laboreur, highly spoken of ; Napoléon III., fine ; Marie Benoist, very fine ; Fondante des Bois, Délices d'Hardenpont, Doyenné du Comice, not generally so fine as in England ; Duchesse d'Angoulême, very fine in size, and also the striped variety, Duchesse d'Angoulême Panachée ; Colmar d'Aremberg, Belle Angevine, beautifully coloured, but not nearly so large as Jersey samples ; Bonne d'Ezée, like Beurré de Rance, but much larger ; Beurré Clairgeau, very fine ; Beurré Capiaumont, also large and well coloured ; Beurré Lebrun, large, almost spherical in shape, pale green in colour, and of fine appearance. Of the varieties raised in Belgium the following were perhaps the best :—Durandeau, Double Philippe, Comte de Flandre, Délices d'Hardenpont, Van Mons Ne Plus Meuris, Zéphirin Grégoire, Théodore Van Mons, Fondante des Bois, Beurré Bosc, Duchesse d'Angoulême, General Todtleben, Duchesse d'Hiver, Beurré Clairgeau, and Beurré Bretonneau.

The finest of the NEW or little known PEARS shown by MM. Baltet were Vice-President Delahaye, Beurré St. Amand, Souvenir de Dubreuil père, Sucrèe de Monthicon, fine ; Madame Treyve, General Todtleben, Charles Baltet, Nouveau Poiteau, Beurré Lebrun, Marie Louise d'Uccle, Beurré Rouge (Grégoire), a reddish-coloured Beurré Bosc, Beurré Six, fine in size, and Duchesse de Mouchy.

The collection of SEEDLINGS shown by M. Grégoire-Nélis, which obtained the gold medal in its class, and the King's gold medal for excellence, numbered 330 varieties, all raised by himself. By far the greater proportion were shown under numbers, but of the named sorts M. Grégoire kindly pointed out the following as the pick of the whole :—Fulvie Grégoire, Madame Grégoire, La Sœur Grégoire, Helen Grégoire, Léon Grégoire, Henri Grégoire, Louis Grégoire, Colonel Grégoire, Dr. Lenthier, Monseigneur Sibour, La Gerardine, Sœur de la Reine des Belges, President Gilbert, Minister Barra, Eugènie Maisen, Twenty-fifth Anniversary of Léopold I., Léon Pasteur, and Vice-President Delahaye. It is somewhat curious that, almost without exception, M. Grégoire's seedlings are of small size, but we understand that his latest seedlings show an improvement upon this point.

APPLES.

The APPLES we must treat in the same manner as the Pears—give the names of the contributors of the finest examples, and indicate the leading varieties shown. The gold medal offered by the Government for the most numerous, deserving, and most varied collection of Apples was awarded to M. Hage, of Courtrai, who staged 160 dishes ; and the Société Ste. Dorothée, Malines, sent the next best. In the corresponding class for orchard varieties, M. Vergauwen, Beveren, was 1st with 127 dishes of splendid fruit. The gold medal offered by the Conseil Provincial de la Flandre Orientale was not awarded, but in the same class M. L. Boddaert, nurseryman, Deinze, and M. Capernick, Ghent, were successful competitors. For twenty fine dessert sorts M. Kerckvoorde, nurseryman, Wetteren, was 1st, and though some nice collections were staged, only 2d and 3d prizes were awarded in classes for seventy-five, fifty, and twelve sorts respectively, while for the best ten keeping sorts there was no competition. A splendid lot of fruit was shown by the Horticultural Society of Steenhuyzen-Wynhuyzen in the class for the best collection, including fifteen of each of the following sorts : — Rambour d'Automne, Rambour d'Hiver, Bellefleur de Brabant, Bellefleur de France, Court-Pendu Plat, Reinette du Canada, Reinette Gris, &c., and the silver-gilt medal was awarded by acclamation. The Apples shown as being best for exhibition, on account of their size and appearance, were not remarkable for either quality, and the 1st prizes were withheld ; the best that were shown, however, came from M. Struelens, Grammont, and M. Aug. de Rycke, gr., Somergem.

The largest Apple shown was a single specimen of Ménagère, which measured 48 centimetres in circumference, and weighed 1 kilogr. 105 grammes. It was gathered from a young cordon, and shown in the large collection from MM. Baltet. The varieties which seemed to be most popular, judging from their frequent appearance, were Reinette du Canada Panachée, Emperor Alexander, splendid in size and colour ; d'Ève, large in size and of a very high colour ; Cellini, very fine in size and much richer in colour than we usually see it ; Bedfordshire Foundling, great size ; Calville Blanc, Calville de St. Sauveur, a large, solid, green-skinned variety ; Jacquin, a handsome, conical-shaped, green-spotted fruit ; Impératrice Eugènie, large, heavy, and nicely coloured ; Reine des Reinettes, Prince de Galles, re-

sembling a highly coloured Blenheim Orange; Gravenstein, smaller than we usually see it, but of a beautifully soft colour; Hawthornden, thoroughly ripened and almost white in colour; Pippin Gris de Parker, a sort of russeted Ribston; Alfriston, very fine; Emperor Alexander, grand in size and colour; Warner's King, very fine; Marguerite, very richly coloured; Belle Josephine, a large, pale-green Apple with white spots; Calville Rouge d'Automne, deep crimson-red all over, very rich in colour; Cellini, Pott's Seedling, Boston Russet, very fine in size and colour; Lord Suffield; Ribston Pippin, small but splendid in colour; and Paradis Double, a large mid-winter variety. The orchard Apples shown by M. Vergauwen were a very fine lot.

GRAPES.

Compared with the Apples and Pears GRAPES made a very poor show, and the display of hardy varieties was much smaller than we expected. Hothouse Grapes were also poorly shown as to numbers, and would have attracted little notice, but for some grand samples contributed by Messrs. H. Lane & Son, of Great Berkhamstead, and which appeared to greatly astonish our Belgian friends. Messrs. Lane & Son showed collections of fifteen and eight sorts respectively, and gained an extra award in the former class, namely, a gold instead of a silver medal; and a silver-gilt medal by acclamation for the latter. The quality of the Grapes which Messrs. Lane & Son exhibit is too well-known in England to require any further comment from us, but we notice with pleasure the success of their enterprise. In the class for fifteen bunches, the next best samples came from Madame la Baronne Van Loo-Malfait, Everghem; and in that for eight from M. Ambroise Verschaffelt, of Ghent, both of whom had by far the best of the home-grown samples, though in the matter of size, thinning, colour, and general cleanliness of the finish, both left much to be desired. The largest and best collection of open-air Grapes came from M. Besson, nurseryman, Marseilles, who had 150 varieties, including all the well-known kinds, and three American varieties, which M. Besson shows as being able to resist the Phylloxera. The only other samples of outdoor Grapes were contributed by M. de Poorter, of Evergem.

It was too late to expect many Peaches and Nectarines, and consequently these were quite an unimportant feature, while the Pine-apples, Plums, Figs, and Nuts were very poor.

PRIZES.

The following are among the principal prizes:—The King's gold medal, to be awarded to the most remarkable of the exhibits, and which cannot be taken with any other prize, was voted to M. X. Grégoire-Nélis, of Jodoigne, for the large collection of seedling Pears above alluded to. The gold medal given by M. Maurice de Ghellinck de Walle, as a *souvenir* of the late President of the Cercle d'Arboriculture, M. Edmond de Ghellinck de Walle, was awarded to MM. Baltet Frères, nurserymen, Troyes, they having, by the number and importance of their exhibits, contributed most to the splendour of the exhibition. Silver-gilt medals were awarded to the Central Arboricultural Society of Belgium, for a large collection of fruits of all kinds, in which Apples and Pears of fine quality formed the greater portion; to A. M. P. de Pannemaeker, Ghent, for coloured plates of plants and fruits; to the editors of the *Revue de l'Horticulture Belge*, for their useful publication; and to M. de Saegherr, nurseryman, Ghent, for a group of decorative plants. Silver medals were also voted to M. Ernest Burvenich, Gendbrugge, for a large and most interesting collection of Gourds; to M. Verhille, Neuve-Eglise, for photographs of trees cultivated at his establishment; to M. Ed. Pynaert, nurseryman, Ghent, for flower-stands, made of virgin cork; to M. Maurer, gr. to S.A.R. le Grand Duc de Saxe, Jéna, for a small collection of Nuts; to M. Debock, nurseryman, Ghent, for a small collection of Palms and other fine-foliaged plants; to M. Ed. Pynaert, for his fruit labels; and to M. Van Hoecke, Ledeberg, for iron fruit trellises; and "Honourable Mention" was the award made to M. L. Bossaerts-Donkelaar, of the Botanic Garden, Ghent, for light brushes, made of the leaves of Stipa pinnata, for the artificial fertilisation of fruit trees; to M. Ad. Hoste, Ghent, for his collection of horticultural books; to M. Dudok de Wit, of Amsterdam, for a small collection of Grapes; to M. Blutz, nurseryman, Verviers, for Peaches obtained from seeds imported from Buenos Ayres; to M. Luizet, nurseryman, Ecully les Lyon, for a collection of Peaches; and to MM. Bertrand & Co., Anvers, for samples of guano.

Stamford Horticultural: *Sept.* 15.—The judging at this show was got through in good time, and early in the afternoon the whole of the departments were open to the public. There has not been so successful a flower show here, probably, for many years. The classes were numerous, and each had a respectable number of exhibitors. The first in order of the marquees was that devoted to the exhibits of foliage and flowering plants and Ferns, of which there was a really magnificent display. Thanks to the care and taste of Mr. Flood, who has assisted the show committee in the arrangement of their exhibitions for four years, every plant was placed so as to show to the greatest advantage. The 1st prize collection, from the nurseries of Messrs. Cole, of Manchester, embraced some fine plants, amongst which were fine specimens of Allamanda nobilis, a thick, graceful plant, with dark green foliage and brilliant yellow flowers; of Ixora coccinea superba, another member of the same family; of Croton angustifolius, one of the most handsome of the Crotons; a beautiful plant of Allamanda grandiflora, deserving of special notice, and which attracted universal admiration from the beauty of its bloom and foliage. The flower is large, of delicate texture, and a clear white in colour, while the tint of foliage is a deep olive, making a charming contrast. There were also in the collection very fine specimens of Vinca oculata and Croton variegatus. In the 2d prize collection in the same class, that of Mr. Cypher, of Derby, there was a very fine Cycas revoluta, a Clerodendron Balfourianum, a rich crimson and white flower, with large deep green foliage; an Alocasia variegata; a pink Vinca, a very fine plant, well grown; and a lot of creditable Liliums. In the collection exhibited by Mr. J. Howes, of Peterborough, were a fine Lapageria rosea and a beautiful Allamanda Hendersoni. The collections of English Ferns, taken as a whole, were far above the ordinary standard of excellence. In the 1st prize collection were a Silver Fern and three other valuable Ferns, Gleichenia Speluncæ, Gleichenia dichotoma, and Davallia Mooreana, with a capital specimen of Adiantum Farleyense. The 2d prize lot of Ferns had many points of excellence. The Palms shown were also, as a class, very good. In the second tent there were arranged the cut flowers. Of these the Roses from Mr. G. Prince, of Oxford, were—considering the lateness of the season and the hot dry weather recently experienced—very good. The blooms with which he took a 1st prize honestly deserved the honour bestowed upon them. The Dahlias are now, as a rule, at their best, and of these autumn and early winter flowers there was a very large show, embracing nearly if not all the known varieties. A fine collection of spikes of Gladioli, staged by Messrs. Kelway, of Langport, graced the centre of the room, and were generally admired. The cut blooms of Pelargoniums were also good, especially the double ones; and it would be hard to beat the dozen Hollyhocks staged by Messrs. Brown, of Stamford, which took the 1st prize. Without stopping to mention each individual class of exhibits in the other tents, we may say in the bulk that they were of high-class quality.

The classes of fruits were as fine as could be desired. Mr. R. Gilbert, gr. to the Marquis of Exeter, was 1st, with a collection of twelve kinds, which comprised Alicante, Muscat, and Trebbiano Grapes of excellent quality, two splendid Melons, fine Charlotte Rothschild Pine, very large Barrington Peaches and Victoria Nectarines, good Brown Turkey Figs, Coe's Golden Drop Plums, Morello Cherries, and Williams' Bon Chrétien Pears.

For collections of eight kinds only two lots were staged. Muscats were sparsely represented—only two exhibits, but of very good quality. In the class for Black Hamburghs four competed, the 1st prize going to Mr. T. B. Dolby, Hope Nurseries, Boston. For other white kinds Mr. Gilbert obtained the 1st prize, with large well-finished bunches of Trebbiano; and for other British kinds, the 1st prize fell to large and well finished bunches of Alicante, the 2d to good Lady Downe's. In the class for two Queen Pines there were two exhibits, the fruits of average quality; and for a single fruit of any other kind, Mr. Gilbert was placed 1st for a handsome Smooth Cayenne of 6 lb., which required a few more days to finish it perfectly. In the class for a single dish of eight Peaches thirteen lots were staged, those which were placed 1st coming from Mr. Felbrooke, gr. to B. Brown, Esq., Deddington, Hunts—very fine examples of Princess of Wales, a light variety. Eight dishes of Nectarines were staged, amongst them good examples of Victoria and Violette, Hâtive.—Mr. G. Haines, gr. to H. L. Wingfield, Esq., being 1st, with the latter-named sort. But few dishes of Apricots and Figs were shown, but in the Plum classes there was strong competition—sixteen dishes of light sorts—1st and 2d prizes going to Magnum Bonums, and 3d to Transparent Gage. Blue varieties, twenty-one dishes—Mr. Ewart, Apethorpe, Wrayford, being 1st.

Culinary Apples in quantity and excellent in quality were largely represented, the 1st prize lot consisting of wonderful specimens of Lord Suffield, Wellington, Hawthornden, Stirling Castle, Cellini Pippin, and Warner's King; these were from Mr. Frisby, Blanking Hall, Sleaford. Nineteen dishes of dessert Apples were staged, most of them being unripe: the 1st prize was awarded to an unknown variety.

Dessert Pears consisted chiefly of Williams' Bon Chrétien, the 1st prize going to a nice dish of Marie Louise. In the miscellaneous class were six dishes of distinct sorts of Nectarines, to which an extra prize was awarded; they came from Mr. Cox, Madresfield Court, Great Malvern.

The five-guinea cup offered by Messrs. Carter was admirably won by Mr. Gilbert, of Burghley. His collection comprised fine Tomatos, Canadian Wonder Beans, and Carter's Champion Runner do.; Trebons and Reading Onions, a good dish of Cauliflower, Brussels Sprouts, Green Gage Tomato, and a fine brace of Daniel's Duke of Edinburgh Cucumbers. Three lots competed in this class.

For eight varieties nine lots were staged, and for six eight were put up. The best collection of Salad came from Mr. Gilbert, and the single dishes of other kinds of vegetables were numerous and good.

The Potatos were a most important feature at this show, about 900 entries being made in the different classes. For the principal prize (£10), for a collection of twenty-four dishes, nine tubers on each, Mr. McKinlay, of Beckenham, Kent, was 1st, with a marvellously fine lot; Mr. Gilbert, Burghley, 2d; and Mr. Learke 3d. Three extra prizes were awarded to other lots in this most interesting class. The prizes were well contested in the other classes, many of which contained wonderfully fine examples.

The premier prize of £20, given by the Marquis of Exeter, went to the Messrs. Cole, of Withington, near Manchester, for a grand lot.

An exhibition of bees is out of the ordinary line of shows, and the committee acted wisely in thus providing a novelty for the visitors when tired of flowers, fruit, and vegetables. The visitors were very numerous while the practical manipulation of live bees, making artificial swarms, transferring combs from skeps to bar-frame hives, finding queens, &c.—which proved so attractive at the Crystal Palace last autumn—was being repeated by several eminent bee-masters.

The whole of the classes were well contested at this extensive show, and the arrangements reflected great credit on the managers.

Stevenage Horticultural: *Sept.* 15.—The second exhibition of this society for the present year was held in the Public Hall at Stevenage, on the above date; and, as compared with the exhibition held at this time last year, was a great improvement on it, the hall being quite filled with exhibits of a most satisfactory character.

There are classes specially for cottagers, and Stevenage being a purely agricultural district there are a large number of these living in it and the outlying villages, which are comprehended in the society's district; and there are classes for amateurs also, in which cottagers can exhibit, but no person who is by profession a gardener can show in the amateurs' class. There is also a general class in which professional gardeners can compete. The prizes are not large, but they are well competed for, and the biennial exhibitions excite considerable interest in the neighbourhood.

In all the cottagers' classes the competition was exceedingly good; and in that for one plant in a pot something like twenty were staged, the best being a capital example of Begonia erecta multiflora, of *bonâ fide* window growth, well grown and neatly flowered. As it was exhibited by a few others it is no doubt a favourite window plant in the locality. This plant was grown by Esther Piggott, who is invariably fortunate in securing a prize. Henry Baldry and Thomas Cooper were placed equal 2d—the former with a good Vallota purpurea, the latter with a remarkably fine plant of a Coleus grown in a 48-pot. A nice Zonal Pelargonium was 3d. In addition there were Fuchsias, Calceolarias, Petunias, Cacti, &c. Cut Dahlias, Asters, bunches of cut flowers, collections of six bunches of do., wild flowers, were all shown in a praiseworthy manner, and the same remark holds good as to Apples and Plums, the culinary Apples being especially fine. The best basket of vegetables, shown by William Hough, would have done credit to many professional gardeners, as it represented a good selection of subjects of excellent quality. Thus Potatos, Onions, Celery, Carrots, Parsnips, Peas, Scarlet Runners, and Savoys were all remarkably good, and the competition very close.

The least satisfactory exhibits were found in the amateurs' classes, and some of the classes did not fill at all. Their fruits and vegetables were much in advance of their plants and cut flowers; and here again Apples were very fine.

In the general classes there was a good competition. The best group of six dissimilar plants in pots did not call for special remark, but in that for six plants of any one class some excellently grown Balsams and nice bushy examples of Coleus were shown by the Rev. J. O. Seager. There were some excellent Fuchsias from two or three exhibitors, nice dwarf, bushy specimens, well grown and flowered, and very fresh—and a pretty display they made. Of cut flowers Dahlias and Asters were well done, the best of the latter being some pretty quilled varieties.

The best bunch of Grapes was Muscat of Alexandria, from Knebworth Gardens; and Mr. T. W. Franklin had a good bunch of Black Hamburgh. The best basket of fruit came from Mr. George Dunn, surgeon, the hon. secretary. In the dish for Peaches a remarkably fine dish of Walburton Admirable came from Colonel Metcalfe, and several other dishes were good also. Nectarines and Plums were good, and dessert Pears also, the best being Bon Chrétien. There were some nice table Apples, while the culinary Apples were numerously and splendidly shown.

As usual, there was a spirited competition in the class for a basket of mixed vegetables. The best contained almost everything grown in a garden, but all nicely arranged and of capital quality. This came from the Rev. J. O. Seager, and Captain Fellowes and Mr. George Salmon were respectively 2d and 3d.

All the vegetables in their several classes were well shown, but especially was this true of the Carrots, the best being of the Intermediate type; Early Horn was also finely shown. The best dish of Potatos was Snowflake, and next to that came some fine samples of Myatt's Ashleaf.

There were two classes for collections of cut flowers, in one case the prizes being offered for variety and beauty, and in the other for taste displayed in their arrangement, and they were well contested by the local gentry. The best displays came from Mr. George Dunn and Captain Fellowes, considerable taste being shown by both exhibitors.

The weather was very fine, and the cottager classes especially appeared to enjoy their floral *fête*, which is to them quite a gala day.

Thornton Heath: *Sept.* 14.—This show, the first attempted at Thornton Heath, took place in the Athenæum, a light and suitable edifice, and in tents in the adjacent grounds.

The fruit generally was good, especially the Apples. For both the kitchen and dessert Apples the awards were closely contested, the place of honour falling in the former division to Mr. G. Beard, a cottager, who showed a dish of Emperor Alexander, of fine size and shape; the prize in the latter falling to C. Robinson, Esq.; 2d places were respectively secured by Henry Wyndham, Esq., and by Dr. Dee Shapland. In Pears, a dish of Williams' Bon Chrétien, exhibited by C. R. Christie, Esq., was adjudged the prize; the 2d place again falling to Dr. Shapland. The prize in Peaches was taken by M. C. Runmer, Esq., of South Norwood; that in Nectarines by Mrs. Jones, of Thornton Heath. Plums were very good, the prize being secured by Captain P. Read for a dish of Nectarine Plums; Mr. Atterbury taking the 2d place. In Grapes the prize fell to Mr. J. Hayter, of Thornton Heath.

Vegetables also were generally very good. In the collection of six varieties the hon. secretary, Mr. J. S. Atterbury, showed the best basket, and the same gentleman was again successful with his Parsnips.

Potatos were well represented, there being four classes assigned to them. In round varieties Red-skin Flourball, shown by Mr. Henry King, of Thornton Heath, were adjudged the best; and in kidney varieties Mr. H. M. Hobbs took the lead. The collection of three sorts shown by Mr. G. Boteler took the prize; and in the cottagers' class J. Gorham was successful. Mr. Gorham also took prizes for some very fine Cabbages, and for his collection of cottage garden vegetables. Cucumbers and Lettuces of considerable merit were exhibited by Mr. Hayter, and the Onions of K. T. Oelrichs, Esq., who took the prize, were also good.

In the classes for flowers Mr. J. King, gr. to Stephenson Clarke, Esq., of Croydon Lodge, was successful in greenhouse plants, both flowering and foliage, and in greenhouse Ferns. Some fine Fuchsias, shown by K. T. Oelrichs, Esq., took a prize, and the same gentleman was successful with Dahlias. The prizes for Asters were closely competed for, and Mrs. Storer, of Thornton Heath, was named the winner. Tricolor Pelargoniums, shown by Mr. Dell, took the prize; and a collection of six greenhouse plants in flower, sent by Miss Fisher, was similarly fortunate. A collection of Palms, Tree Ferns, and greenhouse plants, sent by Mr. Henderson, of Sion Nursery, Thornton Heath, produced a most picturesque effect, placed as they were on a raised platform in a most conspicuous situation. Smaller collections were also exhibited by Mr. J. H. Ley, of the Royal Nurseries, Croydon, and by Messrs. James Carter & Co., of Sydenham and Holborn.

Collections of fruit were also lent by C. Hood, Esq., Grangewood, and F. B. Lefroy, Esq., of Thornton Heath.

Law Notes.

PLEA OF ILLNESS IN AN ACTION FOR WAGES.—*Fullarton* v. *Brooks.*—This was an action brought by a gardener against his employer, in the Bloomsbury County Court, on Tuesday last, before Mr. Judge Russell, in which the plaintiff sought to recover the sum of 30*s.*, for a week's wages, and 30*s.* for one week's wages in lieu of notice. The plaintiff said he had been for thirteen years in a prior situation, and brought an excellent character with him to his present employer, in whose service he had been only three weeks and two days when he was obliged by illness to go home and consult a medical man, who recommended him to rest for a few days. The plaintiff, however, returned to his employment after three days' absence, when he was told by his employer to leave, as he had taken on another gardener in his place, and was paid for two day's wages which was due to him, and when he applied for a full week's wages he was refused, hence the present action. In cross-examination, the plaintiff said he was accustomed to late hours, but did not consider that his illness was caused by excess, and thought his situation an unhealthy one.—Dr. Estall, M.R.C.S., said he was consulted by the plaintiff, whom he found suffering from extreme nervous debility, and advised extreme quiet for a day or two.—Mr. Beard, the defendant's solicitor, urged that the plaintiff's illness was no cause for action, as it was reasonable to suppose that, if ill, he ought to have sent the defendant notice, and called Mr. Brooks, who said that, in consequence of the plaintiff's absence without any cause being assigned, he had engaged another man in his place, and that, on telling the plaintiff this, he became so very abusive that he had to call in the aid of a policeman to remove him from the premises.—The learned Judge said that he did not consider the plaintiff's illness to be of such a nature as to preclude the plaintiff from sending word to the defendant; and as the plaintiff had taken two days' wages he had virtually put an end to his engagement. Judgment would, therefore, be for the defendant, with costs.

The Villa Garden.

THE shortening days indicate unmistakably the drawing near of autumn, though the bright and sunny weather we are now enjoying may last for many days to come, and while the days are genial and warm, frosts—the dread of the gardener in September—can hardly put in appearance. We want this bright open weather on other grounds, one of the chief of these being to ripen the growth of fruit trees. Owing to the wet of summer they have been making growth beyond their usual time, and are even growing still, but the dry weather will check the growth to some extent, and greatly promote the proper ripening of the wood. It is also wanted in order that the garden may be cleared of refuse and weeds. At this season of the year a good amount of rubbish accumulates, and it is laid aside to dry, and then burnt as soon as it has become readily combustible. We have a kind of permanent fire-heap going just now, and a good heap of ashes is accumulating. Almost daily additions are being made to it, for there is nothing like keeping rubbish that is of no other use than for burning consumed. This heap of ashes will be of great service by-and-bye; we are using it instead of sand for mixing with potting soil, to keep it open. At best sand is but a mechanical agent, but these ashes have an undoubted chemical value also, and are thus far better than sand. As soon as rain falls, and the heap becomes saturated with moisture, the contents will be sifted, and all the finer parts stored away in a dry spot, to mingle with the potting soil, especially that used for Primroses, Auriculas, Polyanthuses, &c. The coarser refuse is looked over, all pieces of charcoal picked out and carefully preserved for drainage for pots, and the remainder dug into the stiffest soil in our garden. Stiff soils work with some difficulty just now, because they have become baked so much of late, but by beating the lumps with the back of a spade they soon break to pieces. The stiffest parts of the garden are now being dug over two or three times where the crops are removed, in order to get the soil pulverised and of a comfortable working character.

THE MIXED BORDER.—This pleasure-yielding part of the garden requires almost daily attention, as flowers are decaying, and we like to remove the withering stalks as soons as possible. As soon as the foliage of any strong hardy plant, such as Delphinium, Potentilla, Aconitum, &c., decays, we cut away the stalks, and then loosen the soil a little about the roots, pouring in some water to get the earth moist about it, for in the case of strong growing plants the ground has become very dry about the roots. We then cast about the roots a little decayed vegetable refuse, and leave them for the autumn. Anything like stout flower-stalks that will not readily rot is at once burnt; but all that will speedily decay is conveyed to the rubbish heap—that invaluable assistant to the Villa gardener, for he is constantly finding some use for it. One of the grandest of our hardy plants at the present moment is Anemone japonica, and its white variety alba, known also as Honorine Jaubert. Clumps of this are now laden with flowers, and as long as the plants are not allowed to suffer from drought you may cut liberally of its white blossoms. Some beautiful Potentillas, the yellow Linum flavum, the glorious old blue Salvia patens, almost unequalled as a hardy blue flower; Gladioli, Asters of the Victoria type, which have been very fine this season; Pentstemons, Violas, the double zebra Marigold, a variety of the pot or garden Marigold, the yellow flowers striped with orange; and others, are now very gay, and minister much to the pleasures found in a garden. One never tires of these things as one does of patches of ordinary bedding plants; and the most beautiful portraits in the way of embroidered beds become monotonous from their very sameness of character.

LATE PEAS.—The haulm of these will now be decaying, and they should be cleared from the ground. If the sticks have been made of young tough hazel twigs they will keep for use another year if there is space to stow them away, but they cause some trouble during the winter to keep them in order, as they are apt to get blown about and disarranged in various ways. As we grow only dwarf Peas, and a bundle of sticks will go a long way if economised, we have given up keeping them through the winter, and prefer to convert them to serviceable wood-ashes. Early sown Scarlet Runners are being cleared away also, and the haulm of these as well as of the Peas put away on the rubbish heap to rot with leaves and refuse soil. The ground is then forked over as deeply as possible, and the lumps broken to pieces; by-and-bye, when rain falls, the ground will be well dug and manured.

EARLY CABBAGES.—Notwithstanding the drought we are putting out some plants on one of the cleared pieces of ground. The soil in the lines for the plants is rather firmly trodden down, and holes made about 15 inches apart with a setting stick; then they are filled with water so as to well moisten the soil. We have also made a liquid paste in an old pan, using clay and a little soot, the former well moistened with water; and into this liquid the root of each plant is dipped before placing it in the hole, and the soil is pressed firmly about it. Cabbage plants when put out in this fashion during dry weather seldom fail. The roots will soon begin to start in the moistened soil, and when rain comes by-and bye the plants will become firmly established. Our favourite varieties of Cabbage for small gardens are the Early Dwarf York and the Improved Nonpareil, and the former can be planted only a foot apart. We put Cabbage among the most delicious vegetables that can be grown in a Villa Garden. We have now a small piece of the Improved Nonpareil that will soon turn in, and young Cabbage is a highly prized addition to the dinner-table. We like to have them small and tender in autumn and early spring, when they are at their best, and when in consequence they are most highly esteemed. As soon as the newly put in plants begin to make a little headway in the matter of growth, the soil is drawn up on either side of them in the form of a ridge, the plants being in a kind of drill. The soil affords some protection to the roots in winter, and assists them in summer by keeping them cool and moist; and as the roots of the Cabbage come pretty near to the surface it ensures them something to feed upon.

Florists' Flowers.

TRACING the CARNATION back to its origin, as seen in the single-flowered species, known to botanists as Dianthus Caryophyllus, we then see what an immense improvement the florist has wrought in regard to the enlargement and beauty of its individual blooms. Indeed, perhaps as regards its wonderful colour and illimitable lacings and markings, the improvement has been greater than in any other class of plants operated on.

It is stated in somewhat authoritative works of botanical or garden reference that the above species was a genuine native British plant. Some doubt must always exist on this point, because, though it is to be seen growing wild in some few parts of the country at this time, and has existed there for some years past, yet when we consider that these situations consist of such sites as the walls and other surroundings of Rochester Castle, in Kent, which are artificial in their formation, we may surmise that such a site affords no criterion that it is a true indigenous habitat, but rather suggests that the seeds may have been scattered there primarily by artificial means. [See the interesting letter of Mr. Ellacombe, who found the plant growing on Norman Castles in France, of about the same date as that at Rochester, and who hence surmises that the plant may have been introduced by the Norman invaders from one to the other.] Certain is it, however, that the species hast been in

times past introduced into this country from Italy, and it is more than probable that all our examples may have originated from that same source.

Floricultural history, to which we must refer for information on the score of bygone practices with this particular flower, informs us that a florist, who lived somewhere in the neighbourhood of Westminster—then, doubtless, suburban Westminster—and whose name was Tuggy, cultivated about the end of the sixteenth century some four dozen reputed varieties. Following the florist Tuggy, we find the renowned Hogg had made a great stride in advance immediately following the advent of the eighteenth century, having been greatly aided in the interval doubtless by many others whose names have not made so decided a mark upon floricultural history. In the year 1831 Hogg published a catalogue wherein he enumerated as many as 400 distinct varieties!

We now turn to the various distinguishing features which the florist has reared so effectively in connection with these beautiful garden hybrids, consisting, as they do, of Carnations, Picotees, and Pinks proper. These names are very popular, though I have reason to believe the distinguishing features of these three are but very indifferently understood practically, judging from the remarks I have often heard made before stands of cut blooms of either at our metropolitan exhibitions.

Carnations.—The leading and prominent features of a Carnation should consist of size and substance of petals—in having bars, flakes, or stripes from the outer edges down to the base of each petal, or centre of each bloom. The ground colour and bars, or rainbow-tints, should be equal in size, or as nearly so as possible, and they should widen somewhat as they near the edges of the petals; this in ratio with the natural widening of the petals themselves. Carnations of this class are divided into "flakes" and "bizarres." The "flakes" have one distinct colour only, as represented in the bars pervading each petal, besides the ground colour; this, in regard to the unity of colour exemplified in "flakes," may constitute them as being true bicolors only. "Bizarres," by contrast from these latter, should possess two distinct coloured bars pervading the blooms, besides the ground colour; and this I may say, by way of producing a simply understood distinction, would constitute them as being tricolored. It must be distinctly understood that these bars of colour must run through the petals to the outer edge; this constitutes an essentially characteristic feature of true Carnations, and will aid greatly in understanding how to distinguish them from other sections which I shall treat of in due order. I should add there are subsections of both the above, according to their several colours, which is explained by the terms "rose bizarres," "rose flakes," or such other colours as are displayed in their several sections.

Pinks.—The distinguishing features of Pinks exhibit themselves primarily in connection with their very beautiful "lacings," and the lacings of a Pink should always be formed of irregular lines upon either side, as represented by its outer and inner edges. These lacings may be likened, in fact, upon good and superior grown blooms, to the best examples of embroidery. A white outer edge is essential to the Pink also, the better to display the tracings aforesaid. Pinks should also possess coloured eyes, which may, however, be irregularly formed in different flowers of various varieties, which should proceed from the centre up toward the middle of each petal viewed longitudinally. This will form a distinguishing feature between the Pink and the object of the next section.

Picotees.—This latter section, comprising those which, as regards their markings, are perhaps the most beautiful of the three, are very readily distinguished from either. The Picotee, unlike the Carnation, has no plainly discerned "bars" or "flakes" pervading the petals throughout to their very outer edges. Unlike the Pink, it has no outer white edges—laid on, as it were; and this very prominent feature is a fact by which it may be very readily distinguished from the latter. Picotees have their colour tints prevailing around their extreme outer edges alone, from whence the colour fluctuates in a varying, feathery, or waved manner towards the centre. The inner edges of the colour are thus fluctuating and variable, whilst from the outer edges a more solid and permanent escarpment decline exists.

Turn we now to the more important matter of cultivation; and to simplify the matter, the culture of all may be classed under a single head. If any distinction exists, or is requisite, it consists of the fact that Picotees, being more tender, will always require rather more personal supervision than the others, though to grow either well I need not add no neglect must be permitted in regard to either. We find in those situations where the original parent exists naturally, that its predilections are a firm or somewhat solid basis for its roots to ramify and grow in, as it is met with in masonry growing forth from bricks, mortar, and lime rubbish, or upon light, well-drained, stony soils. As is known, all good varieties sprang from seedling plants originally; though, as is generally known also, all named varieties must be propagated and perpetuated by the process of striking cuttings or "layers," and pipings, &c.; nevertheless many good and meritorious garden varieties are now gotten from seedling plants, the produce of one packet of seed.

Those who have resort to seed sowing, should procure and sow the seeds not later than the second week in March. Let them be sown in pans, having properly prepared and sifted soil upon the surface, consisting of good fibrous maiden loam and cow or horse-dung, thoroughly decayed, with a good dash of coarse, gritty sand added. A slight amount of artificial warmth may be afforded, which will cause the seeds to germinate more freely. Immediately germination has taken place let them be removed, however, to a light, airy shelf in a greenhouse, or similar kind of structure. Those who do not possess such conveniences for the early germination of seeds may sow early in May, placing the pans in a half-shaded position, keeping the soil therein uniformly moderately moist. As soon as the plants assume a height of little less than 2 inches, which they do generally with the formation of the third pair of leaves, they will require to be transplanted into a nursery bed, about 6 inches apart in the rows, &c. Keep them constantly watered in this last position until they have formed good sized young plants, and the first week of September, when they may be transplanted into their permanent winter and subsequent spring and summer blooming quarters.

Propagation by means of layers I need but refer to shortly, though I am compelled to believe, on the statement of such an unquestionable authority as Hogg, that my professional brethren of the blue apron are anything but experts at this work. For Hogg plainly says, "Common gardeners are great bunglers in laying, whereas I could trust implicitly to an amateur tailor, weaver, or barber (!) who had the least practice with their own flowers." This I cannot by any means endorse, so extremely simple is the process. If there is one part of the operation more than another wherein we err, it is, however, that in practice the young and tender points are layered instead of older stems, at a greater distance from the younger growth points. Old wood at the base of the current growth is always capable of emitting roots more freely than young, soft, sappy growth—a fact readily understood. Indeed, I should not be at all averse to laying the base of a blooming shoot, being convinced that it would root readily. Do not, therefore, layer the points of the shoots, but choose the more permanent "wood" at the base. In layering always endeavour to peg the notched part, from which the roots are expected to protrude, sufficiently deep below the surface to assure a uniform degree of moisture, without which little hope of a quick and plentiful root formation can be indulged in. If the layers have the leaves around the buried portion removed neatly, a cleft made from below upward with the knife to a third the thickness of the branch and half an inch long, the cleft or tongue-shaped detached portion being kept somewhat open by the introduction of a little soil, and the whole when buried kept moderately moist, the layers may be expected to root freely in about twenty days, and be ready to sever in a month, and be subsequently detached entirely from the parent plants, in view to transplant them permanently on to separate beds.

Cuttings or "pipings" are very simply formed and caused to root if one or two facts be kept in view. June and the beginning of July are the best times for striking cuttings. Cuttings from any plant showing a tendency to form "run" blooms should never be used. They should be neatly cut, taken with a very sharp knife at the second or third distinctly observable joint below the young "point" leaves; the young leaves should be very carefully removed from around the base of the two lower joints, even to any minute particles or remnant scales. As soon as the cuttings are made they should be tossed into a vessel of water, there to lie for half an hour, which will plump them up and conduce to their more spontaneous root-production. The best subsequent treatment is to form a nice little hotbed, upon which soil to half a foot in thickness should be placed, of a proper sandy composition, which is patted down, well watered, and upon which the handlights are fixed. Then, whilst the soil is moist, the pipings are taken one by by one out of the water, and pressed carefully down to half their depth into the soil, neatly in rows, &c. They should not be watered for a day or two subsequently, but the lights placed over them and the plants well shaded. At the end of a couple of days give them a good watering. Watch the bed in view of maintaining a nice heat, &c., but do not give air, as they root far more freely without it. Some growers cut the tops of the "grass" off the pipings—a barbarous practice, not to be commended. If things progress favourably the glasses should remain intact for about fourteen days, when sprinklings should be occasionally given in the early mornings, the glasses being kept off until the moisture is somewhat dried up. A little air and less shading may be given on any but very bright sunny days, night air being given always more freely after this time. Immediately any form roots a corresponding growth will commence; this must be closely watched for, and more air immediately given in gradually increasing quantities until the lights are removed bodily. If these latter considerations are neglected, in all probability the young plants will become so drawn as almost to have been destroyed, in so far as a possibility of forming good robust plants subsequently exists.

In regard to the winter culture of the above and of all other young plants, however propagated, they are not at all likely to receive any injury from dry frosts if moderately severe. They not unfrequently succumb to severe frosts, in connection with excessive wet, rainy, or sloppy snowy weather. The best way to protect them is to place a light of some kind over them, which will throw off all moisture yet allow the freeest possible egress to damp, and ingress to all the fresh air possible. The two latter suggestions are important from the fact that a mildew pest will often attack them, if too close an air be at any time maintained. The treatment when grown in pots differs so little from such as is most natural and necessary out-of-doors that I need not extend these remarks on that particular point. I will, however, add a few suggestions regarding the most suitable soils. I have already suggested, at the commencement, how fond the original species is of old walls, &c., a fact that should not be lost sight of. The most suitable soil is a free open maiden loam. Old florists recommend such as is found 4 or 5 inches deep, and not the turf spit thoroughly decayed, such as we of the modern way of thinking are so wont to use for everything special. In any case the soil should be naturally open and perfectly porous, and not binding when watered; a fifteenth part of lime should be added, and a fifth part of sheep or cow-dung, collected when dry, and subsequently lain in a heap to become thoroughly decayed. It is customary to mix these together some months before they are needed for use, throwing all up together, in a rounded or conical heap; I see no need for this prevision. Suffice it, if the proper ingredients are in a proper state of preparation and to hand; there can be no excuse for mixing them together, indeed the beneficial effects of the air are best manifested when the substances are kept separate. If the soil be at all of a binding nature, a sixth part of rough sea, or other kind of sand or grit should be added. Care must be taken not to bury any too deeply, whether potted or planted, in the open ground; the soil must be pressed firmly around the base in any case. Very choice kinds may be advantageously protected by means of hoops and mats during very severe weather. A good top-dressing of decayed cow-dung and sandy soil may be profitably afforded during the last week in May. Neatly pointed stakes should be placed to the flower-stalks before they attain any length, that the upright stalks be kept straight from the first. When very fine blooms are needed, constant waterings must be given during the whole period of the buds swelling, should no rain fall; the soil must, however, not be overcharged with water. About four or five days previously to the blooms expanding, the buds are very liable to rend or burst open at the sides; to prevent this a neat bit of tying-grass should be securely fastened around the centre of the green calyx. The old school used to place card collars around each bloom for their support, an operation few modern gardeners have time to perform. To enhance the colour of the blooms shading should be had resort to. Wireworm (to prevent which lime is used as above), leather-coated grubs, and aphis, are natural enemies to this group of plants, and must be guarded against by the customary means. *William Earley, Valentines.*

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS. — The splendid summer weather which this autumn we have experienced has been more than usually favourable for ripening and maturing plants of all descriptions, especially such as have been exposed to the open air, and which receive so much benefit from the heavy dews during the night, and bright sun in the day; but the time has now come when it will not be safe to trust them longer out, unless where they stand under a light wooden framework, provided with canvas covers that can be let down in the nights when there appears danger of frost. Where a convenience of this description exists, the greater portion of the plants may remain out for a week or two longer in the southern division of the kingdom. In the north it will not be safe to allow the more tender things, such as *Boronias*, *Pimeleas*, *Hedaromas*, or *Leschenaultias*, to stay longer out. Advantage should be taken of the absence of the plants from the houses they usually occupy, to give these a thorough cleansing inside by washing the glass and scrubbing the bars, rafters, and shelves. This is not alone beneficial to the occupants by admitting more light to them through the winter, but, when the woodwork is kept free from accumula-

tions of dirt that absorbs damp, it will last much longer. When the plants are brought in, sufficient forethought should be exercised to give each the most suitable position in the house. The more delicate subjects, such as *Dracophyllum gracile*, *Hedaromas*, *Tetrathecas*, *Boronias*, *Gompholobiums*, *Phœnocomas*, *Roella ciliata*, &c., should have the best places near the glass, where there will be nothing to obstruct the light getting to them all round. *Eriostemons*, *Dillwynias*, *Epacris*, *Chorozemas*, *Polygalas*, *Correas*, *Cytisus*, *Mirbelias*, *Swainsonas*, *Aphelexis*, and *Croweas* will do in somewhat worse positions, though all should have the best which is available. In houses where there is a deficiency of light, the plants ought to be elevated on large inverted pots, so as to get their heads as near the roof as possible; when so placed the appearance is not so good as when they are arranged for effect, but with valuable plants their healthy condition should be the first consideration.

Leschenaultias, *Statices*, and *Pimeleas*, especially *P. spectabilis*, should be wintered in a house where the temperature is a few degrees warmer than advisable for the general hard-wooded stock. Where the above subjects are kept for a lengthened period during the winter in a low temperature of say 36° in the night, such as is usual with the generality of hard-wooded plants, where these have to be kept back for exhibition purposes, they are sure to become a prey to mildew, even when the precautions have been taken of maturing the growth thoroughly. If no separate house is available for *Heaths*, they must be placed at the coolest end of the New Holland house, admitting the most air where they stand. From this time until spring, when the growing season again commences, the atmosphere in regard to moisture should be just the reverse of what it was required to be during the summer, when growth was progressing. See that the plants before being housed are thoroughly clear of insects, especially those that increase quickly, such as aphides or spider, for although the season is far advanced there is yet sufficient warmth to keep the latter insect active for some time yet, and aphides, if existent upon the plants when got in, will increase apace.

SOFT-WOODED GREENHOUSE PLANTS.—Show and Fancy varieties of *Pelargoniums* that have been shaken out, repotted, and after this placed in pits or frames, should at once be got into the places in which they are to be wintered. Where they can be accommodated with a house to themselves, they ought to be elevated so that their tops will be within a foot or two of the roof, and far enough apart to allow full light to get to the bottom leaves; and when the shoots are 3 or 4 inches long, they should be tied out. From this time forward give them no more water than just sufficient to keep the soil in the condition required through the winter by these plants, which is drier than almost any others in a growing state could bear. If it is kept as wet for Pelargoniums as the generality of other things, it has the effect of stopping the progress of root-formation, and induces too much growth in the leaves. Specimen Zonal Pelargoniums should also be in a good light situation, and have their shoots regularly tied out. Zonals that have been grown in small pots for winter flowering, and fully hardened by exposure to the sun and air, should now be got under cover. Place them for the present in a dry, airy pit from which the lights can be drawn off in the day, but they must not be allowed to get drenched with heavy rains. Here they may remain until a short time before they are wanted in bloom, when they can be placed in a temperature of 50° at night. In most cases it is better to divide such things as these, starting a portion at a time so as to give a succession.

Salvias that have been standing outdoors must be at once taken in, for should a frost occur, even though trifling, it will do them serious harm; they ought to be put in a house or pit where the temperature is not lower than 45°; if too cold the flowers are liable to fall off.

Solanums are more than usually backward this season, through the effects of the late spring. Those who adopted the practice of turning them out as advised—soon in the spring, will this year see the desirability of so doing, as the early put-out plants will be full of berries, many of which will now be colouring; whereas, such as were not got out until the usual time with many growers of this subject, will be both late and deficient in berry. It is now time to lift and pot them; but it is not advisable to use larger pots than the roots can be got into without injuring them; 6 or 7 inches in diameter is big enough. They will require a few bits of crocks in the bottom with ordinary sandy loam; pot them moderately firm, and immediately give a good soaking with water. They should then be placed on the north side of a wall, where little sun will reach them; if in frames, all the better, as then the lights can be put over them at night when there appears danger of frost, but they should be fully exposed to the air in the day, and the soil continually kept wet enough to prevent their flagging in the least, until they have got established, as if they are allowed to droop, the leaves are certain to suffer, which much injures their appearance. The quantity of water these newly-potted Solanums require to keep the leaves right would kill most plants. When well managed, full of dark-green healthy foliage, and laden with bright orange-coloured fruit, they are amongst the most useful winter decorative subjects we have. *T. Baines.*

HARDY FRUIT GARDEN.

The rapid maturation of fruit will necessitate the immediate gathering in of many of the earlier kinds of keeping fruit. Apples, especially such varieties as Hawthornden, Cellini, Cox's Pomona, and many others, are now showing evident signs of maturity by falling freely, and should be taken in at an early opportunity. Of Pears, Williams' Bon Chrétien has been principally gathered in warm situations; but on cold soils, or on a north wall, these may be had for some time yet. Thompson's, Gratioli of Jersey, Louise Bonne, and a few others of the October Pears, may also be gathered. These are seldom improved by hanging too late, as they deteriorate in flavour when allowed to ripen perfectly on the tree. Knight's Monarch, though a fine Pear, excellent in quality, and a long-keeping variety, hangs so lightly that it is subject to throw its fruit off in quantities, almost before fit for gathering; when grown on walls it is, therefore, a good plan to spread some long litter or other suitable material on the ground at the base of the trees, so as to preserve the fruit from bruising in falling, until the general crop is in a fit state for gathering. Late Peaches also require similar attention, and in some cases where birds are numerous it is well to hang a net in front of the trees so as to prevent attacks of this kind. Continue to prepare borders where it is intended to plant young fruit trees. Apricots and Peaches, where the wood is well matured, should occasionally be gone over, and any decayed leaves picked off, so as to admit all the light and air possible. After the first frost go over the trees with a light broom or besom, lightly brushing the branches upwards so as not to bruise the buds. This may be done occasionally, as the foliage shows signs of sufficient maturity. Strawberries in pots still require every attention as to the removal of weeds, runners, &c., and liberally supplied with water as required. Permanent beds which have been cleaned may now have a good dressing of manure spread between the plants; this helps to keep the stools secure from injury by frost, and also supplies the necessary stimulus for the next season's crop. *W. Cox.*

FRUIT HOUSES.

VINES.—Vines that are intended to ripen their fruit by the end of April, or beginning of May, ought to be pruned forthwith, as forcing must commence early in November. Let all the glass and woodwork be thoroughly cleaned and painted at once if necessary, to allow of its getting dry and hard before closing up the houses. As advised in a former Calendar, the old mulching and inert top soil should be removed, and replaced with good loam with which has been incorporated a liberal percentage of bone manure. This annual dressing induces the formation of surface roots, which being well protected when necessary, and fed in summer by manurial mulchings, are the mainstay of the Vines. Intermediate houses will now be nearly cleared of their crops, and if the wood is not ripening kindly, fire-heat should be applied in the daytime, but turned off at night, and all attempts at lateral growth be constantly checked by pinching. Young, or newly-planted Vines, that have been allowed to ramble at will, may now with advantage have some of the surplus shoots cut off, care being taken not to injure the large leaves at the base of the buds, on the main rods; maintain a warm airy atmosphere, till every particle of wood is hard and brown, and then gradually allow the Vines to go to rest. The same remarks apply to pot Vines, which ere this ought to be outside, but protected from heavy rains. Those intended for early forcing should now be shortened back to a length of 8 ft., and the side shoots to within an inch of the main rod. Late Grapes of all kinds ought now to be fully ripe, and if so, there is no danger of their failing to keep satisfactorily; if, however, there is any doubt as to their maturity, apply fire-heat till all uncertainty is past, as there is no danger of getting them too ripe. Hamburghs, and other thin-skinned kinds of Grapes, will at this season require frequent examination to remove decayed berries; damp being their greatest enemy, it should be expelled and prevented as much as possible by occasional fire-heat in the daytime when the ventilators are wide open; night firing is undesirable. *W. Wildsmith, Heckfield.*

KITCHEN GARDEN.

THE MUSHROOM-HOUSE.—Having procured and prepared the necessary amount of materials, according to the sizes of the beds, and the number it is intended to make at this time, the beds should be made up; and according to the situation each bed occupies as regards its nearness or otherwise to the heating media, &c., so should be the depth or thickness of the materials employed. For instance, if any bed has to be made near to a flue, or immediately above a hot-water pipe, it will be necessary to make it somewhat thicker than is needful in regard to such as are placed upon a cooler bottom, and where a certain amount of latent heat constantly exists. In view of such considerations as these it will be advisable to give greater depth to such as are grown upon elevated shelves than to others to be placed upon a more permanent base. As I have before suggested, the materials must be moderately dry, so dry in fact as not to exhibit a retention of water in bulk when placed under the utmost pressure by the hand. So prepared, toss the materials into the beds loosely, shaking them up lightly to a depth of at least 3 feet. Let them lie and sweat for two or three days. When this takes place, and a slight warmth is felt, proceed to tread, beat, and ram the materials down as firmly as possible. If the materials are dry enough there will now exist no danger of over-heating, but not otherwise. Make large shallow holes in the surface about 2 inches deep; break the spawn into pieces about the size of a green walnut, fix them firmly therein, and cover them over with the same materials; again well beat the bed over, and all, save the necessary watching of the temperature, to see that it does not unduly fluctuate, will have been done. Maintain the latter between the extremes of 56° and 80°, placing mats or hay over to insure this if necessary, but not if sufficient heat exists. I shall refer to the necessary soiling anon. *William Earley.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, SEPT. 22, 1875.

Month and Day.	Barometer.		Temperature of the Air.						Hygrometrical Deductions from Glaisher's Tables 5th Edition.		Wind.		Rainfall.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 18 Years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.		Dew Point.	Degree of Humidity. Sat. = 100.		Average Direction.	
	In.	In.	°	°	°	°	°	d					In.
Sept. 16	29.93	+0.07	73.8	51.6	22.2	61.0	+ 4.1	51.7	72		N.E.: E.		0.00
17	29.91	+0.06	78.5	55.1	23.4	64.5	+ 7.9	60.5	87		E.: S.E.		0.17
18	29.86	+0.02	80.7	52.9	27.8	64.4	+ 8.0	59.3	84		E.: E.S.E.		0.00
19	29.83	+0.01	78.2	58.0	20.2	66.6	+10.5	58.7	76		N.E.: S.		0.02
20	29.80	−0.02	72.6	54.4	18.2	63.0	+ 7.2	54.7	75		S.S.W.: S.		0.23
21	29.71	−0.09	67.2	54.8	12.4	59.7	+ 4.2	57.5	93		W.: S.W.		0.20
22	29.66	−0.14	70.2	56.2	14.0	61.3	+ 6.0	60.8	98		W.: S.W.		0.45
Mean	29.81	−0.01	74.4	54.7	19.7	62.9	+ 6.8	57.6	84		E.: S.W.		sum 1.07

Sept. 16.—A very fine warm day. Clear.
— 17.—Dull and cloudy till noon. Fine after. Slight thunderstorm, with heavy rain about 1.30 A.M. Fog at night.
— 18.—A fine hot day. Thick fog in early morning.
— 19.—A fine day. Slight shower of rain at 6.30 P.M.
— 20.—Fine till 11 A.M. Dull and heavy, rain fell till 11.15; 0.22 inch having fallen in 15 m. Fine, and slight showers afterwards.
— 21.—Overcast, dull, cool day. Rain fell after 6 P.M.
— 22.—A dull day, with frequent rain.

—— During the week ending Saturday, Sept. 18, in the vicinity of London the reading of the barometer at the level of the sea increased from 30.31 inches at the beginning of the week to 30.32 inches by the morning of the 12th, decreased to 30.3 inches by the afternoon of the 18th, and was 30.4 at the end of the week. The mean reading for the week was 30.16 inches, being 0.7 inch higher than that of the preceding week, and 0.10 above the average for the same week. The highest temperatures of the air at 4 feet above the ground, observed by day, ranged from 71° on the 15th, to 80¾° on the 18th; the mean for the week was 75°. The lowest temperatures of the air, observed by night, varied between 57¼° on the 13th and 14th and 51½° on the 16th; the mean value for the week being 55°. The mean daily range of temperature in the week was 20°, the daily value varying from 15° on the 14th to 27¾° on the 18th. The mean daily temperatures of the air were as follows:—12th, 62°.5; 13th, 64°.2; 14th, 63°.4; 15th, 61°.7; 16th, 61°; 17th, 64°.5; 18th, 64°.4; and the departures in excess of their respective averages were 4°.9, 6°.8, 6°.2, 4°.6, 4°.1, 7°.9, and 8°. The mean temperature of the week was 63°.1, being 6°.1 above the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, were 134½° and 133¾° on the 15th and 13th. The mean for the week was 130°. The lowest readings of a thermometer on grass, with its bulb exposed

to the sky, were 44° and 39¾° on the 15th and 16th. The mean of the seven low readings was 48½°.

The direction of the wind was from the N.E., and its strength gentle.

The weather during the week was fine, warm, and bright, and the sky generally clear.

A slight thunderstorm occurred during the early morning hours of Friday, the 17th; and a thick fog prevailed on the morning of Saturday, the 18th.

In England the highest temperature of the air, at the height of 4 feet above the ground, observed in the week was 82½° at Cambridge on Saturday; at Hull the highest temperature reached was 69°; the mean of the extreme highest temperatures observed in the week from all stations was 75½°. The lowest temperatures in the week were at Eccles, 43½°, and Manchester, 44¾°; at Norwich and Nottingham the lowest temperature was 52°; the mean of the extreme low temperatures from all stations was 48°. The range of temperature in the week was the largest at Sunderland, 36°, and the smallest at Liverpool, 19½°; the mean from all stations was 27½°. The mean of the seven high day temperatures was the greatest at Cambridge, 75¾°, and the least at Hull, 66¼°; the general mean from all stations was 71°. The mean of the seven low night temperatures was the least at Eccles, Leeds, and Hull, 51½°; and the greatest at Norwich, 56¼°; the general mean from all stations was 54½°. The least weekly mean daily ranges of temperature were at Norwich, 13¼°, and Liverpool, 13½°; the greatest was at Cambridge, 23½°; the general average was 16½°.

The mean temperature of the air for the week ranged between 63½° at about London and 57½° at Hull, the average from all stations was 60¾°.

Rain fell on one or two days in the week at most stations, the amount collected at Truro was the largest, viz., 1¾ inch nearly; at Norwich and Eccles one-hundredth of an inch only was measured, and at Birmingham, Nottingham, Manchester, and Leeds no rain fell: the average fall over the country for the week was sixteen hundredths of an inch.

The weather during the week was fine, bright, and warm. On Saturday, the 18th, the day was hot. About London the highest temperature was 81°, and at Cambridge 82½°.

The prevalence of fog on the morning of Saturday, the 18th, appears to have been pretty general over the country.

Slight thunderstorms occurred during the early morning of Friday, the 17th, at London and Truro.

In Scotland, the highest temperatures in the week ranged from 76° at Glasgow to 63¾° at Leith. The lowest temperatures in the week varied between 49½° at Greenock and 40° at Perth. The general average of the former was 71¾°, and the latter was 43½°. The mean range of temperature in the week was 28¼°. The mean temperature of the week was 56¾°. It was as high as 59° at Glasgow, and as low as 54° at Leith. The amount of rain measured at Glasgow was a quarter of an inch, at Aberdeen it was seven-hundredths of an inch, at Leith and Perth it was four-hundredths and three-hundredths of an inch respectively. At Dundee and Greenock no rain fell; the general average fall was seven-hundredths of an inch.

At Dublin the highest temperature was 74½°, the lowest 44½°, the mean 59¾°, and the fall of rain half an inch.

JAMES GLAISHER.

Enquiries.

He that questioneth much shall learn much.—BACON.

68. SOME of our nurserymen are making enquiries as to a gentleman who favours them with orders under the name of Mr. Samuel Barley, or Bailey, Gatcombe Park, Long Ashton, Bristol.

Answers to Correspondents.

ASTERS: *J. C. & Co.* The flowers of Betteridge's New Asters were of first-rate quality.

CLIMBING PLANTS: *J. R.* The facts you mention are well known; unfortunately, however, the reason why some plants twine to the right and others to the left is quite unknown. We believe Mr. Darwin is about to republish his paper on the subject in a separate form.

FUCHSIA: *E. Bland.* Too much crushed to form any opinion.

NAMES OF FRUIT: *A. Boyle.* The Plum was much decayed, but is most probably Reine Claude Violette. —*John Dimmick.* The fruit and box were quite smashed; send another specimen.—*F. R.; Bridgwater; A. Ager; W., Oxon; W. Francis;* and *George.* Next week.

NAMES OF PLANTS: *Constant Subscriber.* The weed is the common Mouse-ear Chickweed, Hieracium Pilosella. You can hand-pick it in spring, or by enriching your lawn by ammoniacal manure or nitrate of soda you may greatly abate this weed.—*W. H. B.* Pteris aurita is the Litobrochia aurita of modern pteridologists—a blue-green, very glaucous ornamental Fern of the larger-growing series. Its nearest ally is L. vespertitionis, which is, however, of a light green, not glaucous, and very distinct.—*H. A. C.* Ambrina chilensis.—*A. A. C.* Commelyna lanceolata and Campanula erinoides. Will you send specimen for the herbarium? as we have only very poor ones.—*A. Evans.* Calanthe versicolor.—*Atley.* Polygonum cuspidatum.—*C. F.* Orphium frutescens.—*R. S. N.* Probably Maxillaria picta, but the specimen was so badly crushed that we cannot be sure of it; send a better packed flower.—*W. Meade.* Chlorophytum orchidastrum. See our number for January 11, 1873. —*A. E.* 2, Cyrtomium falcatum; 4, Campteria aurita; 5, Pleopeltis pustulata.—*H. G. M.* Adiantum concinnum.

PELARGONIUM: *N. B.* In the way of, but inferior to Sheen Rival.

PALMS FROM SEEDS: *Old Sub.* The seeds of Palms require considerable heat and moisture to induce them to germinate. Sow them at once thickly, and cover with loamy soil in depth according to the size of the seeds, and plunge the pots in a bed where they will get a good bottom heat. Dracænas may be similarly treated, only as the seeds are small they need more delicate manipulation, and prefer a peaty soil. As soon as they germinate, place them in a position where they will get plenty of light.

VINES STARTING PREMATURELY; *M.* You should have been more explicit in your explanations. If the canes are only starting at the points, as they often do, unfasten them, and ay them upon the ground. Here, if all the air possible be given, they will have a more equable and cool temperature, than in any other way, and you will be able to judge eventually whether it will be possible to remove the early growths, and depend upon lateral buds at their base. If they are breaking all over and freely, apply these suggestions to them also, only be prepared to maintain a minimum temperature of 50° during all changes of weather, with abundance of air, to be increased eventually, as needed. *W. E.*

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

CATALOGUES RECEIVED:—James Cocker & Sons (Sunnypark Nurseries, Aberdeen), Descriptive Catalogue of Dutch Flower Roots.—A. Charozé & Brother (La Pyramide-Trélazé, Angers, France), Wholesale Catalogue of Roses, Fruit and Ornamental Trees, Shrubs, Camellias, &c.—Messrs. Miller & Sievers (25, Post Street, San Francisco, California), Trade List of Californian Tree, Shrub, and Flower Seeds, Bulbs, &c.—Messrs. Austin & M'Aslan (16, Buchanan Street, Glasgow), Illustrated Catalogue of Dutch Flower Roots, Gladioli, &c.—L. Jacob-Makoy & Co., Liége, Belgium), Priced List of New and Rare Plants, Orchids, Azaleas, &c.—Hooper & Co. (Covent Garden Market, London), Catalogue of Bulbs, &c.—John Jefferies & Sons (Cirencester), Select List of Hyacinths, Tulips, Narcissus, and other Flower Roots.

COMMUNICATIONS RECEIVED.—H. Mills.—T. J. W.—T. Brice.—E. S. D.—R. D.—W. F. R.—W. E.—A. Bradshaw.—T. B.—J. A. S.—P. H.—J. H.—D. T. F.—B. W.—Walter Hill, Brisbane.—A. J. Maule.—W. H.—W. C.—J. G.

MARRIED.—On the 18th inst., at St. Mary's Church, Finchley, by the Rev. James Greaves, SETH PHILLIPS, of Finsbury Park, to LAVINIA, the eldest daughter of JOSEPH THORLEY, Esq., Selina Villa, Finchley, and Thornhill Bridge, King's Cross, London.

Markets.

COVENT GARDEN, September 23.

The supply of Cobbs is much better, and prices have a downward tendency. The call for English Pines is not so good, a large quantity of St. Michael Pines having arrived, but in bad condition. There is a good prospect of Grapes realising better prices, some of the Jersey samples being indifferent. The market is now well supplied with English Pears, such as Marie Louise, Gansel's Bergamot, and Gratioli. *James Webber, Wholesale Apple Market.*

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Camellias	6	0–9 0	Pelargoniums, 12 spr.	0	6–1 6
Carnations, 12 blooms	0	4–2 0	— Zonal, do. ..	0	3–1 0
— Clove, per doz ..	0	3–0 9	Primula, dbl., p. bun.	0	9–1 6
— mixed, 12 bun...	3	0–9 0	Roses, indoor, p. doz.	2	0–6 0
Cornflower, p. doz. bun.	3	0–6 0	— outdoor, 12 bun.	3	0–9 0
Eucharis, per doz. ..	4	0–9 0	Spiræa, 12 sprays ..	1	0–3 0
Gardenia, per doz. ..	2	0–6 0	Stephanotis, 12 sprays	3	0–9 0
Heliotropes, 12 spr.	0	6–1 0	Stocks, 12 bun. ..	3	0–6 0
Mignonette, 12 bun.	3	0–6 0	Sweet Peas, 12 bunch.	2	0–6 0
Myosotis, per bunch	0	4–0 9			

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz. ..	6	0–12 0	Heliotrope, per doz.	3	0–12 0
Bouvardias, do. ..	12	0–18 0	Lilium auratum ..	12	0–36 0
Calceolarias, do. ..	6	0–18 0	— lancifolium, doz.	12	0–60 0
Coleus, do.	4	0–6 0	Mignonette, do. ..	3	0–6 0
Cyperus, do... ..	6	0–12 0	Myrtles .. do.	3	0–9 0
Dracæna terminalis	30	0–60 0	Pelargoniums, dble., per doz.	4	0–12 0
— viridis, per doz.	12	0–24 0	— Scarlet, do. ..	3	0–9 0
Ficus elastica ..	1	6–7 6	Petunia, per doz. ..	6	0–9 0
Fuchsia, per doz. ..	3	0–18 0	Rhodanthe, do. ..	6	0–12 0
Gardenias, do. ..	12	0–60 0	Solanums, do. ..	6	0–24 0
Gladiolii, do. ..	9	0–18 0			
Heaths, in var., doz.	12	0–30 0			

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1	0–2 6	Oranges, p. 100 ..	20	0 ..
Damsons, per bushel	3	0–5 0	Peaches, per doz. ..	2	6–12 0
Figs, per doz. ..	0	9–3 0	Pears, per doz. ..	1	0–4 0
Filberts, per lb. ..	0	5–0 9	Pine-apples, p. lb. ..	3	0–5 0
Grapes, per lb. ..	0	9–5 0	Plums, per bushel ..	2	0–6 0
Lemons, per 100 ..	8	0–12 0	— per punnet ..	0	6–1 6
Melons, each ..	2	0–5 0	Walnuts, p. bush. ..	16	0– ..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4	0– ..	Leeks, per bunch ..	0	2–0 4
Beans, French, per bushel	6	0– ..	Lettuces, per score..	1	0– ..
— Scarlet Run., do.	5	0– ..	Mint, per bundle ..	0	4– ..
Beet, per doz. ..	1	0–2 0	Mushrooms, per pott.	1	0–2 0
Cabbages, per doz. ..	1	0–2 0	Onions, young, bun.	0	4–0 6
Carrots, do.	0	6– ..	Parsley, per bunch..	0	4– ..
Cauliflowers, p. doz.	2	0– ..	Peas, per quart ..	10	–1 0
Celery, per bundle ..	1	6–2 0	Radishes, per bunch	0	2–0 4
Cucumbers, each ..	0	3–0 9	— Spanish, doz. ..	1	0– ..
Endive, per doz. ..	1	0–2 0	Shallots, per lb. ..	0	3– ..
Herbs, per bunch ..	0	2–0 4	Tomatos, per doz. ..	1	0–2 0
Horse Radish, p. bun.	3	0–5 0	Turnips, per bundle.	0	4– ..
			Veg. Marrows, doz.	1	0– ..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

SEEDS.

LONDON: *Sept.* 23.—Our seed trade for the time of year exhibits a fair amount of activity. For Trifolium incarnatum the demand continues good, and as stocks are now reduced to quite narrow limits, the late advance is well maintained. There is some small inquiry for Clover seeds for export purposes. New French Sainfoin is now offering, but at the rates demanded very few buyers are found. We have more inquiry for French Italian. In winter Tares a good business has been doing; as the supply continues small, last week's prices, high as they were, are fully supported. With regard to Canary seed, an advance must be noted in the last few days of from 20*s.* to 30*s.* per quarter. English samples now come forward but sparingly, and the foreign markets are still too high to admit of any considerable importation into this country. French Buckwheat and new Haricot Beans are in fair request. For sowing Rye we have a free sale. A good quantity of new white Mustard seed has now been placed at from 13*s.* to 14*s.* per bush. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday business in all departments was dull. The supply of English Wheat was small, and variable as to condition; but there was a good show of foreign Wheat, and to effect sales in either description some reduction from the previous Monday's quotations had to be made. In Barley a fall of quite 6*d.* per qr. took place. Malt was purchased sparingly at about late rates. Oats of all sorts declined 6*d.* per qr. Maize was cheaper when pressed for sale. Beans and Peas were flat at a fall of 1*s.* per qr. In flour prices were decidedly in buyers' favour.—Trade on Wednesday was without improvement, and Wheat, of which there were moderate fresh arrivals, barely supported the rates of Monday. Barley was about the same in price, and the quotations for malt were quite nominal. Oats were rather cheaper when offered, and a similar remark applies to Maize and other articles, flour being especially weak. —Average prices of corn for the week ending September 18:—Wheat, 48*s.* 7*d.*; Barley, 37*s.* 4*d.*; Oats, 27*s.* 4*d.* For the corresponding week in 1874:—Wheat, 46*s.* 8*d.*; Barley, 42*s.* 5*d.*; Oats, 27*s.* 2*d.*

CATTLE.

At the Metropolitan Market on Monday the number of beasts was rather smaller than on last Monday, and again the supply largely consisted of foreign and inferior qualities. The few choicest on offer were readily disposed of at fully late rates, and in some instances they were exceeded. The supply both of English and foreign sheep was rather smaller. Trade was active, and choice qualities very dear. Trade was dull for calves at lower prices. Quotations:—Beasts, 4*s.* 4*d.* to 5*s.* and 5*s.* 8*d.* to 6*s.* 4*d.*; calves, 4*s.* 4*d.* to 5*s.* 8*d.*; sheep, 5*s.* 8*d.* to 6*s.* and 6*s.* 8*d.* to 7*s.* 4*d.*; pigs, 4*s.* 4*d.* to 5*s.* 6*d.*—There was a fair demand for beasts at Thursday's market, and prices were unaltered. For sheep there was not a brisk trade, but quotations were about the same as on Monday. Choice calves were dearer; and for milch cows business was dull, at about late rates.

HAY.

The following quotations are from the Cumberland Market report, of date Sept. 21:—Superior meadow hay, 135*s.* to 147*s.*; inferior, 90*s.* to 120*s.*; superior Clover, 160*s.* to 170*s.*; inferior, 100*s.* to 130*s.*; and straw, 45*s.* to 50*s.* per load.

POTATOS.

The Borough and Spitalfields markets reports state that there has been a moderate supply, and that the better descriptions passed off freely at full prices. Kent Regents, 85*s.* to 100*s.*; Essex do., 70*s.* to 90*s.*; kidneys, 80*s.* to 110*s.*; shaws, 70*s.* to 80*s.* per ton.—The imports of Potatos into London last week consisted of 325 bags from Hamburg, and 5 from Harlingen.

COALS.

In the market on Monday there was a good supply of house coals, and the price was 6*d.* per ton lower.—No alteration was reported in the quotations of Wednesday

THE GARDENERS' CHRONICLE.

Scale of Charges for Advertising.

Head line charged as two.

4	Lines	..	..	£0	3	0	15	Lines	..	..	£0 8 6
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6	,,	..	..	0	4	0	17	,,	..	..	0 9 6
7	,,	..	..	0	4	6	18	,,	..	..	0 10 0
8	,,	..	..	0	5	0	19	,,	..	..	0 10 6
9	,,	..	..	0	5	6	20	,,	..	..	0 11 0
10	,,	..	..	0	6	0	21	,,	..	..	0 11 6
11	,,	..	..	0	6	6	22	,,	..	..	0 12 0
12	,,	..	..	0	7	0	23	,,	..	..	0 12 6
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Gardeners, and others, wanting places, 26 words 1*s.* 6*d.*, and 6*d.* for every additional line, or part of a line.

THESE ADVERTISEMENTS MUST BE PRE-PAID.

Advertisements for the current week MUST *reach the Office by Thursday noon.*

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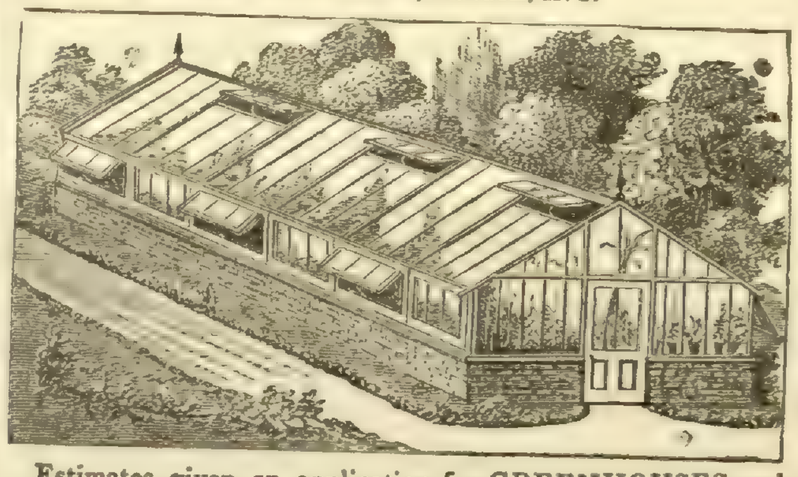

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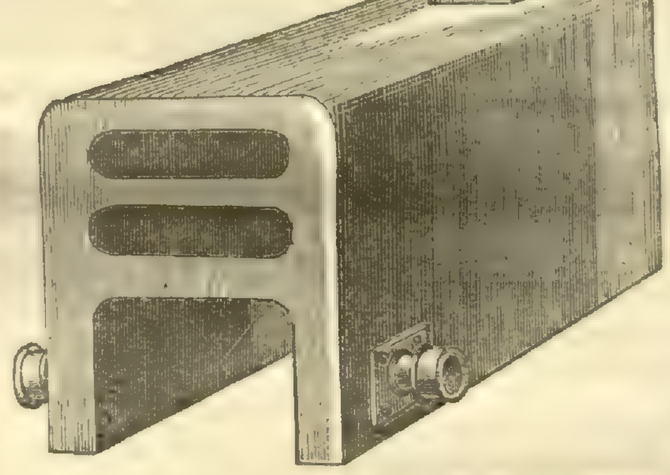

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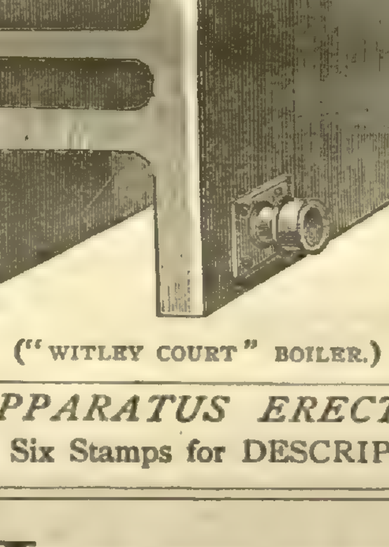

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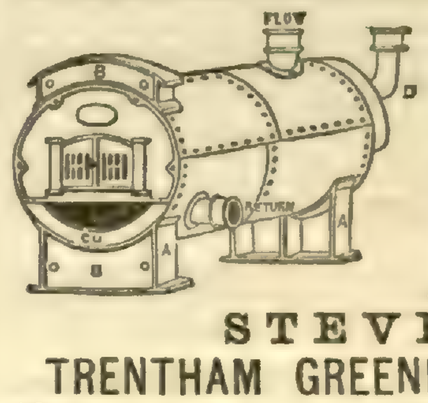

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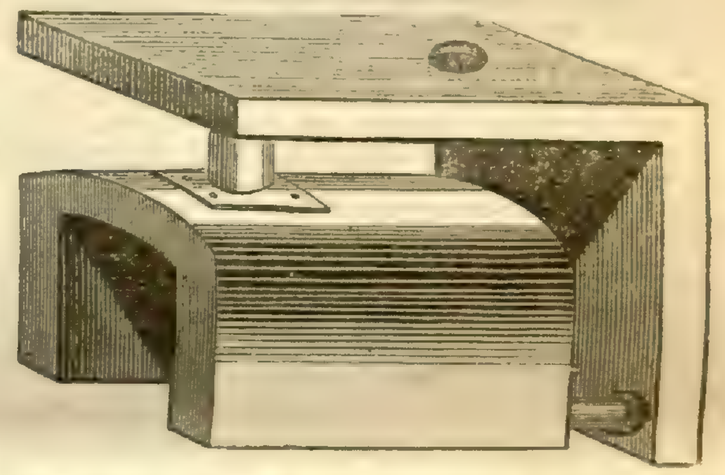

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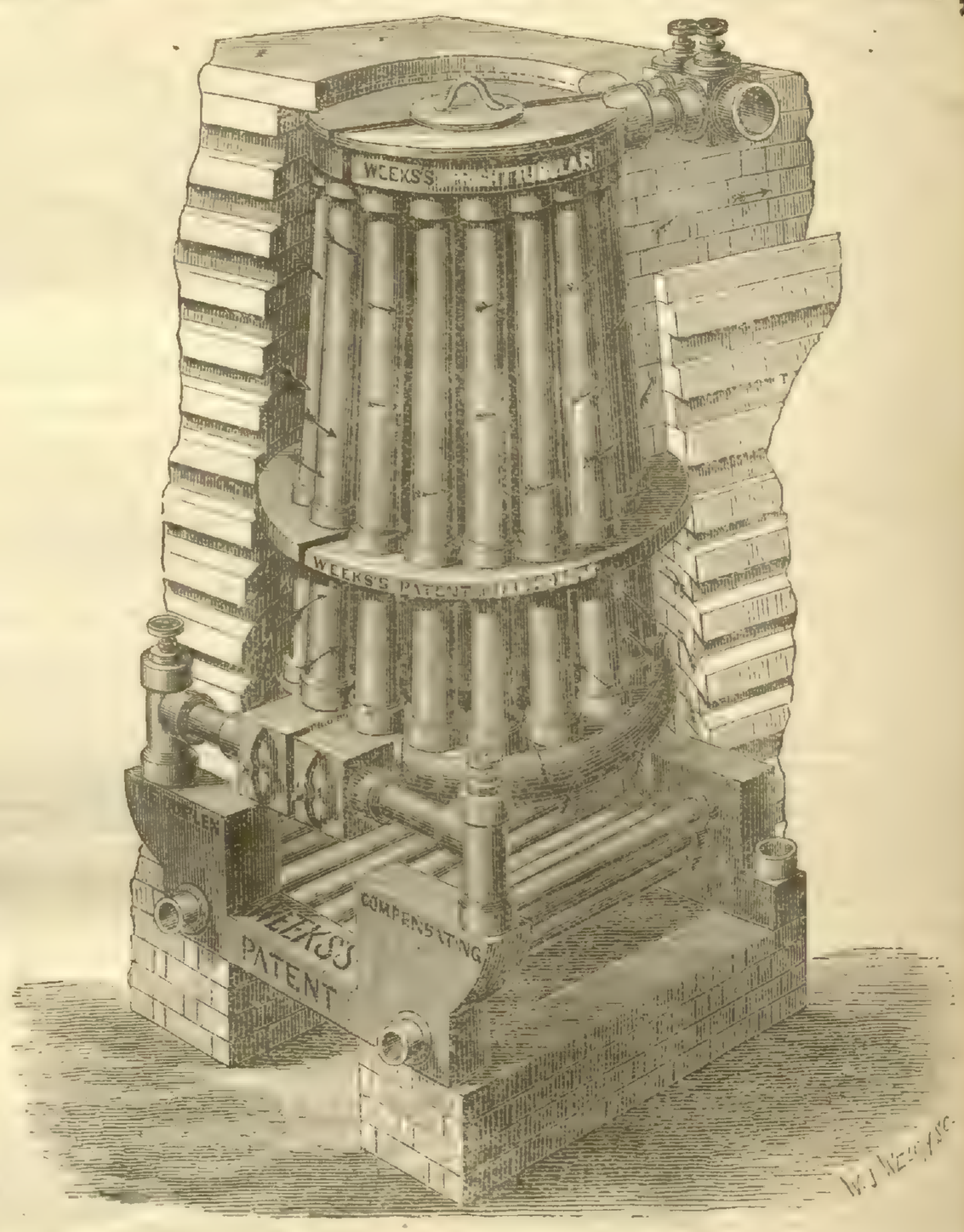

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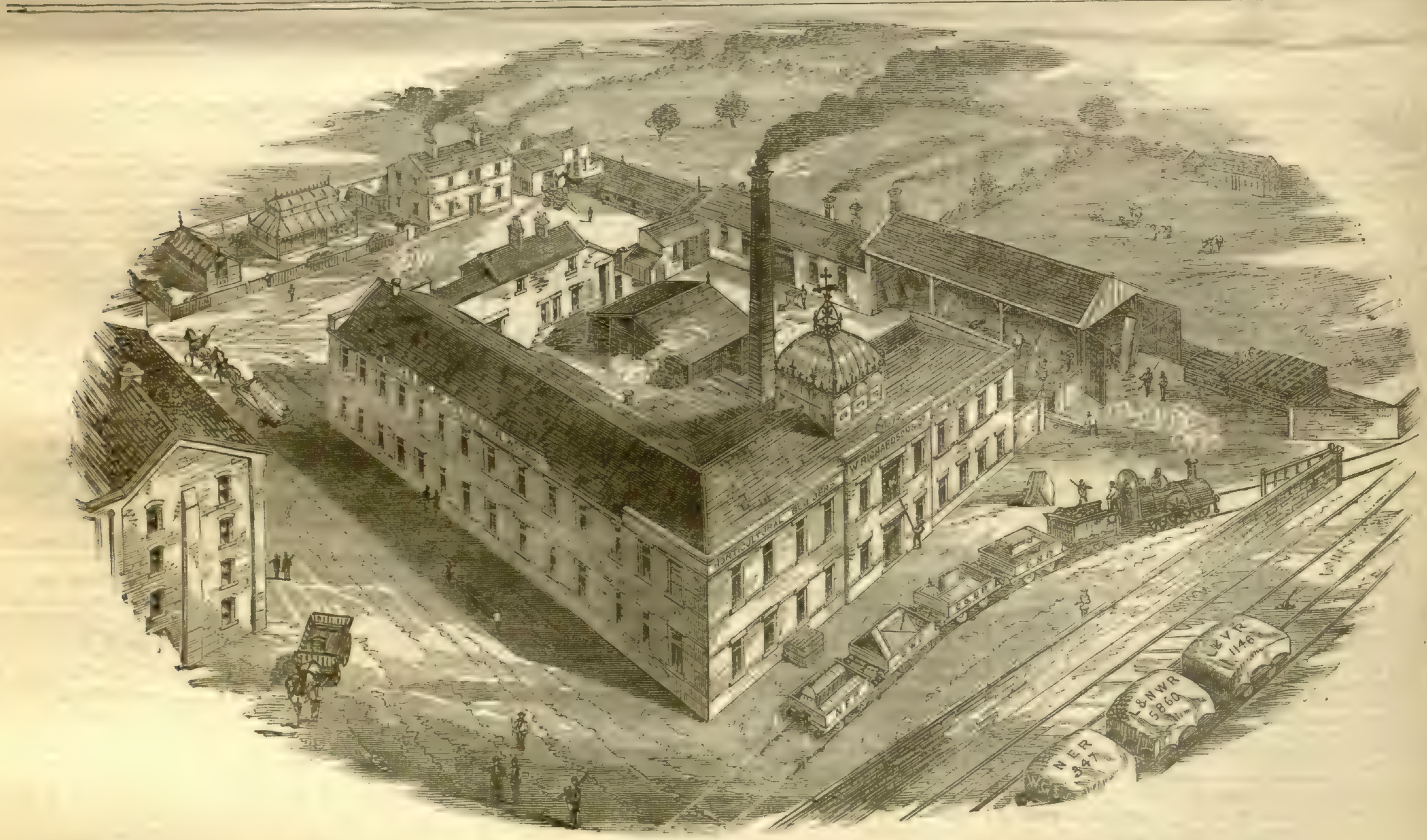

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GARDENER (HEAD), where one or more are kept.—Age 40, married; understands Gardening in all its Branches; also, if required, Land and Stock. First-class references.—R. D., Post Office, Altrincham, Cheshire.

GARDENER (HEAD), to any Lady or Gentleman requiring a good practical Man.—Age 35; well up in the Growing of Stove and Greenhouse Plants, also Early and Late Forcing of all kinds of Fruit, Flowers, and Vegetables. First-class Rose Grower.—R. S. T., Messrs. Backhouse & Sons, The Nursery, York.

GARDENER (HEAD), married, with family.—Sir GILBERT SCOTT wishes to recommend his Head Gardener—who is leaving him owing to a change of residence—to any Nobleman or Gentleman. He is a thorough practical man in every branch of the profession, and is capable of Superintending a Large Establishment. Has a good knowledge of Land and Stock, and has filled his present situation for 10½ years.—The GARDENER, The Manor House, Ham, S.W.

GARDENER (HEAD).—Age 26, single; for four years Head Gardener to V. H. Vaughan Lee, Esq., M.P.; thoroughly understands the Cultivation of Pines, Vines, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants, and well up in both Kitchen and Flower Gardening, and the general Management of a Nobleman's or Gentleman's Establishment.—WM. DAVIES, The Gardens, Velindra, near Cardiff.

GARDENER (HEAD).—Age 26, single; ten years' experience in good Gardens. Good references from present and former employers.—GARDENER, Dinsdale Lodge, Seaton Carew, West Hartlepool, Durham.

GARDENER (HEAD), age 28.—Mr. R. GILBERT, Gardener to the Marquis of Exeter, Burghley, Stamford, will have great pleasure in recommending his principal Foreman to any Nobleman or Gentleman requiring a first-class Man. He has filled his present situation for two years with credit to himself and to the perfect satisfaction of his chief Wages expected, £80 per annum.—Please address as above.

GARDENER (HEAD).—Age 30, married, no family; practical. Four years' character.—H. D., 1, The Grove, Lewisham, Kent, S.E.

GARDENER (HEAD), age 35, married.—E. COLE & SONS can with confidence recommend a thoroughly good practical Man, who is well up in Stove and Greenhouse Plants (especially Ferns and Orchids), Fruit Growing, and Flower and Kitchen Gardening. First-class references.—The Nurseries, Withington, near Manchester.

GARDENER (HEAD).—Age 40, family small; thoroughly understands Vines, Cucumbers, Melons, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Nineteen years' character.—For particulars apply to Mrs. C. WRIGHT, Register Office, Gold Street, Northampton.

GARDENER (HEAD).—Middle-aged, married, no family; thoroughly practical in all branches of the profession, including Woods and Plantations. Good testimonials.—K. M., The Lodge, North Woolwich, Kent.

GARDENER.—JAMES BROWN, Head Gardener to Abraham Darby, Esq., of Treberfydd, Breconshire, can confidently recommend his late Foreman, G. Jones, to any Nobleman or Gentleman requiring the services of a thorough practical Gardener. He has had extensive experience in the various branches of the profession, and is well experienced in Pine Culture, Plants, Fruits, &c.—G. JONES, Cobham Hall, Gravesend.

GARDENER.—Age 40, married, no family; understands Plain Gardening and has a good knowledge of Farm Stock.—WM. MOULE, Junr., Cottenham, Cambridgeshire.

GARDENER.—Age 30, married; understands the Cultivation of Stove, Greenhouse, Vineries, &c. Good reference.—J. DURRANT, Gardener, Mellis, near Scole, Suffolk.

GARDENER (SINGLE-HANDED).—Age 38, married; has a thorough knowledge of the profession in all its branches. Wages required, 20*s*. per week with cottage, or 24*s*. without.—J. SIMMONS, 98, Alexander Road, Holloway, N.

GARDENER (SECOND).—Good references.—G. CLARKE, Corbets Ley, Romford, Essex.

GARDENER (UNDER), in the Houses preferred.—Age 22. Two and a half years in present situation.—W. H. L., Camerton Court Gardens, near Bath.

FOREMAN, or UNDER, in a Gentleman's Garden.—Age 21. Two and a half years' good character.—J. B., Hop Gardens, Shaw, near Newbury, Berks.

GARDENERS, UNDER GARDENERS, and young MEN Wanting Situations in Gentlemen's Gardens, are invited to apply to the Royal County Register, Reading.

FOREMAN or JOURNEYMAN.—Age 23. Two and a half years' good character.—WM. J. S., Manor Gardens, Worksop, Notts.

To Nurserymen, &c.
FOREMAN, PROPAGATOR, and SALESMAN.—ALBERT BARNES, for upwards of seventeen years Foreman, Propagator, and Salesman in the two principal Nurseries in the North of Ireland is open to a re-engagement. Would go as BOOK-KEEPER and ACCOUNTANT in a first-rate establishment. State terms.—ALBERT BARNES, 34, Lawther Street, Belfast.

IMPROVER, under the Foreman, to assist in the Houses in a good Establishment.—Age 19, respectable.—Address, stating all particulars, A. R., W. F., Buck's Hill, Rickmansworth, Herts.

IMPROVER, in the Garden.—Age 18; has been out before.—P. E., The Cottage, Bedford Hill Balham, S.W.

To Nurserymen.
FOREMAN, or FOREMAN and PROPAGATOR.—Middle-aged, with many years' experience in all branches of the Trade. Good references.—ALPHA, 1, Adelaide Terrace, Wandsworth Lane, Wandsworth, S.E.

TO THE SEED TRADE.—Wanted, a Situation in a Seed Warehouse by a young Man having four years' experience.—W. O., Dickson & Turnbull, Perth, N.B.

SEED and MANURE TRADES.—A gentleman who has had great experience of the above, wishes to get into a position of confidence and trust. Will give security if required.—Apply P., *Gardeners' Chronicle* Office, W.C.

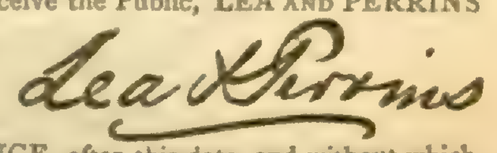
MANAGER or TRAVELLER.—Twenty years' experinece in all branches of the Nursery and Seed Business, and thoroughly conversant with Landscape Gardening.—S. B., 16, Tenant Street, Derby.

TRAVELLER in the SEED TRADE.—A gentleman long acquainted with the duties.—TRAVELLER, *Gardeners' Chronicle* Office, W.C.

FARM BAILIFF.—Age 30; thoroughly understands the routine of Farming, and well up with all kinds of Stock; Wife can manage a Dairy if required. Two years' good character.—Y. Z., Post Office, Banstead, near Epsom, Surrey.

KINAHAN'S . LL . WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

In consequence of Spurious Imitations of
LEA AND PERRINS' SAUCE, which are calculated to deceive the Public, LEA AND PERRINS have adopted a New Label, bearing their Signature, thus—



which will be placed on every bottle of WORCESTERSHIRE SAUCE, after this date, and without which none is genuine.—Sold Wholesale by the Proprietors, Worcester; CROSSE & BLACKWELL, London; and Export Oilmen generally; Retail, by Dealers in Sauces throughout the World.—Nov., 1874.

PURE AERATED WATERS.
ELLIS'S RUTHIN WATERS.
CRYSTAL SPRINGS—Soda, Potass, Seltzer, Lemonade, Lithia,
And for GOUT, Lithia and Potass.
Corks Branded "R. ELLIS AND SON, RUTHIN," and every label bears their trade mark. Sold everywhere, and Wholesale of ELLIS & SON, Ruthin, N. Wales. London Agent: W. BEST AND SONS, Henrietta St., Cavendish Sq

DINNEFORD'S FLUID MAGNESIA.
The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate Constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

SALES BY AUCTION.

Dutch Bulbs.—Extensive Consignment of the finest named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, CYCLAMENS, strong clumps of LILY of the VALLEY for forcing, GLADIOLUS, &c., for absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY next, at 11 for half-past 11 o'Clock precisely, about 800 lots of the above, the whole being of a very superior quality.

On view morning of Sale. Catalogues had at the Mart, and of the Auctioneers, 98, Gracechurch Street, E.C.

Upper Tooting, S.W.

IMPORTANT SALE of extra-thriving young NURSERY STOCK, GREENHOUSE PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Young to SELL by AUCTION, without reserve, on the Premises, the Upper Tooting Park Nursery, Surrey, S.W., on TUESDAY and WEDNESDAY, October 5 and 6, at 11 for 12 o'Clock precisely, a large quantity of valuable NURSERY STOCK, particularly well grown, in excellent condition for removal, and well adapted for the London suburbs, comprising thousands of border shrubs, consisting of the choicest Evergreens and Coniferæ in cultivation, and a considerable quantity of other young and thriving stock; also a great number of Ornamental Trees and Deciduous Shrubs, many very fine Fruit Trees in beautiful condition, likewise a quantity of hardy Climbers in pots, some choice Stove and Greenhouse Plants, large Camellias and Azaleas, Ferns, Palms, &c. May now be viewed.

Frimley, Surrey.

SALE of thriving NURSERY STOCK, including 10,000 common Laurels, 1 to 4 feet; a large quantity of other Evergreens, together with a choice assortment of Coniferæ and Evergreen Shrubs, a considerable number of Ornamental and Forest Trees, selected Fruit Trees, Standard and Dwarf Roses, Rhododendrons, and other American Plants, strong Quick, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Holder to SELL the above Stock by AUCTION, without reserve, a portion of the land being required for building purposes, on the Premises, the Frimley Park Nursery, Frimley, Surrey, on TUESDAY, October 12, at 11 for 12 o'Clock.

May be viewed the day prior to the Sale.

Loughton, Essex.

GREAT SALE of beautifully-grown NURSERY STOCK. Important to the Trade and other large Buyers.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. W. Paul to SELL by AUCTION, at his branch Nursery, Loughton, Essex, eight minutes' walk from the Station, and 12 miles from London, on TUESDAY, October 12, and two following days, at 11 for 12 o'Clock precisely each day, a very extensive and superior stock of unusually well-grown EVERGREEN TREES and SHRUBS, many of which are handsome specimens, in excellent condition for removal; 10,000 bushy Laurels, of sorts, 2 to 5 feet; 1000 Laurustinus, Green and Variegated Hollies, including pyramidal specimens, 5 to 10 feet; Box, Aucubas, 10,000 choice CONIFERS, including 3000 Cedrus Deodara, 1500 Hybrid and Ponticum Rhododendrons, Andromeda floribunda, and other choice American Plants; strong LIMES, WEEPING WILLOWS, &c.; also some selected ROSES and FRUIT TREES. May be viewed any time previous to the Sale.

N.B. This Sale offers a grand opportunity to gentlemen making extensive plantations and wishing to produce an immediate effect. The proprietor will remove at purchaser's expense if required. One month allowed for clearing.

Park Road, West Dulwich, S.E.

(Near the Railway Station, L.C.D.)

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. F. & A. Smith to SELL by AUCTION, on the Premises as above, without reserve, on WEDNESDAY, October 13, at 12 o'Clock punctually, 5000 EVERGREEN CONIFERÆ and other SHRUBS of various sizes, carefully prepared for transplanting, viz., 2000 Laurels, Variegated and Green Hollies, Cedrus Deodara, Thujas of sorts, Thujopsis, Cupressus, Piceas, &c.; 3000 Standard and Dwarf ROSES, 2000 FRUIT TREES, 1000 DECIDUOUS TREES, &c.; also, 5000 GREENHOUSE and STOVE PLANTS, embracing choice Double Camellias, Azaleas, Ericas, Epacris, &c.

View prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 99, Gracechurch Street, E.C., and Leytonstone, E.

Brixton Hill, S.W

CLEARANCE SALE of WELL-GROWN NURSERY STOCK, 1000 Standard and Dwarf Roses, &c., the Land being immediately required for building purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Peed to SELL by AUCTION on the Premises, the Effra Nursery, Effra Road, Brixton Hill, S.W., without reserve (this branch Nursery being required for other purposes), on THURSDAY, October 14, at 11 for 12 o'Clock, the whole of the valuable NURSERY STOCK, consisting of a large and general assortment of well-grown Evergreens and Coniferæ, ranging all sizes, and lotted to suit the Trade and private buyers, and including some fine specimens and thousands of border and other small stock; also a considerable number of fine Fruit Trees, 1000 Standard and Dwarf Roses, a varied collection of Ornamental Trees, Pot Vines, &c.

May be viewed the day prior to the Sale. Catalogues may be had on the Premises; of Mr. J. PEED, Roupell Park Nurseries, Norwood Road, S.E.; and of the Auctioneers, 98, Gracechurch Street, E.C.

Hornsey, N.

CLEARANCE of the remaining portion of GENERAL NURSERY STOCK, consisting of 20,000 Ornamental, Forest, and Fruit Trees; Evergreen Coniferæ and Deciduous Shrubs; also 1000 English-grown Camellias, beautifully grown and well-set with buds, and including Double White and other well-known kinds; Maiden Hair Ferns, Genistas, Acacias, Primulas, and other Greenhouse Plants; by order of Mr. M. Cleall, without reserve, a portion of the Nursery being required by the New River Company for the extension of their works, now in progress.

MESSRS. PROTHEROE AND MORRIS will SELL the above on the Premises, the Hornsey Nursery, Hornsey, Middlesex, N., close to the Hornsey Station, G.N.R., on FRIDAY, October 15, at 11 for 12 o'Clock precisely.

The stock may at any time be moved. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.

Preliminary Notice of

FORTHCOMING SALES of NURSERY STOCK, &c., by PROTHEROE AND MORRIS.

OCTOBER 18.—AUCTION MART, London, E.C. By order of E. L. Morris, Esq. A compact Leasehold Estate, comprising 5 acres of productive Orchard Land, well cropped; also two semi-detached Villa Residences. Lease 75 years unexpired, held at a moderate ground rent.

OCTOBER 19.—HALE FARM NURSERIES, Tottenham. By order of Mr. T. Ware. A large quantity of clean-grown Fruit Trees, Roses, and General Stock.

OCTOBER 19 to 22.—The NURSERY, Woking. By order of Mr. Jackman. A considerable quantity of beautifully-grown Nursery Stock, &c.

OCTOBER 20.—BRANCH NURSERY, Wallington. By order of Mr. Clark. The whole of the General Nursery Stock, the land being required for building purposes.

OCTOBER 22.—BALHAM, close to the Balham Station. By order of Mr. Edwards. A quantity of Nursery Stock.

OCTOBER 25 to 30.—SUNNINGDALE NURSERY, Bagshot. By order of Mr. C. Noble. An immense quantity of beautifully-grown Nursery Stock.

OCTOBER 27 and 28.—EXOTIC NURSERY, Tooting, S.W. By order of Mr. R. Parker. A considerable quantity of beautifully-grown Nursery Stock.

OCTOBER 29.—The NURSERY, Epsom. By order of Mr. Tanton. A quantity of useful Nursery Stock.

NOVEMBER 2, and following days.—At one of their BRANCH NURSERIES, Kingston-on-Thames. By order of Messrs. Jackson & Son. An extensive assortment of about 8 acres of fine Nursery Stock.

NOVEMBER 2 and 3.—NORTHGATE NURSERY, Chichester. By order of Mr. D. Scott. A large and rich assortment of clean-grown Nursery Stock.

NOVEMBER 4, 5 and 6.—GROOMBRIDGE NURSERY, Tunbridge Wells. A large quantity of beautifully-grown Nursery Stock.

NOVEMBER 9.—The HOME NURSERY, Atherstone. By order of Mr. H. Baker. A fine assortment of thriving Nursery Stock, adapted for immediate effect.

NOVEMBER 8 to 13.—The NURSERIES, Streatham Place, Brixton, S.W. By order of Geo. Clark, a fine stock of large Evergreens and Coniferæ, &c., for immediate effect; also bearing Fruit Trees, &c.

NOVEMBER 11.—The NURSERY, Beddington, Surrey. By order of Messrs. Rollisson & Sons. A quantity of choice American Plants and other Nursery Stock.

NOVEMBER 16, 17 and 18.—The BRANCH NURSERY, Teddington. By order of Mr. Laing. A beautiful assortment of well-grown Nursery Stock.

NOVEMBER 16.—The NURSERY, Caterham, Kent. By order of Mr. G. Woollett. A quantity of fine Nursery Stock, growing on a branch Nursery, the term for which is about to expire.

NOVEMBER 17.—HOLLAND NURSERY, Holland Street, Brixton Road, S.W. By order of Mr. J. Fowle. General Stock.

NOVEMBER 19 and 20.—The NURSERY, High Road, Lewisham, S.E. By order of Mr. Biggs. A fine assortment of Nursery Stock.

NOVEMBER 23 and following days.—ASCOT. By order of the surviving Partner of the late Mr. John Standish, deceased. A very large quantity of Nursery Stock, Plants in pots, &c.

Catalogues, when ready, of any of the above Sales may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, Essex.

Spring Flowering Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, Importations of first-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, GLADIOLI, and other BULBS, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

New Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 7, at half-past 12 o'Clock precisely, six plants of the beautiful PESCATOREA ROEZLII (Reich.), the only plants established in Europe; also six good established plants, imported last year, of BATEMANNIA WALLISII (Reich.); several good plants of the new CYPRIPEDIUM BRASILIENSE, belonging to the caudatum section, and lately discovered and introduced from Brazil; also some established plants of choice CYPRIPEDIUMS, such as—lævigatum, Ashburtonæ, Dominianum, Dayanum, Sedeni, Harrisianum, pardinum, Schlimii; and various other choice ORCHIDS.

On view the morning of Sale, and Catalogues had.

Rare Odontoglossums, Masdevallias, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 7, at half-past 12 o'Clock precisely, several plants of the rare ODONTOGLOSSUM HYSTRIX, and various choice ODONTOGLOSSUMS, including—Krameri, vexillarium, blandum, Lindeni, angustatum, Roezlii; also some plants of the rare MASDEVALLIA POLYSTICTA, M. MELANOPUS, and M. HARRYANA; and various other choice ORCHIDS.

On view the morning of Sale, and Catalogues had.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, October 12, at half-past 12 o'Clock precisely, a small Collection of ESTABLISHED ORCHIDS, including many rare and valuable sorts, such as:—

- Oncidium macranthum maximum
- Saccolabium Hendersonianum (Reich. fils)
- Phalænopsis Schilleriana
- ,, grandiflora
- ,, Luddemanniana splendens
- ,, amethystina
- Masdevallia Lindeni
- ,, Davisii
- ,, Denisoniana
- Dendrobium Wardianum
- Cœlogyne cristata major
- Odontoglossum Alexandræ
- ,, Cervantesii
- ,, Roezlii
- Pilumna nobilis
- Cymbidium eburneum
- Vanda cœrulea
- ,, cœrulescens
- ,, Cathcartii
- Cattleya Dowiana
- Aerides virens Dayanum, &c.

Also a small Consignment of Vanda Goweræ, and a Consignment of Sophronites coccinea superba, Saccolabium curvifolium, Dendrobium crepidatum, D. Farmeri, Cymbidium Parishii, Aerides Lobbii, Spathiglottis pubescens, &c., and a Consignment of New Zealand TREE FERNS.

On view the morning of Sale, and Catalogues had.

Leybourne Grange, Kent.

MR. GEORGE LANGRIDGE has received instructions from Sir H. J. Hawley, Bart. (the Mansion and Farms being let), to SELL by AUCTION, at the Stud Farm, Leybourne, on WEDNESDAY and THURSDAY, October 6 and 7, at 12 o'Clock (luncheon at 11 o'Clock), twenty-nine Alderney and Ayrshire Cows, Heifers, and Calves; seven Steers, a prize Ayrshire Bull, 850 prime Southdown Sheep, four Rams, thirty Ushant Ewes and Lambs, one ram, Nag Horse, the celebrated thorough-bred Stallion and great race-winner Asteroid, Cart-horses, Donkey, twenty Pigs, Poultry, &c.; numerous Agricultural Implements and Tackle, 60 tons of Hay, Private Omnibus, Mail Phæton, Waggonette, Sociable, Dog-cart, a quantity of Harness; several lots of Household Furniture, Carved and Gilded Picture Frames, 200 volumes of Books, Azaleas, Camellias, and other valuable GREENHOUSE PLANTS, 11,000 Flower-pots, &c.

The Lots may be viewed the day preceding and mornings of Sale, and Catalogues obtained of Mr. JAMES TWEED, Stud Farm, Leybourne; of Mr. W. BOWMAN, The Gardens, Leybourne Grange; or of Mr. G. LANGRIDGE, Estate Agent, Surveyor and Valuer, &c., The Great Hall, Tunbridge Wells, Kent.

White Cross Nursery, Hereford.

ANNUAL SALE of NURSERY STOCK.

MR. O. SHELLARD is instructed to SELL by AUCTION, on THURSDAY, October 7, at 12 o'Clock, 200,000 strong transplanted LARCH, 2½ to 4 feet high; 200,000 do. LARCH, 1½ to 2½ feet; 60,000 ASH, 2 to 4 feet; 10,000 SYCAMORE, 5 to 7 feet; 20,000 do., 2 to 4 feet; 20,000 well transplanted Austrian FIRS, 3 to 6 feet; 20,000 HAZEL, 2 to 3 feet; 60,000 LAURELS, BEECH, BIRCH, PRIVET, Standard and Dwarf ROSES, SPRUCE and Scotch FIRS, also a large number of Specimen CONIFERS and other EVERGREENS.

May be viewed and Catalogues had on or before October 1, of the Auctioneer, King Street, Hereford; or, at the Nursery, DAVISON AND CO.

Binstead House, near Ryde.

TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

SALE of a CHOICE COLLECTION of STOVE and GREENHOUUSE PLANTS, FRUIT and ROOT CROPS, LIVE STOCK, &c.

MESSRS. WALLIS, RIDDETT AND DOWN have received instructions from the Executors of the late Sir Charles Locock, Bart., to SELL by AUCTION, in the pleasure grounds of the above Estate, on MONDAY, October 18, at 12 o'Clock precisely, the whole of the valuable collection of STOVE and GREENHOUSE PLANTS, including fine specimens of Allamanda, Stephanotis, Hoya, Bougainvillea, Hibiscus, Clerodendron, Croton, Allocasia, Maranta, Anthurium, Aphelexis, Pimelea, Palms, Azaleas, Aloes, and a good assortment of Pines. The Collection of Exotic Ferns, which is considered to be the finest in the Island, includes beautiful specimens of Adiantum Farleyense, A. cuneatum, Cibotium princeps, C. Schiedei, Dicksonia antarctica, &c. Also the Crop of Orchard Fruit and the various Root Crops of the Kitchen Gardens. The LIVE STOCK comprises four prime Dairy Cows, a Heifer, Sow and Litter, and a quantity of Poultry.

May be viewed the preceding Saturday and morning of Sale. Catalogues may be had at Messrs. WALLIS, RIDDETT AND DOWN'S Auction Office, Ryde.

Expiration of Lease.

IMPORTANT SALE of VALUABLE NURSERY STOCK. Must be cleared by the 18th of December.

MESSRS. WOODMAN AND SON have received instructions from Messrs. H. Lane & Son to SELL by AUCTION, at their Wigginton Nurseries, on MONDAY, TUESDAY, and WEDNESDAY, October 18, 19, and 20, at 11 for 12 o'Clock each day, a fine COLLECTION of TREES and SHRUBS consisting of large specimens of Araucaria imbricata, Wellingtonia gigantea, Picea Nordmanniana, Picea noblis, Cupressus Lawsoniana, Thujopsis borealis, Thuja Lobbii, Thuja gigantea, Cedrus atlantica, Junipers, Retinosporas, Rhododendrons, Hollies, Pinus austriaca, Mahonias, Oaks, &c. Also Pyramidal Pears, Apples, and Plums.

CATALOGUES may be had of Messrs. WOODMAN AND SON, Auctioneers, Hemel Hempsted; or, free by Post, upon application to Messrs. H. LANE AND SON, The Nurseries, Great Berkhampstead.

Conveyances will be provided at the Berkhampstead Station to convey purchasers to the Wigginton Nurseries, if previously advised by Post.

Freehold, 28 miles S.W.

FOR SALE, a beautiful ESTATE of 250 acres, with elegant Swiss Villa and capital Stabling; gravelly soil, fine views, and nearly a mile of frontage on the London Road; free from Tithe and Land Tax; two-thirds on mortgage. A Plot of about 50 acres, planted with fine evergreens, fruit, and other trees would be Sold separately; also a Plot of 25 acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

Small Nursery.—Walthamstow, E.

TO BE LET or SOLD, in Summit Road, Walthamstow, E., five minutes' walk from Hoe Street and Wood Street Railway Station, a NURSERY, with Cottage, half an acre of Ground, one large Span-roof Greenhouse (80 feet long, heated with hot-water), one Span-roof House, and a Span-roof Pit, both heated by flues, all recently put into good repair. Rent £45, or the Freehold to be Sold for £700, half of which may remain on Mortgage.

Apply to Messrs. PROTHEROE AND MORRIS, Auctioneers, Leytonstone, E.; or to WILLIAM HOUGHTON, Esq., Solicitor, 15A, Saint Helen's Place, London, E.C.

MESSRS. FRASER AND BENTON, HORTICULTURAL AND AGRICULTURAL AUCTIONEERS AND VALUERS, Romford and Grays, Essex.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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ACER MACROPHYLLA, 12 to 14 feet, 36*s.* per dozen.

SYCAMORE, Purple, 12 to 14 feet, 24*s.* per dozen.

Smaller sizes at proportionately low prices, by the dozen, 100, or 1000. Also 500 other species and varieties of Deciduous Trees and Shrubs, from 1 foot to the largest removable size.

EVERGREENS.

ABIES NIGRA, 3 to 7 feet, 12*s.* to 24*s.* per dozen.

ARAUCARIA, 2 to 5 feet, 30*s.* to 120*s.* per dozen.

AUCUBAS, 3 to 4 feet, very bushy, 36*s.* to 42*s.* per dozen.

BOX, 4 to 5 feet, 24*s.* to 36*s.* per dozen.

CEDRUS AFRICANUS, 3 to 9 feet, 18*s.* to 60*s.* per dozen.

,, DEODARA, 1 to 4 feet, 30*s.* per 100 to 42*s.* per dozen.

CUPRESSUS LAWSONIANA, 4 to 7 feet, 9*s.* to 30*s.* per doz.

FIR, Spruce, 5 to 8 feet, 18*s.* to 30*s.* per dozen.

,, Weymouth, 3 to 6 feet, 6*s.* to 12*s.* per dozen.

,, Hemlock Spruce, 4 to 5 feet, 9*s.* to 12*s.* per dozen.

HOLLY, Green, 3 to 10 feet, 18*s.* to 120*s.* per dozen.

,, Silver, 2 to 5 feet, 24*s.* to 34*s.* per dozen.

,, Golden Queen, 2 to 2½ feet, 48*s.* to 60*s.* per dozen.

JUNIPERUS CHINENSIS, 3 to 8 feet, 12*s.* to 60*s.* per doz.

LAURELS, 1 to 7 feet, 8*s.* to 100*s.* per 100.

,, CAUCASICUM, 1 to 7 feet, 15*s.* to 150*s.* per 100.

,, COLCHICUM, 3 to 7 feet, 30*s.* to 100*s.* per 100.

,, handsome standards of the above three sorts, 42*s.* to 60*s.* per dozen.

,, OVALIFOLIUM, 1 to 3 feet, 15*s.* to 75*s.* per 100.

,, Portugal, of sorts, 3 to 4 feet, 24*s.* to 30*s.* per dozen.

EVERGREENS.

LAURUSTINUS, 3 to 4 feet, 24*s.* to 30*s.* per dozen.

PICEA NORDMANNIANA, 2 to 7 feet, 18*s.* to 84*s.* per doz.

PINUS AUSTRIACA, 3 to 5 feet, 9*s.* to 24*s.* per dozen.

,, INSIGNIS, 3 to 6 feet, 18*s.* to 36*s.* per dozen.

,, CEMBRA, 4 to 9 feet, 18*s.* to 84*s.* per dozen.

,, EXCELSA, 3 to 9 feet, 18*s.* to 60*s.* per dozen.

,, LARICIO CALABRICA, 4 feet, 75*s.* per 100.

PRIVET OVALIFOLIUM, 2 to 7 feet, 12*s.* 6*d.* to 30*s.* per 100.

PHILLYREAS, 2 to 6 feet, 9*s.* to 36*s.* per dozen.

RAPHIOLEPIS OVATA, 2½ to 3 feet, 30*s.* per dozen.

RHODODENDRON PONTICUM, 1 to 2 feet, 25*s.* to 50*s.* per 100.

,, hybrids, 1 to 3 feet, 6*s.* to 36*s.* per dozen.

,, named sorts, 1½ to 3 feet, 30*s.* to 60*s.* per dozen.

TAXODIUM SEMPERVIRENS, 4 to 6 feet, 24*s.* to 36*s.* per dozen.

THUJA AUREA, 1 to 2 feet, 18*s.* to 36*s.* per dozen.

,, GIGANTEA, 3 to 10 feet, 24*s.* to 120*s.* per dozen.

,, LOBBII, 6 to 10 feet, 30*s.* to 60*s.* per dozen.

,, OCCIDENTALIS (American Arbor-vitæ), 2 to 9 feet, 4*s.* to 30*s.* per dozen.

,, WAREANA, 3 to 7 feet, 9*s.* to 30*s.* per dozen.

THUJOPSIS BOREALIS, 3 to 8 feet, 18*s.* to 42*s.* per dozen.

YEWS, Common, 2 to 5 feet, 6*s.* to 36*s.* per dozen.

,, fan-trained, for hedges, 4 to 6 feet, 36*s.* to 60*s.* per dozen.

,, Golden (elegantissima), 1 to 4 feet, 18*s.* to 84*s.* per dozen.

YUCCA FILAMENTOSA, strong, 12*s.* per dozen.

,, RECURVA, strong, 30*s.* per dozen.

Smaller sizes at proportionately low prices by the dozen, 100, or 1000. Also, 500 other species and varieties of Evergreen Trees and Shrubs, from 1 foot to the largest removable size.

FRUIT TREES.

APPLES, CHERRIES, PEACHES and NECTARINES, PEARS and PLUMS, all the best sorts, healthy, vigorous, and true to name, many large, fine-shaped, fruit-bearing trees, Standards, 18*s.* per dozen and upwards; Dwarfs, 12*s.* per dozen and upwards; Pyramids, 18*s.* per dozen and upwards; Dwarf-trained, 30*s.* per dozen and upwards.

GRAPE VINES, Planting and Fruiting Canes, 42*s.* per dozen and upwards.

WALNUTS, Standard, fine, 24*s.* per dozen.

FILBERTS, 4 to 5 feet, 6*s.* to 9*s.* per dozen.

ROSES.

(250,000 well-grown plants on sale.)

STANDARDS, 18*s.* per dozen and upwards.

DWARFS, 6*s.* per dozen and upwards.

,, extra size, 18*s.* per dozen and upwards.

HALF SPECIMEN and SPECIMEN ROSES, a large and splendid stock, from 5*s.* to £5 each.

CLIMBING TEA and NOISETTE ROSES, for Conservatories, 3 to 4 feet, 30*s.* per dozen.

PYRAMID ROSES, 5 to 6 feet, 60*s.* per dozen.

NEW ROSES, forty sorts, 24*s.* to 48*s.* per dozen.

CLIMBING PLANTS,

In Pots, including Wall Plants (CLEMATIS, HONEYSUCKLE, IVY, JASMINE, &c.), 9*s.* per doz. upwards.

CAMELLIAS.

250 best sorts, 30*s.* per dozen to 30 guineas each.

HEATHS.

Six best winter-flowering sorts, in 32-sized pots, 30*s.* per dozen.

EUONYMUS FLAVESCENS,

Introduced by us from Japan—the best Yellow Bedding Plant, 9*s.* per dozen and upwards.

GERANIUMS, ZONAL & VARIEGATED,

English and Foreign: a large and unique Collection. For Names, Descriptions and Prices see separate Catalogue.

HYACINTHS, TULIPS, CROCUSES,

and other Spring Flowering Bulbs and Plants for Pots, Glasses, and Spring Gardening, by the dozen, 100, or 1000.

See separate priced Catalogue.

WM. PAUL & SON INVITE INSPECTION OF THE ABOVE. PICKED STOCK AT SPECIAL PRICES.

Their Nurseries, now nearly 100 Acres in extent, are in great part new ground, and the Stock is consequently healthy, handsome, clean, and in fine condition for removal. Priced CATALOGUES free by Post.

To prevent confusion please observe the CHRISTIAN NAME—

WILLIAM PAUL & SON, PAUL'S NURSERIES, WALTHAM CROSS, HERTS,

Adjoining the Waltham Station, Great Eastern Railway. Branch Nurseries at Broxbourne, Herts, and Loughton, Essex.

Dutch Bulbs.

WILLIAM FROMOW has received his annual supply of the above from the best Continental Growers, in very fine condition.

AUTUMN CATALOGUE of BULBS, ROSES, and GENERAL NURSERY STOCK, now ready.

Sutton Court Nursery and Seed Establishment, Turnham Green, London, W.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.

Highgate Nurseries, London, N.

HYACINTHS, TULIPS, CROCUS, GLADIOLI, LILIES, IRIS, NARCISSUS, COLCHICUMS, HELLEBORES, PÆONIES, &c.

Our English CATALOGUE of the above for 1875 is now ready, and will, as usual, be sent post-free to all applicants.

ANT. ROOZEN AND SON (late Ant. Roozen), Overveen, near Haarlem, Holland.

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.

Carlton, Tasmania.

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EDWARD MORSE has a great number of specimen and half-specimen STOVE and GREENHOUSE PLANTS for Sale, including Ericas, Azaleas, Stephanotis, Clerodendrons, Ferns, Palms, &c.

Priced LIST on application.

Original Nurseries, Epsom, Surrey.

Winter Flowers.

RUSSIAN VIOLETS, the hardiest and best of all for winter blooming; good plants, 3*s.* per dozen, package included.

CHRISTMAS ROSE (Helleborus niger), strong blooming plants, 20*s.* per dozen, package free.

DIELYTRA SPECTABILIS, strong plants for forcing, 6*s.* per dozen, package free.

The money must accompany all orders.

THOMAS KITLEY, Oldfield Nursery, Bath.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

Planting Season.

LINNÆUS RHUBARB ROOTS, 10,000 strong 3 and 4-year old, for forcing or planting, price 3*s.* per dozen, £1 per 100. Also 20,000 of LANCASHIRE LAD GOOSEBERRY, NAPLES BLACK CURRANT and RED CURRANT TREES, and SEMPER FIDELIS RASPBERRY CANES, same price as above, carriage and package free to London. Sent on receipt of Post Office Order.

T. W. BEACH, Fruit Grower, Old Brentford, W.

Cabbage Plants—Cabbage Plants.

MESSRS. W. VIRGO AND SON can now supply in any quantities the following sorts, viz.:—Early Battersea, Pullen's Nonpareil and Enfield Market, at 3*s.* 6*d.* per 1000; Robinson's Drumhead, at 3*s.* per 1000. All good strong healthy plants, and delivered on rail. Post-office Order must accompany all orders from unknown correspondents.

Wonersh Nursery, Guildford, Surrey.

Australian Seeds and Plants.

SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.

SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

From Paris—New Roses for 1875-1876.

LÉVÊQUE AND SON, NURSERYMEN, 26, Rue du Liegat, Ivry-sur-Seine, near Paris, beg to announce that their LIST of NEW ROSES is now ready, and and will be sent immediately on application. They recommend particularly the following four sorts of their production:—H.P. Duc de Montpensier, H.P. Avocat Duvivier, H.P. Monseigneur Fournier, and a seedling of Cloth of Gold, Madame Miolan Carvalho, a deep yellow. Fifty other sorts of different growers are described in their List. On application they give confidential information. They give, as Discount, one plant or one sort over in each dozen ordered.

From FRED. WALTON, Esq.

"*October* 15, 1874.

"The Collection of Bulbs is truly a wonderful one for money."

Early Orders ensure the Best Roots.

Carter's

The Queen's Seedsmen,

237 & 238, HIGH HOLBORN, LONDON, W.C.

New Roses.

CHARLES TURNER can supply the Four fine NEW ROSES of his own raising, viz.:—Miss Hassard, the Rev. J. B. M. Camm, John Stuart Mill, and Royal Standard, as Standards, Half-standards and Dwarfs.

For full descriptions and opinions of the Press, see ROSE CATALOGUE, now ready.

The Royal Nurseries, Slough.

SPRING-FLOWERING PERENNIALS, &c., for Spring Gardening, Carpet Bedding, and Herbaceous Borders:—

Ajuga reptans fol. var., Aubrietia purpurea fol. var., Campanula persicifolia, and C. persicifolia alba, C. carpatica and C. carpatica alba, Cheiranthus Marshallii, C. alpina, Dianthus barbatus fl.-pl., D. barbatus nanus compactus, Seedling Delphinium, Helianthemums in named sorts, Lithospermum prostratum, Lychnis of sorts, Œnotheras in variety, Saxifrages in twelve kinds, Sedums in twelve sorts, Spiræa filipendula fl.-pl., Schizostylis coccinea, Violet Victoria Regina. All the above at 2*s.* 6*d.* per dozen.

Alyssum saxatile, Antennaria tomentosa, Aubrietia purpurea, Barbara præcox fol. var., Canterbury Bells, double and single, Iberis coriifolia, I. Tenoreana; Violas, alba, Enchantress, Magnificent, lutea, and grandiflora; Arabis albida, Phlox frondosa, P. verna, Silene pendula compacta, S. pendula compacta alba, Armeria rosea, and Veronica incana. Any of the above at 1*s.* 6*d.* per dozen; 50 for 5*s.*; 100 for 9*s.*

Daisies, red, white, or rose; Wallflowers, double or single; Dactylis elegantissima, Golden Pyrethrum, Myosotis dissitiflora, M. sylvatica, M. sylvatica alba or rosea, Polyanthus, Sedum acre elegans, S. glaucum, S. lividum, Sempervivum tectorum, S. californicum, Stellaria graminea aurea, and Sweet Williams. Any at 1*s.* per dozen; 50 for 3*s.*; 100 for 5*s.*

For descriptions, &c., of above, and for Spring-flowering Bulbs to plant with above see CATALOGUE, post free on application.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

TREE FERNS.

THE LARGEST AND BEST STOCK IN EUROPE.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above; also of his

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 7, at half-past 12 o'Clock precisely, 6 plants of the beautiful PESCATOREA ROEZLII (Reich.), the only plants established in Europe; also 6 good established plants, imported last year, of BATEMANNIA WALLISII (Reich.); several good plants of the new CYPRIPEDIUM BRASILIENSE, belonging to the caudatum section, and lately discovered and introduced from Brazil; also some established plants of choice CYPRIPEDIUMS, such as—lævigatum, Sedeni, Ashburtonæ, Dominianum, Harrisianum, pardinum, Schlimii and Dayanum; several plants of the rare ODONTOGLOSSUM HYSTRIX, and various choice ODONTOGLOSSUMS, including—blandum, Krameri, vexillarium, Lindeni, Roezlii and angustatum; also some plants of the rare MASDEVALLIA POLYSTICTA, M. MELANOPUS and M. HARRYANA; some plants of the rare ONCIDIUM RUPESTRE, PESCATOREA DAYANA, and an importation from Burmah of DENDROBIUM SENILE, and various other choice ORCHIDS.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

NEW APPLE, "LADY HENNIKER."

EWING & CO.,

THE ROYAL NORFOLK NURSERIES, NORWICH,

In reply to numerous inquiries, beg to state that they can now supply strong Maiden Plants of the above, at

3s. 6d. each, or 21s. for Seven; 2-year Plants, 5s. to 7s. 6d. each.

Every Gardener (Amateur or otherwise) should possess this splendid novelty. The stock of Maiden Plants is this year very large and fine.

☞ *The usual Discount will be allowed to the Trade.*

species is a much approved beverage. The following recipe for making it is extracted from a standard American work, and might no doubt be successfully carried out among ourselves by substituting the fruit of our common Bramble for that of R. trivialis:—"To every 3 pints of berries add 1 quart of water; suffer it to stand twenty-four hours, strain through a colander, then through a jelly-bag, and to every gallon of juice add 3 lb. of good brown sugar, the whites of three eggs beaten to a froth, and stirred in the juice: a little spice, with two dozen cloves, beaten together, and one nutmeg grated, should be put into a small linen-bag and dropped in. After all are mixed, put it in a stone jug, filled up, and kept full with some of the same juice reserved for that purpose, until it is done working, which will be in two or three weeks. Cork it tightly, and keep it in a cold place for three or four months, then pour it off into bottles, with a little loaf-sugar in each bottle; cork and seal close. If the wine is kept for twelve months, it will be still better." A jelly made from this species and the "Juneberry" (R. villosus) is in great esteem as an article of diet; the roots of both have certainly tonic properties of considerable importance, and their dried leaves have been recommended as substitutes for tea. *B. M.*

New Garden Plants.

PASSIFLORA BILOBATA, *Juss.**

A short time since we received from Messrs. Veitch a specimen of this plant for identification. We call attention to it, not on account of its beauty, for it has little to boast of when compared with the many more splendid forms of this genus, but on account of its interest to botanists and collectors. It is, we believe, the first time that it has been introduced, at least we can find no record of it in any list. It is one of a small section (Cieca) which have no petals. The leaves are deeply two-lobed, the lobes somewhat widely spreading and oblong pointed; the leaf-stalk is destitute of those glands which form so conspicuous a feature in most of its allies, and the stipules, like the bracts, are very minute and caducous. The flowers are borne in axillary pairs, each being stalked. The diameter of the flower is about ½—¾ inch, the colour greenish. Within the five sepals is a two-rowed corona, the outer of club-shaped threads, the inner a membranous tube thrown into numerous folds (hence the plant comes under the sub-genus Plectostemma, while, owing to the absence of petals, as before said, it is further referred to the section Cieca). The base of the column supporting the stamens and pistil is further encircled by a cup-like process (basilar corona). The ovary is sub-globose and glabrous.

The localities previously cited for the plant are Mexico and St. Domingo, but Messrs. Veitch's plant was, we are informed, derived from Costa Rica. Their specimen differs from the figure of Jussieu's P. bilobata in the more pointed leaf-lobes, but as in all other points the correspondence seems exact, we have not hesitated to refer it to that species. *M. T. M.*

MASDEVALLIA VELUTINA, *n. sp.*†

This is a slender, small, lovely gem, forming dense tufts of leaves, probably 6—8 inches high—I have only the inferior parts and have therefore to guess. The slender peduncle of dark violet colour bears a single flower, rosy violet and white, as large as that of M. Estradææ, but with longer tails, surpassing the body of the perigone three times. The great charm of the lovely species consists in the interior surface being totally covered with velvet. The plant comes from New Granada, It was discovered several years ago by M. Wallis, next found by M. Roezl, and finally imported by Messrs. Veitch, who feel pleased to admit candidly that it was collected by M. Wallis. *H. G. Rchb. f.*

* *Passiflora bilobata*, Juss. in Ann. Mus. vi. 107, t. 37; Mast. in Flora Brasiliense (Passifloraceæ), 546, n. 20.—Rami herbacei flexuosi compressi glabri longitudinaliter sulcate; folia membranacea ocellata basi cordata, 3-nervia, profunde lunato-biloba, lobis oblongis acutis late divergentibus; petioli eglandulosi; stipulæ æque ac bracteæ minutissimæ caducæ; pedunculi gemini axillares petiolum æquantes; floris tubus brevissimus late subulatus basi umbilicatus; sepala oblonga herbacea ad margines tenuiora; petala nulla; corona exteriore filis numerosis clavatis sepalis dimidio brevioribus; corona membranacea tubulata plicata margine dentato-inflexa; corona basilaris cupularis; ovarium subglobosum glabrum; styli viride; stigmata claviformia.

† *Masdevallia velutina*, H. G. Rchb. f.—(Clausæ porrectæ) dense cæspitosa; foliis longe petiolato attenuatis ligulatis; pedunculis gracillimis unifloris; pedicello bracteam longe superante; cupula bene connata, inferne ante sepalorum lateralium apices antecaudales intrusa; sepalorum parte libera triangula longissime filiformi caudata; sepalis intus pulcherrima velutinis; tepalis ligulatis apice bivalvibus semi-oblongis nunc apiculatis, imo acutis, semper copiose dentatis, incluso inter valvas tumore papilloso; labello pandurato; carinis geminis extrorsum arcuatis in parti superiore; carinis ternis seu quinis in parte inferiori; columna prona apice utrinque deorsum mucronata

CROTON DISRAELI.

THIS is a most remarkable plant, and peculiarly distinct. We have been made acquainted within the last few years with Crotons innumerable, several of which, though not perhaps really excelling in beauty the old favourites, C. variegatus, C. pictus, and C. angustifolius, have proved to be equal to them in beauty, and remarkably diverse in character, as witness C. Weismanni, C. Johannis, C. undulatus, C. magnificus, C. spiralis, and others, whose tints of

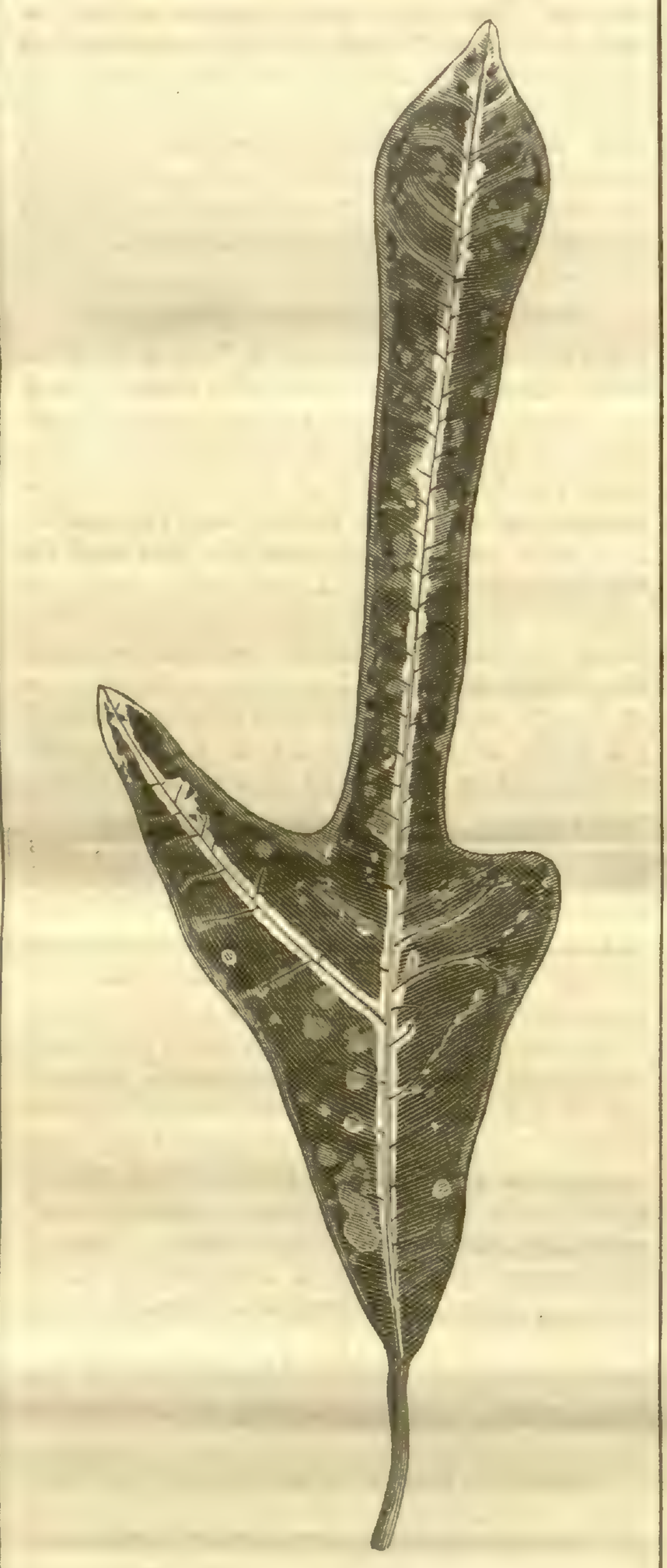

FIG. 88.—CROTON DISRAELI, VEITCH.

crimson and gold are exceedingly rich when well laid on. Some twelve months since, or thereabout, English cultivators were startled from their propriety by hearing of Crotons with trifid, or three-cleft leaves, and during the past spring some of them have made their way before the public.

The best of these, so far as we yet know, is that represented in the accompanying figures (figs. 88, 89), for which we have to thank the Messrs. Veitch. It forms a stoutish, erect-growing bush, with leaves averaging about a foot in length, marked on a green ground colour with golden ribs and veins, broadish at the base, and throwing out two side lobes of moderate development, the middle lobe, which is contracted in the lower portion, and broader upwards, being considerably longer than the others, so that the leaves, when thus perfectly developed, become more or less distinctly halberd-shaped. Occasionally, the development is less regular, one instead of two side lobes being developed. If the foliage colours as well as that of most other Crotons, as we have reason to believe it does, gardeners generally will find the plant a welcome addition to their decorative stores, and exhibitors will meet in it with a new subject with which to display their cultural skill.

SOMETHING ABOUT "PICKLERS."

HITHERTO Bedfordshire seems to have enjoyed the monopoly of the privilege of growing the immense quantity of pickling Onions annually consumed by the great Soho firm of fruit and vegetable preservers. How many bushels of these little spherical bodies find their way yearly into the jars and bottles of this enterprising firm it would be difficult to say: probably several thousands, at least, for "picklers" are well favoured. All the world over they are met with on every shore and in every clime, and to the inevitable cold mutton—that standing monument of British cookery—they are as essential as sugar is to tea, or butter to bread. The Onion in certain circles—but hardly those of polite life—is eagerly sought for as a powerful relish, especially to palates that have been "refined" by a plentiful absorption of alcohol and nicotine. And in the matter of odours, even the most delightful essences of Rimmel fade into insignificance when compared with the perfume that emanates from the mouth of one who to "beer and baccy" has added a considerable flavouring of Onion. Partakers of raw Onions should in self-defence be unanimous, that is, all should share alike of the dainty dish; thus if all are offensive, all are equally innocent of it.

For ordinary edible purposes we lift three crops in the year. Thus just now acres of our market gardens are as green as grass with the young growth of the White Lisbon Onion, sown to yield to the insatiable consumer of the London market a plentiful supply, young, green, and toothsome, early next spring; and these will be pulled bodily as they go, leaving the ground available for a summer crop. Next to lift is the crop of autumn-sown Tripolis, ripe and ready about July, but as these are poor keepers their value for market purposes is comparatively small. Most popular of all, and most useful, is the main stock for winter use of the spring-sown White Spanish and Brown Globe kinds, and with one of these, on the coldest day of the year, to eat with his humble bit of bread and cheese, it is the inevitable grim joke of the poor labourer to say that "he has just had a hot dinner." Picklers have their season of growth, but their period of consumption is bounded only by the limit of supply, which will doubtless be abundant enough for a few years longer. Then the preserving process to which they have been subjected has to a considerable extent deprived them of that sharp pungency and unpleasant odour so peculiar to the raw Onion; and fair ladies and elegant gentlemen, who would shudder at the thought of raw Allium, even though it was a Banbury 1st prize, will positively gloat over the pretty little "pickler," which, literally drowned in scalding spiced vinegar, comes out of the bottle, a choice and tempting morsel—fit diet for gods and men.

One of the Bedfordshire Onion growers—a large contractor to Messrs. Crosse & Blackwell, has recently taken land in my neighbourhood, and amongst his crops during the past summer were about 6 acres of Onions for pickling. In private gardens we are accustomed to sow the Silverskin for pickling uses, but this variety would hardly be acceptable to the market grower. The kind used is evidently a selection of the White Spanish, that adapts itself to the form of growth required of it, and which would seem to possess in a remarkable degree the merit of evenness of size and general habit. March would appear to be the best period for sowing the seed, but as a good clean and friable seed-bed is essential, the sowing must be done as the weather will permit. The ground to be so used should be well manured and deeply worked the previous autumn; and thus in the spring, by dint of deep scarifying, rolling and harrowing, the requisite fine level surface is obtained. The seed is sown broadcast moderately thick, and with remarkable judgment, indeed in looking over the six acres in question the difficulty was to find a place where the Onion was not. Of course under such conditions weeding is a difficult matter, but this is accomplished by hands accustomed to the work; on the other hand, with a crop so thickly sown weeds are kept much in check, as with the expansion of the bulbs the ground is gradually covered and weeds are crowded out.

The period of lifting is determined by the size of the bulbs, but the crop may be ready to harvest about the beginning of August. Then a sharp tool is thrust under the bulbs so as to loosen them from the soil *en masse*, and they are gathered up by the green tops in handfuls and laid close to hand in neat narrow ridges, the green haulm being laid so as to cover the bulbs; and when the end of the ridge is reached a little soil is drawn over the few exposed bulbs, so that in no case are they affected by the

BEAUTIFUL FLOWERS,

FOR WINTER AND SPRING,

EASY OF CULTURE.

Seedsmen to the Queen. **Carriage Free.** Seedsmen to the Prince of Wales.

SUTTONS'

CHOICE COLLECTIONS OF

FLOWER ROOTS.

For SPRING FLOWERING, Open Ground,
5*s.*, 10*s.* 6*d.*, 21*s.*, and 42*s.* each, Carriage Free.

For SUMMER and AUTUMN, Open Ground,
10*s.* 6*d.*, 21*s.*, and 42*s.* each, Carriage Free.

For WINTER and SPRING, Pots and Glasses,
10*s.* 6*d.*, 21*s.*, and 42*s.* each, Carriage Free.

Hyacinths.

Named Varieties for Pots and Glasses.

100 in 100 very choice sorts	£4	4	0
50 in 50 "	2	2	0
25 in 25 "	1	1	0
12 in 12 "		12	0
12 in 12 good "		6	0

For Beds and Open Borders, various shades of colour, 3*s.* per doz., 22*s.* 6*d.* per 100.

From Mr. WILLIAM HICKMAN, *Gr. to the* Rt. Hon. Viscount Valentia, *Bletchington Park.*

January 28. — "I am very pleased to say the Haycinths are blooming very well indeed, in fact, the best we ever had."

From the Rev. C. J. SALE, *Holt Rectory, Worcester.*

October 12. — The Hyacinths you sent me last autumn were very much admired. I never had a finer bed."

From F. R. BARKWAY, Esq., *Grove House, Lavenham.*

March 5. — "The Hyacinths are especially fine."

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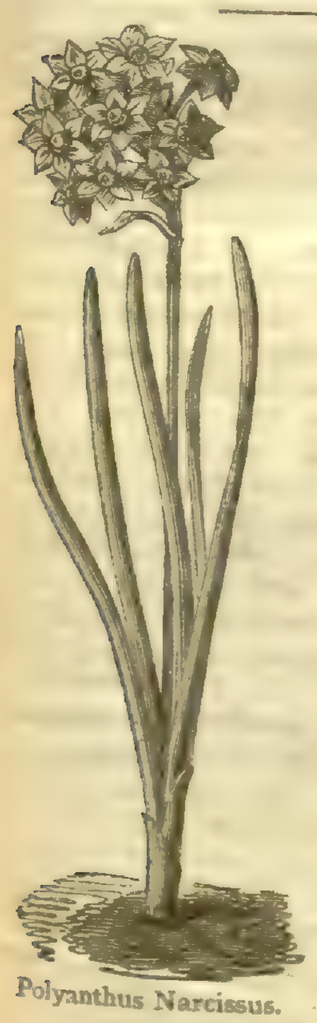

Polyanthus Narcissus.

Tulips.

Early Single Varieties.

100 in 20 named sorts	£0	18	0
100 in 10 "	0	15	0
50 in 10 "	0	8	0
25 in 5 "	0	4	0
12 in 4 "	0	2	0

Mixed, 1*s.* per dozen, 7*s.* 6*d.* per 100.

Large Double Varieties.

100 in 20 named sorts	£0	18	0
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25 in 5 "	0	4	0
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Mixed, 1*s.* per dozen, 7*s.* 6*d.* per 100.

From F. F. ARMSTRONG, *Henrietta Street, Dublin. May* 29.

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12 in 12 "	0	4	0
100 fine mixed	0	15	0
12 "	0	2	0

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SUTTONS' AUTUMN CATALOGUE for 1875,

GRATIS AND POST FREE.

SUTTON & SONS,

ROYAL BERKS SEED ESTABLISHMENT, READING.

SATURDAY, OCTOBER 2, 1875.

RASPBERRIES.

THERE is one great difference between the points of interest presented by the Blackberry and Raspberry respectively, in that while the former has, as we have seen, a great deal of folklore connected with it, the latter owes its interest almost exclusively to its useful properties. That these are extensive and generally recognised "needs no demonstration," as Euclid observes, although our earlier writers do not seem to have thought them as important as they are now usually considered. Turner, indeed, says that "the raspis is found in many gardines of England;" and Tusser, among his horticultural instructions, has the lines—

> "The Barberry, Respis, and Gooseberry too,
> Look now to be planted as other things do;"

but Gerarde says its taste is "not very pleasant," although he also refers to its being planted in gardens. At the present day, however, few fruits are more popular or more generally cultivated; and the "berries" are extensively employed, not only as a dessert fruit for making into tarts or puddings, but for jam and for "Raspberry vinegar," a refreshing beverage which is not without some medicinal value, being frequently prescribed in cases of sore throat and the like. Langham, in his *Garden of Health*, says "it were good to keepe some of the juyce of raspis berries in some wooden vessell, and to make it, as it were, raspis wine, which is good for many purposes;" and a wine which was rich, though not very potent, was formerly made from Raspberries, and employed in scorbutic disorders: this was especially used in Poland, where the Raspberries abound in the woods. In Russia the fruit is dried in large quantities for winter use: and a hydromel is made from it, the Raspberries being dried and mixed with honey and then fermented. According to Langham, from whom we have already quoted, "the flower stampt with hony and applyed is good for the inflammation of the eyes," while "the leaves and tender springs" were also used in domestic medicine. Even at the present day a tea is occasionally made from the leaves, as, indeed, has been the case with almost all plants except such as are absolutely poisonous. Threlkeld, speaking of the fruits, says, "They are dear in Dublin for tincturing brandy."

It would be foreign to our purpose to enter upon a description or even an enumeration of the different varieties of Raspberry which are in cultivation; but they are both numerous and diversified. Although most of them have red fruit, there are not wanting others in which the "berries" are yellow or white; and a rather curious form, known as the "black Raspberry," produces a dark purple fruit, and is said to have been obtained by crossing the Raspberry with the common hedge Bramble.

In a wild state, the Raspberry is common enough, and in some localities is so abundant that it is collected by the villagers for domestic purposes. Gerarde's account of it embodies one of those casual references to his early life, which are but "few and far between," and which are the more interesting on account of their infrequency. "I found it," he says, "among the bushes of a causey, neere unto a village called Wisterson, where I went to schoole, 2 miles from the Nantwich in Cheshire." This reference seems to have escaped the notice of the writer of the very interesting sketch of the life of Gerarde, which lately appeared in a contemporary, and to which we are indebted for the discovery that the good old herbalist died four years later than had hitherto been supposed. The date of his death is usually given as 1607, but it appears from the register of St. Andrew's, Holborn, that he was buried there on February 18, 1611-12. His birth at Nantwich is also mentioned by him in speaking of Cardamine pratensis, which, he says, is called "at the Namptwich, in Cheshire, where I had my beginning, Ladie smockes."

The English names of the Raspberry are somewhat various. That by which it is generally known means simply the berry produced by the rasp, or resp (plural raspis or respis, or even, as in Lyte, respices), being the older name of the plant, which is still in use in many counties. Whether this refers to the roughness of the stem, as some have supposed, or, as is more probable, to the use of the wood in the eastern counties, where it signifies a shoot, sucker, a young stem, and is applied especially to the fruit-bearing stem of the Raspberry, is somewhat uncertain. Hindberry, another old name for it, by which it is still known in the northern counties and in some parts of Scotland, has given rise to some speculation. Ray thinks it may have been so called from its growth in woods, which would be frequented by stags and hinds; a supposition which is only a degree more probable than that offered by Holloway, namely, that as they are "gathered by poor people, and of course by hinds among the rest," they probably take their name from this circumstance! Dr. Prior thinks it "derived apparently from hind, as the gentler or tamer kind of Bramble, contrasted with the Heorotberie, the Hartberry;" but the name has probably the same origin as its German equivalent Himbeer or Hindbeer, and the Danish Hindebär, whatever that may be. This supposition is strengthened by the fact that Turner, who mentions it being called Hindberry in the north, says it is named "in Duche Hyndberen." The French name, Framboise, appears in our older writers (as Lyte and Gerarde) as an English name, and was at one time in use in Dorset. The specific title, Idæus, appears to have originated, as in other cases, from the real or supposed growth of the Raspberry upon Mount Ida.

In the United States several allied species of Rubus are known by the name of Raspberry, although the European R. Idæus is not found there. Of these the nearest resemblance to our Raspberry is furnished by R. strigosus; both may possibly be forms of one species. It is probably to this plant that the variety known as the Catawissa should be referred; this form was found accidentally in a graveyard in Pennsylvania, and is so productive that each bunch of the fruit often contains as many as fifty "berries." It is to this, too, or to a close ally, that Mrs. Moody refers when she speaks of the "berrying parties" which take place in Canada during the summer. She tells us of one locality in which several hundred acres were covered with wild Raspberries, the ground having been cleared some years previously. R. occidentalis, the Black Raspberry, or Thimble-berry, resembles the preceding, but has purplish black, or sometimes white fruit. It is occasionally employed in dysentery, and is especially abundant upon ground that has been turned. Various other Rubi, which are rather of the Blackberry than the Raspberry type, are used in medicine in America, and have even attained some importance. Such, for instance, is the American Dewberry (R. trivialis), which is certainly possessed of astringent qualities, and is employed by the Oneida Indians, a decoction of the root being esteemed a rapid and certain cure for dysentery. A wine made from the fruit of this

France, for the sale of wonderful horticultural novelties. Being backed by a large stock of plants and gaudy pictures, and a still larger share of impudence, they did not want for customers, who cheerfully paid what the French call "highly salted" prices. Who could reasonably expect to get such valuable rarities cheap? They had more than thirty varieties of perpetual Moss Roses: if any one doubted, there were the Rose bushes duly labelled. They had trees producing Pears weighing 2 kilos., more than 4 lb. avoirdupois, each. The mouths of the incredulous were gagged by the gaudy pictures and the healthy young trees. They had perpetual Queen Strawberries that gave even bigger fruit in October than in July; there were the plants, well-rooted and fresh, at I forget how much a-piece. My acquaintances who were purchasers have not yet shown me either the Roses, the Pears, or the Four Seasons' Queens; and all the moral I can draw from the tale is that the perpetual Queens, at least, point to a desideratum. *E. S. D.*

GREENHOUSE PLANTS.—XXV.

THEIR CULTURE AND MANAGEMENT.

Abutilons.—These remarkably free-growing plants are natives of South America: their handsome drooping flowers are produced freely from the young shoots through the greater part of the growing season. They are at no time clothed with the profusion of inflorescence that characterises some things that open most of their flowers simultaneously, but this is amply compensated for by the continuity of their production, rendering them objects of interest for a good part of the year. Most of the greenhouse section are of a somewhat straggling yet vigorous habit, making them especially adapted for covering walls or the draping of pillars or rafters; in such situations their beautiful pendulous blooms are seen to advantage; their miniature Vine-like foliage is very handsome, and in some of the newer varieties is beautifully variegated, a good part of the surface being profusely marbled with yellow. They are subjects of very easy culture, but the season of their flowering is much prolonged by their being grown where they receive through the winter and spring a few degrees more heat than the temperature of an ordinary greenhouse, such as usually kept up in a conservatory where plants in bloom are displayed through the dull season of the year; in a situation like this Abutilons keep growing and retain their leaves longer. The blooms are well adapted for cutting, their natural drooping habit fitting them for associating with others of more upright form. The charming white variety, Boule de Neige, is one of the most lovely flowers grown, possessing the advantage of blooming in a very small state; plants of this sort, in 4 or 6 inch pots, flowering from the axil of every leaf.

Abutilons are easily propagated in spring from cuttings of the young wood, if taken off when some 4 or 6 inches in length—if with a heel all the better; insert these in sand in small pots placed in a temperature of 60°, and covered with a bell-glass; here they will soon make roots, and should then be moved into 6 inch pots. They will succeed in either peat or loam, but with these, as with most other free-growing things, peat has a greater tendency to promote leaf-growth than loam has, and it is not well to encourage too much development in the foliage, but rather to restrict this, which, when existant in too great quantities, is prejudicial to free-flowering; let the loam be of good quality, and mix with it enough sand to keep the whole in an open, healthy state; if, whilst they are in the younger stages of their growth, a little leaf-mould is added, it will assist them. As soon as they begin to grow, pinch out the points, so as to induce them to break back. The free-rooting disposition of the plants will cause them to soon require more root-room; they must have larger pots before they become matted. By midsummer they will need moving. They will bear a 4-inch shift, using the loam in lumps as large as pigeon's-eggs; but at this potting add no leaf-mould, as they will flower more freely without it. Stop the points a second time, and keep them well syringed, both on the upper and under sides of the leaves, every afternoon; place them where they will be fully exposed to the light. They will only require a very slight shade for a few hours in the middle of the day in the hottest weather. After they have again broken into growth the shoots will flower as soon as they acquire strength sufficient. As the autumn approaches they will show signs of going to rest, and must not receive much water. During the winter keep them in a temperature of not lower than 45° in the night; by the beginning of March they should be kept a little warmer, and, when growth has commenced they can be moved into larger pots—15 or 18 inches diameter will not be too much.

When Abutilons are required to be grown as trained specimens their natural disposition to spire up must be counteracted by regular stopping and opening the shoots well out; so managed they make good decorative plants for the conservatory, and, as such, are very useful. After flowering they may be put anywhere where a temperature such as advised for the preceding winter can be maintained, and here allowed to remain until the spring, when they should be cut close in, reducing the head to within a foot or 15 inches of the pot, and, as soon as they have made a little growth, turning them out of the pots, removing one-third of the soil and replacing it with new, and treating them through the summer as before.

If the plants are required for the purpose of covering a wall, they may at once be placed where they are intended to be grown, and either planted out or kept in a pot as deemed advisable for best attaining the object in view. If a large space has to be covered it will be better to plant out in a border prepared by, in the first place, sufficiently draining the bottom with a few inches of broken bricks, or something similar, over which place some suitable material, such as pieces of fibrous turf, on which put the soil, like in character to that advised for pot culture; and in this turning out the plants, making the soil firm round the ball, at the same time training the branches so as best to effect the covering of the allotted space. Nothing further will be required than attending to training and stopping, with a regular use of the syringe to keep in check spider, which they are subject to. A portion of the shoots will require shortening back at different lengths each spring, which will cause their breaking into fresh growth, so as to keep the whole space regularly furnished with young flowering wood; if this is not attended to, the bottom will et bare and destitute of both leaves and flowers. For clothing a pillar or rafter when the room to be occupied is somewhat limited, it is well to confine the roots to a pot, as, so managed, their naturally vigorous disposition is kept in bounds. For the purpose here under consideration the plants will not need stopping so early, but should be kept to a single stem until they have attained the height where they are wanted to branch out. For such uses as these they ought to be grown in not less than 15-inch pots; into these they may be transferred from 8 or 10-inch ones in the spring. The drainage must be ample, and well secured from the soil being washed into it by the large quantities of water they require through the summer. Keep them as they advance in growth, well but not too closely trained in the places they are wanted to fill, regulating the stopping according to the number of shoots requisite to furnish the pillar or rafter without being too much crowded, for where this occurs the light, elegant arrangement that should always exist in the training of plants in such positions is spoilt, and the health and flowering capabilities of the subjects employed interfered with. Do not give too much water until the roots have got well hold of the soil; but when the pots are filled they will in the summer, when in full growth, need a copious supply, gradually reducing it as winter approaches, when no more must be given than will just suffice to keep the soil a little moist. Before they begin growing in the spring, the strongest shoots should be cut back at different points, so as to induce the plants to break afresh regularly from bottom to top. When they have made some progress they ought to be liberally supplied with manure-water: by this in a great measure they will require to be sustained, as the limited quantity of soil they occupy will become exhausted. Previous to growth commencing the third season they may be cut back freely and turned out of the pots, a portion of the old soil shaken away, the roots thinned, replacing them in the same pots with new material; further on in the season, if they show any signs of weakness, give manure-water freely. Abutilons are gross feeders, and will bear it moderately strong. By the use of this and periodically replacing the exhausted soil with new, the plants can be kept going for years in a healthy flowering condition, or at any time replaced by young ones, as the ease with which they are propagated and their quick habit of growth makes removal an easy matter.

The following are good varieties:—

A. Duc de Malakoff.—A free growing kind with very large highly coloured flowers, handsomely marked. Suitable for a climber.

A. Boule de Neige.—This is a beautiful plant, extremely free in flowering, producing its snow-white bells in either a small or large state; it is also very free in growth, and adapted for a pot specimen, or for a rafter or pillar.

A. striatum.—A strong-growing bright-coloured kind, suitable for a wall, pillar, or rafter.

A. megapotamicum.—A very free, handsome-flowered variety; will answer either as a pot specimen or as a roof climber; also known as A. vexillarium.

A. lilaceum album.—White, shaded with mauve; a dwarf habited sort, suitable for a pot specimen.

A. violaceum purpureum variegatum.—Flowers purplish violet, the leaves handsomely variegated; very effective, especially when covering the back wall of a conservatory.

A. Sellowianum variegatum.—A very handsome kind, the leaves beautifully suffused with yellow and green.

Abutilons are plants not so much subject to insects as many, although aphides and scale will live upon them. The former can be destroyed by fumigation or washing with tobacco or quassia water; scale, if it exists, must be removed with sponge and brush; red-spider, to which they are liable, is best kept under by continuous use of the syringe during the growing season. *T. Baines.*

WATERCRESS:

ITS CULTURE AND CHARACTERISTICS.

WATERCRESS is one of the most valuable vegetables consumed by mankind. It is accorded a high place both for its supposed medicinal and nutrient properties. By all old authors rather more stress has been laid on the former than time seems to justify, even though it is said to be unusually wholesome, owing to the quantity of a health-preserving chemical element, or iodine, which it is supposed even to this day to contain. A hardy British weed is the Watercress, which is casually produced plentifully along the course of fresh-water springs athwart the country, sometimes altogether without aid, unheeded, or unknown.

"Watercresses!" forms perhaps as homely and familiar a term as one can hear amidst the variety of town cries; and indeed there can be no doubt that the seller of Watercresses is a good sanitary agent, since he thus conveys to the many vegetable-starved residents, something at once wholesome, nutritious, and refreshing. Unfortunately the bunches offered for sale are small—sometimes, it may be, somewhat shrivelled; and it may be well to remark, therefore, that if these are picked over, shortened, prepared for consumption, and then placed into abundance of fresh pure water for an hour before they are required for use, they reassume their natural freshness and piquancy.

Enterprising people have luckily kept up a supply to meet the immense demands of all our large towns, and in their hands cultivation goes on increasing year by year. It is a question whether, space for space, any crop grown requires so great an outlay upon a limited area, or more watchfulness and study in their growth, preparation and cutting for marketing purposes. This will be better understood when it is explained that, from 15 to 20 guineas per acre per annum, are often paid for the necessary water spaces wherein to grow them—waste spaces, be it understood, otherwise worse than useless. In some instances, Watercresses are grown from sewage alone and I believe an instance occurs near Brentwood where a piece of land is let at £10 per acre, and is supplied with sewage brought underground by piping. This is pumped up to an elevation, and thus has a natural downflow, the Watercresses being grown in beds dug out on a hillside field. As to their wholesomeness, I am not prepared to make any statement.

Strange as it may appear, the urban populations have, on an average, a good supply of this wholesome vegetable, whilst, on the contrary, rural people are greatly stinted in their supply; so much so that they look upon Watercress as a kind of *bon bouche* they are always glad to get, but rarely meet with. Hence to such they are veritable and never-to-be-refused luxuries; and it is a fact that, so partial are all rural populations to them that, wherever a wild crop may be able to raise its head, and assume size enough to be noticed, it is at once gathered, and "the plant" nearly, if not quite, destroyed. So persistently is this the case, that but a very limited supply of plants remain naturally in our native spring outflows and ditches. I have suggested that forethought and attention will repay themselves in regard to growing Watercress, though to grow what we may term "home supplies" requires but little outlay of time or labour. I do not hesitate, therefore, to urge every one possessed of a "spring-head" or small streamlet of fresh water, to enter on the culture of them

Preparation of the Beds and Planting.—I shall treat the details in such a manner that those who wish may grow them "all the year round." To do so a small stream of water is essential. The channel along which the water drains away might be extended to any width desired, small dams being made by simply supporting narrow boards across to maintain in each division a depth of water averaging 12 to 14 inches, or less. An average width of about 8 or 10 feet enables the operator to place a movable plank across, upon which to walk with immunity from getting wet-footed.

For a constant successional supply it will be necessary, by the aid of the narrow boards as above, to divide the area into several separate beds; three such divisions will be sufficient to insure a succession of supply, if planted as I shall advise.

Fig. 90 illustrates the divisions referred to, and which I shall treat of as consisting of parts 1, 2, and 3. It matters not what the channel or bed consists of—whether mud, gravelly mixture, or stiff loamy clay—provided, as before intimated, the necessary supply of water is there.

I advise to prepare the first division (fig. 90, No. 1

sun. The process of drying is thus gradual and effectual, and when the haulm is sufficiently decayed the crop is carted away into a large roomy shed, where, as time and opportunity offer, it is picked over and trimmed up, and sent off in sacks to the Bedfordshire home farm, where the bulbs undergo the needful process of skinning, salting, and pickling in large tubs until needed by the Soho firm for bottling. The history of the growth of "picklers" is therefore a short one; probably their treatment as an article of commerce is a matter of graver import, but perhaps in no form as an article of consumption is the Onion so acceptable as when served out in a glass dish to lend zest and enjoyment to our exhausted palates: even the least juicy of joints will be relished with greater flavour if accompanied by the humble "pickler." *A. D.*

SUCCESSIONAL STRAWBERRIES.

Appended to a recent weather report in the *Times* (Wednesday, September 22?) was a statement, in evidence of the singularity of the season, that a certain garden had produced a second crop of Strawberries as good in quality as the first crop had been. It is to be regretted that the variety or species of this twice-bearing Strawberry was not mentioned, because the interest of the fact depends entirely upon that circumstance of detail. If the Strawberry is one of the alpines, it is nothing; if one of the large-fruited, once-bearing sorts, it may lead to something.

The *Times'* paragraph suggests two reflections:—First, that the alpine or perpetual Strawberries are hardly so much cultivated in the United Kingdom as they deserve. Horticultural shows are in part responsible for this; so much is sacrificed to striking the eye, making a grand appearance, beating one's neighbours in outside display, and medal-winning, that although quality is not overlooked, the capability of long-continued productiveness it scarcely thought of. At horticultural exhibitions, at any time of the year, a good dish of modest alpine Strawberries would, I suppose, be nowhere. Are they admitted on any schedule of prizes? for I have not at hand the means of ascertaining. They could not be excluded from a collection of so many dishes of unspecified fruits; but would they tell for much, even if good of their kind? Would they not rather be looked down upon, and smiled at as an eccentric grower's whim?

And yet they are a very useful fruit. They do not come into full bearing, especially after drought in spring, until the large sorts are nearly over, but when they once begin they don't know when to stop, until the grand autumnal fall of temperature compels them to come to a stand-still; and then they still show blossom and unripe fruits. Quite a small patch has given me a dish every two or three days, according to the weather, all summer long, and has not yet ceased (Sept. 27). The fruit is conical, tender-fleshed, and more brightly red when fully exposed to the sun, or on the sunny side. On the table it makes a fresh and agreeable variety; and above all, it is acceptable to invalids. We have already excellent cookery for the sick, a praiseworthy branch of the culinary art, and I don't see why we should not also study gardening for the sick. We already exercise it, practically if unintentionally, in the production of forced Grapes and Strawberries. Perpetual Strawberries offer the opportunity of furnishing a sustained supply of cooling fruit by out-door culture in summer, which, one would think, might easily be continued by skilled horticulturists throughout the winter. The plants would require no forcing to start them, but only to be kept going, under proper conditions. Boxes, like Mignonette boxes, holding rows of plants, might be better than growing them singly in pots; and closeness to the glass might be important. But if any wealthy amateur desired a winter supply of perpetual Strawberries, there exists sufficient gardening ability in the country to insure the gratification of his wish.

The quality of alpine Strawberries depends, it must be admitted, considerably on climate. The more sunny and warm it is the more highly are they aromatised. In the South of France, where they are largely grown, when a dish is set on the table it perfumes the whole room. In the Pyrenees you may dine for weeks together at good *tables d'hôte* without their being absent from a single repast. In evening walks at dusk, along the banks of a rushing stream, the neighbourhood of Strawberry grounds is betrayed by the delicious odour wafted on the breeze. In the North, as autumn advances, they are less highly flavoured, as might be expected; but even then they are better than no late Strawberries at all. The varieties of perpetual Strawberries differ more in name and habit than in fruit. A friend who prefers them to any other Strawberries always renews his beds with seedling plants (not with runners), which he raises himself, and amongst which he has never yet found anything differing sensibly from the ordinary type. The principal distinction of sorts is, the Four Seasons' Strawberries with runners (of these Janus is vaunted by Paris plant-sellers, but I cannot find in it any marked superiority), and those without runners growing in tufts, and propagated by division of those tufts. These latter save the trouble of annually clearing away the runners. The fruit, however, is apt to be splashed with earth after rain, which might be prevented by mulching the beds or rows with straw or long manure. Beds of the former, if planted at moderate distances, soon get so completely covered with runners as to save the fruit from being splashed by dirt. The earliest runners, too, bear the same season; for it is another advantage of the alpines that a plantation made, say in March, will come into full bearing as the summer advances. There are analogous varieties of white alpine Strawberries, not so productive as the red, but esteemed by some on account of their aroma.

Secondly, one may ask the question, What is there to prevent our having, one of these days, perpetual Strawberries of the Sir Harry, Wilmot's Superb, Malakoff, La Constante, or other large and mouthful type? Perpetual Roses, in quantity, are of sufficiently recent date to justify our expectations of getting full-sized perpetual Strawberries, especially as we have perpetual Strawberries to breed from. If our hybridisers were to set to work in earnest, we might surely hope they would be rewarded with something good. Or is there such a discrepancy and incompatibility of race between the alpine Strawberry and the species which have produced the late triumphs of horticulture, as to forbid any crossing or combination of their qualities?

A few years ago a partnership of worthies professing to have their nursery ground (not to be found on inquiry) at Angers, travelled from town to town in

Fig. 89.—Croton Disraeli, Veitch.

planks and building purposes generally, also excellent for firewood and for making charcoal.

Pinus Picea, L. (Silver Fir).—An excellent timber for planks and for beams, and for fuel or making charcoal.

Pinus sylvestris, L. (Scotch Fir).—For building purposes, with the exception of very old trees, the wood of which is distinguished for its durability. This tree is less valued than the two above-mentioned ones; but when not too young, it is better than either of them for firewood or charcoal.

Pinus Larix, L. (Larch).—A product of elevated regions artificially transplanted to the lower ranges of hills, but with very unequal success. The heart, which is of a reddish brown colour, is of great durability, and therefore much sought after for bridges, for railway sleepers, &c. It is not valued for fuel.

Pinus Cembra, L. (Russian Cedar).—A tree of the highest regions, which furnishes a white wood much esteemed for milk-tubs, as also for floorings, as it is not liable to be attacked by worms.

Quercus Robur (Oak).—This tree grows in the plains and on the lower hills. Owing to its greater durability the timber is much prized for constructing and mounting machinery, for wine and beer-barrels, for railway sleepers, bridges, &c. If felled in winter it does not make good fuel, but when felled in spring and the bark at once removed, it is highly esteemed for that purpose.

Fagus sylvatica, L. (Beech).—This tree furnishes the best firewood and charcoal. It is not much employed for building purposes as it is very susceptible to damp, but it is frequently used by cartwrights and turners.

Acer Pseudo-Platanus and *platanoides* (Maples).—They furnish timber much esteemed by cartwrights, turners, carvers, and parqueterie makers. The value of the wood for fuel approaches that of the Beech.

Fraxinus excelsior, L. (Ash).—Much esteemed by cartwrights, coopers, &c. The wood is good for fuel, for which it may even be employed in a green condition.

Betula alba (Birch).—This tree furnishes a moderately good fuel, and, failing Ash and Beech, may be employed by cartwrights.

Carpinus Betulus (Hornbeam).—The wood is close and firm for working purposes, and makes the best of fuel; but the tree does not attain any considerable growth.

Alnus glutinosa, L. (Alder).—It grows in damp places, and furnishes a light wood for fuel. For building purposes it is of great durability when exposed to the action of water.

Populus tremula, L. (Aspen).—It furnishes inferior fuel, but of late years it has been much used in paper-making.

There are many other trees and shrubs which grow, but which, owing to their scarcity or their inferiority, do not deserve special mention.

With regard to gums, barks, &c., Mr. Jenner states that there are no trees growing in Switzerland which produce gum or resin in sufficient quantities to constitute an important article of commerce, but coniferous trees abound, from which resin and turpentine of various qualities might be obtained in considerable quantities were it not found that the loss of wood occasioned by the incision of the trees is, at the present rates, in forests furnishing fuel, from twice to three times as great as the value of the resinous product, and in forests furnishing timber for building purposes, fully ten times as great. In fact, in the opinion of the most competent judges, the condition of the forests of Switzerland is not such as to render the exportation of resinous products advantageous or desirable. The production of bark for tanning purposes is very far from sufficient for home consumption. The bark derived from Swiss trees is chiefly that of the Oak, which is stripped from the wood after it has been cut up for other purposes. Next to Oak bark that of the Pinus Abies, L., is in greatest demand. It is used rather to swell the hides than to tan them, although sometimes employed for light cow and calf hides. Hides tanned solely by means of this bark are spongy in texture, and pervious to damp; it is therefore generally used in combination with Oak bark.

The extensive consumption of wood for carving purposes, and the prejudices amongst the agricultural population against the use of stones for dwelling houses, stables, dykes, fences, &c., constitute a continual drain upon the forestal resources of the country. Almost all the cantons have now laws for the protection, renewal, and extension of the forests; with few exceptions they annually devote considerable sums to rewooding the unduly cleared portions of their territory, and regulations are in force which should suffice to prevent communes and corporations from decreasing the area under wood, within the limits of their jurisdiction, without the sanction of the central authorities. Meanwhile most of the cantonal governments, assisted by the Swiss Sylvan Society, are unremitting in their endeavours to spread information concerning sylviculture, by means of local lectures, courses of instruction in forestry, and the publication of special works. It is hoped that these efforts will tend to a more judicious management of the private forests, to the immediate advantage of their owners and the ultimate benefit of the country at large. *B.*

WOOTTON HALL:

THE RESIDENCE OF SIR HENRY EDWARDS, BART.

WOOTTON HALL, Staffordshire, is approached by a lodge, situated a short distance from the high road from Ashbourne to Cheadle, from which we pass through a well-wooded park to the Hall, a handsome stone mansion, standing on a lofty acclivity, commanding delightful views of the towering hills, rocky cliffs, and hanging woods of the surrounding country. Close behind are the Weaver Hills, which are of considerable extent, and composed of immense heaps of limestone, covered with a calcareous earth. These hills are very lofty, and nearly as high as the Derbyshire Peak-hills, which may be seen from their summits. On passing the chief entrance we enter the pleasure grounds, crossing a good breadth of lawn to perhaps the finest dell to be seen for a number of miles round. This noted dell is first entered by Wootton Lodge, the country seat of Miss Unwin, which is romantically situated in the Weaver Valley. This Wootton Lodge was built in the reign of James I., by Sir Richard Fleetwood; it is a fine specimen of the mansions of that period, and still retains the effects of Cromwell's battering. This dell is about 4½ miles in length, abounding with waterfalls, gigantic rocks, and British Ferns. Turning short back, we pass under some fine old trees, which have stood the storms of many years. I noticed a fine old Oak with a good head, which measures 32 feet in circumference at 3 feet from the ground. We next come upon the top or main terrace, commanding a glorious view across the valley of the cliffs and woods, chiefly Oak and Beech; and beneath us in the valley the cattle seem all at home in the lovely shade, only wanting a few deer to make the herd complete. Away in the distance to the left the railway and the River Dove wend their way for Uttoxeter, which is about 9 miles distant, and may be seen on a clear day from the kitchen garden. On this terrace is a pretty flower garden, well filled up with choice kinds of bedding plants; the Alternantheras, Coleus, and most tender bedders do extremely well here in this garden, as it is sheltered on all sides, and well repays the study and anxiety bestowed upon it by the head gardener, Mr. Gilman. Down a flight of steps we come to another flower garden, cut in turf; here I noticed a fine Golden Yew, a perfect pyramid, in the centre, also four large pyramids of Pelargoniums, 10 feet high, one mass of bloom. The arrangement here was gay in order to take away the heavy appearance of the Yew, with which this garden is surrounded. Higher up we come upon a small Rose garden and ribbon border, where the Hollies were very gay at the time of my visit. Retracing our steps we pass a very pretty bed of Clematis Jackmanni, on a low frame, edged with Golden Feather; close by are some sub-tropical beds, forming a pleasing contrast to the gaudy colours a little above. This brings us to the second terrace, which is narrow, in order to hide the fence a little from the view obtained from the Hall. On each side of these terraces are vases, filled with bedding plants in summer and small shrubs in winter. At the top of the steps in the middle of this terrace I noticed two fine specimens of the Agapanthus umbellatus in tubs.

Leaving this lovely promenade we bend our steps towards the vegetable and fruit gardens, which are some five minutes' walk from the Hall. On entering the fruit garden we have a front view of the gardener's house, which, by-the-bye, is one no gentleman need be ashamed of, it being pleasantly situated, and provided with every convenience. On the south wall surrounding the walled garden, are some noble Peach trees, carrying a good crop of fine fruit; the varieties grown are Royal George and Stirling Castle.

Of Nectarines, Violette Hâtive seems to do best here, always setting and swelling a good crop of fruit. A portion of this wall is devoted to Apricots, which, as a rule, do not do much, as we lack that more genial climate which our friends in the South so much enjoy. The whole of this wall is protected by a curtain, with rings running on an iron bar. The east and west walls are filled with Pears, Plums, Currants, &c., in varieties. The open flats of ground are occupied with standard fruit trees.

On entering the kitchen garden we see a nice range of houses. Directly opposite, on either side, are flats of ground devoted to the production of vegetables, which presented the most luxuriant growth, showing that this department is well cared for. On either side of the main walk are pyramidal Pears carrying a heavy crop; the varieties are chiefly Beurré d'Amanlis, Beurré Hardy, Easter Beurré, Beurré Diel, Knight's Monarch, Joséphine de Malines, &c. Marie Louise I noticed fine on the walls; also noble Morello Cherry trees, carrying an immense crop of large fruit—these trees show that their early training was done by a careful hand. Taking a side walk we enter vinery No. 1, carrying a crop of Black Hamburghs, good in bunch, berry, and bloom. Vinery No. 2 is Black Hamburgh and Madresfield Court—Hamburghs cut in July, Madresfield Court pretty bunches free from cracking. Vinery No. 3, young Vines, all Black Hamburghs, planted last spring. Figs are grown in pots in this house. Vinery No. 4 is planted with Alicante, Lady Downe's, and Hamburghs, carrying a heavy crop. The Hamburghs are being rooted out to give place to the later kinds.

Leaving these vineries we enter a small span-roofed stove, where are some nice specimen plants, such as Dracæna amabilis, Croton angustifolius, Begonias manicata, nitida, &c., Pandanus Veitchii, Medinilla magnifica, Ferns, &c. Adjoining this are two good-sized Pine pits, the first with excellent succession plants clean and healthy; the second showing and ripening a first class lot of fruit. The kinds grown are Montserrat, Queen, and Black Jamaica—and a few of the Smooth Cayenne. The glass erections at this place are not on a large scale, but the whole place reflects great credit on Mr. Gilman, the gardener. *A. Bradshaw, Calwich Abbey Gardens.*

AMATEUR'S CUCUMBER FRAME.

AT the last meeting of the Royal Horticultural Society, held at South Kensington on September 1, Mr. N. Voice, builder, Horley, Surrey, exhibited a small span-light frame with glazed sides, in which was growing a strong and well fruited plant of the Telegraph Cucumber, without the aid of any artificial heat. It came under the notice of the Fruit Committee, which body thought very highly of it, as being likely to prove of good service to amateurs with only a limited amount of ground, and awarded it a First-class Certificate. An illustration of the frame, which is fitted with the maker's patent system of ventilating, is given on the opposite page (fig. 91), and it so well suggests the many uses to which a handy frame of that kind can be put that any further praise from us would be superfluous.

COFFEE DISEASE IN DOMINICA.

A GOOD deal of attention has been directed of late to the destruction by disease of the Coffee plant in Ceylon. This disease has been conclusively traced to the progress of a fungus—Hemileia vastatrix, and measures have been adopted with the view of exterminating the pest, and failing this, a description of Coffee, entirely new to Ceylon, namely, that of Liberia, has been introduced. These are facts by this time well known to our readers, and we refer to them only as showing a parallel case to that which has occurred in Dominica in past years, with this exception, however—that, while in the East prompt action has been taken, in the West the disease was allowed to take its course, so that what was once an extensive Coffee-producing country has become at the present time one of the least productive—if, indeed, it is productive at all; for we are not sure whether Dominica Coffee is an article now known in the British market. It is certain, however, that the 4,000,000 or 5,000,000 lb. of Coffee that were annually imported into this country from the little western island are matters of the past, for the returns of Coffee importation for the year up to the end of December last showed that while Ceylon sent in 548,970 cwt., from the other British possessions altogether was imported only 311,965 cwt. This decline of what was once a valuable product and a most important article of trade, has lately attracted the attention of the authorities in Dominica, with a view of the "re-introduction" of the Coffee as a staple article.

Coffee cultivation, however, has really never absolutely died out, as sufficient is produced in the island for its own consumption, and a little is also sent to the neighbouring islands, but for commercial purposes it is necessary that the cultivation of the plants should be resumed on an extensive scale, and for the purpose of attaining this object application was made recently by the authorities in Dominica to Dr. Hooker for his opinion and advice as to the necessity of obtaining a skilled Coffee planter from Ceylon to report on the conditions of the island for Coffee planting. The result of this has been to excite amongst the Europeans in the island a keen interest in the causes of failure, and the probabilities of future success. Following upon Dr. Hooker's suggestion, Mr. H. Prestoe, the Superintendent of the Botanic Gardens, Trinidad, has visited Dominica, and we may expect ere long a report of his opinions and experience. Meanwhile a great deal of information on the rise and progress of the disease has been collected and published in the island newspapers, and from these we gather that it first made its appearance about the year 1833 in plantations in the northern

for planting, in the manner described, during the third week in July, and plant about the 24th of that month for the earliest autumnal supply, choosing from amongst the old stock of plants the best and greenest portions, which is necessary from the fact that, in an ordinary way, the stock of old plants has at this season run to seed—which they readily do during the summer months. Remove the flower or seed-heads, down to the first old leaf, and divide each portion, subsequently, if long enough, into two or more lengths, possessing about three old leaves or joints each. Having prepared in this manner the necessary quantity, proceed with the planting as follows :—If the bottom of the bed consists of soft clay, or mud, drop the pieces separately and evenly down thereon, some 6 inches apart. Having previously prepared a rough stick of sufficient length and with small blunt prongs at the head in form like a pitch-fork, proceed to press each piece down firmly and permanently into the bed at the bottom—being careful to do this operation so firmly that no risk follows that they be drawn to the surface subsequently by the buoyancy of the water. Do not bury the old leaves attached to them any more than is absolutely necessary. Should the bed consist of gravel or such materials as will not admit of planting in the above manner, as is the case sometimes, then each piece so prepared must be kept in position by the aid of portions of stone, or resort must be had to any other simple device which commends itself. For the subsequent attentions needed, the reader is referred to the remarks on general treatment.

For the second planting, or what I shall term the main crop, prepare division No. 2. Proceed as before in the matter of preparing the plants, of which better will perhaps be got at this time, and plant them as near to August 15 as possible, following in all details the suggestions given above for the first planting.

For the next, or final planting, prepare No. 1, or that nearest to the spring-head, and plant as near to September 1 as possible, again carrying out matters of detail in all respects in the manner previously advised. Very frequently a supply of plants can be got for this last planting by thinning some out of the bed first planted. However this may be, the aim is always to get the best possible.

Fig. 90.—WATERCRESS BEDS.

The reason why I advise planting the divisions in the order given, is owing to the fact that the water at the spring, or natural fountain-head, is invariably many degrees warmer than the ordinary air of our winters, and colder than the atmosphere of summer. By planting the latest, and hence of necessity the youngest and tenderest, in this place, they are assisted through the severest winter frosts; and, commencing to grow freely in the spring, afford a midsummer crop, from the fact that the water, being cooler than the surrounding elements, keeps them cool, and so maintains them growing freely, in lieu of running to seed, as ordinary crops do in water more exposed to climatic influences. The three bed spaces should be made up together therefore.

These favourable conditions enhance the value of a spring and its immediate surroundings, to those especially who moderate their demands according to the supply which one division only is capable of affording—and for this reason: by cleansing and apportioning a moderate area around the "fountain-head" for the permanent growth of crops, sometimes two or three plantings might be made, the temperature of the water being such as to influence the crops favourably, as described, the whole year through. To all who rely upon a main crop from this single source I say, plant upon the basis of the facts given above, as early during the second week in August as possible.

General Treatment of Growing Crops.—Immediately the bed is planted in any space, raise the water gradually by the usual process of damming it back, by increasing the elevation of the mole used for the purpose, so that the tops of the plants are brought some 2 or 3 inches below the surface of the water. Maintain things in this state until some real progress has been made in the matter of growth. Subsequently, as the plants grow, continue to increase the depth of water, so that the heads of the plants be just buried beneath it constantly, until a good bed of Cresses is formed.

At this juncture gradually lower the water until the plants, freed from the inherent buoyancy of the water, fall recumbent on to the bottom of the bed. Keep about a couple of inches of water only around them for a couple of days. By this time the recumbent side shoots and branchlets will have emitted fresh roots, when the water should be dammed back to its former level. A robust and quick growth will follow, furnished with large succulent leaves of the first order. This operation must only be performed during a mild period.

Attention Required during Frosty Weather.—Though Watercresses are perfectly hardy plants, it is not judicious to expose them to many degrees of frost when grown as above, and while they are tender, otherwise they lose their crispness and become tough. For this reason the water should well cover them during the prevalence of sharp frosty weather.

On the other hand, if a good strong crop has been formed, the water should, during a moderately cold period, and with a very moderate frost only, be lowered so that their apices just protrude from the surface. This at such a stage tends to increase the dark tint upon their leaves which is so much appreciated, as well as the general piquancy of flavour they should possess when well produced.

Watercress beneath the shade of Trees.—It may occur to some who may be in possession of a spring of water in a wood or "spinny," that Watercress will not thrive under the shade of overhanging trees. Though the influence of these latter is injurious during the summer months, they are not so antagonistic during the winter. A crop planted as advised above during or soon after the first week in August will succeed admirably, and for this reason—they commence growing in an appreciated shade immediately after planting, and form a new root base, and some superficial growth by the time of "the fall," when the trees are divested of their leaves, and when also light bursts in upon them sufficient for their wants.

Should fallen leaves collect in such a way as to unduly smother the plants, the water should be increased in depth for a few days, when decomposition will set in, and they will be quickly absorbed.

Gathering Watercress.—When a bed of Watercress has grown so as to become a dense mass, the best way to gather the Cresses is to follow the plan of those who grow for market, *i.e.*, to draw as many of the shoots together as possible, holding them in the hand, and to cut them off evenly about 6 inches in length; so continuing across the bed as required.

When a plantation is young, or only a meagre crop exists, the centre shoot of each plant should alone be removed. This will increase the size and productive capacity of each. It is a very ill-advised plan to draw the plants bodily out of the water to pick off the shoots and then toss the refuse back again, as I have frequently seen done.

Injurious Aquatic Insects and Weeds.—Several kinds of native insects, some observable and others not to the naked eye, yet present by myriads, consume the roots and nibble other parts of the plants. The best remedy for such a variety of nuisances, and the nuisance occasioned by the spawn of frogs, &c., is to occasionally cause the water to flow along somewhat freely. Another good plan is to throw a little fresh-slaked lime into the stream near its origin, stirring it about moderately, so as to cause it to pervade the whole bulk of the water. This will scatter or destroy all such troublesome pests.

Water weeds of an injurious nature cannot be mistaken for "real Cresses" if the readily observed and distinctive characteristics of the latter be once scrutinised, and if reference is made to their peculiar rounded leaves, tender stems, &c. No kind of weed should be permitted to dispute the room or space allotted to any properly formed bed.

Not infrequently the well-known floating Duckweed (Lemna minor) will establish itself in such places as we are dealing with. As it increases with astounding rapidity, every particle should be got rid of immediately, which is easily done by raising the mole somewhat, so that the water may rise above the heads of the legitimate crop, when, if the excess of water be permitted to flow freely away over the barrier, the weeds will flow speedily away therewith, and their escape should be facilitated by every other means.

Watercress on Shady Garden Borders.—Finally, as there is a possibility of growing these on garden borders, I add these instructions: Choose a sunless aspect, and the dampest possible. Dig the soil over deeply and finely; draw drill rows deeply with the hoe thereon, into which run plenty of water, so as to make a muddy bottom. Then draw the soil over the same, and again make slight drill rows exactly over the fresh-formed mud, along which the young Watercress shoots should be dibbled, watering them in well, and resorting to the use of the rosed water-pot as frequently as possible afterwards. This planting should be done about the first or second week in September. The produce so grown, however, is tough, and devoid of the necessary flavour.

Where a stock of plants is not easily procured locally, resort may be had to the plan of raising plants from seeds, packets of which are obtainable from most seedsmen in the country. These may be sown in any damp, sunless corner, such as I have already intimated, or placed in very shallow water grounds. What is better, however, is to purchase fresh and good bunches, such as are sold by caterers wherever met with. These should be dibbled into the bottom a few inches apart in any watercourse, or other place suitable, and increased by pinching back, and again planting the tops, &c., until a crop is ensured.

A slight addenda regarding varieties may be made. It is generally thought that two British varieties exist, viz., the dark-leaved, or best, and the green-leaved. This I have some doubt about, thinking it not improbable that distinct systems of growing may have much to do with the matter. I will not say more in opposition to old and good authorities. Seeds of a continental variety called "Erfurt Sweetest" have been offered by members of our seed trade of good repute: I have, however, no personal experience in regard to it. *William Earley, Valentines.*

THE FORESTS OF SWITZERLAND.

The inquiries instituted by Lord Derby with a view to ascertain as completely as possible the timber-producing powers of different countries were answered in what relates to Switzerland by Mr. Jenner, the British representative resident at Berne. In the absence of full and accurate descriptions of the forests of that country he has been compelled to rely upon fragmentary accounts, written, however, by the highest authorities on the subject, and confirmed by repeated conversations which he has held with persons reputed to be the most competent judges in the matter. From such material Mr. Jenner, without doubt, has presented a faithful picture of the forests, the means that are being taken for their preservation, the principal kinds of timber trees produced, and the various uses to which both the timber and the resinous properties of the trees may be turned. Additional interest attaches itself to this description of a country that has always been remarkable for the extent and ability with which the wood-carving industries have been prosecuted, and for the picturesque architecture of its *châlets*.

The total area of Switzerland may be roughly estimated at 10,000,000 acres, of which about 1,900,000 acres are under wood. The Federal Government, it appears, possesses no forests, but they are shared by the communes, corporations, and societies, by private individuals, and by some of the cantonal governments. There are no data upon which to calculate the amount of timber-growing land in private gardens, parks, orchards, &c.; but whilst the annual production of the forests is estimated at 89,354,300 cubic feet, the amount derived from such sources is calculated at 6,900,000 cubic feet, or about 7 per cent. of the total home production of timber and firewood, to which must be added no less than 9,000,000 cubic feet derived from the vineyards. Until the year 1858, when the Federal Government appointed a commission to inquire into the condition of the highland forests, the area under wood was subject to the most reckless treatment, and no better idea of the estimation in which the forests were held can be given than the Swiss proverb, "Holz und unkrant wächst überell" (Wood and weeds grow everywhere). Since the publication of the report of this commission (and thanks to the warnings it conveyed) the work of devastation has received a slight check, for although the wooded area has continued to decrease, it has done so, it is believed, at a less rapid rate than before. In the highlands steps have been taken to re-wood, wherever possible, all slopes which have become dangerous through the absence of trees. The fearful inundations that devastated large tracts of country in 1868 served to impress upon the minds of the people in striking characters the necessity for vigorous action in the matter. From the large sums subscribed at home and abroad for the assistance of the sufferers no less than 1,000,000 francs (£40,000) was devoted exclusively to the necessary constructions for preventing the recurrence of similar misfortunes, and to the replanting of the slopes in the immediate vicinity of the catastrophe, whilst the Federal Assembly resolved to vote an annual grant of £40,000 for similar purposes. Something has already been done in the way of warding off the immediate dangers that must inevitably result in a country like Switzerland from the denudation of the mountain slopes; but very much still remains to be done, both in the way of the prevention of waste and the introduction of a judicions system of sylviculture, before such a supply can be derived from the forests as will equal the annual consumption of home-grown timber.

The following are the principal kinds of timber trees produced in Switzerland, and the uses to which they are generally applied :—

Pinus Abies, L. (Fir).—The favourite timber for

eggs are laid by one female." From one tree in a Brazilian plantation Mr. Mann gathered 153 injured leaves in the course of nineteen minutes; of these forty-four contained recent mines, but the larvæ had escaped; ninety contained 122 mines, still inhabited; the rest contained old mines or blotches, made by a fungus which also attacks the leaves.

The insect is said to lessen the Coffee crop in Brazil by at least one-fifth; the little pest has been found in the Antilles, Island of Martinique, Province of Rio Janeiro, and over the whole Coffee region of Brazil. It first appeared in Brazil about twenty or twenty-three years since, being apparently brought from the Antilles with plants which were introduced about that time.

To rid the plantations of this pest several plans have been suggested: one is to cut off all infected branches, and allow the trees to recover themselves by putting on new foliage, carefully watching the progress of disease afterwards, and destroying it as fast as it appears. By this mode of dealing with the disease a large proportion of one crop of Coffee would be sacrificed; to avoid this, all leaves which contain larvæ might be carefully picked off and burnt, leaving the healthy leaves to support the tree. This operation should be performed when the smallest number of old leaves remain upon the trees. "If," says Mr. Mann, "the leaves were picked at such a time as to take the greatest number of larvæ when they were about two weeks old, it would not be difficult to select them, as the size of the blotches would make them very noticeable. I find that the expense would be more than met by the next year's crop." But vigilance is necessary to keep the trees in order.

Another remedy is to kindle fires at all points of the plantation when the moths begin to issue from the cocoons; lighted torches may also be carried about the grounds in the evening; the moths, being attracted by the light of the fires, soon cause their own destruction.

Dr. Imray in the letter referred to at the commencement of this article expresses his belief that the disease is evidently on the wane in Dominica, and by careful cultivation of the Coffee plant he thinks it would soon disappear altogether. From observations extending over a long period of time, he is inclined to think that too much shade favours the generation and propagation of the insect. "I have now," Dr. Imray says, "40 acres of young plants growing. Some have been killed by the drought that has set in, but most of the young plants look healthy, and have begun to throw out leaves. Although I keep a vigilant watch, I have not as yet observed a single patch of blight. The young trees are growing quite in the open—no protection. In my own little garden I have a small nursery of Mocha Coffee plants. They are really beautiful—not a speck of blight upon them. On the opposite side of the street in a small garden there are some Coffee trees much shaded by Plantains; there the blight abounds. The plants on my small Coffee plantation, amounting perhaps to 15,000 or 20,000, have been got from different parts of the country. I mention this to show that Coffee continues to grow in Dominica, and that capital and enterprise only are wanting to make it a Coffee-producing country." *J. R. Jackson, Kew.*

Florists' Flowers.

AURICULAS AT KIRKBY MALZEARD, RIPON.—The revived interest shown in the annual meetings of the National Auricula Society is doing much in the direction of calling attention to the claims of this, one of the most interesting and beautiful of our hardy spring flowers. During the past ten or twelve years, or more, it experienced a decline in the popular favour, and some fine varieties became almost or entirely lost. When the area of the cultivation of a certain flower becomes circumscribed, many of its forms are in danger of being lost, and this is true of the Auricula. There are now many persons desirous of forming a collection, but it is very difficult indeed to obtain plants, and some varieties, though not wholly out of cultivation, cannot now be obtained for love or money. A few older cultivators, who have never wavered in their regard for this beautiful flower, have preserved collections of it, and one of these is the Rev. F. D. Horner, Kirkby Malzeard, Ripon, the secretary of the National Auricula Society. Mr. Horner inherits his love of the Auricula and the Tulip—for he cultivates the latter also—from his father, the late Dr. Horner, of Hull, one of the most enthusiastic and successful of that band of prime northern florists that flourished a quarter of a century ago. The Auricula is Mr. Horner's great speciality, and his collection is perhaps unequalled by any private collection in the United Kingdom.

In the quiet rectory garden of a Yorkshire village in a purely agricultural district, away from "the busy haunts of men," Mr. Horner grows his Auriculas with all that perfection of development of plant and flower that he is so successful in producing. The old garden appears to be full of the generous quality of ozone, the massive growth of the Auriculas being the outcome of atmospheric conditions eminently favourable to their well-being, while the most persistent care and loving attention greatly aids what the bountiful heart of Nature so richly gives. I recently called on Mr. Horner, and found a line of something like sixteen wooden frames, each containing about thirty-five plants, a large majority of them in their blooming pots. There is inside these frames a bed of rubble and ashes, 18 inches or so in depth, which brings the plants near the glass. The line of frames is placed along at the foot of an old stone wall on the south side of the garden, covered with luxuriant Ivy; there is a grass plot in front of the frames; and around, but not near enough to interpose their shade, are trees. The air seems redolent of influences that minister to the well-being of plants, and I shrewdly suspect that it is much better to have that old stone wall mantled with Ivy than to have it entirely bare. Here could be seen lines of six and seven plants each of Lancashire Hero, George Levick, Smiling Beauty, Taylor's Glory, Robert Traill, and other fine varieties that some men are willing to pay almost any price for, and cannot obtain. The plants are in 48 pots—that is Mr. Horner's regulation size; they were repotted in May, and are making their last growth. Mr. Horner favours what he calls spring potting—soon after blooming time. Some extra strong plants are put into 32 pots, the larger number are in 48's. The plants like to feel their roots at the sides of the pots, and therefore if at shifting time they have large roots, they are mercilessly cut down to fit the pots; tap-root and fibre are unsparingly cut away. Mr. Horner is against long tap-roots to Auriculas; and he states that if it be cut away, that portion immediately below the leaves soon throws out plenty of new roots.

The larger portion of the soil used by Mr. Horner is fibry loam, well rotted, but with plenty of decayed root fibre in it. With this is mingled manure from a spent hot-bed and powdered charcoal instead of sand, the action of the former being chemical, that of the latter purely mechanical. The fibry loam is chopped up small, not sifted; the presence of fibre in the soil being of great service to the plants, and lumps as big as walnuts are used. Mr. Horner pots hard, and he takes care to have a few pieces of fibre near the roots. He turned one out for me to inspect the roots, and they were found to have coiled about the pieces of decayed turf next the sides of the pots, and had rooted very strongly indeed. When repotted the plants are placed in the frames, and kept moist enough to make their summer growth. When the weather is fine the lights are kept off, but placed on when heavy rains fall, plenty of air being given at the same time. Coolness, air, and shade are the great essentials to the well-being of the Auricula at this season of the year. Offsets removed at the time of potting were in small pots, growing on into nice plants. The great desideratum with Auriculas during the summer months is not to have them with a "cabbagy" growth, but with a nicely pointed Cocoa-nut-like centre; and such centres will be certain to throw up fine trusses of flower in the spring.

Offsets are taken off at any time when the plants are making growth. When an offset puts in its appearance after the plants have been repotted, it is taken off and inserted by the side of the pot occupied by the parent plant. Mr. Horner's practice in this respect is opposed to the theory advanced by Mr. Dombrain, who once stated that offsets should be rooted before they are removed from the parent plant. On the contrary, he never troubles about their being rooted. So long as they have a heel, that is sufficient; and the value of this practice is seen in the result—the sets never fail to grow. The offsets of any scarce and valuable varieties are placed in pots, and a bell-glass put over them to give them every encouragement. A very few varieties of Auriculas—not more than one or two Mr. Horner says—are bad rooters, such as Ashworth's Regular, the offsets of which almost require to be layered to induce them to root. Another is Ben Simonite, a yellow seedling of much promise. As a rule the offsets strike root very freely. When those placed round the sides of the pots are well rooted, they are potted singly into pots and grown on into size.

Mr. Horner flowers his Auriculas in a lean-to house under a west wall. A slightly raised stage is devoted to the plants, and here they develope their exquisite flowers in early spring. Over the entrance to this house is fitly inscribed—"Qua rara sunt cara: 1872" (What is rare is dear).

The quality of the flowers bloomed at Kirkby is well-known at the meetings of the National Auricula Society.

With such a fine collection of Auriculas, it is not remarkable that Mr. Horner should be a raiser of seedlings; but he saves only from the very finest types, or from flowers specially fertilised with the view of obtaining a desired end. He has a small span-roofed house, constructed mainly for raising seedling Auriculas, and it has been erected on the coolest side of his garden; it is 19 feet in length by 12 in width, with an almost level stage on either side, and a walk down the middle. The house is glazed almost down to the ground all round, except on the side next the wall against which it is placed. The glazed sashes below the stage open and admit of a free circulation of air upwards among the plants on the stages above. The front stage is the widest, and has seven shelves, each rising 2 inches above the level of the other, and this front stage is wholly filled with seedling Auriculas, in fine condition.

The seed is sown in 32-sized pots, some of the old Auricula soil obtained when re-potting being sifted for the purpose. The seeds are placed thinly on the surface after the soil is pressed down, and there it remains uncovered, as the roots are certain to turn down towards the soil. A piece of glass is placed over each pot; this Mr. Horner considers essential. If a growth of moss spreads over the surface an application or two of lime-water kills it, without doing injury to the seedling plants. As soon as the seedlings are large enough they are pricked off into other pots, six or eight in each, and encouraged to grow rapidly. During the summer Mr. Horner gives his seedlings three shifts, as he finds the more they are moved the better they thrive, and he states this as a fact well worth knowing. Every pot of seedlings is labelled with an index to their parentage; and it was remarkable to notice how the seedlings from Smiling Beauty and others followed the habit of growth of the parents. Mr. Horner thinks himself fortunate if he can succeed in raising three or four promising flowers; the remainder are destroyed. Mr. Horner sometimes sows a little seed in August, as soon as it is ripe; and some again in September; but the main crop is sown in February and March, and plants sown then will flower within a year from sowing, if grown on generously. The seed-pots should be kept for a twelvemonth, as some of the seeds germinate much more tardily than others, and a succession of plants is constantly putting in appearance. As they are pricked off as soon as large enough, space is left for other seedlings to make growth. It is worthy of remark that though Mr. Horner does not grow a single alpine Auricula in his collection, some are occasionally produced among the seedling plants; and seed from a fine variety will throw flowers altogether foreign to it in character.

A select collection of fine old laced Polyanthuses is also grown, treated in the same fashion as the Auriculas; but when they are repotted the tap-root is cut away almost to the leaves of the plant. The varieties of Polyanthus cultivated are Cheshire Favourite, Saunders' Blackbird, very fine; Harris' Kingfisher, Hufton's Lord Lincoln, Cranshaw's Exile, Buck's George IV., and Lancer.

The following fine varieties of Auricula form the very cream of those in cultivation:—Green-edged: Colonel Taylor, Page's Champion, Traill's Prince of Greens, very fine; Booth's Freedom, Traill's Anna, Lord Palmerston (Campbell), Lady Ann Wilbraham, Lovely Ann, Traill's George Jeans, Imperator, Lady Richardson (Gavin), Beeston's Apollo, Prince of Wales, and Highland Laddie. Grey-edged: George Lightbody (Headly), Complete, Walker's George Levick, very fine; Walker's Peveril of the Peak, Alderman Charles Brown (Headly), General Bolivar, Fletcher's Ne Plus Ultra, Conqueror of Europe Colonel Champneys (Turner), Alexander Meiklejohn, Richard Headly, Robert Traill, Lancashire Hero, originally Lancashire's Hero, raised by old Robert Lancashire, of Middleton, who died a few months ago, and subsequently distributed as Cheetham's Lancashire Hero; Fletcher's Mary Ann, Chapman's Maria, Lightbody's Alma, and Maclean's Unique. White-edged: Smiling Beauty, now very scarce; Walker's John Simonite, a new rival to Smiling Beauty, and it is thought an improvement on it; Taylor's Glory, a grand old variety, for Taylor, the raiser, died some ninety years ago; Taylor's Favourite, Taylor's Incomparable, Lee's Earl Grosvenor, Hepworth's True Briton, Summerscale's Catharina, Smith's Lady Sale, Aston's Bonny Lass, Countess of Wilton (Cheetham), Bright Venus, Smith's Ann Smith, Lightbody's Sophia Dumaresque, Smith's Ne Plus Ultra, Ashworth's Regular, and Lightbody's Miss Lightbody. Of Selfs the following: Pizarro, brown; Meteor Flag, blue; Lord of Lorne, crimson, very fine; Duke of Argyle, deep crimson; Walker's Nimrod, black; Kay's Topsy, dark maroon; Spalding's Metropolitan, blue; C. J. Perry, bright violet; Master Hole, deep maroon—the two last named are fine varieties, raised by Mr. C. Turner; Smith's Formosa, mauve; Blackbird, deep maroon; Headly's Petronella, brown, very fine; Lord Clyde, maroon; Lightbody's Mrs. Lightbody, an improvement on Lord Clyde; Stadtholder, yellow; Ben Simonite, yellow—the best of all the yellow varieties; Othello, black; Pohlman's Garibaldi, black; Master Garland, the best violet; and Mrs. Sturrock, dark.

One thing remains to be stated—the standard of quality in the North of England is much more rigidly applied than in the South; and flowers that find much favour here are somewhat coldly looked upon in the North. This difference of estimate has always pre-

extremity of the island, from whence it rapidly extended southward, so that within the space of a year or two every planter had suffered from its ravages. The great hurricane of 1834 did an immense amount of mischief to the whole of the vegetation, inasmuch as scarcely a leaf was to be seen after it had subsided. When the Coffee trees that had withstood the force of the hurricane began again to put forth their leaves, the brown disease spots reappeared, and spread so rapidly as to kill many trees. In the face of so destructive an enemy the planters seemed paralysed, and no attempt of any consequence was ever made either to destroy or to counteract its evil effects. In the face of facts which have recently come to light regarding the disease, the writer of an article on this subject in a number of the *Dominica Courant* for October last is probably not far wrong when he says:—"We are still impressed with the belief that had persevering and varied attempts been made by the planters and others to overcome the formidable enemy against which they had to contend, and to continue the cultivation of the Coffee plant, the tree might have held its ground until the influence of the disease had begun to wane, and, reasoning from analogy, this might fairly have been expected. Had efforts been made this important commodity might still have held a considerable place among our products, or, at all events, would not have so quickly disappeared from commerce as the staple article of export from the island." That the disease was of insect origin there seemed no doubt, but we are told in the paper before referred to that the records of Dominica do not appear to "contain any description of the nature of the Coffee blight, nor does it appear that any attempts have been made to account for its existence." The insect and its operations are thus described in the *Dominica Courant* for October 17 last:—

"A small whitish coloured fly deposits its eggs on the surface of the leaves. In time these eggs hatch, and a very small larva or caterpillar is produced, which perforates the surface of the leaf and buries itself in the soft greenish substance or parenchyma. It continues to feed voraciously on this living matter of the leaf, the dead upper and under membranous portions being left entire and forming the brown spots that give a mottled appearance to the foliage. The caterpillar thus remains unseen until the period arrives for it to enter upon its second stage of existence, when it is about the sixth of an inch in length. It then crawls out on the under surface of the leaf, and like the silkworm weaves a small cocoon. In the chrysalis condition it remains for a time, and then comes forth in its perfect state as a fly. The creature again deposits its eggs on the leaf, and the same endless round goes on until countless myriads of these caterpillars have destroyed the vitality of the leaves. One crop of foliage drops off, and another succeeds, to be attacked by the insect in the same manner, until, finally, the tree itself is exhausted, and dies."

"The disease affects the Coffee tree alone, no plant, even of the same natural order (numbers of which are so numerous in the island), has been touched by it. . . . After its first appearance it extended rapidly and fatally, and many of the trees attacked perished. Neither did it spare the seedlings. The greater number of the young plants in the nurseries were affected as soon as a few leaves were thrown out, and after twelve months, not many remained alive."

The whole history of the Coffee disease, as given in three or four consecutive numbers of the *Dominica Courant*, is a very interesting collection of facts, and the description of the insect and its ravages are pretty accurate—the pest having within the past few weeks only been identified with the Cemiostoma coffeellum of Mann. This conclusion has been arrived at from specimens of the affected leaves, together with the insects in their several states, mounted for the microscope, having been received at the Kew museum from Dr. Imray, an old resident of Dominica, and a frequent contributor to the Kew establishment. These specimens were, however, selected and mounted for Dr. Imray by Dr. Nicholls, a microscopist in the island. They were shown at a recent meeting of the Scientific Committee of the Horticultural Society, where Mr. McLachlan immediately identified them with the insect above referred to, and kindly pointed out that a complete description of the insect, together with a history of its ravages in the Coffee plantations of Brazil, were given in the *American Naturalist*, vol. vi., pp. 332 and 596 (1872).

From this paper, which is by Mr. B. Pickman Mann, we gather the following details. The insect is called the white Coffee leaf miner, and is described as the greatest enemy to the Coffee culture in Brazil.

The larva, as we have shown, burrows into the leaf, causing the brown spots. After the larva has ceased feeding, and changed to the pupa state, the slender white cocoon, covered with its silky web, may easily be found in the fold of the leaf. The moths, whose beautifully ornamented silvery wings hardly cover the breadth of the little finger nail, rest upon the leaves and branches of the tree when quiet, but they are easily disturbed, flying with a jerking flight.

The habitation of the larva is a mine made in the leaf by eating out the parenchyma between the upper skin and the framework of the leaf, laying the framework bare but leaving the epidermis intact, except at the point where the larva eats the leaf; at this point the wound heals up, forming a lenticular scar, raised above the general surface of the leaf. The epidermis which covers the mine becomes rusty brown, almost black in the centre. The excrement adheres irregularly to its under surface; sometimes a portion of the under surface of the leaf opposite the mine also turns brown. When the eggs are laid in sets the mines of the separate larvæ usually become united, and even the mines of two sets may be united into one. One mine, 15 millimetres long and ten millimetres broad, contained seven larvæ, the scars arranged in two groups of four and three respectively. As many as five mines, all inhabited, have been found on one leaf, and even eight mines, made by ten larvæ, though in this case some of the larvæ had escaped. When the larvæ escapes it cuts an angular or rounded slit in the epidermis near an edge of the mine.

Cemiostoma coffeellum is the only species of the genus yet known outside the limits of Europe. The larvæ are said to attack the new leaves in early spring, and to be found from that time forth. As the Coffee tree is evergreen it seems likely that the period of hibernation is very short, or none at all. Guérin says that the insect occurs throughout the year in the Antilles, but is more or less abundant according to the seasons. The eggs are said to be hatched seven or eight days after being laid. The larvæ then live about fifteeen or twenty days within the leaf, after which they make their cocoons. The imago or perfect insect leaves the cocoon at the end of six days. It would appear that the insect is reproduced several times in the year, in the Antilles once in about every forty or forty-eight days. As soon as the larvæ is hatched it seems that it cuts through the upper epidermis of the leaf, and begins to eat the parenchyma. Usually it may be found under an edge or an end of the blotch, eating. When the larvæ is full grown it escapes from the mine and often, or perhaps generally, goes to another leaf to make its cocoon, which it does across one of the furrows at the edge of the leaf on the upper or the under surface, but oftener on the under. The larva places itself across a furrow and begins a web by spinning a series of threads from one side to beyond the middle of the furrow, swinging the fore part of the body from side to side. Where it has made one side of one end of its web thus, it spins a like series of threads to make the other side, without changing the position of the hind part of its body. Thus an opening is left in the middle of the end of the web, in the space occupied by the body of the larva. It then turns round and places its body across the furrow in the opposite direction. Here it spins a like series of threads on each side of it, from the leaf to the former part of the web, having a similar opening in this end. It then retires beneath the web, and lays a flooring of silk. On this flooring it spins its cocoon, laying the outside threads lengthwise. The cocoons are found in the greatest abundance on leaves which are nearest the ground, and frequently on leaves which have never been injured. Mr. Mann says:—"I judge from the appearance of the scars in the epidermis that the eggs are laid unconcealed on the upper surface of the leaf, singly, or in sets of two, three, or more, but not in immediate proximity, and that two or more sets are placed on the same leaf. It is not known how many

Fig. 91.—VOICE'S AMATEUR'S CUCUMBER FRAME.

HORTICULTURAL EXHIBITIONS, 1875.

NOVEMBER.

10.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
15 and 16.—Loughborough Chrysanthemum and Fruit Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.
25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

DECEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE
Gardeners' Chronicle.
SATURDAY, OCTOBER 2, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Oct. 4	Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Oct. 5	Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Oct. 6	Royal Horticultural Society: Meeting of the Fruit and Floral Committees: Fungus Show. Sale of Dutch Bulbs, at Stevens' Rooms.
THURSDAY,	Oct. 7	Sale of Imported Orchids, at Stevens' Rooms.
SATURDAY,	Oct. 9	Sale of Dutch Bulbs, at Stevens' Rooms.

AS the bedding-out system, with the carpet and geometrical borders, have become more and more popular, the combination of the useful with the beautiful has been gradually dying out in the FORMATION AND PLANTING OF ENGLISH GARDENS. Where sufficient space and ample means are at hand, it is, of course, quite possible to keep use and beauty apart, giving to each a separate kingdom, to their mutual advantage; but where we have one Chatsworth or Trentham, we have thousands of small plots of ground that embellish, and should enrich our middle-class homes, our suburban villas, our pretty country dwellings so aptly described as *cottages ornées*.

Every fashion, however pretty and appropriate, is apt to run to extremes; the gardens of our time and the costumes of the period are a two-fold example—they both threaten to become ridiculous by substituting dazzle for worth. Appropriateness is a noun which will doubtless soon become obsolete. We have already lost sight of its applicability to persons, places, and things. The merest brick and mortar structure recently erected is styled villa, and a few feet square of grass is dubbed croquet lawn; some half-dozen evergreens called the shrubbery. The little apes the big, the frog tries to swell itself to the grand proportions of the bull, and places which should become the centres of homely, useful beauty are turned into pretentious and ridiculous copies of extensive grounds.

When an amateur first commences gardening, his imagination of future grandeur is apt to outstrip the possibilities of practice in the limited space at his command, and he is astonished to find that, the croquet lawn and parterre spaced out and the shrubbery border allowed for, but little room is left for the growth of the less showy but useful products of the fruit and kitchen gardens.

However great may appear the difficulty of reconciling opposing interests, there is generally one loophole by which to escape a compromise, and in gardening a compromise is generally, if not always, possible. We may blend the useful and beautiful in small gardens to great advantage. A correspondent asked, some years ago, in a gardening paper, how it would be possible to plant his orchard so as to render it ornamental as well as useful. We remember at the time wondering whether the querist had ever seen an Apple tree in full blossom, or whether he had ever wandered in English country lanes where the cottages are embosomed amid trees laden with fruit, when the rich purple Plums or ripe ruddy Apples gleam out from the green, brown, and golden foliage of the trees on which they grow; and his question instantly suggested the thought of how much we waste and lay out to little advantage in the circumscribed island of which we are so proud.

If a tree is wanted to form a leafy bower in the ornamental garden, a Weeping Ash is generally selected, when a Vine or a Fig tree would be quite as appropriate, far handsomer and much more useful. In the shrubbery, when it is expedient to intersperse the evergreens with deciduous trees, Birch, Lime, or Oak suggest themselves to the mind, while the Pear, the Plum, the Apple, and the Cherry would give equal variety and greater beauty to the scene, and perhaps prevent that too common blemish in newly-laid out gardens — over planting. When putting in fruit trees it would be difficult to forget that judicious planting would enable them to bear an autumn crop, and they must have room for root and branch; therefore there would be given a better chance for life and freedom of growth for them and the surrounding evergreens.

So rapidly do towns and villages arise and spread, that even in suburban districts almost every house is new, and the house being new, so also is the garden. A house may or may not be handsome and commodious, but a new garden is beautiful and seldom useful, and is suggestive of yards upon yards of dreary, staring brick walls, stretching the double length of the plot of garden ground—an eyesore and a tribulation for years.

That which to the amateur is a grievance and worry would soon, in the hands of a market gardener, be "a thing of beauty and a joy for ever." This should be the case everywhere; brick walls, especially where the ground is very limited, are a boon to those who know how to make use of them; fruit trees—prejudice once got rid of—would appear as beautiful on the walls of the ornamental garden as many other things which now monopolise that place as a prescriptive right; not that we would exclude Roses, Honeysuckles, Clematises, and other similar graceful, glorious beauties of the vegetable kingdom, we would only now and again set them on one side, and substitute fruit-bearing subjects in their stead, and while these are growing up, cover the walls as far as possible with such handsome and remunerative annuals as Tomatos, Aubergines, hardy Melons, &c.; keeping in mind how sweet and pleasant in every way were those old-fashioned homestead gardens, where Lavender bushes and Currant trees, Gooseberries and Roses, sweet-scented posies for the parlour, and aromatic herbs for the kitchen, grew side by side, and spread a charm over the place which keeps it still green in memory's page.

—— THE illustration (fig. 92) which we give on p. 429 shows the fine WATERFALL AT ST. DAVID'S, JAMAICA, one of the sights of visitors to Kingston. For a photograph of this fine object we are indebted to Mr. SHUTTLEWORTH, and, as appropriate to the subject, we insert the following interesting letter from Mr. GOSSE, whose charming work, *A Naturalist's Sojourn in Jamaica*, will be held in cherished memory by many of our readers:—

"I was never in the parish of St. David's, in Jamaica, my own researches having been carried on chiefly at the western end of the island; but my friend and co-worker, the late Mr. HILL, was familiar with that picturesque and romantic district, which is associated with a very mysterious reptile, a crested snake. My friend collected a good deal of information, more or less vague, about this creature, which, however, neither he nor I had ever seen. Thus some notices of the locality became interwoven in the pages of my *Naturalist's Sojourn*, from which I will take the liberty of making the following extract:—

"Under date of Feb. 5, 1846, Mr. HILL says, 'I have conversed with Dr. PALMER, who has informed me he had seen one of the crested snakes, about which your curiosity has been particularly excited. He tells me that, in the neighbourhood of a plantation called Drummond Castle, in St. David's parish, without being more than rare, he has known specimens to have been found. He was present on a medical visit there some years ago, when the plantation-people brought to the house one which they had just killed. Besides its remarkable crest, he was particularly struck with its shape. It was the thickest snake of its size he had seen. Although its length did not exceed 4 feet, it had the bulk of a yellow snake (Chilabothrus inornatus) of 7 feet. It had a sort of galeated head, with a crest like that of the Guinea fowl. Its colour was a dull ashy ochre, having large well-defined spots along the back. The negroes, in speaking of its habits, represented it as making a noise not unlike the crowing of a cock, and as being addicted to preying on poultry.

"'Drummond Castle is about eight miles from Kingston, in the immediate vicinity of some interesting waterfall scenery, remarkable as the hiding-place of the freebooter, Three-fingered Jack, so familarly known as a melodramatic hero. The scenery of the Falls, as this cascade district is called, is very romantic. The imagination of no painter of theatrical spectacles can surpass the wild wonders of the mountain-hold of the real Three-fingered Jack. Part of the road by which you ascend the Falls is a subterranean passage; and caverns are entered by simple crevices, which seem mere chinks in the irregular surface of the rock; all which natural peculiarities account for the mysterious disappearances which the mountain hero was enabled to enact from his pursuers. In this neighbourhood are the Mount Vernon copper mines. The whole district is interesting to the naturalist.' [Gosse's *Naturalist's Sojourn in Jamaica;* London, 1851, p. 375.]

"For more information about the strange reptile I must refer your readers to my volume. The lapse of years has given me no additional intelligence of importance on the matter, which yet I believe to be well worth investigating; and I shall be highly pleased if your publication of the charming view of the Falls of St. David's shall incite any of the students of natural history in Jamaica to push the research to completion." *P. H. Gosse, Sandhurst, Torquay, Sept.* 15.

—— We have lately received some FEMALE CATKINS OF THE COMMON ALDER, in which the constituent bracts were transformed into elongated strap-shaped bodies. The specimens, which had twice passed through the ordeal of the post, were not in good condition, but after a diligent search a part was still found in which the cellular structure was still sufficiently fresh for observation, and a minute portion submitted to the microscope at once showed that the hypertroply was due to a species of Ascomyces, like the bodies common on Rhododendron and Vaccinium, on the bladder-like blotches which occur in spring on Peach and Almond leaves, and on the tasteless, stoneless Plums which occur sometimes in great profusion on the common Sloe. The species of Ascomyces seems to be distinct. The asci have the truncate tips which are so characteristic of A. Pruni and A. bullatus, but they contain numerous sporidia, instead of eight, as in some other species. They are shortly elliptic, and .0002—.0003 of an inch in length, and about half as much in breadth; there is a very delicate branched mycelium.* The genus is now called on the Continent Exoascus, a change which was made by FÜCKEL in 1861, and if at the time he was unaware of the establishment, by MONTAGNE and DESMAZIÈRES, of the genus Ascomyces in *Annales des Sc. Nat.*, 3 x., p. 344, 1848, or that four species were characterised in the *Outlines of British Fungology*, in 1860, there is no excuse for continuing the error after expressly acknowledging that the two genera are identical. The genus is, however, adopted under the same name by DE BARY, in *Beiträge*, i., p. 33, 1864. It is too bad to ignore the genera of earlier writers, as is too much the practice with some botanists. Besides the genus Ascomyces there is another, Exobasidium, differing in having the fruit naked, which produces abnormal hypertrophic growth, as for example in the so-called Clavaria of the Madeira Laurel. It is the more important to call attention to these bodies, as they are sometimes mistaken for galls. While speaking of hypertrophy in Alder it may be well to mention the curious excrescences which sometimes grow upon the roots, especially where they are subject to much immersion in water. A good account of these was given by WORONIA, in *Annales des Sciences Naturelles*, 1867, who refers their contents to the genus Schinzia. The tubercles are probably not uncommon; we gathered them at Powerscourt in 1867. *M. J. B.*

—— The HEREFORD FUNGUS MEETING, from October 12 to 15, promises to be of unusual interest this year, for, exclusive of the excursions and exhibition of fungi in the new Woolhope Club-room, several important papers will be read. Mr. E. EDMUND BROOME, of Batheaston, will bring forward his observations on the "Pollinaria and Paraphyses of certain Fungi," a subject of the highest interest. Mr. W. G. SMITH will read a paper on the "Anatomy of an Agaric," illustrated by a series of drawings, in which a perfect Agaricus will be traced from its first cell to the perfect plant. Mr. CHARLES B. PLOWRIGHT will discuss the present condition of Puccinia (which includes the fungus causing Hollyhock disease) as a genus. The Rev. E. VIZE will read a paper on the "Eccentricities in the Occurrence of certain Fungi;" and Mr. EDWIN LEES will read an account of "The Colours Imparted to Landscape Objects by Cryptogamic Vegetation."

* Ascomyces Alni, B. and Br., inflorescentiam deformans; sporidiis in ascis, frequentibus, minoribus.

vailed, but each district is doing worthy work in the way of improving this truly beautiful hardy spring flower. *R. D.*

Notices of Books.

Descriptive Catalogue of the Collection Illustrating the Utilisation of Waste Products. Bethnal Green Museum. Eyre & Spottiswoode.

The collection illustrating the utilisation of waste products, now exhibited in the Bethnal Green Museum, is calculated to instruct as well as to interest a great portion of the visitors who frequent that building, more especially that portion who inhabit the locality in which the Museum is situated, and who are for the most part engaged in some branch of trade. In some of its many details a collection like this cannot fail to be familiar to numbers whose daily bread may probably be earned in manipulating some of the very articles here shown, and the mere fact of seeing them elevated to a position of importance in a public exhibition will no doubt inspire them to seek further information on the sources of the materials which are constantly before their eyes, but of the origin of which they know but little. This end will be considerably assisted by the excellent *Descriptive Catalogue of the Collection Illustrating the Utilisation of Waste Products*, which has recently been issued from Her Majesty's Stationery Office.

This catalogue, which occupies seventy-nine pages, including a good index, and is sold for the nominal sum of 3*d.*, contains a vast deal of information on matters relating to nearly every branch of trade in which there is any "waste," and waste in some form is the inevitable result of all manufactures. It includes the produce under this head derived from the three kingdoms of Nature, but that of the vegetable kingdom largely predominates, for we are reminded that every weed that grows has its uses, and may hold constituents of the highest value to science. Although much has been effected of late years in utilising many substances previously known as waste there is still a wide field of application amongst unused material. As an illustration of the application of waste we are told that the utilisation of the refuse fibres from the spindles and looms of cotton-mills form a distinct branch of trade. "Millions of pounds of it are used annually in the fabrication of counterpanes, common carpets, cotton-wicks, wadding and twine, and all these, when worn out, are gladly secured by the paper-maker." Again, the oily waste cotton which has been used in wiping the looms, railway locomotives and machines, is now, to the extent of several million pounds annually, cleansed of the oil, by bisulphide of carbon, and reworked.

The flossy, silky hairs which cover many seeds, particularly those of the Bombaceæ and Asclepiadeæ, are too short and often too brittle to be worked up into textile fabrics; many of them, however, are light, soft, and elastic, and are now largely used in this country for stuffing cushions, quilted coverlets, &c. The short staple of these so-called silk-cotton downs is the only cause which militates against their application as textiles, the expense of weaving them being too great to make it remunerative. Specimens exist in our museums of native fabrics spun entirely from the fibres of the seeds of species of Bombax and Calotropis, and these fabrics are very soft and of even texture. Of the Spanish Moss, or Old Man's Beard, Tillandsia usneoides, an epiphytal plant growing on trees in the Southern States of America, it appears some 10,000 bales are annually shipped from New Orleans. It is used for stuffing cushions and other upholstery purposes, as well as for packing and for paper-making.

Amongst grasses, numerous as they are, it is not at all unlikely that a great many might be in some way utilised that are now considered worthless. Straw, of course, is a considerable item of trade, and we are told that "the straw-plait manufacture gives employment in this country to 80,000 or 90,000 persons, chiefly females, and the produce is valued at a million and a half sterling." Immense quantities of straw are used in Japan for various economic purposes, but chiefly for hats and shoes, or slippers, which are made of plaited Rice straw. "They cost a mere trifle, are found exposed for sale in every town and village, and the pedestrian supplies himself with new shoes as he goes along, while the more provident man always carries two or three pairs with him for use, throwing them away as they wear out. Old worn-out shoes of this description are found lying everywhere by the sides of the roads, especially near rivulets, where travellers, on changing their shoes, have an opportunity at the same time of washing their feet."

The application of wood for stuffing beds seems, at first sight, an anomaly, nevertheless a patent exists, which, moreover, appears to be quite practicable, for disintegrating the wood of various kinds of Pine, so that it becomes as light and elastic as hair. The resinous properties of the wood cause it to be very healthy, and to act as a preventive against vermin. "It is producible at a price far below that possible for any other material, except straw or seaweed, in quantities, as low as 4*s.* per cwt."

The collection has been formed by Mr. P. L. Simmonds, who has made the subject one of special study for several years past, and who is well known as the author of more than one book on "waste products and undeveloped substances."

—— The tenth number of Fries' *Icones Hymenomycetum*, unfortunately in all probability the last, is just published. The work now contains figures of 270 species, going down to the end of the Hyporhodii. Copies of many of the species in the remaining orders are in the possession of Mr. Berkeley, those of the Cortinarii being more especially useful. Good figures are so very rare in this genus that the discontinuation of the work is much to be regretted. Professor Fries was born on October 15, 1794, and it is quite wonderful that he should have so much energy at his advanced age as to conduct such an important publication, and to leave it now with regret.

—— The paper read by Mr. Joseph Fisher before the Royal Historical Society last session, *On the History of Land Holding in England*, will shortly be published by Messrs. Longmans.

Natural History.

Ash-bark Beetle (Hylesinus Fraxini).—During the early part of the present year the Hylesinus Fraxini (one of the kinds of bark-boring beetles especially prevalent in the metropolitan district) appeared in such considerable numbers on the trunks and larger branches of some recently-felled Ash trees in the neighbourhood of Isleworth as to give an opportunity of tracing out the life history of the insect in tolerably full detail; and though from its habit of attacking lately-felled trees rather than living ones it is in a great degree harmless, still a note of its method of operation may be interesting. The Hylesinus Fraxini is about a couple of lines or rather more in length, obtuse-oval in shape, and deep grey in colour, with blackish markings on the thorax and wing-cases, and has antennæ with a club. The colours, however, are variable, and may be found, through many shades, from black up to ochreous yellow.

About April 19 the beetles were noticeable in considerable numbers, wandering about on the Ash trunks as if exploring, and (till they had begun their burrows) falling off the bark when disturbed; but these once commenced, no moderate amount of disturbance appeared to affect them, the beetle working steadily on, and apparently at the rate of advance of about the length of its own body in twenty-four hours. As the work progressed the position of the tunnel was shown by the excavated chips lying over the entrance or on the ground beneath the trunk, according to the position of the boring.

The operation of burrowing appeared to be commenced by the female beetle, and carried on afterwards usually by a pair, though occasionally a third Hylesinus was present in the more advanced stage of the workings. At first, from the limited passage room of the tunnel, which was kept perfectly clear of chips, the special office of the second beetle appeared to be passing these incumbrances out at the entrance; but when the boring had proceeded a short distance (sometimes as much as half an inch) it was abruptly stopped, and two new ones commenced branching right and left from its extremity, so as to give in diagram a kind of roughly formed ⊤ shape, with short stem and long straggling top. These galleries were occasionally about 2 inches long, but variable from chance circumstances, and especially the interference of others in the bark, and (from usually finding one of the two companion beetles in each arm) presumably burrowed by both the male and female.

The female of the Hylesinus proved on examination a few days after their appearance to contain eggs, white and round, like minute slugs' eggs, but the galleries excavated by the larvæ on each side of the two main roads formed by the original beetles were not noticeable up to June 8. Somewhat less than a month later they appeared to a considerable extent, but still only in one of the pair of galleries. How far this is customary I do not know, possibly some influence extraneous to the arrangements of the beetle itself had to do with it, but from whatever cause, it was the case in all the galleries I opened at this time.

A section of the workings, made by taking off a slice of the surface of the bark when the larval galleries are complete, shows the number of eggs laid to be very numerous. Forty or more larval channels may be counted side by side, usually at right angles with the large galleries, giving a total of eighty or more eggs laid along the two sides of one main boring, the consequent increase being kept in check precisely by the over-supply for the space used. These larval tunnelings start in many (or most) cases as closely side by side as will allow room to accommodate each larva in its first state of growth; it eats its way forward, increasing in size, and packing up the passage behind it with the results of the swallowed wood, and very shortly there is want of room, and the weaker larvæ are passed by and perish. The grub who fails in the race cannot go forward, for the stronger larvæ divide the space before it, and the wood beneath or passage into the air above would be equally unavailing; and in a row of galleries of as many as forty starting side by side, twenty-five may be found cut short by their neighbours' needs of room, the boring of the successful larvæ reaching often about three-quarters of an inch in length, and commonly measuring rather over the sixteenth of an inch at the extremity in width.

The Hylesinus is also much kept in check by a hymenopterous fly, whose cocoons may be found in considerable numbers at the extremity of the galleries, taking the place of the white Hylesinus pupæ, and developing at the same time with the beetle, to which (to a casual observer) it bears some resemblance in its habit of giving a sharp spring or flight when disturbed, the similarity of habit catching attention at once where many of the two kinds of insects are confined together.

The development of the Hylesinus begins about the middle of August, and continues for some weeks, the largest number (in the specimens under observation) appearing about the beginning of September, the developed beetle gnawing its way out of the extremity of the larval burrow, where it has lain during the pupal state, with the entire passage behind it down to the main gallery closed by the mass of gradually rejected food, and leaving the bark perforated by scores or hundreds of small round holes (like a piece of timber riddled by the workings of Anobium), and at this stage, as in the original commencement of the work, attention is drawn to what is going forwards by the accumulation of chips of wood. In captivity, the developed beetle appears, by preference, to conceal itself in whatever may be at hand that it can, as it were, shove itself into, as if into a species of burrow (folds of paper for instance), rather than to remain at large, though its place of confinement may be thoroughly shielded from light. In some cases the newly hatched beetles returned to the empty borings, and in others they pierced some paper with their round perforations, but their favourite resort appeared to be the concealment of the doubled folds of newspaper, as that of the parasite fly was the flat upper surface.

The power of jaw of the recently developed Hylesinus must be considerable, to enable it to gnaw through the thin layer of bark, which has hardened during the summer months, so as to create a difficulty in cutting it with any but a sharp and strong knife, but, as far I am aware, it causes little or no injury beyond the possible effects of the immense quantity of minute perforations in laying the timber more open to the influences of wet weather than would otherwise be the case. *O.*

Apiary.

Work for October.—Work begins to be slack, except where the bee-keeper has neglected feeding which must be done as early in this month as possible, or they will refuse to take in any food. Every hive intended for stocks next year, and which we are expecting to be profitable, should, without any loss of time, be put in a condition for wintering well. First attend well to the ventilation, and especially see that they are well sheltered from the rain, &c. Pan-mugs placed on the top of straw hives as a cover or screen from the weather may do for rough, unthinking bee-owners, but should never be adopted by those who love their bees; on the contrary, make good straw covers, or, if you can afford it, wood covers, which are the best. Break up weak stocks, and unite them with a stronger colony—"Penny wise and pound foolish" ought never to be urged against bee-keepers. In straw hives it is well to make a small hole through the centre of every comb, to enable the bees to pass in any direction with comfort, and without having to traverse round the edge of every comb when the thermometer is below zero.

Guard against the entrance of the small field or harvest mouse; where your stocks are seated on low stands a strong temptation is held out to them of snug winter quarters: make the entrance small, then they are easily kept out. I have known hives completely ruined by this enemy, who is certainly not dormant in the beehive, whatever he may be in the cornfield. *R.*

—— Mr. FISH has forwarded us a Peach with a supplementary nipple-like process at the base. Such a growth may remind the reader of a Peach like the Téton de Venus, but in Mr. FISH'S specimen the case is quite different, and its explanation is to be sought in the circumstance that two carpels or young fruits were produced in the flower instead of one. Of these two, one has grown to full size, the other is much smaller. The presence of two carpels instead of one is a not very infrequent exception in Plums, Cherries, Almonds, and Peaches; and it will be remembered that the beautiful Prunus triloba was supposed to constitute a new genus under the name of Amygdalopsis, because it habitually presents a number of carpels instead of one.

—— According to Dr. AITCHISON the bulbs of the GARLIC (Allium sativum) are extensively grown and used in Lhassa. In Yarkand, however, the people do not seen to care much about it; but they use large quantities of a wild Onion known as Sko-chay, which they collect during the summer, smashing up the whole plant between two stones into a thick green pulp; this they make up into patties, which they string together by a hole in the centre, like so many beads, and then hang them up to dry. The country people may be seen on market days bringing into Leh strings of these Onion patties for sale. They keep well during winter, and make an excellent condiment.

—— From some notes which have recently appeared in a Panama newspaper, and from a recent report on the trade of Carthagena, we learn some facts about the INDIA-RUBBER PRODUCE OF DARIEN, which is obtained from the Castilloa elastica, an Artocarpaceous tree, known in the country as the Caucho. It seems that the Darien Indians were, until a comparatively recent period, entirely ignorant of the value of the milk of the Castilloa. In the beginning of the year 1860 small quantities had been sent to Carthagena, extracted on the banks of the Atrato. Caucho or India-rubber is said to be the most speculative article of commerce that enters the Carthagena market. It is brought in a crude state in slabs, or pieces of various sizes, weighing 10 to 200 lb., from the forest lands extending between the rivers Sinú and Atrato, and those bordering the rivers Cauca and San Jorge. Owing to the continued practice of cutting down the tree in order to obtain a larger immediate supply of the gum, in lieu of tapping the tree, as is done elsewhere, the distance to go for it, and the labour in procuring it are annually increasing. Latterly many of the explorers from this place have gone westward, or to the Pacific side of the Atrato, and have carried their collections to Panama, as the more accessible market. It is probable, however, owing to the hostility manifested by the Darien Indians to their advance in that direction, who lately killed a party of rubber seekers, that they will return to sell what they collect at the Carthagena market. Only a small portion of the rubber taken there for sale is exported in a crude state—the larger portion is prepared for shipment by pressing and drying, under which process the rubber loses about 30 per cent. in weight. The Caucho tree grows in moist, undulating, or flat situations, often by the banks of streamlets, and on hillsides and summits, where there are any loose stones and a little soil. Seeds of this valuable tree have been collected by Mr. CROSS—who collected Cinchona plants for transmission to India some years back—for the purpose of establishing young plants for future cultivation in India. From the nature of the seeds, however—namely, the presence of milky juice which abounds in all parts of the plant—the germinating power is soon lost; it is, therefore, satisfactory to learn that there is a probability of some living plants being brought home. Mr. CROSS thinks the tree is adapted for cultivation in the hottest parts of India, where the temperature does not fall much below 74° Fahr., and that when cultivated it will prove all that can be desired, as it grows rapidly and soon attains a great size. By far the largest quantity of rubber exported from Carthagena is sent to Great Britain, and the next largest to the United States.

—— In the *Monatschrift des Vereines zur Beförderung des Gartenbaues*, Dr. WITTMACK describes and figures A TRAP FOR CATCHING NOCTURNAL MOTHS and other insects. It is in the form of a square lantern, the outside of the glass being smeared with a kind of bird-lime. Hung among trees, with a light in it of course, this lantern is said to be a very effectual trap. It is needless to give dimensions, as any ordinary lantern would answer the purpose if the outside of the glass is covered with some adhesive substance.

—— At a recent meeting of the Botanical Society of Brandenburg, Dr. MAGNUS exhibited a bandbox-full of three-winged fruits of Acer platanoides, all collected by M. REUTER from one tree growing on the Pfaneninsel, near Potsdam; and there was a note from M. REUTER to the effect that about the twentieth part of the fruit of this tree is three-winged. Among the fruits sent was one with four wings, and in several two out of three of the carpels were grown together to their middle. Another interesting variation in the Maple was communicated by Dr. FOCKE, who found 2 or 3 per cent. of tricotyledonary embryos on a certain branch of a tree, though he sought in vain for them elsewhere. Dr. BOLLE mentioned that A. dasycarpum ripens its fruit freely at Berlin, and he observed that it had probably often been overlooked, as it comes to maturity about the middle of May.

—— The BREADFRUIT FAMILY is, perhaps, one of the most useful to man, as it furnishes a great variety of products. Taken in its widest sense, it includes the Moreæ, which is also an exceedingly valuable group; but we here allude to the Artocarpeæ proper. Bread and milk are two of the chief products of this family; the former, the fruit of Artocarpus incisa, actually takes the place of the meal-bread of the grain of different cereals in the diet of the South Sea Islanders, whilst the latter is the juice of a tree (Brosimum Galactodendron) abundant in some parts of Venezuela. As an article of diet the milky juice or sap of the Cow-tree is equally nourishing, and not less palatable than cow's milk; and it is commonly used by the inhabitants of some parts of Venezuela, where Cow-trees are far more abundant than cows. The same family furnishes fibres and medicinal drugs, and the bark of Antiaris saccidora stripped off, with a piece of the trunk sawn off for a bottom, forms capital natural sacks. The foliage, too, of many species is much relished by cattle, and M. CAPANEMA, of Brazil, writing to the President of the French Acclimatisation Society, recommends the introduction and cultivation of Cecropia peltata in Algeria as a forage plant. It is a rapid growing tree, with large leaves and hollow stems, which latter are used by the natives to form musical instruments, hence the name of Trumpet-tree. M. CAPANEMA asserts that cows thrive admirably on its leaves, and there is soon a very remarkable improvement in the quality of the milk they give.

—— During the afternoon of Wednesday last, the opening day of the INTERNATIONAL POTATO EXHIBITION at the Alexandra Palace, the committee, judges, and others dined together under the presidency of Mr. JAMES ABBIS, J.P., Mr. SHIRLEY HIBBERD occupying the vice-chair. The dinner was largely attended, and a unanimous desire was expressed that another exhibition of Potatos should take place during 1876. Towards the special prize list for that show the Chairman promised a piece of plate, value ten guineas; Mr. W. GALE an article of *vertu*, value two guineas; and Messrs. J. COUTTS and ROBERT FENN also promised special prizes. The proceedings were of a most genial and satisfactory character.

—— Under the name of Mezquit, or SCREW BEAN, a small tree, a native of New Mexico and Arizona, has lately attracted some notice as a fodder plant. The tree is known to botanists as Strombocarpus or Prosopis pubescens. In a letter recently addressed to the Earl of CARNARVON, as Colonial Secretary, from the Crown Lands Office, Toronto, the plant is stated to be "suitable to the warmer climates of the Empire, as India and Ceylon, Australia and the Cape." It is further said that in the diary of Lieut. WHIPPLE'S survey of the line of boundary between San Diego and the point opposite the junction of the Gila with the Colorado River, that the prosperity of the horses and mules, and the success of the expedition, were expected to depend on this Bean. The screw-like pods are described as growing in clusters of eight or ten on the same stem. They contain much saccharine matter, and are very nutritious. They ripen at different seasons of the year, and are so abundant that a single tree will produce many bushels. The Mesquit of Texas seems to be the Prosopis glandulosa, or the Algaroba glandulosa of Torrey and Gray's *North American Flora*, where it is described at p. 399. An account of the uses of this tree is given at p. 158 of the *Monthly Report of the Department of Agriculture*, Washington, 1873, from which we gather the following:—The gum is said to be almost identical with gum arabic, and has been in use in Western Texas for medicinal and technical purposes, especially in the preparation of mucilage, gum drops, jujube paste, &c. In 1873 it was an article of export to some extent, about 12,000 lb. having been gathered in Bexar county, and as much more between that and the coast. No gum is gathered west of Bexar, and it is hardly known east of Brazos. It exudes from the stem and branches of the tree, which grows from 20 to 40 feet in height, and about 18 inches in thickness. The wood is fine-grained, very durable, and is used for furniture and picket poles. It also makes good charcoal. It is recommended that both these Mesquit plants "should be raised in the colonial gardens of South Africa and Australia for planting in quantities in the drier regions of those colonies."

—— In the August number of the *Flora*, Dr. DÖBNER gives a figure and description of a curiously ABNORMAL CONE, presumably of the common SPRUCE FIR. The scales on the upper third of the cones are distinctly reflexed instead of erect, but not differing otherwise in any essential particular from the ordinary scales. This peculiarity gives the upper part of the cone some resemblance to the fruit of Raphia Ruffia and some other Palms. According to Dr. DÖBNER seeds were formed under some of the reversed scales, the wing of the seed taking the same direction as the scale.

—— The advantage of the new style of planting pyramid and bush trees over the old method of wholly planting standard trees, finds excellent illustration in Mr. FRANCIS DANCER'S market garden grounds at Little Sutton. One large portion is planted with lines of bush trees of Small's Admirable Apple, the trees 8 feet apart each way, and they are literally borne down to the ground with the great weight of the fruit they are now bearing. Pyramidal trees of Cox's Orange Pippin Apple, planted in close lines, are found bearing heavy crops of beautiful fruit, large in size, and brilliantly coloured. On instituting a comparison between these and the large standard trees planted years ago, it is found that the latter require large spaces of growth, that their crops are not over numerous or particularly fine, and that they interfere with the circulation of air among and the fall of light on the smaller trees about them. The space occupied by one standard tree would be equal to that occupied by six or more of the bush trees, while the roots must have spread in all directions in the soil beneath. Gathering becomes an easier and quicker process; ladders are not required, and the handling of ladders among trees sometimes does them injury. Not one of the least of the considerations to be put forward in favour of bush over pyramid trees is that of a finer quality of fruit being obtained.

—— Five large plants of ALOE PLICATILIS, each over 100 years old, and which belonged to the late Bishop SUMNER, of Farnham Castle, have recently passed into the hands of Mr. J. T. PEACOCK, who has added four of them to his fine collection of Succulents on view at the Alexandra Palace.

—— An amateur gardener has just given us some amusing experiences of his attempts made during the past season to PROTECT THE EARLY SOWN SEEDS in his garden from the attacks of birds, living, as he does, in a neighbourhood much open to their attacks. He made trial of many contrivances, and his experience taught him that nothing succeeds better for a time than threads of white worsted drawn backwards and forwards across the beds, so as to have the appearance of a net or trap; but this is only of service for a few days, as the birds cease to be frightened at anything which might have been in the garden for more than a week. Among other contrivances he procured an admirably formed iron cat, the size of life and nearly as natural, of a beautiful tortoiseshell colour, with a "'cute-looking" head and a noble tail. This animal, he was informed, would frighten all the birds in the neighbourhood. The pet was set in the centre of a plot of ground where certain seeds had been newly sown, and he flattered himself he should have no more trouble, and that every feathered depredator would give a wide berth to his representative of the feline race among animals. For four or five days he was persuaded that the pests were fairly driven away, and was about giving an order for manufactured cats, when, to his great astonishment, on going to his garden one morning, he saw a fine old sparrow on the cat's back, taking a survey of the seed plot in the most leisurely manner. The moral drawn from the circumstance was that the only way effectually to frighten birds is to be continually adopting some new plan. What is employed as a deterrent should be placed on the spot a day or two before the seeds come through the soil, as that is the time when the greatest damage is done, and to add occasionally lines of thread of various colours. All scarecrows should be placed in position before the seeds have germinated.

—— The new Agave shown by M. L. DE SMET at Cologne, and which gained a gold medal there, has passed into the hands of Mr. J. T. PEACOCK, who is exhibiting one of the plants at the Alexandra Palace. It is one of the most distinct Agaves in cultivation, having triangular leaves, marked as if with chalk on the margins, and devoid of spines, excepting one black curved one on the top of the leaves. By permission of HER MAJESTY, Mr. PEACOCK has named it Agave Victoria Reginæ. We hope shortly to give its portrait in our pages.

—— A month hence and Tulip planters will have come abreast of the time when it is usual to plant their beds. The traditional time with many of the old growers was on or about the 9th of November. In the face of the disease that destroyed so many bulbs last year, it is well to enquire what is the best soil for Tulips; and the answer of experience is, well decayed turf from a pasture which affords a fine fibry loam. All wireworms should be carefully picked out of it. Add to this about one-third of leaf-mould, and some sharp sand or finely powdered charcoal, the latter

FIG. 92.—WATERFALLS, ST. DAVID'S, JAMAICA.

what is wrong to die out, as it is sure to do, of its own inherent infirmity. Linnæus himself fully appreciated the importance of what we now call the natural orders. "Primum et ultimum hoc in botanicis desideratum est." Long indeed even before the Linnean times steps had been taken in the direction of the natural system. Far back in the sixteenth century—striving, as it were, like early settlers, to clear a path through the virgin forest—earnest students had set to work upon it.

We little think of their labours when we talk of our Lobelias and Cæsalpinias and Bauhinias. Many regard these names as simple Latin; rather are they to be contemplated in the same way that we regard the monuments to the stalwart knights of chivalry, the progenitors of English freedom, preserved in our ancient cathedrals, where

> "The sound of those they wrought for,
> And the steps of those they fought for,
> Echo round their bones for evermore."

In England the idea of the natural system was first taken up by the celebrated Ray (after whom the West Indian climber, the Rajania, is named), and who, in 1703, in his *Methodus Plantarum*, laid down what has ever since been employed as the basis of the natural arrangement. Linnæus, in 1751, proposed sixty-eight orders. Shortly after his death, which took place in 1778, the number was raised to one hundred by the renowned Antoine Laurent de Jussieu, who published his book in 1789. Since that time the contributors have been innumerable, though it is only within the last twenty or thirty years that the natural system has become a power in the country; and our gardeners of to-day are like guests invited to a magnificent banquet.

Every detail as to the natural orders of plants, may be learned from the text-books of botany. To give completeness to this article it will be consistent, nevertheless, to add a sketch of some one order in particular, noting, as we go along, how many new and curious considerations came before the gardener in connection with the study of the orders, and to this end perhaps the Myrtaceæ will be as convenient as any. But it must form the subject of a second paper. *G.*

THE ROYAL AQUARIUM
AND SUMMER AND WINTER GARDEN.

On the afternoon of the 28th ult. a number of gentlemen interested in the success of the Aquarium and Summer and Winter Garden at Westminster were invited to make an inspection of the progress of the building, and afterwards were entertained at luncheon, in what will be the reading-room of the institution, by Mr. W. W. Robertson, the managing director. From a detailed architectural description of the spacious and handsome building which for some time has been in course of erection on a site in the Broad Sanctuary and Tothill Street, Westminster, which was published in the *Times* on the 3d ult., we learn that the extreme length of the building, from its eastern frontage to the western boundary near St. James's Park Station, is 600 feet. What is called the "front hall," at the east end, is 85 feet in width and 140 feet in depth. This elevation is sumounted in the centre by an ornamental segmental arch, flanked on either side by a tower, and the face of the elevation is decorated with richly-sculptured festoons of fruit and flowers. The upper stage of the towers is open, and divided by red Aberdeen granite columns. The angle piers, the capitals to the columns, the dressings and spandrels are all executed in Portland stone. There are two towers at the north-east and south-east angles; and the roofs of the towers, in two stages, are covered with zinc tiles, completed with ornamental hips, and surmounted by vane rods. Above the ground floor there are large circular panels in Portland stone, inclosing massive sculptured figures of dolphins and mermaids, the panels being divided by stone pilasters. The elevation is surmounted by a bold cornice and balustrade, upon which rest vases. The extreme south-west angle of the elevation is carried to a greater height than the rest of the building. The works in the interior of the building are being actively pushed forward. The huge reservoirs for the supply of salt water to the show and reserve tanks, and which are situated in the basement at a depth of upwards of 20 feet below the ground floor, are already completed. They are nine in number, and occupy an aggregate length of 263 feet and a width of 53 feet, and are capable of containing over 800,000 gallons of water, one-fourth of which will be fresh water, and all the remaining portion salt. The reservoirs are cylindrical in form and faced with asphalte. At the west end of the reservoirs there are two wells communicating with them, 15 feet in depth and 8 feet square. One of these wells is in communication with the fresh water reservoirs and the other with the salt water, and the water will be pumped up through them from the reservoirs into the several tanks by two engines of 20-horse power nominal, but capable of working at a much higher power. All the large tanks for fish on the north and south sides of the centre avenue have polished granite sills, and are lighted both from the top and the back. The plate-glass in front of them is 1 inch in thickness. The whole of the flooring will be laid with encaustic tiles on concrete cement, which is now being laid down. The promenade, or winter and summer garden, is about 400 feet long by 160 feet wide, and is approached by two bold entrances from the Tothill Street frontage, which are surmounted by pediments; in the centre are representations of Neptune and the sea-horse, above which rises a figure of Britannia, 12 feet in height.

The roof over the central portion or avenue is semicircular in form, and is chiefly of iron and glass. It will be glazed on the principle of Rendle's patent. By this invention all woodwork is covered by the metal and glass, no putty is used in glazing, and bent glass is entirely dispensed with. The width of the main avenue or promenade is 80 feet, being 8 feet wider than that of the Crystal Palace.

The height of the gallery from the floor of the promenade is 16 feet, and from this level to the springing of the vaulted roof is about 16 feet. The whole height from the floor level to the top of the roof is 72 feet. The galleries extend all round the building, and are 40 feet in width, a large portion at the east end and adjoining the dining-rooms being set apart for refreshments. On the north side in the centre is the large orchestra, 60 feet by 40 feet. The concert room at the west end is a noble and lofty apartment, and is capable, from its height and dimensions, of being converted into a large and handsome theatre. It is 106 feet long, and 66 feet in width. The stage will be 30 feet in width to the sides of the proscenium, and 40 feet in depth. There are also two galleries, in which, together with the ground floor space, there will be accommodation for an audience of 2,500 persons. About 800 tons of iron have been used in the construction of the building.

At the luncheon Mr. W. W. Robertson (the Chairman) proposed the usual loyal and patriotic toasts, after which

The Hon. Edward Curzon proposed "Success to the Aquarium and Summer and Winter Garden." He said it was perfectly clear to his mind that success must follow the establishment of such an institution, in consequence of the great number of influential persons who already supported it. As he was informed, it was proposed to have, not only an aquarium and a summer and winter garden, but also music and dancing, and other rational amusements; and he sincerely hoped that any opposition there might be to the wishes of the Company in this respect would be withdrawn, for it was his decided opinion that all well-conducted institutions where useful knowledge could be acquired ought be encouraged in every possible way.

The Chairman, in responding, said that, although it was true he might fairly lay claim to the parentage of the institution, and although the active management of its future had been confided to his hands, yet there were others present who might do better justice to the theme than himself. After complimentary allusions to Mr. Bedborough, the architect, Messrs. Lucas, the contractors, and Mr. Lloyd, the naturalist of the company, the Chairman proceeded to observe that the goodwill of the artistic world had been ungrudgingly given to the undertaking, and that a most distinguished body of gentlemen had already promised their aid in supervising this most important department of the enterprise. While painting and sculpture were thus well represented, music as an educating and purifying power had not been forgotten, and the executive committee had relieved him of all anxiety on this subject by appointing Mr. Arthur Sullivan as musical director. The ship was well manned, and if the captain were capable they would set sail with every prospect of success, but for one little cloud in the horizon. Within the last few days, to his utter astonishment, he had heard that an opposition would be offered to the music licence, and as acting representative of the institution he must own he had felt the insult offered—for he could call it nothing less—very deeply. Did they who preferred this opposition for a moment conceive that the noblemen and gentlemen connected with the scientific, artistic, and literary world who formed their Council of Fellows would have given their names to the project unless they were well assured that the institution was to be used as a means of intellectual enjoyment and educational advantage? Did thay think the executive and management were so blind to their interests as to cater for any others than the well-behaved and orderly? The opposition, indeed, was tantamount to stigmatising the Council of Fellows as knaves and the committee as fools. Why, the edifice was too costly, the enterprise too stupendous, and the capital embarked far too vast to hope for any other return than from the majority of our citizens—namely, the respectable community. It was quite true that the Society had applied for two licences—one for music, the other for music and dancing—and it possibly might be, as he trusted it was, in ignorance of their motives that their opponents supposed they contemplated the permission of public dancing. In the main, he would not for a moment assert that public dancing had an immoral tendency; but as to the particular view of the executive on this point as applied to this edifice, he might say that nothing could be more opposed to the policy of the committee and the management than to permit public dancing in the building. The committee, indeed, did think that possibly at holiday time, when some of the little folk were at home, they would be doing a service if they organised some form of entertainment in the afternoon on the orchestral platform which might by chance include dancing, and it was solely to cover this that they applied for a dancing licence; but if this desire to afford innocent recreation to little folk were subject to misconstruction, and likely to offend any one, the committee would willingly cede such application, as forming no part of their published scheme. Still, he could not but acknowledge that all those who had connected themselves with the enterprise had felt keenly the covert insult offered them, and he was very glad that meeting permitted him publicly to unburden himself, in the hope that they would not be forced to plead for the character of their institution, unless the opposition was prepared with some other charge against them than the fostering of one of our noblest and most artistic tastes—namely, music. He could not for a moment believe that Dean Stanley, who had always been so distinguished for his able labours to educate, refine, and elevate the masses, would oppose a society whose object not only was to be of service to the scientific naturalist and the social economist, but also to found another and a fresh home for intellectual enjoyment in our busy and overworked city.

The toast of "Our Artistic, Literary, and Scientific Institutions" was acknowledged by Mr. S. C. Hall, F.S.A.; and that of "The Press," by Mr. Tom Taylor.

The Chairman next proposed the health of

Professor Owen, who, in acknowledging the compliment, said they ought to remember that about three-fourths of our globe were covered with water, and that, consequently, a debt of gratitude was due to those who afforded us the means of studying the forms of life which had the water for their element. Among them many forms were given to saltatory movements, and some to gyratory movements. We had in vertebrate animals the polka and the waltz; and he trusted the threatened impediment to the full development of the views of the promoters of this institution would not interfere with a great number of those creatures who had taught us the advantage, the enjoyment, and, hebe lieved, the innocence of the dance.

The management of the floral decorations to be carried out has been placed in the hands of Mr. Wills, who will furnish everything required in this way.

Home Correspondence.

Celosia pyramidalis.—I can fully endorse all that your correspondent, W. Swan, has said in favour of the above, both for autumn and winter decoration. Unfortunately they are very sportive, and it is rarely one sees a really fine strain; but when obtained, and properly grown, they are sure to command admiration. During the winter months there is generally a scarcity of flowers, and anything so free blooming and so brilliant as the above is doubly valuable at that season. It has the additional recommendation of lasting in bloom a very long time, and really improves with age, as the rich feathery plume-like flowers continue their development, each day adding to their velvety texture and graceful appearance. Any one having to keep up a supply of cut flowers during the winter months should grow it in quantity, as they will find it invaluable for that purpose; and it will be found to last double the time of any other flower in a cut state. *J. Sheppard.*

Pinus flexilis.—There are only a very few of the many species of Pines cultivated in Britain which are calculated to adorn a lawn, and one of the best of these is P. deflexa, as described by Mr. Murray and illustrated by Mr. W. G. Smith in the *Gardeners' Chronicle* for Sept. 18. It is, in this country, of slow growth, forming in outline a broad-based but graceful cone, well furnished, without being crowded, with thin, spreading, undulating branches, and clad with short, rather dull, dark green leaves, which, when the plant is in good health, are remarkably persistent, remaining on for eight or ten years. It is uncommonly hardy, and seems to be not over fastidious as to soil. We have here a healthy, handsome plant of it, which is now, as near as I can judge, eighteen or nineteen years old, and measures 8 feet in height, and about 18 feet around the lower tier of branches. The branches leave the stem at about an angle of 45°, but being very flexible they soon fall to below the horizontal, with their points directed upwards. Mr. Murray, who is responsible for the figure of P. flexilis, will, I trust, forgive me when I say that I have grave doubts as to its being a thoroughly accurate representation, more

to be preferred. Let this be mixed together a month before being used, and well turned meanwhile. A free porous soil, through which the water can readily percolate, is to be preferred to one that retains the moisture, and is of a soddened and cold nature in winter. It has long been the opinion of Dr. HARDY, the well-known Tulip cultivator, that it is wet that kills Tulips more than any other agency. The soil in which Tulips are grown should not be too poor, as poverty at the roots will occasion mildew, and bring about a certain amount of paralysis. On the other hand too rich a soil must be guarded against, as an undue vigorous growth is as fatal to the production of good flowers as one wanting in the quality of richness. When Mr. SAMUEL BARLOW, of Chadderton, plants his beds, it is his practice to place a little sand, flowers of sulphur and powdered charcoal about the base of the Tulip bulbs. Perhaps, following up the idea struck by Dr. HARDY, that it is wet that kills Tulips, the excessive rainfall of last antumn and winter may have had something to do with the disease that made its appearance during the last spring, shortly before blooming time.

—— A writer in the *Monatschrift* (Berlin) records a proof of the HARDINESS OF FICUS STIPULATA, Thunberg, F. repens of gardens. Having occasion, he says, to pass through Mingrelia in the autumn of 1873, he visited the ruins of a fine garden at Sugdidi, which was overrun by OMAR PASHA in 1853. Among other remarkable things were the north and end walks of what had been a magnificent orangery. These were literally covered with a luxuriant confusion of climbing Roses, Wistaria, Rubus, Tecoma, Passiflora, &c.; but most noteworthy was a large mass of Ficus stipulata. In the gardens around Dahlias were cut to the ground, and the tips of the shoots of Tea Roses were already nipped by frost, but the Ficus was unscathed, and had resisted the cold of twenty winters. Although Sugdidi is favourably situated, the writer estimates that the thermometer must fall at least as low as 14° Fahr. This pretty creeper would therefore succeed in the warmer parts of the United Kingdom, and may probably be flourishing out-of-doors in some places at the present time.

—— We understand that the arrangements of the HORTICULTURAL CLUB are now completed, bedroom accommodation, &c., having been secured by the extension of the premises. The members will dine together at the Club on Wednesday next. Any member wishing to be present should communicate to the Secretary at once.

—— According to the accounts which are reaching us from the great grass-growing districts abroad, especially those of Germany and Austria, the CROPS OF GRASS SEEDS have not been so deficient for many years past as they are this season, only one quarter of the average crops having been realised, with the exception of Peas, which have been harvested in fair quantities. The causes of failure are the very great and immense heat which prevailed at the time of growth, and the heavy and continuous rains at the time of seeding. Meadow Foxtail especially is scarce, scarcely any crop of it having been secured; and Fiorin, Cocksfoot, Dogstail, and all the Fescues, will be very scarce also. Timothy, which is cultivated throughout most parts of Northern Germany, has proved a failure in many of them. It is predicted that a limited demand even will clear out the stocks of many of the grass seeds in a very short time. It is also noticeable what an advance of price has recently taken place in winter Tares, and especially Trifolium incarnatum and Canary; the last-named is now fetching a very high price, and it has been stated that one leading wholesale seed firm in London is at present the only holder of Trifolium in quantity. Early Peas will command a good price, owing to the heavy rainfall at the time they were ripening for harvest, causing much of the seed to grow out, and the samples will be of an indifferent character. Some of the earlier of the later sorts were similarly affected, but the harvest of late Peas has proved better than that of the early kinds.

—— Among EDGING PLANTS suitable for the flower and kitchen garden, should be mentioned a fine-leaved grass grown as Festuca viridis. It makes a remarkably fine and at the same time dense growth, and the leaves are of a bright olive-green colour, and not so large as those of F. glauca. It will bear clipping during the summer, and it is so hardy that it will stand through the severest weather without injury. It might be grown in shady places where grass does not do well.

—— A report having been extensively circulated that the WEST END NURSERY AND SEED BUSINESS recently advertised for sale, is the Royal Exotic Nursery, King's Road, Chelsea, we have been requested by Messrs. VEITCH & SONS to deny the truth of the rumour; and to state that they have not, nor ever have had, the slightest intention of relinquishing business, but, on the contrary, they hope to be spared to carry it on for many years to come.

THE NATURAL ORDERS OF PLANTS.—No. I.

NOTWITHSTANDING the immense diffusion, during late years, of botanical knowledge, it is curious, if not regretful, to observe how imperfectly practical gardeners are acquainted with one of the most important departments of the science of plants, namely, the true principles of classification. There seems to be yet extant some of the prejudice which was excited at the time of the first promulgation of the natural system. People were told, what is quite true, that the natural system is the only key to the actual affinities of plants, such as for a thousand everyday purposes every horticulturist needs to be fairly well acquainted with. But this "natural system" came charged, to all appearance, with so many difficulties that to master it in any moderate length of time was thought impracticable. Instead of catching at it as an immense boon, gardeners and botanists alike allowed themselves to be frightened away; the botanists have long since learned how to appreciate it, and happy will be the day when every gardener also finds from experience that in the natural system he has one of his truest educational friends. One reason for its comparatively slow progress is no doubt to be found in the antagonism it seemed to offer to the Linnean system, which, from almost the beginning of the reign of George III., had in England been regarded as the very perfection of botany. Hence it is that even yet many people, whose first ideas of botany were derived from Linnean books, consider the natural system fanciful and calculated to render the study of plants harder than ever, the actual state of the case being exactly the reverse.

For a long time it was customary to point to the simplicity of the process of counting the stamens and pistils of a flower; and, on the other hand, to the seeming absurdity of bringing the Nettle and the Fig tree into near neighbourhood, and the proposal to do this last was considered conclusive proof of the wildness of the doctrines of those who affected, so disloyally to the immortal Swede, to talk about a natural arrangement. An old friend of mine, an M.D. moreover, has never yet surrendered his antipathy to the natural orders, the "natural nonsense," as he somewhat petulantly terms them; and even within this last year or two I have been requested by staunch disciples of the Linnean school to let my instruction to their families be after the law of twenty-four classes, instead of in conformity with the beautiful marshalling which, more than anything else, opens one's eyes to Nature's unity in variety. The quickening of our intelligence to perceive this is one of the noblest uses of education, and if no other end were attained by studying the natural orders of plants this one would be sufficient reward. The patient working out of likenesses such as those which link a Gloire de Dijon to the Strawberry, the Laburnum to the Pea, and, by-and-bye, the Nettle to the Hop, and the Hop to the Mulberry, accustoms the mind to search for truth and first principles, not where they are so often mistakably supposed to reside, in external and superficial features, but in the inmost particulars of structure. It is learned, at the same time, that in order to be sure of actual affinity, or the contrary, things must be compared, not at one period of life only, nor, as is usual, just when they are in the pride of their perfection, but at many different stages of development, and that they are never too young for a wise man's observation. To make progress in the accurate knowledge of plants, such a mode of study is absolutely indispensable; and, along with this, the gardener who loves his plants, and makes friends of them, finds in it one of his chief and most enduring intellectual recreations. I always esteem it one of the soundest and most pleasing indications of useful and careful work on the part of my pupils, when, after dissection of the specimen, and a moment's consideration, they can refer to its natural order such a plant, say, as the Humea elegans, though the type of the order was found first in forms so unlike in general figure, as the Daisy and the Thistle. For a purely Linnean botanist to take the span and altitude of the science of plants as we have it to-day is hopeless, and it would be only a joke for a gardener to say that he possessed a fair knowledge of botany, and be unable at the same time to refer the Rhododendron, for example, to its proper and recognised place in the natural system, and to give his reason why it should be located there and there only.

A man may accumulate a tolerably exact, and even an extended knowledge of the differences of species and varieties; if fond of minute anatomy, and possessed of a good microscope, he may acquire a considerable amount of information as to the shapes assumed by cells, &c., thereby qualifying himself to talk sonorously about prosenchyma and bothrenchyma; and neither of these two departments of phytology can in the least degree afford to be slighted. In the botanist, however legitimately and honestly so called, the most substantial result of work and study, taking precedence of the knowledge of species, or of the vegetable tissues either, declares itself in the power of appreciating the facts and principles of which the natural orders are expositors, or, at all events, illustrations; and until he is fairly abreast of these a man must be content to go by some other title. Call him an *Index Plantarum*, if you like, or, if a worker with lenses, a histologist, but certainly not a botanist. A great charm in the study of the natural orders consists, moreover, in its quickening the mind to the perception of analogous law and principles elsewhere. Lord Bacon spoke well when he declared that the apprehension of what he terms the "respondences of Nature," lies at the very foundation of *Philosophia Prima*. Had he enjoyed the privileges which now, in 1875, are open to every gardener in connection with the natural system of botany, I cannot but feel assured that he would have specially commended it as a means thereto. Of course it does not follow that because a man takes up the natural system just as an off-and-on amusement, working at it for a season or two, that he will realise these grand results. One of the most admirable recommendations alike of horticulture and of botany, is that for success it implies industry and perseverance. It is not to be supposed either that botany is a specific for the production of mental eyesight, infallibly operating where other things are ineffectual. But where botany, with special reference to the natural orders, failed to do good, I should have very little hope of anything else being efficacious, save and except, of course, the parallel agency of perseverance in the study of zoology. Here, however, are wanting the sweet and simple blandishments of flowers—the perfect control we possess over the subjects of our observation, and the fearlessness of inflicting bodily pain—which last, to a kind-hearted man, will always render botany more attractive than the study of animals. The natural orders, in a word, are like good books—things that we peruse and reperuse, always finding something new, approaching constantly with the sense of a keener understanding; things that are open and ready at every season of the year, never becoming tiresome, crowded with curious knowledge, and, best of all, competent to excite one to constant diligence, and to engender habits of exact and methodical thought.

In saying what I have as to the insufficiency of the Linnean system to introduce a man to the broad and lofty in botany, I desire merely to put it in contrast with the natural.

The intrinsic merit is another matter, and this it is but fair to acknowledge warmly, remembering for what purpose it was designed, and how superbly that purpose has been answered. At its time, and with regard to the ends it had in view, the Linnean system was almost of the nature of "a gift from the gods." It came, as a facile working implement, an opportune mechanical appliance, so to speak, just when botany was most urgently in want of one. The science, now so gloriously and easily moving onwards, was blocked, as it were, for want of a working method, and it was exactly what suited the emergency that Linnæus so felicitously contrived. It gave the impetus to botany, which from that day forwards has never abated, and he who would affect to despise it because now no longer needed by science, might as reasonably despise Franklin and his kite. Sir James Smith compiled the *Flora Britannica* and the *English Flora* upon the Linnean system. The same was employed by Sir W. J. Hooker in the earlier editions of the *British Flora*, and again by Loudon in the *Encyclopædia of Plants* and the *Hortus Britannicus*, which are still standard works. There are local and subordinate purposes for which the Linnean system is even better adapted, and will always be, than the natural; when, for example, a zealous and industrious child, full of enthusiasm for the beauty of field flowers, is encouraged to prepare a little herbarium—a treasure-house of Pentandrias and Didynamias, plain enough, and of easy grasp, but where the scheme of the natural system would be all too vast, and the application of it bewildering and unintelligible.

The difference between the Linnean system and the natural, as to ease of comprehension and use, so often made an argument in favour of the former, by the idle, consists, after all, much more in seeming than in fact. For although the work of only a moment to refer a plant to one of the twenty-four classes, the determination of the genus and of the species is just the same in both systems; and whatever longer time may be consumed in ascertaining the family is consummately redressed by the minuteness of the inquiry, and the demand upon one's wits as contrasted with our command of simple arithmetic. As for the charge of "inconsistencies" in the Linnean system, they are twentyfold more numerous. Besides, the natural system does not pretend to be a *fait accompli*, or anything more than a thing in progress. In any case it is far more practically useful, as well as more dignified, to concentrate one's thoughts upon the discovery of truth and merit, than to be always casting about for errors and imperfections. Instead of pointing to the "inconsistencies" of the natural system, a man who respects himself does his best to reduce them quietly, leaving

the chalk used was rotten and worthless, being dug from near the surface of the ground, but as no better was at hand I was compelled to use it; again, the boiler was attached to nearly double the piping that it was prudent to tack to it, or to what it was originally put down to heat. This kiln, with a small saddle boiler set by the side of it to assist in heating the vineries, &c. (where it was not much required in the winter), did the whole of the work of a small village of glass with so much certainty that, as I have before stated, I never had a more easy time, nor went to bed so early and regularly in winter, for several years, for I felt certain, if my houses were all right at 10 o'clock, the kiln would improve in temperature during the night. Mr. Fish states with much force that by selecting the best time for re-charging the kiln the maximum heat can also be measured to a nicety; and besides this, a blaze of coal or wood may be made over the limestone or chalk in cases of sudden and unexpected depression—which is perfectly correct; and no one need fear being caught napping on a frosty night if he has wood at hand. The first time I tried the experiment of burning wood so convinced me that I was master of the situation, that when the thermometer ran very rapidly down one night, quite unexpectedly, I ordered a stack of wood to be kept in readiness in case of need, which I burned at intervals to keep down the coal bill. Indeed, so convinced was I that I was master of frost, let it be ever so severe, that I issued a standing order, in case of necessity, to burn wood on the top of the chalk. After this order I used to go to bed contented about 10 o'clock. I am constantly asked, as I am so much in favour of the lime-kiln system, why I do not adopt it at Rabley, where I have chalk of excellent quality at hand, and half as much glass again as at Hatfield. To those who put the question, allow me to state I should be pleased and thankful for a kiln here, but there is one great obstacle in the way—the stokeholes frequently stand in 2 feet of water, and the expense of blocking out water is often a serious one. Again, my houses are well heated by five boilers, and at present I cannot afford the expense of doing away with these for a kiln; but if I had the offer of heating by a kiln instead of the present system, I should adopt it without one moment's hesitation, for I am certain it does not take nearly the quantity of fuel to heat the houses by a limekiln (even if the lime fetched nothing) as it does by the old system. Those who had the opportunity of looking into the glowing masses of fire at Garston on the 17th were not only satisfied but fairly astonished at the great heat the kiln contained, and all pronounced it a decided success. The pipes were most regularly heated, the water in them varying from 110° to 140° according to the distance the water had to travel. This temperature, as Mr. Fish states, was exceeded at the boiler trials at Birmingham [it was so] by the majority. Yet there were some in the 500 feet trial, and also the 1000 feet, that did not exceed the temperature at Garston, notwithstanding the fires were being constantly stoked to raise the temperature to the highest point; but the temperature reached at Garston was fully sufficient for all horticultural purposes, indeed the pipes were thoroughly hot. It may be looked upon that this trial at Garston fully settles the question of the success of efficiently heating hothouses by a lime-kiln; also of making gas of most excellent quality. The remaining point to be settled is, can we get gas and heat free of cost? In some instances we can; in certain instances we get a profit; in others, where material is at hand, we get a great saving; but in no instance do we get a loss. Some profit or saving must arise, be it ever so small; and I quite coincide with the sentiments expressed by Mr. Fish (whom I had the honour of meeting at Garston), that Mr. Cowan deserves a testimonial from the craft for what he has already done to lower our coal bills, and for the very efficient manner in which he has provided heat for horticultural purposes. The very convivial meeting held at Garston, and the hospitality one and all met with there, will be a red-letter day in many of our lives. *Edward Bennett, Rabley Nursery, Herts.*

Peach Budding.—We have several instances of Peach-budding here, which was done a few years ago on several trees. I have just gathered fruit of the Early Hunt's Tawny Nectarine from buds which were inserted on the Late Admirable Peach. They were very large and highly coloured, and of splendid flavour. It is a most excellent, simple, and easy way of having a varied collection on one tree; and for amateurs who have only one or two trees the idea of Peach fruit budding is worth notice. *Henry Knight, Floors, Kelso.*

Standard Peach Trees.—"An old Subscriber, Chiswick," has no doubt enlisted the attention of many readers, regarding his fruiting of standard Peaches and Nectarines. I can fully confirm all he says from an instance which occurred in this neighbourhood, with trees similar in growth, if not precisely the same, attached to some large villas connected with Valentines. Such trees as these were some years since planted freely against somewhat low walls, and owing to the absence of tenants, &c., they were permitted to "leave the walls," and grow away freely into upright bushy heads. These trees have this season been densely laden with really good fruit; indeed some sent to Valentines have been spoken of as being better flavoured than the larger fruits produced on our walls. But there exists one fact in relation to all this which I think your correspondent would have done good service to have noted. This is the first time such a thing has happened in this neighbourhood, and it would appear by your correspondent's communication—though he does not distinctly say so—that it is "an exception" rather than "the rule" with him. Hence, though the fact is well worth chronicling, it is not likely to prove a good chart for others to steer by. *William Earley.*

The Vine Mildew.—It is a curious fact, as bearing on the question I have raised, that since I wrote that note the mildew has made its appearance on my Vines, although not affecting the fruit. This I attribute to the drought that has prevailed during the last few weeks, and of which no relief was afforded here by rain until the 21st ult. Prior to that time we were fairly burnt up, and the Vine borders, having dwarf Tropæolums and other flowers growing upon them, were much baked. In appearance, at least, there is a close affinity between the Vine mildew and that which infests the Cucumber and the Pansy, both of which, the latter especially, are induced by drought. So far your correspondents have not shown that my opinion is fallacious. *Alex. Dean.*

—— As the subject of Vine mildew is being discussed in your columns, I beg, as a grower of thirty years' experience, to give an opinion on the matter, which is, that the cause of mildew is but imperfectly understood. I have a late vinery under my charge at this place, in which the mildew has for some years invariably made its appearance very soon after the berries have set, and with such virulence that it was easy to see that with the rapid manner in which it spread it would, if not checked, soon ruin the crop. But, like your correspondent Mr. Hinds, I ascertained that the border was very dry, much more so than the nature of the Vine requires or could flourish in when in full growth and bearing a heavy crop: this was in 1870. I then had the border thoroughly drenched, and then mulched all over, and occasionally watered during the summer; I also employed the fumes of sulphur, but this requires extreme care. This practice I have followed since, and have always succeeded in arresting the disease in time to save the crop; but this year I am happy to say the enemy did not put in an appearance, owing, I believe, to the repeated soakings the border received during the heavy mid-summer rains, and a clean heavy crop is the result. I should state that the natural soil here is what is called red-land, of about 18 or 20 inches of extremely porous soil, overlying the ironstone formation, so that artificial drainage is unnecessary, in fact it is even more perfectly drained at times than we like. I have also seen the pest in very opposite circumstances to what I have related, that is, on Grapes growing in a cold, wet, undrained border, where it was evident the roots had a most uncongenial soil to work in, owing to the superabundance of stagnant moisture. I therefore conclude that the disease is brought about by an imperfect root-action at the time the greatest strain is put on them by the swelling of the crop, either by too much or too little moisture in the border. What say other growers? While on the subject of Grapes, allow me to say that every gardener who has grown it can well understand Mr. Gilbert's enthusiasm about the Black Alicante; it has few equals as a winter Grape, and seems possessed of a more robust constitution than many other kinds, inasmuch as I have it growing in the same house as Black Hamburghs, and have never known it attacked by mildew, when other kinds in the same house have been badly infested. *H. Beasley, Gr. to A. Isted, Esq., Ecton House.*

Garden Hybrids.—Garden plants, that is, hybrids and mules of known origin, are now becoming so numerous that it seems to me very desirable that their names and parentage where known be obtained and classified chronologically, alphabetically, or otherwise, so that their proper status may be fixed for those who take up the study of garden plants after us. Of course there are many hundreds of garden mules and hybrids, the origin of which can only be surmised, no records having been left of them by our predecessors, but if a record only of those mules and hybrids of the last twenty to thirty years were drawn up in a handy form for reference, it seems to me that much trouble and doubt would be saved to the rising generation. The mark × adopted by you in this journal some years ago has fixed the status of many hybrid garden plants, but "sports" and seminal varieties of known origin are still unprovided for. A system of nomenclature like that proposed by Professor De Candolle some years ago would mark these plants sufficiently, so far as the botanist is concerned, but hybrids have often received Latin names, and this occasions confusion, especially after the origin of such plants is forgotten. I have collected the names and parentage of many hybrid garden plants, with the intention of publishing them in a concise and handy form for future reference; and if those gentlemen who have raised seedlings, sports, hybrids, or mules (=cross-breeds) of either fruits, flowers, or vegetables, will kindly send me the names of their productions, parentage, giving the name of the seed and pollen-bearing plants where known, I shall be grateful for their assistance. *F. W. Burbidge, 12, Charles Street, Knightsbridge, S.W.*

Late Fruiting Strawberries.—The Garibaldi Strawberry is not the only variety carrying a crop of late fruit this season. I gathered during the past week fine richly-coloured fruit from old plants of Vicomtesse Héricart de Thury, a well-known first early kind, and there are more to ripen. It is by no means unusual for early forced plants that have been planted out to fruit well in the autumn. Mr. Jones, of Mottisfont Abbey, seldom misses an autumn crop in this way from Keens' Seedling; but the second fruiting of old plants is not a common occurrence. The heavy rains of July have been the means of putting many things out of joint. Probably the moisture then, and the forcing heat since, have promoted a premature expansion of the crowns in the early kinds. *A. D.* [Garibaldi and the Vicomtesse are the same variety. EDS.]

Reports of Societies.

Alexandra Palace: *September 29 and* 30.—The International Potato Exhibition, which was organised for the encouragement of the best methods of culture, and the introduction of improved varieties, was held here in the concert-room on Wednesday and Thursday last; and when we come to sum up the total gains to horticulture by the year's work, we must certainly give it a prominent place, for as an exhibition of the useful tuber it was both unique of its kind and a remarkable success. The competition in nearly every class was something astonishing for a first attempt, and of the 1860 odd dishes staged there were not many that an ordinary housekeeper would turn up her nose at; indeed it may be taken for granted that but few of the visitors ever saw so much beauty in Potatos before. The collection of twenty-four dishes shown by Mr. R. Dean, and the twelve contributed by Mr. Donaldson were of wonderful quality, and a great source of attraction.

The competition in the class for twenty-four varieties, distinct, nine tubers of each, the prizes being given by the Alexandra Palace Company, was remarkably strong, no less than nineteen collections being staged, and most of them of very excellent quality. The 1st prize of £8, together with a silver cup of the value of £10, was won by Mr. R. Dean, Ealing, whose tubers all through were by no means the largest shown, but of superb quality as regards shape, smoothness of outline, and cleanliness of skin. Indeed, it is remarkable what high quality Mr. Dean has got into his tubers, and, having striven hard to attain this point for some years, he must be heartily congratulated on the result. The varieties which he staged were Snowflake, Willard, Bresee's Prolific, Vermont Beauty, Barron's Perfection, Early Dimmisk, Late Rose, Mona's Pride, Blanchard, Cobbler's Lapstone, Lady Abbess, Salmon Kidney, Fenn's International Kidney, Extra Early Vermont, Fenn's Early Market, Prince Teck, Wonderful, Rector of Woodstock, Princess Louise, Early Oneida, Fenn's Onwards, Red Emperor, Model, and Fenn's English Rose. The 2d prize went to a grand lot of tubers, which ran Mr. Dean's very closely for high quality, and which came from Mr. James Pink, gr. to Lord Sondes, Lee's Court, Faversham. The 3d prize went to Mr. W. Jacob, Pound Street, Petworth; and the 4th, to Messrs. Cocks Brothers, nurnurserymen, Monk's Hall, Gosberton.

Out of twenty-one competitors in the class for twelve distinct varieties, nine tubers of each, Mr. Fenn, The Rectory, Woodstock, came in 1st with medium-sized, smooth and very clean samples of Early White Kidney, Rector of Woodstock, Early Border, the Parish Clerk, white kidney, English Rose, Fenn's Perfection Kidney, Fenn's Early Market, Fenn's Bountiful, Mayor of Woodstock, W. F. Radclyffe, second early kidney, Woodstock Kidney, and Peter Barr, a second early pebble-shaped kidney of much promise. Mr. James Pink was again 2d, with medium-sized samples of excellent quality; Mr. R. Farquhar, gr. to Colonel W. C. Gordon, Fyvie Castle, Aberdeen, was a good 3d; and Mr. G. T. Miles, gr. to Lord Carington, 4th. Collections in the same class, shown by Mr. Laxton, Stamford; Mr. W. Elliott, gr., Breywick Lodge, Maidenhead; and Mr. H. Minchin, Hook Horton, were Commended.

Of six varieties, distinct, nine tubers of each, there were twenty-three competitors, and the finest samples came from Mr. W. Porter, King Street, Old Meldrum, Aberdeenshire, who had good-sized, very smooth, and particularly clean tubers of Snowdrop, white kidney; Blue Prince, round blue; Porter's Hero,

particularly of the section of the leaf. I never saw, and I doubt if Mr. Murray ever saw, a leaf of one of the five-leaved Pines which was in section boat-shaped or bluntly-crescent shaped. The sketch has evidently been taken from a two-leaved Pine. Mr. Murray will please correct me if I am wrong. *G. Syme, Elvaston Nurseries, Borrowash.* [The leaf-section in the cut is too concave on the upper surface. Eds.]

Reminiscences of the late John Standish.—I observe in the report of the Pelargonium trials at South Kensington, which announces the certificates of merit awarded to certain bedding Pelargoniums at Chiswick, that one of them (either Richard Dean or Harry King, or both—I have not the paragraph to refer to) is bracketed "E. G. Henderson & Son." This is in consequence of the rule that prevails at the Chiswick Gardens of attaching the sender's name to all things sent for trial. These two fine Pelargoniums were raised by the late Mr. Standish at Ascot, about 1870, with some others, which were named under the following circumstances. In the summer of (I think) 1870, Mr. Harry Turner drove me from Slough to Ascot, and while walking through the nursery I was attracted by some remarkably fine Pelargoniums, which Mr. Standish said were seedlings he had raised from Jean Sisley—always a great favourite of his; and he asked me to name any that I thought worthy of being sent out. I named one Harry Turner, and Mr. Turner named one after me; and the third, which we wished to name John Standish, but which he demurred to, I named after a gentleman who is a great fancier of Zonal Pelargoniums, Mr. Henry King. Mr. Standish eventually named a fourth Marchioness of Hertford, and the quartette was sent out by him; but they never came prominently before the gardening public till two or three years after, when Mr. Cannell catalogued Henry King under the name of Harry King, on the supposition that it was named after Harry King, one of the Queen's huntsmen, by which name it has since been known. Its rightful name, however, is Henry King. Mr. Standish always had the habit of underrating these fine Pelargoniums, on the ground that he should have something better the following year. Next to Henry King, I always thought Harry Turner to be the best of Mr. Standish's lot; but it does not appear to have got into the Chiswick trials. It is a grand pot variety. *Richard Dean, Ealing, W.*

Araucaria imbricata at South Lytchett.—I have intended for some time to send you a few lines about the Araucaria imbricata at South Lytchett, Poole, noticed in your journal, 1872; it has since ripened one cone of seed. On St. Swithin's Day, 1874, while some repairs were being done to the conservatory roof, I got on the top with the carpenter to have a survey of the top of the Araucaria, which is growing close to the conservatory, when I saw what appeared to be like a huge hedgehog on one of the third tier of branches from the top, and which I justly surmised to be a fertile cone, which ripened during the first fortnight of September, 1874, sooner than I expected. The seeds falling, or getting detached by the wind or otherwise, I was obliged to keep a sharp look-out for my share of them, as the squirrels, rats, mice, and birds devoured them nearly as fast as they fell. On September 25, 1874, I sowed twenty-one seeds in a 12-inch pot and wintered them in a cool vinery, from which I have now fifteen healthy plants, making their first tier of branches. On the same day (Sept. 25, 1874) I sowed the remainder in a drill on a south border, where a number of them are now showing, after being twice inadvertently cut in hoeing the border. The parent tree (48 feet high) has a very rigid and sturdy appearance. It had previously been considered the male form, and annually bore large quantities of catkins, which produced abundance of pollen. Forty yards from the large plant stands a very symmetrical and beautiful specimen Araucaria imbricata, 35 feet high, which has never borne cones or catkins, proving the seed or cone to have been fertilised by the pollen of the tree producing the seed. *James Menzies, Gr. to W. R. Fryer, Esq., Lytchett House, Poole.*

Plant Houses.—How is it that we do not get plant-houses constructed of wood with the lasting quality of the same description of houses that were erected fifty or eighty years since? I know of houses and pits that were erected about those dates that are now perfectly sound, while others put up by some of the best firms not thirty years ago are frequently requiring repairs of plates and rafters; both have had the same attention as to painting, &c., since the latter were put up: previous to that the older erections were not so well cared for. Are the old Memel forests exhausted, or are the trees felled in a younger state, or what? *A Constant Reader.*

Verbascum Blattaria for Gardens.—Have any of your readers tried Verbascum Blattaria (Moth Mullein) for their mixed shrubbery borders or wild garden? I think some of them would be pleased with its tall, elegant spikes of white or yellow flowers as large as a shilling produced from July to October, according to the time of sowing. This year I sowed in April a square yard in my kitchen garden with seed of the white variety gathered on the banks of the Thames. I expected it to be biennial in habit, like Foxglove, but found nearly all of the seedlings in bud at the beginning of August, when I planted them in the borders, and they did not resent this rough treatment, though some of the flower-stalks were more than a foot high. Every one came true to colour, and I shall be glad to give in exchange seed of white for yellow, or to present packets of the seed when ripe to some of your readers who care to try it. *C. W. Dod, Eton.*

The Resting Spore of the Potato Disease.—At the meeting of the Royal Horticultural Society held on September 1 last the Rev. M. J. Berkeley exhibited two coloured drawings of the Potato fungus in its resting stage. These drawings were made, as Mr. Berkeley explained, about thirty years ago, by Mr. H. O. Stephens, of Bristol, and at a time when the Potato disease was first attracting great attention. That these drawings may be better known to horticulturists and botanists one is here reproduced (fig. 93) in *fac simile* (as far as black and white will show it). That the ovoid body here illustrated is the true resting-spore of Peronospora infestans, as seen within the cells of the tuber of the Potato, there can be no manner of doubt. The drawing is a little crude, and was made, of course, at a time when little or nothing was known of resting-spores, but the body is positively identical with the oospores as recently seen by me. Mr. Stephens knew very little of the real meaning of his own sketches, but the explanation of this one is as follows:—The irregular pentagonal outline is a section through a corroded cell of the

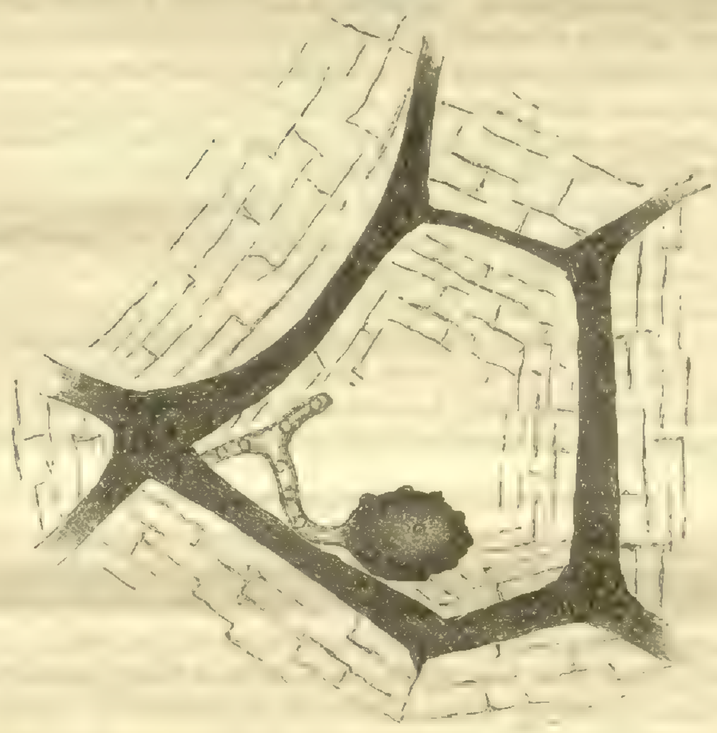

Fig. 93.—The resting-spore of the Potato fungus: from a drawing made thirty years ago.

tuber, the corrosion being caused by the presence of the spore and its damaging mycelium; the fine hair-like lines all over the picture are crumplings of the cell wall, a very common appearance under the microscope. The resting-spore itself is coloured rich brown in the original, which is the colour I specified, and it is covered with nodosities also, as described by me; it is, moreover, still attached to its mycelial thread, which is here granular, exactly as I spoke of the threads when nearing the spores. On comparing this drawing with my camera-lucida sketches of the resting-spore as seen in the tuber (which have not yet been published or indeed publicly exhibited), I find it to correspond exactly. So precise is the proportion of the resting-spore with the cell itself, that I am able to give the number of diameters the figure is magnified to, viz., exactly 350. The sketch here reproduced is, from its singular correctness, of the highest interest, as it helps to confirm the fact of the now undoubted presence of the resting-spores, which may by searching be found within the tissues of diseased Potato plants. *W. G. Smith.*

New Heating Apparatus.—I have thought for some years past that we might have more command over our present system of heating hothouses, but I have never had an opportunity of trying what I could do until now, as we have been getting up a small range of glass, and my employer gave me permission to have the heating apparatus fitted up to my satisfaction. My first wish was to have all the divisions of a range of glass to heat at once by one boiler, if desired. Each house has a flow and return from the boiler to the valve inside the house of 1½-inch pipe, the pipes inside the house are 4-inch; we likewise have a connection with flow and return in front of the stop valve, that we may secure circulation between the boiler and the valve without entering the pipes inside the house, which enables us to stop the valve without the least danger, as the water from the boiler still circulates. Should we have bright sunshine when the pipes are hot, and wish to cool the pipes, we stop the flow and open the return valve, which makes all safe between the stokehole and the house; then should we still wish the pipes cooler we have two smaller valves, one lets off the hot water from the return pipe inside the house, and the other lets in cold water into the flow, which cools down the pipes far beyond danger in less than ten minutes. We have an expansion box above the boiler, in addition to the feed cistern, which allows the water to expand without overflowing, and the feed is always quite cold. We have also four small divisions in our range, about 800 feet of piping, and at the most distant point from the boiler the water stood at 140° in fifty minutes from a cold boiler, using only 56 lb. of coal—all the 800 feet was heated at that time. We can work the houses the same as if each had a fire of its own, and can keep each house at different degrees without having to do with the fire, except keeping it burning, and, once heated, a very small amount of coal can keep up the heat. The water can be raised at the most distant point from the boiler to 195° with great ease. It has been working for the past six weeks, and it has given entire satisfaction, and I consider that we have full command of the heating without having to bank up the fire, and it certainly saves coal and labour, which is a consideration. I have learned that Mr. Adams, who fitted it up, has now patented it. The work is done very substantially, and has given every satisfaction. *Adam Renton, Gr., Millbank, Ayton, Berwickshire.*

Potatos.—I must first thank Mr. Worthington Smith for his able and interesting article on the Potato disease, and also for the delineations of "the pestilence that walks in darkness, and the sickness that destroys at noon-day." I must also thank Mr. Tillery for his valuable hint of storing Potatos with a sprinkling of fresh-slaked lime. The Potato disease has visited me lightly as compared with my neighbours. I plant at the fall, dig early in July and August. As soon as the Potatos are dug up they are well washed, whether they are for the pig, seed, or the table. Those for the pig are boiled up at once and salted, as Mr. Fenn recommends. The seed Potatos are laid out in thin layers on hurdles, resting on bricks, to "green." In a few days I can detect all the diseased ones, so far as the outside is concerned; the spores may still be in the heart of the Potato in a dormant state. The healthy Potatos turn to a deep ashy green, but the diseased ones retain a white skin. A man can stand upright and point out every diseased Potato. There they bide till planting time in November, when the ground is sufficiently cold. A little straw is placed over them when frosts are about. The smell of diseased Potatos is exactly like that of "stale crabs." I therefore wash my edible Potatos well before storing to rid them of effluvium. It is very difficult to wash it out, so virulent and offensive is the smell occasioned by contiguity to diseased tubers. After the washing and a few days elapsing, in which they are carefully looked over, they are placed in thin layers on hay, and are sprinkled with fresh-slaked lime. I do not put more than two or three layers together, hay and lime being added to each layer. In this way they keep famously. I had two sacks of the true Lapstones left after the winter was over. Before the crop is dug I pull all haulm and weeds, sow the Early Stone Turnip, and then take the Potatos up. In this way I have now got a splendid crop of Turnips, or three crops in two years on the same ground. I lime my ground constantly, either before planting or after the crop is up, at the rate of 400 bushels per acre, with a view of purifying the ground of effluvium, and also with the hope of destroying any resting-spores in the ground. This year there is a general testimony that the early sorts have much suffered. Placing dung next to the tuber at planting time will greatly intensify the disease; I, therefore, manure highly for all preceding crops, but do not put any with the Potatos. I do not advise persons with strong wet land to plant at the fall. The ground would be hard as asphalte in the spring. Instead of hoeing the ground when the plant is up, use Parkes' fork, and then hoe up as you proceed. If your land is strong, the ridge-and-trench system is the best. *W. F. Radclyffe.*

Limekiln Heating.—There is no longer any doubt about the success of heating hot-water pipes by a limekiln, and making gas of excellent quality at the same time. Whatever the opinions may be of those who have not seen the kilns at work, or those who have never tried the system, the opinions of those who know something about it, and those who witnessed the three kilns at work with their glowing fires at Garston on the 17th inst., are unanimous in its favour. Mr. Fish has so ably and fully entered into the details and merits of the system at p. 390, that I need not further dwell upon its merits, or sing its praises. For two seasons I have had a limekiln at work under my own care, and it must be admitted last winter was a very long and trying one for experiments; yet, in spite of wind or weather, my kiln was a success, notwithstanding

debt collectors, or County Court agents as they termed themselves, to transact their affairs. In this case Mr. Turner was no doubt a very respectable man, but the charges and payments the defendant had, through his intervention, paid the plaintiff was actually £20 11*s.*, instead of an original debt of £19 3*s.* 6*d.*, and these expenses could not have been greater if a solicitor had been employed, while the plaintiff's interests would have been in safer keeping than in the hands of debt collectors generally. The defendant being called, proved paying two separate sums of £5, of which fact Turner was unaware. The learned judge then quoted the 23 and 24 Vict., pointing out the fact that unqualified persons acting as solicitors rendered themselves liable to a fine of £20, recoverable in a court of summary jurisdiction. He coincided with Mr. Boydell that Mr. Turner was a most respectable man, but he belonged to a class who were not. The public had every security in the hands of professional men, who, if they acted wrongly, could be punished; but there was no security whatever in the employment of unprofessional advisers.—Judgment for the defendant.

The Villa Garden.

THE CHRYSANTHEMUM.—One of the most useful of the hardy plants that can be cultivated by Villa gardeners, for their decorative value in the autumn, is the Chrysanthemum. It can be flowered both under glass and in the open air, but the latter is a somewhat precarious mode, as the early frosts are so apt to destroy the flowers almost before they have had a chance of expanding. Many a fair promise of flowers has thus been hopelessly destroyed, amid many regrets or the untimely end that befell it.

Still the Chrysanthemum is almost the only autumn-flowering plant that blossoms so freely and so continuously at that late season, and contrivances are resorted to to protect the flowers. We met with one the other day that suggests some mode in which protection can be afforded, even if it cannot be exactly imitated. A neighbour of ours, being very fond of the Chrysanthemum, planted against a wall fully open to the south a line of some fifty or sixty plants a foot apart, some of which had two and the others one stem. They were nailed to the wall, and so formed a kind of fence the whole length they were planted. Having become established in some good soil, they have thriven well, and the plants will, no doubt, yield a fine head of bloom.

But fearing lest all this beauty should be destroyed by frost, my neighbour has extemporised a mode of providing shelter that will preserve to him the flowers he has laboured so hard to have at the proper season, unless a very hard time of frost should invade the shelter he has provided, and work havoc despite his precaution. Along in front of the wall against which the Chrysanthemums are planted there is a border nearly 3 feet in width, with a gravel walk running parallel with it. Some poles the height of the wall were placed at intervals along the outer edge of this border, in the early part of the summer, with a view to being used in the method of providing shelter in the autumn. These poles are some 8 feet apart, and are now covered with Clematis, Tropæolum, Cobœa scandens, Maurandya Barclayana, &c.; a few semi-circular pieces of deal have been fastened to the wall and to the top of each post, and over these a roofing of galvanised iron wire with a 2-inch mesh. This is securely fastened to the wall at back, and in the front to strips of deal longitudinally placed from pole to pole. As long as the weather keeps open and mild no covering will be placed on the roof, but should frost threaten some pieces of old oilcloth will be thrown over it, and thus an effectual covering will be provided. In addition to preserving the Chrysanthemums—unless, as before stated, severe frost should set in—the flowers growing along the border—Pentstemons, Antirrhinums, and others will be preserved also, for excessive wet, often as harmful as frost, will be warded off also. The first cost of such a covering is comparatively small, and the materials, if carefully stowed away, will last for some time to come.

Should a few extra fine blooms of Chrysanthemums be required, say for a local Chrysanthemum show, some of the most suitable varieties should receive special attention, by, in the first place, disbudding the plants, *i.e.*, taking out all the buds but one at or near the point of each shoot, and as the buds begin to swell some weak liquid manure or guano-water should be given them. As ordinary liquid manure can be obtained only with difficulty, we recommend that a canister of phospho-guano be obtained, and about 4 oz. of it put into as many gallons of rain-water, well stirred, and immediately applied. This will be found a valuable fertiliser, and while increasing the size of the flowers, will augment their brilliancy also.

And then it is not difficult to have some nice plants of Chrysanthemums in pots, if only a bit of a greenhouse or some rude covering can be used to flower them in. A heated structure is not required, simple protection from frost and wet is what is needed. The dwarf-growing and free-blooming Pompon varieties are very suitable for cultivation in pots, and they can now be met with in many a Villa Garden, carefully tended for the sake of the pleasant floral service they can render at the time when dead leaves are lying ankle-deep in woodland ways. Plants that have been growing on during the summer, plunged in ashes, or some such material, in the open air, will now be showing their first, or what some of the older florists used to call their "foreright" buds. Little side shoots come out from the points of the main branches, and they too will be laden with buds. When the buds begin to swell a pleasant excitement lays hold of the grower, and he anticipates a recompense in the matured beauty of his plants for the labour he has expended on them. Even at this late season of the year greenfly will cluster about the points of the growths, and they must be dislodged. A little Scotch snuff dusted about their habitation proves an effectual notice to quit. The pots being now well filled with roots, the soil about them must not be allowed to become dry, and guano-water may be given twice or thrice a week. Nice bushes of Pompon Chrysanthemums in pots are charming objects when in full bloom, and if fed with some stimulant they may be allowed to carry all their flowers.

The large-flowering Chrysanthemums require a little different treatment, especially if it is the wish of the grower to have a few flowers distingushed for their massiveness and brilliancy of colour, or a large quantity of smaller size. When large flowers are required all the side blooms must be removed, leaving only the buds at the extremity of each shoot, and by so doing the plant, when in flower, will present a head of uniform and well-developed flowers. Manure-water may be more frequently applied than in the case of the Pompon varieties; the Chrysanthemum is a great feeder, and needs an abundance of stimulus. Under some friendly shelter plants of Chrysanthemum can be had in flower for a long time, and they are worth some attention, because, at the season of the year when they are in flower, they are almost the only hardy ylants that can be had in bloom without fire-heat. A greenhouse, however meanly heated, will preserve and prolong their beauty, and, backed up by some of the curious and grotesque, and yet showy Japanese varieties, which are much later in blooming than the ordinary Chrysanthemums, blossoms can be had up to Christmas, or nearly so.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPT. 29, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°			In.
23	29.96	+0.18	60.1	51.4	8.7	53.8	— 1.4	53.0	97	E.	0.49
24	29.88	+0.11	62.4	48.0	14.4	53.5	— 1.5	51.5	93	E.: E.S.E.	0.23
25	29.79	+0.03	69.2	52.1	17.1	60.0	+ 5.2	55.8	87	E.: S.W.	0.69
26	29.58	−0.17	66.1	52.2	13.9	58.5	+ 3.8	52.2	80	S.S.W.	0.02
27	29.61	−0.12	65.7	49.1	16.6	55.6	+ 1.0	44.7	67	W.: WNW	0.00
28	29.55	−0.18	65.0	49.8	15.2	55.7	+ 1.2	51.6	87	W.: WSW	0.08
29	29.67	−0.05	64.8	44.8	20.0	53.0	— 1.4	48.4	84	WNW: W.	0.00
Mean	29.72	−0.03	64.8	49.6	15.2	55.7	+ 1.0	51.0	85	E W.: S.W.	sum 1.51

Sept. 23.—Overcast, dull, cold and wet throughout.
— 24.—Overcast, and rain fell in morning. Fine, cloudy afterwards.
— 25.—Thunderstorm from 0.30 A.M. to 2 A.M., very vivid lightning, accompanied by heavy rain. A fine day.
— 26.—Fine, but dull and cloudy day. A little rain fell in early morning.
— 27.—A fine day, partially cloudy.
— 28.—Fine, but cloudy day, occasional showers of rain.
— 29.—Fine and clear till 2 P.M. Cloudy and dull after.

—— During the week ending Saturday, Sept. 25, in the neighbourhood of London the reading of the barometer at the level of the sea decreased from 30.04 inches at the beginning of the week to 29.72 inches by the morning of the 22d; increased to 30.17 inches by the evening of the 23d; decreased to 29.90 inches by the morning of the 25th; and increased to 30.04 inches by the end of the week. The mean reading for the week was 29.98 inches, being 0.18 inch lower than that of the preceding week; and 0.01 inch above the average for the same week.

The highest temperatures of the air at 4 feet above the ground, observed by day, ranged between 78¼° on the 19th, and 60° on the 23d; the mean value for the week was 68½°. The lowest temperatures of the air observed by night varied from 58° on the 19th to 48° on the 24th. The mean for the week was 53½°. The mean daily range of temperature in the week was 15°, varying from 20¼° on the 19th to 8¾° on the 23d. The mean daily temperatures of the air, and the departures from their respective averages, were as follows:—19th, 66°.6, + 10°.5; 20th, 63°, + 7°.2; 21st, 59°.7, + 4°.2; 22d, 61°.3, + 6°; 23d, 53°.8, — 1°.4; 24th, 53°.5, — 1°.5; 25th, 60°, + 5°.2. The mean temperature for the week was 59°.7, being 4°.3 above the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 137° and 136¾° on the 19th and 20th, the mean for the week was 97¼°; on the 23d this instrument did not reach higher than 65¾°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 48½° and 47¼° on the 23d and 24th, the mean for the several low readings was 51¼°.

The direction of the wind was S.E. and S.W., and its strength brisk. The weather during the week was somewhat fine but dull, and the sky for the most part cloudy.

A thunderstorm accompanied by heavy rain and vivid lightning passed over London and its suburbs during the early morning hours of Saturday the 25th inst.

In England the highest temperature of the air at the height of 4 feet above the ground was 81° at Cambridge and at Leicester; at Sunderland the highest temperature observed in the week was 67°. The mean from all stations was 75°. The lowest temperatures of the air at night were 40° at Newcastle-on-Tyne and 42° at Hull; at Truro the lowest temperature was 57°. The mean from all stations was 49¼°. The range of temperature in the week was the largest at Leicester, 32¼°, and the smallest at Truro, 14°. The average range from all stations was 25¾°. The mean of the seven high day temperatures was the greatest at Truro and London, both 68½°, and the least at Liverpool and Sunderland, both 61½°. The general average from all stations was 65°. The mean of the seven low night temperatures was the least at Bradford and Leeds, both 51¼°, and the greatest at Truro, 60°. The general mean from all stations was 53¼°. The mean daily range of temperature in the week was the largest at about London, 15°, and the least at Liverpool, 8½°, and Truro, 8¾°. The mean from all stations was 11¾°.

The mean temperature of the air for the week varied from 63° at Truro to 55½° at Bradford and Sunderland; the average value from all stations was 58°, being the same as the value for the corresponding week in 1874.

Rain fell on every day in the week at London, Wolverhampton, Leicester, and Liverpool, and on five or six days at most other stations; the heaviest falls were at Wolverhampton, 3.12 inches; Birmingham, 2.37 inches, and London and Truro, both 2.31 inches; the least falls were at Newcastle-on-Tyne, 1.20 inch, and Sunderland, 1.23 inch; the average fall over the country was 1.90 inch.

The weather during the week was dull and wet, and the sky generally cloudy.

Thunderstorms occurred at several stations on the 19th inst., and at London and Leicester on the morning of Saturday the 25th. At London the lightning was unusually vivid.

In Scotland the highest temperatures of the air in the week varied from 63° at Dundee and Greenock to 61° at Aberdeen, the general average being 62½°. The lowest temperatures of the air ranged between 48° at Leith and 32° at Perth, the general average value being 38½°. The average range of readings was 24°. The mean temperature of the air for the week was 51¼°; the highest was at Leith, 52½°, and the lowest at Glasgow, Aberdeen, and Perth, all 50¾°. The amounts of rain measured at the several stations varied from 1⅓ inch at Glasgow and Greenock to a quarter of an inch nearly at Perth, the average fall over the country was three-quarters of an inch.

At Dublin the highest temperature was 66½°, the lowest 45°, the mean 57½, and the fall of rain 1.30 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—*Amaryllis.*—These beautiful free-flowering plants were for some years much neglected, and thrust in the shade with other fine things to make way for novelties of doubtful merit, but they are now again in many places receiving the attention they so justly deserve. The little room they occupy, their easy culture, and the certainty, with fair treatment, of their succeeding, especially commend them to the

round, white; Snowflake or Early King, a white kidney; Porter's Excelsior, pebble-shaped, white, the handsomest Potato shown; and Bresee's Prolific. 2d in the same class came Mr. John Bates, Kingsbury, Aylesbury; and 3d Mr. Malcom McKinlay, Beckenham. For six varieties, kidney shaped, three white and three coloured, Mr. John Denyer, Beckenham, came in a good 1st with vey fine samples of Snowflake, Early Rose, Ashtop fluke, Salmon kidney, President, and Barron's Perfection. The 2d prize went to Mr. H. Woods, Clipstone Park, Mansfield, and the 3d to Mr. R. Dean. There were twelve competitors, and the class altogether was a very good one. The corresponding class for round varieties was a poor one, and calls for no comment. The competition in the next class, which was for the best dish of nine tubers of any white round variety, was on the contrary remarkably good, no less than thirty-three dishes being put up. Out of these the one selected for the premier award was a splendid dish of Porter's Excelsior, above alluded to, shown by Mr. W. Porter, of Old Meldrum, Bresee's King of the Earlies, of very fine size, shown by Mr. G. Potts, gr. to Viscount Gage, Firle Court, Lewes, came in 2d; and Bresee's Peerless, from Mr. James Lye, gr., Cliffe Hall, Market Lavington, 3d; an extra prize being voted to Mr. Edwin Bennett, School House, Enville, for a handsome dish of a fine smooth round seedling named Schoolmaster. Thirty-two dishes came up for adjudication in the corresponding class for any-coloured round variety, but they mostly ran large and very coarse. Vermont Beauty, of great size, from Mr. G. Potts, was 1st; the Red-skin Flourball, from Mr. H. Sexton, Thorrington Hall, Ipswich, 2d; and Princess of Lorne, a mottled red, pebble-shaped tuber, of no great beauty, 3d. A similar number of dishes of white kidneys were staged; the samples generally were excellent, and the class a good one. First came Mr. W. Smith, Petworth, with very large and fine examples of Haye's Kidney; Jackson's Kidney, large, clean, and of fine quality, from Mr. F. Miller, gr., North Down, Margate, coming in 2d; and a grand dish of Lapstones, from Mr. W. Finlay, gr. to Colonel North, Wroxton Abbey, Banbury, 3d. A very fine sample of Snowflake, from Mr. J. Montgomery, Sillington Manor, received an extra prize. The corresponding class for coloured varieties was also a very full one, but, in our opinion, badly judged. Out of thirty-three lots Mr. Peter McKinlay, Beckenham, came in 1st well and easily with a magnificent sample of Salmon Kidney. The 2d prize went to a large and coarse dish of Early Rose, from Mr. H. Sexton; while for quality a much better dish of Late Rose, from Mr. J. Miller, gr., Hampstead Park, Newbury, was placed 3d; and tubers of fine size and quality of Extra Early Vermont, from Mr. G. Potts, 4th.

Messrs. Sutton & Sons offered three special prizes for twelve varieties of Potatos, distinct, nine tubers of each, open to gentlemen's gardeners and amateurs only, and the competition so brought out was remarkably good, no less than twenty lots being staged, and amongst these was the finest collection of the required number that we have ever seen, and which had no difficulty in winning Messrs. Suttons' silver cup. These came from Mr. G. Donaldson, gr. to the Earl of Kintore, Keith Hall, Inverary, N.B., and consisted of the following varieties:—Bresee's Prolific, Early Rose, Porter's Peerless, a round white; Carter's Main Crop, Early Goodrich, Yorkshire Hero, Porter's Excelsior, Fenn's Bountiful, Early King, a white kidney; Webb's Imperial, Scotch Blue, and Veitch's Improved Ashtop, the tubers in all cases being of superb quality, fair in size, smooth and clean to a fault, and with skins which shone in a manner that would have done justice to a French polisher. Mr. G. Potts was 2d, and Mr. Fenn 3d.

Messrs. Hooper, Covent Garden, offered prizes similar to the above for nine American varieties, and seven lots were staged—the tubers in most instances being very large, and decidedly coarse. The 1st prize collection came from Mr. Peter McKinlay—very large and clean samples of Breadfruit, Vermont Beauty, Peerless, Early Gem, Nonsuch, a large white kidney; Late Rose, Early Dimmisk, Snowflake, and Climax; Messrs. Cocks Brothers, of Gosberton, came in 2d, and Mr. James Pink 3d: the collection from the latter, if judged for quality and not size, being undoubtedly the best.

For six English and six American sorts, Messrs. James Carter & Co. offered special prizes, which brought some fifteen collections into competition, and here again was Mr. Peter McKinlay 1st, with large and clean samples of Extra Early Vermont, Yorkshire Hero, Model, Beckenham Kidney, Early Oneida, Snowflake, Blanchard's Nonsuch, Vermont Beauty, Breadfruit, Lady Webster, a mottled round, and Prince of Wales' Kidney. 2d came Mr. James Betteridge, Chipping Norton; and Mr. M. H. Minchin, Hook Norton, 3d.

For three varieties of new American Potatos, offered in commerce in England in the years 1874-5 there were seven competitors, amongst whom Mr. R. Dean stood 1st with large and very fine examples of Vermont Beauty, Snowflake, and Early Gem. Mr. James Pink was a good 2d, with Eureka, Brownell's Beauty, and Snowflake; and larger but coarser tubers of the same varieties from Mr. Ross, gr. to C. Eyre, Esq., Welford Park, Newbury were 3d. The prizes in this class were given by Messrs. B. K. Bliss & Sons, of New York.

The 1st of the three prizes offered by Mr. John Coutts, James Street, Covent Garden, for three English seedlings not in commerce, went to Mr. Fenn, who put up samples of International Kidney, Woodstock Kidney, and W. F. Radclyffe, all of very fine quality. Mr. Edwin Bennett, Enville, was 2d, and Mr. R. Dean 3d, the first-named having Schoolmaster, Rose Seedling, and a white kidney not named; and the latter International Kidney (Fenn), Bedfont Prolific (Fenn), and Dean's First Early (Cook), round white.

Mr. Fenn, The Rectory, Woodstock, showed nine dishes of varieties raised by him, and which he considers appropriate for culture in "the gardens of amateur-connoisseurs of the esculent." The most remarkable of these were samples of English Rose, early round; Fenn's Bountiful, red kidney; and Rector of Woodstock, second early round, which were dug up in July, 1874, and, with the exception of being a little shrivelled, perfectly sound and fresh. The other sorts shown were Fenn's Onwards, second early, white, pebble-shaped kidney, for summer digging only; Eliza Mary, first early, pebble-shaped white, for frame or orchard-house culture; Alice Fenn, early white kidney, useful for the same purpose; Bob o' Day, second early white kidney, for garden culture only; George Temple, first early white kidney, for forcing frame, garden border, or orchard-house culture, "very ornamental in its blossoms, and a Potato of exquisite flavour"; and Little Gem, an early white kidney for orchard-house or pot culture only. It is needless to say that all of these possess the high quality which Mr. Fenn is endeavouring to introduce.

Messrs. James Carter & Co. contributed a collection of sixty-eight varieties, the best samples amongst which were of Royal Ashleaf, Model, Paterson's Victoria, Hundredfold Fluke, Main Crop, Prince of Wales Kidney, Bresee's Prolific, Early Rose, Snowflake, Lapstone, Brownell's Beauty, and Veitch's Early Ashtop Fluke. With these also came a collection of Beets and Marrows and Gourds, and a handsome brace of the Tender-and-True Cucumber.

Mr. Shirley Hibberd, Stoke Newington, staged a collection of fifty varieties, a considerable proportion of which were "grown on hard undrained clay in a peculiarly damp situation, the ridge system, as practised by the exhibitor [and described in our columns at p. 285, vol. i., 1874], rendering both digging and draining unnecessary. The crop of 1875 averages 15 tons per acre, without a trace of disease." Mr. Hibberd also showed specimens of his Potato tile, and his tubers were a nice clean sample.

Sixty-three dishes formed a very good collection from Messrs. J. and C. Lee, Royal Vineyard Nursery, Hammersmith. The varieties best shown were Paterson's Victoria, Red Regent, Old Ashleaf, Dawe's Matchless, Birmingham Prizetaker, Lee's Hammersmith Kidney, Snowflake, Lapstone, Veitch's Ashleaf, Prince of Wales Kidney, and Brownell's Beauty.

From Messrs. Harrison & Sons, Leicester, came some fifty-six sorts, generally of good size, and the vrrieties mostly well known.

From the South Metropolitan District Schools, Sutton, Surrey, came ten dishes of nine tubers each, which weighed in the aggregate 80 lb.

Messrs. Hooper & Co., Covent Garden, showed three of Brownell's unnamed seedlings and one of Pringle's, all four being kidneys of promising appearance.

From Messrs. B. K. Bliss & Sons, New York, came fair samples of Eureka, Alpha, Early Vermont, Brownell's Beauty, and Snowflake.

Mr. Amies, 284, Liverpool Street, Islington, showed eight dishes of Potatos "grown at Aberdeen Park Nursery, the poorest of all clay, stone and brick soils, which Mr. Shirley Hibberd has described as the riddling of creation, manured with Amies' chemical manure, at the rate of 4 cwt. per acre." Beyond being of good size, the tubers had no other point to recommend them. Mr. Amies also staged eighteen varieties grown at Chiswick, with his manure applied at the same rate per acre, but the tubers did not show that any special advantage resulted from the use of this manure.

Royal Horticultural, Aberdeen: *Sept.* 23.—The autumn show of this flourishing Society was held in the Music Hall buildings on Thursday last, and was undoubtedly one of the best ever held under the same auspices. The large hall was set apart chiefly for pot plants, ornamental Conifers, Gladioli, and vegetables. The pot plants were placed on a raised platform in the centre of the hall, and presented a very fine appearance. The 1st prize and silver medal for the best collection of ornamental Conifers was gained by Messrs. B. Reid & Co., nurserymen, Aberdeen. A medal was awarded to Mr. P. Harper, gr., Aberdeen, for the best twenty alpine plants. The display of Gladioli was excellent, and was one of the features of the exhibition. A handsome silver cup for twelve spikes was taken by Mr. A. E. Campbell, Cove Gardens, Gourock. Vegetables and Potatos were exceedingly well represented, the latter especially so. Potatos were shown boiled as well as unboiled—a new feature in the Society's shows, and one we hope to see repeated. A medal for the best six varieties of Potatos was carried off by Mr. James MacIntosh, Corsindal, Cluny.

Fruit and cut flowers occupied the ball-room. Cut flowers were a very fine exhibition, notwithstanding the unsettled weather. Dahlias, Marigolds, Asters, and Pansies were largely represented, and much admired. Fruit was better represented than for a number of years back, the specimens of Grapes, Pears, and Peaches, being truly fine. Mr. G. Donaldson, gr. to the Earl of Kintore, Keith Hall, was awarded the 1st prize for a general collection of fruit. The 1st prize for Pine-apples was carried off by Mr. J. Webster, Gordon Castle. The Grapes grown by Mr. G. Davidson, Urie, Stonehaven, took nearly all the honours in that class, and finer bunches have seldom indeed been seen in the North of Scotland. Mr. Donaldson took the 1st prize for the largest Melon, and Mr. Davidson for the best flavoured Melon.

The amateur section was very well represented. Mr. John Symon, Glenburnie Cottage, took the lion's share of the honours in the fruit classes. The working classes' section was also very creditable, some of the classes treading hard upon the heels of the professionals.

The floral devices, &c., were shown in the square room. A silver medal offered for the best floral crown was awarded to Mr. A. Smith, Innes House, Elgin; and another, offered for table decorations, to Mr. G. Wilson, Grandholm House, Aberdeen.

One of the most attractive features of the show was an exhibition of fungi. It may be remembered that last year the first fungus show ever held in Scotland was got up at Aberdeen, and this year the Horticultural Society resolved to keep up this department. Last year contributions were received from all parts of Scotland, and even from England and Ireland, but this season, owing to the show to be held at Perth, the collections were all made in the locality. Not fewer than about 5000 specimens were shown, and considering the limited area over which they were gathered, the show was even more creditable than that of last year. Some very rare specimens were shown, some not having been previously observed in the locality. A feature in the show was a stump of a tree completely covered with the beautiful Polyporus versicolor. A fine specimen of Sparassus crispa was exhibited, and a very large Polyporus betulinus. There were also some fine specimens of Agaricus giganteus, and Polyporus squamosus. There was one specimen of a rare fungus—Peziza macropus. The prizes for the best collections were awarded as follows:—1st, Mr. A. Hadden, gr. to Mr. Hardy Robinson, Denmore, Aberdeen; 2d, Mr. J. Sim, Gateside, Strachan, Aberdeen; 3d, Mr. W. Nicol, gr., Heathcot, near Aberdeen; 4th, Mr. J. Yule, Maringfield, Aberdeen; and 5th, Mr. G. Wilson, Grandholm.

There was a large attendance of the public throughout the day, and the arrangements under the secretary, Mr. Rennie, were most complete.

Law Notes.

Solicitors v. Debt Collectors.—*Baker* v. *Rowe*.—This was an action brought in the Bloomsbury County Court on Friday last before the presiding judge, G. Lake Russell, Esq., in which the plaintiff, a grower in the country, sued the defendant, a salesman in Bloomsbury, to recover £9 8*s*., being the balance of an account of £19 3*s*. 6*d*. for goods supplied on an account stated. The defendant, who was represented by Mr. Boydell, solicitor, pleaded never indebted, while the plaintiff's solicitor, in opening his client's case, stated that his client employed the services of a debt collector to recover the amount originally due, and that after pressure the defendant had paid part of the claim, leaving the balance now sued for due to the plaintiff, and to recover which the present proceedings were taken. Mr. Thomas Turner being called, said he was a debt collector employed by the plaintiff to recover money from the defendant, and that in the course of doing so he had to take out two County Court summonses, and that ultimately the defendant had paid the sum of £10 2*s*. 6*d*., leaving the balance sued for due. In cross-examination by Mr. Boydell the witness said he did not charge one guinea on one occasion, and 15*s*. on another, for his professional services, but calculated 12 per cent. on the amount claimed as remuneration. The plaintiff only appearing through his solicitor, his case terminated; when Mr. Boydell, in an exhaustive speech, addressed the Court, urging upon all suitors the necessity of employing professional men, instead of

only remedy in the present state of the disease. *I. O. W.*—*G. N., Slough.* We found no specimen of the caterpillars on the Geranium leaf and buds sent, but from your description and our own experience suppose they may be those of the common small white garden butterfly, Pieris Rapæ. Persevere in your search. *I. O. W.*—*Davie.* The small white grubs which have been at work upon one of your Vines are the larvæ of the Death-watch (Anobium striatum), which attack dry timber, bed-posts, &c. If you will leave dead wood on your trees, it is your own fault if you suffer for so doing. *I. O. W.*

KELSO NURSERYMEN: *J. L.* We know of no other address than the one you give.

NAMES OF FRUITS: *George. Apples:* 5, Winter Majetin; 10, Rhode Island Greening; 16, Dumelow's Seedling; 17, Winter Greening; 22, Lodgmore Nonpareil. *Pears:* 3, Beurré Goubault; 7, Beurré Superfin; 8, Eyewood; 14, probably Glou Morceau from a pyramidal tree.—*William Francis. Pears:* 1, Seckle; 2, Beurré Superfin; 3, Calabasse Grosse; 4, Louise Bonne of Jersey; 5, Theodore Van Mons; 6, Napoléon.—*Bridgwater. Pear:* Beurré Romain.—*F. R. Apple:* Summer Gilliflower.—*W., Oxon. Apples:* 2, White Stone Pippin; 1 and 3 were too much decayed for identification.—*A. Ager. Apples:* 1, Castle Major; 2, American Summer Pearmain; 3, Ribston Pippin; 4, Grand Duke Constantine; 5, Waltham Abbey Seedling; 6, Dumelow's Seedling; 7, Lord Nelson; 8, London Pippin; 9, decayed; 10, White Rosing; 11, Gravenstein; 12, Winter Greening. Please do not send more than six another time.—*D. Wallace. Pear:* 1, Beurré Diel. *Apples:* 2, Cellini; 3, Blenheim Orange; 4, Golden Noble; 5, Northern Greening.—*C. Lawrence. Pears:* 1, Deux Sœurs; 2, Winter Nelis; 3, too imperfect a specimen, but the leading characteristics are those of Marie Louise.

NAMES OF PLANTS: *Cymro.* Probably Chironia linoides, so far as we can make out from a flower only. A better specimen should have been sent.—*B. & S.* Chrysanthemum maximum.—*R. Z. E.* Sophora tetraptera, var. microphylla.—*W. D. F.* Cotoneaster bacillaris.—*W. H.* Luzulu sylvatica.

PELARGONIUM: *S. C.* Very good, but not equal to some already in cultivation.

CATALOGUES RECEIVED:—Messrs. E. G. Henderson & Son (Wellington Road, St. John's Wood, London), Illustrated Autumn Catalogue of Bulbs, Flower Roots, Roses, and Fruit Trees.—Eug. Verdier (72, Rue Dunois, Paris), List of New Hybrid Perpetual Roses.—Lénault-Huet (Ussy, Calvados, Germany), Priced List of Forest Trees, &c.—M. Joseph Schwartz (Rue du Repos, 43, à la Guillotière, Lyons, France), Catalogue of Roses, &c.—Auguste Van Geert (Ghent, Belgium), Catalogue of New Stove Plants, Fuchsias, Azaleas, &c.—Simon-Louis Frères (Plantières-les-Metz, Lorraine), Priced Catalogue of Fruit and Ornamental Trees and Shrubs, Roses, &c.—Messrs. Hoopes, Brother & Thomas (Cherry Hill Nurseries, West Chester, Pa., U.S.A.), Semi-annual Trade List of Flowers, Trees, Shrubs, &c.—John Moore (56, Market Place, Warwick), Catalogue of Select Roses, and Plants for Spring Gardening, Bulbs, Fruit Trees, &c.—William Paul & Son (Waltham Cross, London), Rose Catalogue.—Benjamin S. Williams (Victoria and Paradise Nurseries, Upper Holloway, London), General Catalogue of Bulbs, Fruit Trees, Roses, &c.

COMMUNICATIONS RECEIVED:—E. S. D.—S. & S.—N. E. B.—J. S. W.—H. S.—J. M. W.—G. L. R.—S. E.—C. Y. M.—T. C. B. (many thanks).—S. L.—R. M. (next week).—J. Fraser.—H. M.—Mrs. S.—J. O.—B. & U.—S. C.

Markets.

COVENT GARDEN, *September* 30.

No alteration from last week. Trade continues very slack, the market being well supplied with best goods, but buyers backward. *James Webber, Wholesale Apple Market.*

CUT FLOWERS.

	s. d.	s. d.
Camellias	6 0	12 0
Carnations, 12 blooms	1 6	4 0
Cornflower, p. doz. bun.	3 0	6 0
Eucharis, per doz. ..	4 0	9 0
Gardenia, per doz. ..	2 0	6 0
Heliotropes, 12 spr.	0 6	1 0
Mignonette, 12 bun.	3 0	6 0
Myosotis, per bunch	0 4	0 9
Pelargoniums, 12 spr.	1 0	2 0
— Zonal, do. ..	0 3	1 0
Primula, dbl., p. bun.	0 9	1 6
Roses, indoor, p. doz.	2 0	6 0
— outdoor, 12 bun.	3 0	9 0
Spiræa, 12 sprays ..	1 0	3 0
Stephanotis, 12 sprays	3 0	9 0
Sweet Peas, 12 bunch.	4 0	6 0
Tuberoses, per doz...	1 0	4 0

PLANTS IN POTS.

	s. d.	s. d.
Begonias, per doz. ..	6 0	12 0
Bouvardias, do. ..	12 0	18 0
Calceolarias, do. ..	6 0	18 0
Coleus, do.	4 0	6 0
Cyperus, do... ..	6 0	12 0
Dracæna terminalis	30 0	60 0
— viridis, per doz.	12 0	24 0
Ficus elastica ..	1 6	7 6
Fuchsia, per doz. ..	3 0	18 0
Heaths, in var., doz.	12 0	30 0
Heliotrope, per doz.	3 0	12 0
Lilium auratum ..	12 0	36 0
Mignonette, do. ..	3 0	6 0
Myrtles .. do.	3 0	9 0
Pelargoniums, dble., per doz.	4 0	12 0
— Scarlet, do. ..	3 0	9 0
Solanums, do. ..	6 0	24 0

FRUIT.

	s. d.	s. d.
Apples, per ½-sieve	1 0	2 6
Damsons, per bushel	3 0	5 0
Figs, per doz. ..	0 9	3 0
Filberts, per lb. ..	0 5	0 9
Grapes, per lb. ..	0 9	5 0
Lemons, per 100 ..	8 0	12 0
Melons, each ..	2 0	5 0
Oranges, p. 100 ..	20 0	..
Peaches, per doz. ..	2 6	12 0
Pears, per doz. ..	1 0	4 0
Pine-apples, p. lb. ..	3 0	5 0
Plums, per bushel ..	2 0	6 0
— per punnet ..	0 6	1 6
Walnuts, p. bush. ..	16 0	..

VEGETABLES.

	s. d.	s. d.
Artichokes, per doz.	4 0	..
— Jerusalem, p. lb.	0 3	..
Beans, French, per bushel	6 0	..
— Scarlet Run., do.	5 0	..
Beet, per doz. ..	1 0	2 0
Brussels Sprouts, lb.	0 4	..
Cabbages, per doz. ..	1 0	2 0
Carrots, do.	0 6	..
Cauliflowers, p. doz.	2 0	..
Celery, per bundle ..	1 6	2 0
Cucumbers, each ..	0 3	0 9
Endive, per doz. ..	1 0	2 0
— Batavian, p. doz.	2 0	3 0
Herbs, per bunch ..	0 2	0 4
Horse Radish, p. bun.	3 0	5 0
Leeks, per bunch ..	0 2	0 4
Lettuces, per score..	1 0	..
Mint, per bundle ..	0 4	..
Mushrooms, per pott.	1 0	2 0
Onions, young, bun.	0 4	0 6
Parsley, per bunch..	0 4	..
Peas, per quart ..	10	1 0
Radishes, per bunch.	0 2	0 4
— Spanish, doz. ..	1 0	..
Shallots, per lb. ..	0 3	..
Tomatos, per doz. ..	1 0	2 0
Turnips, per bundle.	0 4	..
Veg. Marrows, doz.	1 0	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

SEEDS.

LONDON: *Sept.* 30.—For the time of year a fair amount of activity is exhibited in the agricultural seed trade. A large business is doing in winter Tares, which, under the influence of a strong demand and short supply, fully maintain previous values. Trifolium is also in good request, and stocks being almost exhausted no concession is made in price. Red Clover and Trefoil seeds do not yet meet with much attention. It now seems probable that considerable importations of red seed may be expected this season from France. Full and trustworthy information concerning the American crop is still wanting. For Alsikes and white Clovers long figures are demanded, the reports of the new crops being very unfavourable. Mustard and Rape seed are without any noteworthy alteration. Canary seed is in eager demand at the late remarkable advance. Orders for this article from the United States tend to still further reduce the small quantity now offering on our market. In Hemp seed there is no variation from the moderate quotation at which it has so long stood. For Linseed, Buckwheat, Haricot Beans, and boiling Peas there is a moderate sale at last week's currencies. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday trade on the whole was rather better. The fresh arrivals of English Wheat were short, but those of foreign Wheat were large, and factors were not wholly indisposed to accept a little less money. Barley was without quotable alteration in value. Malt was dull on former terms. For Oats prices had an upward tendency, fine Russian sorts making an advance of quite 1*s.* per quarter on the week. Maize was held for the rates of last Monday. Beans and Peas were hardly so firm in price. Flour barely supported the rates previously current.—On Wednesday there was little or no change in any class of produce. English Wheat was in better supply, and the importations of foreign Wheat on an extensive scale, but there was not a large assortment of fine descriptions, and for such full rates were paid. Barley was dull, and malt had a downward tendency. Sound Oats were rather sought after, and the advance established in them on Monday was well supported. Maize was somewhat flat, and Beans, Peas, and flour were not easily moved on former terms.—Average prices of corn for the week ending Sept. 25:—Wheat, 47*s.* 1*d.*; Barley, 35*s.* 9*d.*; Oats, 26*s.* 9*d.* For the corresponding week last year:—Wheat, 41*s.* 11*d.*; Barley, 41*s.* 11*d.*; Oats, 27*s.* 9*d.*

CATTLE.

At the Metropolitan Market on Monday the number of foreign beasts was considerably smaller than on the previous Monday, and there were not quite so many English. Trade was steady and prices on the average higher. There were a few more sheep, the demand was good, and choicest qualities rather dearer. There was a very short supply of choice calves, prices consequently advanced. Quotations:—Beasts, 4*s.* 4*d.* to 5*s.* 2*d.* and 5*s.* 10*d.* to 6*s.* 6*d.*; calves, 4*s.* 6*d.* to 6*s.* 4*d.*; sheep, 5*s.* 8*d.* to 6*s.* 4*d.* and 6*s.* 10*d.* to 7*s.* 6*d.*; pigs, 4*s.* 4*d.* to 5*s.* 4*d.*—On Thursday trade in beasts was very quiet; choice qualities were scarce, and commanded high prices. For sheep, prices remained at Monday's figures. Choice calves were scarce and dear. Concerning milch cows, dealers remark that they are dearer in the country than at Copenhagen Fields.

HAY.

The report from Whitechapel market states that the better qualities of hay and Clover, of which there was a fair supply, met with a steady sale, but inferior fodder was dull, and in the value of straw some reduction took place. Quotations:—Prime Clover, 100*s.* to 157*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 145*s.*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 48*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 130*s.* to 140*s.*; inferior, 90*s.* to 110*s.*; superior Clover, 150*s.* to 160*s.*; inferior, 110*s.* to 130*s.*; and straw, 45*s.* to 50*s.* per load.

POTATOS.

The Borough and Spitalfields markets reports inform us that there are full supplies of Potatos, sound descriptions of which command a steady sale, and prices about equal to those of last week. Kent regents, 90*s.* to 115*s.* per ton; Essex, ditto, 85*s.* to 105*s.*; kidneys, 95*s.* to 120*s.*; Rocks, 75*s.* to 80*s.*—The total imports into London last week consisted of 10 bags from Terneuzen, and 329 sacks from Dunkirk.

By Her Majesty's Royal Letters Patent

RENDLE'S PATENT SYSTEM of GLAZING.

RENDLE'S PATENT SYSTEM of GLAZING is the most economical ever introduced; being about one-third cheaper than the old putty system.

RENDLE'S PATENT SYSTEM of GLAZING. The Woodwork is completely covered by the Metal and the Glass, so that it is not exposed to the external action of the atmosphere.

RENDLE'S PATENT SYSTEM of GLAZING. All the Paint-work is completely covered by the Metal and the Glass, so that it is not exposed to the external action of the atmosphere.

RENDLE'S PATENT SYSTEM of GLAZING. If a Pane of Glass is broken it can be instantly replaced, by any workman or labourer, without the aid of the Glazier.

RENDLE'S PATENT SYSTEM of GLAZING. It is portable in the truest sense of the word. The Carriage of a Span-roofed House, 40 feet long, for a distance of 250 miles, is not more than £5.

RENDLE'S PATENT SYSTEM of CIRCULAR GLAZING. Bent Glass is very expensive, and a broken Pane will cost ten times as much as an ordinary one. On this System Bent Glass is entirely dispensed with, so that the saving on Circular and Curvilinear Roofs on this System is enormous.

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"Moreover, the system is said to be very economical.

"The Winter Garden and Aquarium about to be formed in Westminster are to be covered in this way, and so will be many other buildings before long."—*The Builder, January* 30, 1875.

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notice of all who have a house kept at something above the temperature of an ordinary greenhouse. The general plant stove in most places is too hot for these, and numbers of other equally fine plants, with too much shade and not enough air, rendered necessary for the well-being of subjects from hotter and more humid countries. A shelf in an early vinery, or where Peaches are forced, or a corner in a Melon pit will answer for Amaryllis in the growing season. They are so little liable to insects that they can be grown in a fruit house without the objections that exist to growing many flowering plants in company with Vines or other fruits. Amaryllis like a long season of rest to thoroughly ripen up the growth and enable them to flower. This applies to both the deciduous section and also to the *Hippeastrums* that do not die down. Plants of both that flowered in the spring will by this time have completed the season's growth, and will want to go to rest. The deciduous kinds should be gradually dried off—not too quickly, by withholding water all at once, but should have a little given them from time to time so as to prevent the soil getting dust dry until the leaves have turned yellow, and can be removed, after which the bulbs may be put away till they are required to be started; meantime a temperature of 45° will suit them. The sorts that retain their leaves through the winter should be kept much drier than when growing, but the soil must never be allowed to get quite dry or the leaves will shrivel and perish, in which case the bulbs will be materially injured; they should be kept whilst at rest a few degrees warmer than the deciduous kinds. *T. Baines.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—The flower gardener has need of a stout heart to face the wholesale wreck and ruin that is now being wrought by heavy rains, foggy nights, and the chill blasts of autumn over all those floral displays that have taken so much time and thought to work out and provide for. The destruction, however, is inevitable, and it is high time to look round and see to the safety and security of anything specially choice, or such as it may be desirable to save from the approaching wreck ere frost lays all low. *Pelargoniums* of the tricolor, bronze, and other ornamental-leaved varieties are somewhat difficult to winter if at all frost-bitten, and it will be necessary to have suitable quarters ready for these, and preparations made for putting them up quickly the moment an unfavourable change is likely to take place in the weather. On account of their slow growth it is not desirable to head back many of the above varieties, and by simply removing any crowded branches, and stripping them of their leaves, the remaining shoots may with advantage be left at full length to afford an early and plentiful supply of cuttings in the spring. As to the green-leaved varieties, a little frost will not much affect them, and they may with safety be left till other things of a more tender nature are safe under cover and secure. Most gardeners prefer old plants of these to either autumn or spring struck cuttings, on account of their great freedom of bloom, and where room can in any way be made large quantities of these should be cut back and potted in pots as small as the roots can well be thrust into, or packed close and stored away in boxes. With a view of inducing a more floriferous habit in the young plants of strong growing varieties it is our practice here to plunge them in beds in their pots instead of planting them out. These lift readily in the autumn, and form splendid plants for vases or such like purpose for the following year, after which they are discarded.

The great value of plants grown specially for the beauty of their foliage has been very apparent during the present season, and it is to this class of plants that gardeners must look more in the future to keep up a display in all weathers. Foliage plants were this year in fine condition long before flowering varieties put forth bloom, and now that damp and decay have nearly spoiled the beauty of the latter, foliage plants are still bright and promise to be effective for some time to come. Independent of their value as decorative plants many of them are exceedingly interesting, and have added much to the enjoyment of the summer garden by giving greater variety and a new feature in the style of embellishment.

Succulents of the more tender kinds, such as *Echeveria metallica*, *Pachyphytums*, *Sempervivum tabulæforme*, *Kleinias*, and others of that class, are very susceptible of frost, and generally the first to suffer from its effects. Where it is desirable to continue such as these or other tender plants out for some time longer, it will be necessary to have some light protecting material at hand to throw over them in the event of frost, as they are difficult to winter if they become the least injured. Others that have been recently propagated should be got under cover at once, as should likewise such things as *Coleus*, *Iresines*, or indeed all plants that are at all tender and likely to be required for propagating or other purposes. It generally occurs where large numbers of seedling plants of different varieties are raised, that some of them break away into improved forms, and where this is found to be the case they should at once be potted up and saved. Seedlings of such things as *Lobelias* and the lovely, soft, lavender-coloured *Ageratum Imperial Dwarf*, often grow very irregularly, and as they can easily be propagated by the thousand in spring from a few stock plants it is much better to raise them in that way.

Mixed Border.—In this department many of the autumnal flowering plants will now be going out of bloom, and to compensate in some measure for the paucity of flowers a little extra finish should be aimed at. Dead and decaying leaves and flower-stems should be immediately removed as the plants go out of bloom, and this will assist *Hollyhocks* to throw up cuttings which may then be taken off with a heel and struck. Seed of these may still be sown, and such as are up should be pricked out or potted in small pots, and if nursed on in cold frames during the winter they will make fine, strong-blooming plants for next year. Any gaps occurring through decay of annuals or other short-lived plants should be filled in with such things as *Giant* or *Brompton Stocks*, *Wallflowers*, or other sweet-scented or gay spring-blooming plants. These fragrant flowers are valuable for purposes of this kind, and by obtaining good strains of the latter a large percentage of double flowers and much variety of colour is sure to occur. Where extra large blooms of *Chrysanthemums* are aimed at or desired, abundant supplies of liquid manure should now be applied to them. Most of the *Rose buds* inserted during the summer will ere this have taken, and all ligatures should now be removed and the *Briar* shoots reduced considerably in length.

Tulips, *Hyacinths*, and other spring bulbs should be got in without delay, and where manure is used for these it should be buried deep down and not allowed to come in immediate contact with the bulbs. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

Melons.—For the past week the weather has not been quite favourable to the late crops, having been both wet and cold. It is in such weather, at this season of the year, that canker is most troublesome, and soon proves ruinous unless a vigilant watch is kept and means are taken to combat the enemy. The most effectual means of doing this is to observe a dry condition of both the roots and atmosphere, to employ a little extra fire-heat, and to always have a little freshly slaked lime at command to press well into the affected parts. Be very sparing in the application of water from henceforth, and cease to use the syringe amongst the foliage from this date. The last batch are swelling off nicely, and must be supported by means of tables or nets, as previously described. Continue to remove all superfluous growths as fast as they appear. Observe a mean temperature of 74°. In dung-heated pits and frames cease to apply any water from this date; a dry condition of the roots will accelerate the ripening process. A fair bottom-heat should also be maintained. Continue to clear out exhausted plants; at the same time place any of the fruits that are not yet ripe in a sunny position in the Pine stove or Melon-house proper. A goodly portion of stem should be attached to each fruit. *Thomas Simpson, Mildmay Road, Chelmsford, Sept.* 28.

Cucumbers.—Autumn weather has now fairly set in, and fires must be employed from henceforth. Bestow very liberal attention upon the autumn fruiters, to obtain a strong growth. Much of the after-success of this batch depends upon the foundation now laid. Continue to remove all male blossoms and tendrils, avoid overcropping, and do not allow the fruits to hang too long upon the vines. Gradually reduce the supply of atmospheric moisture as days shorten, and employ the syringe only on bright, warm afternoons. Continue to earth-up the roots from time to time; pinch out the growing points about every ten days; reserve as much wood only as will insure the full admission of light and sun, and take care that the water applied to the roots be of about the same temperature as that of the bed in which they are growing. Pot off the winter fruiters directly they are strong enough to handle, and plunge them in a nice bottom-heat for a week; afterwards raise them near to the glass, and observe a mean of about 74°. The fermenting materials must now be in hand preparatory to planting out this last batch in due time. The market grower who wants to produce a good supply of fruits in the end of January should sow a good batch forthwith in a small house. Meanwhile, push forward the work of clearing out the houses, wash with soap-suds every particle of glass and woodwork, limewash all brickwork, and make everything sweet and clean. Now is a good time, too, to collect and prepare a goodly heap of soil—maiden loam and well-decomposed cow-dung, with which is incorporated a moderate amount of quick lime, is best. *Thomas Simpson, Chelmsford, Sept.* 28.

KITCHEN GARDEN.

It may fairly be assumed that, while suitable weather existed, which was the case until very recently, the crops of *Onions* and ripe *Potatos* were lifted and stored. The ground which was occupied by these subjects will now be available for planting *Cabbage*, *Lettuce*, *Endive*, &c., and should at once be prepared by digging and well manuring, if it be necessary. A copious rainfall has rendered the soil in a proper state for planting operations, and as it is desirable in the case of the subjects referred to to be well-established before severe weather comes, the planting of these should be advanced forthwith, and breadths of each commensurate with the requirements should be got in. The Onion ground will be a suitable change for *Cabbage*; if fine large heads are required ample room should be afforded—at least 18 inches every way will be required, and less space under other circumstances. For the spring and early summer supply of *Lettuce* we depend mainly on the *Stanstead Winter Cabbage* and the old true *Black-seeded Brown Cos*: plants of these kinds at this season usually occupy the intervening spaces between where the early *Peas* will presently be sown, at 6 feet apart, a row of the Cabbage variety being placed at 1 foot on either side of the Peas, and three rows of the Cos between those. Where the soil is light and friable it should be made moderately firm by being trod over once and then raked down to form an even surface, and be planted out in drills. Much careful attention is requisite at certain places to secure a good plantation of Lettuce at this period of the year. All vacancies should be kept filled up regularly, and dustings of wood-ashes, soot, or lime, whichever is preferable, be regularly applied. *Endive* will succeed under similar conditions, and therefore should be attended to in like manner. Out of many varieties we select for planting at this season the *Moss-curled* and the close-hearting *Batavian* variety. After the planting of the main crop of Lettuce is completed a quantity of the Cos variety should be pricked out into a prepared bed in a warm, sheltered place, or otherwise in a frame or where some protecting material can be applied during the prevalence of intensely severe weather. In connection with this subject it may be stated that it will also be necessary to provide accommodation for the Lettuce and Endive which are to be lifted from the open ground, to give a continuous supply when that which is outside is either exhausted or destroyed. Much labour is often involved in the preservation of these subjects in cold frames, and oftentimes with but unsatisfactory results. Where large supplies are needed shallow pits with movable lights, and the command of sufficient artificial heat to exclude the frost, are the requisites which are essentially necessary with such places, but little difficulty is experienced in providing it in excellent condition throughout the winter months.

Cauliflower plants will now be ready for moving from seed-beds; select the earliest plants for transferring to handlights; and prick into cold frames the requisite number of the others. For this purpose employ good strong loam, as by so doing a sturdy habit will be insured if the airing has proper attention. The matter will require strict supervision—full exposure to the natural elements being indispensable for all such subjects in frames at this period. *Parsley* which is sown in such places should be thinned out; or where planting is preferred the roots should be got in. Go over *Tomatos* on walls, and cut them as they ripen, and should indications of frost appear it will be advisable to cut all of any size and lay them out in a vinery, or similar place to finish. Let no favourable opportunity pass without giving attention to earthing up *Celery* which may require it, and in case of sudden frosts be prepared to take up and place under protection *Cauliflowers* which are fit for use. *G. T. Miles, Wycombe Abbey.*

Enquiries.

He that questioneth much shall learn much.—Bacon.

69. Garibaldi Strawberry.—To what race of Strawberries does Armstrong's Garibaldi (recommended Sept. 25, p. 401) belong? Is it one of the alpine, or Four Seasons' group, that it should have furnished a splendid crop through this summer, and is now ripening lots of fruit? *E. S. D.*—[It is the same as the well known Vicomtesse Héricart de Thury. Eds.]

Answers to Correspondents.

F. Edward Hulme, Esq.—We have a Victoria newspaper for this gentleman, and shall be glad to receive his address, that we may forward the same.

Greenhouses: *G. A. H.* You had better give a ¼-inch lap to your glass, as it is extremely difficult to cut it true enough to prevent drip without lap. *G. E.—Subscriber.* Horse-dung, well sweetened, will give the bottom-heat required, and will not emit noxious gases. If the thickness could be increased to 2 feet it would last much longer without renewal. *G. E.*

Insects: *T. T., Barnet.* Your Celery leaves are infested with the larvæ of a very pretty two-winged fly, Tephritis onopordinis. When full-grown they eat their way out of the leaves, and fall to the ground, to undergo their pupa state beneath the surface. Pinching the infested parts of the leaves smartly is the

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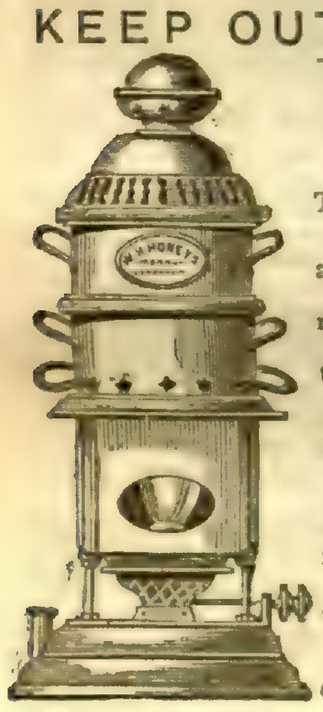

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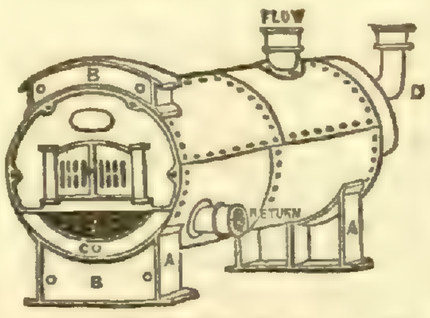

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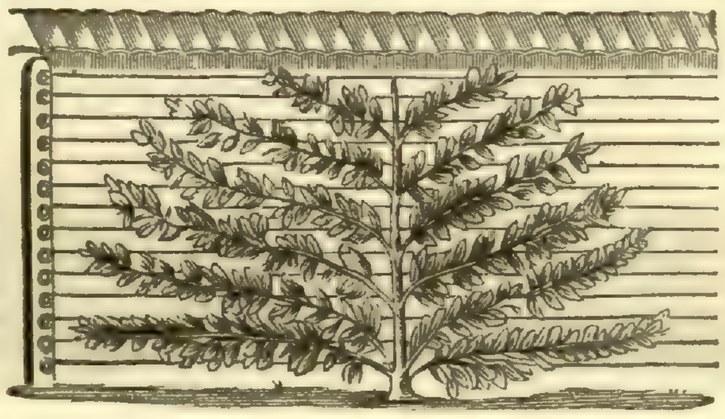

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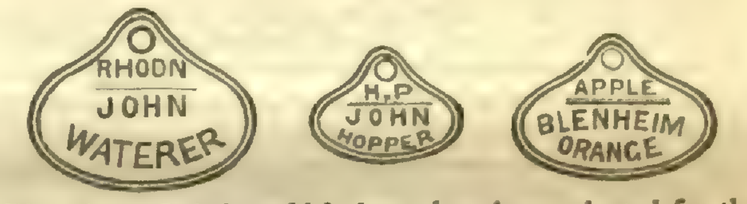

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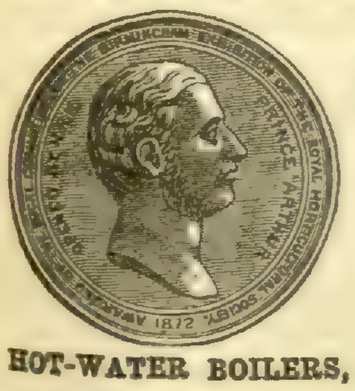

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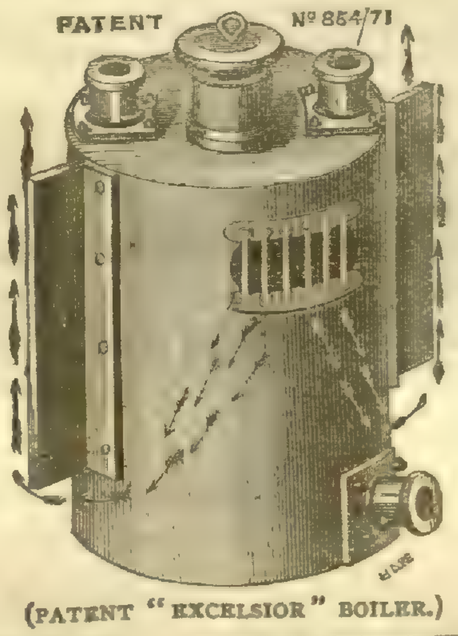

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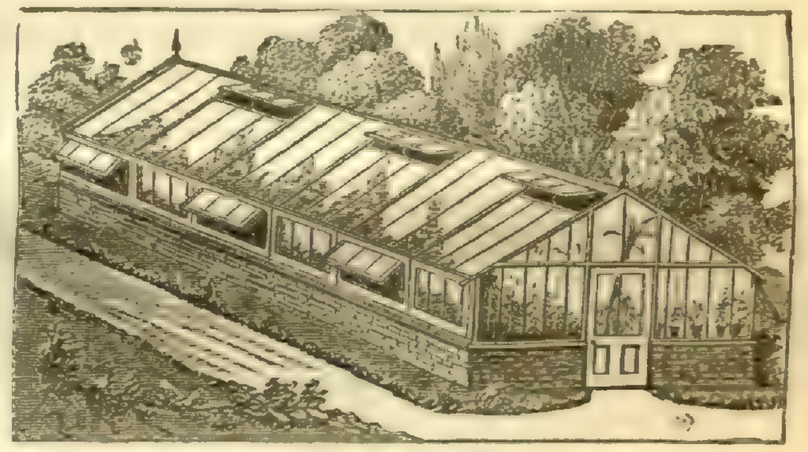

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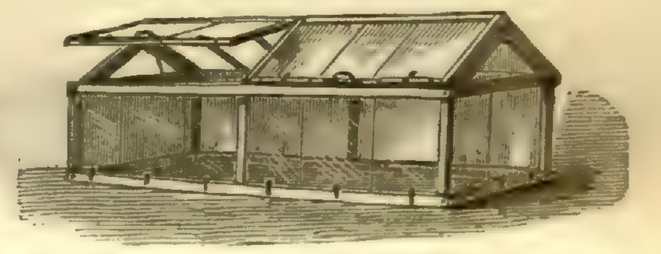
HORLEY'S PATENT ECONOMIC GARDEN FRAME.



The ECONOMIC GARDEN FRAME can now be had with one or both sides of the roof framed and hung on hinges (the glass buttoning in the same, as shown in the Engraving), to facilitate watering, ventilation, &c. These Frames are specially adapted for protecting from the early frosts the bloom of Chrysanthemums, &c.

The *English Mechanic* of September 20, 1872, in a notice of the Patent Economic Garden Frame, has—"This Frame gives the maximum amount of light that can be obtained from any construction of a similar nature. The objectional drip is obviated, as the condensed moisture runs down to the rabbets, whence it is readily carried off. It will prove from its portability very convenient. Placed on brick walls, it will also serve as a greenhouse, small, it is true, but sufficiently spacious to serve the wants of many, and, what is of most importance, not by any means expensive."

The *Horticultural Journal*, No. 644, in its notes in reference to the exhibits of Movable Garden Frames and Ground Vineries, at the Royal Horticultural Society's Great Show at Bath, has—"We are inclined to give the palm for cheapness, simplicity, and durability to Mr. Horley."

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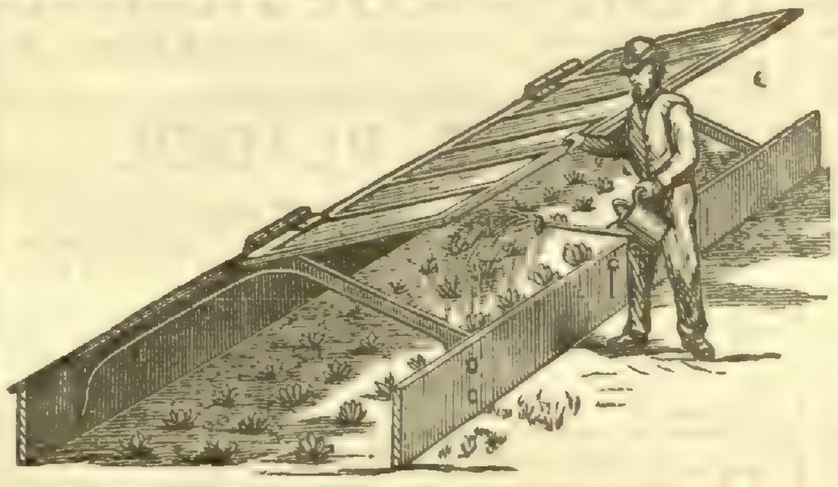

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6 feet long by 4 feet wide	£2 6 0	8s. 6d.
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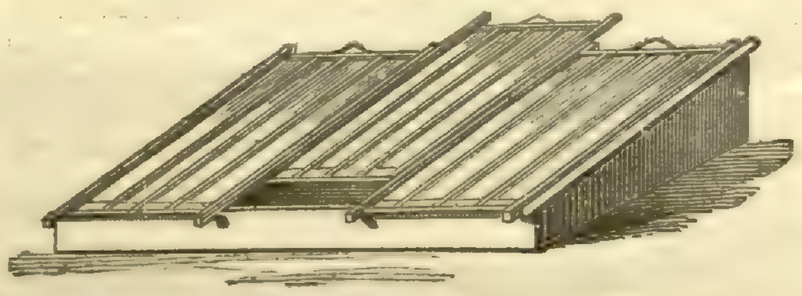

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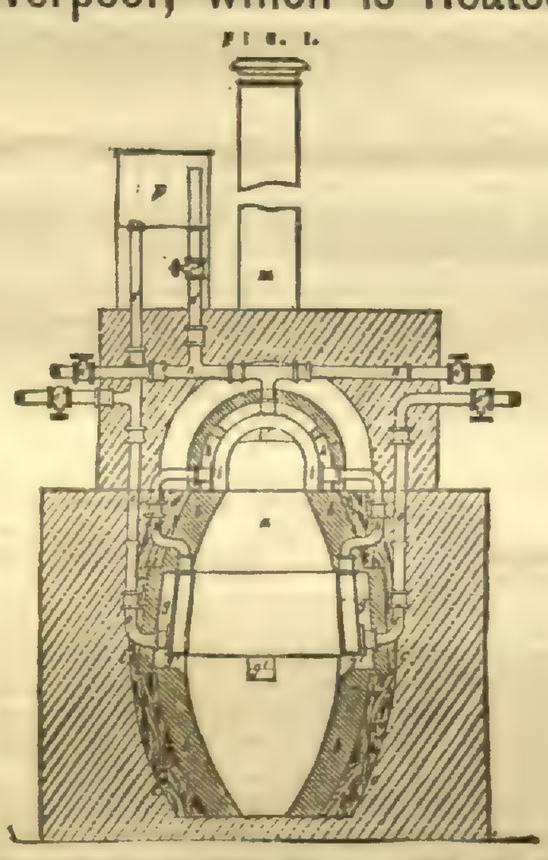

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Saccolabium Hendersonianum (Reich. fils)
Phalænopsis Schilleriana
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,, Luddemanniana splendens
,, amethystina
Masdevallia Lindeni
,, Davisii
,, Denisoniana
Dendrobium Wardianum
Cœlogyne cristata major
Odontoglossum Alexandræ
,, Cervantesii
,, Roezlii
Pilumna nobilis
Cymbidium eburneum
Vanda cœrulea
,, cœrulescens
,, Cathcartii
Cattleya Dowiana
Aerides virens Dayanum, &c.

Also a small Consignment of Vanda Goweræ, and a Consignment of Sophronites coccinea superba, Saccolabium curvifolium, Dendrobium crepidatum, D. Farmeri, Cymbidium Parishii, Aerides Lobbii, Spathiglottis pubescens, &c., and a Consignment of New Zealand TREE FERNS.

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Odontoglossum blandum
Anæctochilus intermedius
Odontoglossum Pescatorei
Cattleya Eldorado splendens
Odontoglossum Dawsonianum
Masdevallia Harryana
Odontoglossum ramulosum ;

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New Odontoglossum.

ODONTOGLOSSUM CIRRHOSUM (LINDLEY).

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 14, at half-past 12 o'Clock precisely, a quantity of Plants of the new ODONTOGLOSSUM CIRRHOSUM, now introduced in living plants for the first time. From the extraordinary character of dried flowers collected many years ago, plants of this new and splendid Odontoglossum have been coveted ; but no collector could since succeed in introducing or even finding it. M. Roezl has had the good fortune to import a quantity of living plants in the most superb condition about two months since, and the plants are now making healthy strong growths. On the arrival of this Odontoglossum in London the great orchidologist, Professor Reichenbach, telegraphed, "Grand success : first time imported," and afterwards wrote in ecstasies about it.

This superb Odontoglossum is a much handsomer species than the still rare O. nævium, somewhat resembling it in colour and character, but infinitely superior. It produces fine strong branched spikes of blossom, each flower 3 to 4 inches across ; white, marked, and spotted in the way of nævium, exceedingly chaste and beautiful.

On view the morning of Sale, and Catalogues had.

New Plants.

From Mr. WILLIAM BULL'S houses being overcrowded with NEW PLANTS and novelties continually arriving from his collectors abroad, he has instructed

MR. J. C. STEVENS to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 21, at half-past 12 o'Clock precisely, a portion of some of the best of his recent introductions. This sale will be one of the most remarkable that has ever taken place of NEW and BEAUTIFUL PLANTS, most of them have only lately been offered to the Public for the first time, and all are well known to be extremely handsome and of the highest merit. It will comprise a quantity, in large and small plants, of such magnificent plants as the following :—

Croton majesticum
Dipladenia Brearleyana
Pleocnemia Leuzeana
Croton volutum
Spathiphyllum pictum
Macrozamia plumosa
Croton spirale
Artocarpus Cannoni
Anthurium candidum
Dioscorea illustrata,

with many other New and Rare Plants, and some of the most handsome specimens of NEW and OTHER DRACÆNAS that have ever been seen ; also some fine specimens of well-known NEW and BEAUTIFUL ORNAMENTAL PLANTS, an inspection of which alone will amply repay a visit to the Auction Room.

There will also be included in the Sale some hundreds of choice Palms, and among them a large quantity of the elegant and handsome varieties of Dæmonorops.

If desired, and on intimation being given to Mr. Stevens, Purchasers can have their plants packed with the usual care taken by Mr. William Bull's packers.

A Catalogue, containing illustrations of many of the New Plants, can be had on application to Mr. J. C. STEVENS, Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C.

Imported and Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, October 15, at half-past 12 o'Clock precisely, IMPORTED ORCHIDS from Brazil, consisting of Lælia purpurata, Lælia elegans, Cattleya Leopoldii, Cattleya amethystina, Oncidium Marshallianum, O. sarcodes (true), O. Forbesii, and O. crispum, &c. The Lælia purpurata and Cattleya Leopoldii are some of the finest pieces ever arrived in this country, all in the best possible condition, many of them with leaves in perfect health ; collected by Mr. Henry Blunt. Also a collection of ESTABLISHED ORCHIDS, comprising many rare and valuable sorts.

On view the morning of Sale, and Catalogues had.

MR. J. C. STEVENS begs to announce that the TREE FERNS advertised to be Sold on Tuesday, October 12, have been WITHDRAWN from the Sale.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Shipston-on-Stour, Worcestershire.

Preliminary.

HIGHLY IMPORTANT SALE of VALUABLE NURSERY STOCK, &c., at the Furze Hill and Stratford Road Nurseries, adjoining the town of Shipston-on-Stour.

MESSRS. BULL AND SON are favoured with instructions from the Representatives of the late Mr. John Jennings to SELL by AUCTION, EARLY in NOVEMBER, the whole of the VALUABLE TREES and SHRUBS now growing at the above Nurseries.

Full particulars, with day of Sale, in future papers. Catalogues will be ready ten days prior to the Sale, and may be had at the place of Sale, and at the Offices of the Auctioneers, Shipston-on-Stour.

Dutch Bulbs.—Extensive Consignment of the finest

named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, CYCLAMENS, strong clumps of LILY of the VALLEY for forcing, GLADIOLUS, &c., for absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY next, at 11 for half-past 11 o'Clock precisely, about 800 lots of the above, the whole being of a very superior quality.

On view morning of Sale. Catalogues had at the Mart, and of the Auctioneers, 98, Gracechurch Street, E.C.

Frimley, Surrey.

SALE of thriving NURSERY STOCK, including 10,000 common Laurels, 1 to 4 feet ; a large quantity of other Evergreens, together with a choice assortment of Coniferæ and Evergreen Shrubs, a considerable number of Ornamental and Forest Trees, selected Fruit Trees, Standard and Dwarf Roses, Rhododendrons, and other American Plants, strong Quick, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Holder to SELL the above Stock by AUCTION, without reserve, a portion of the land being required for building purposes, on the Premises, the Frimley Park Nursery, Frimley, Surrey, on TUESDAY, October 12, at 11 for 12 o'Clock.

May be viewed the day prior to the Sale.

Loughton, Essex.

GREAT SALE of beautifully-grown NURSERY STOCK.

Important to the Trade and other large Buyers.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. W. Paul to SELL by AUCTION, at his branch Nursery, Loughton, Essex, eight minutes' walk from the Station, and 12 miles from London, on TUESDAY, October 12, and two following days, at 11 for 12 o'Clock precisely each day, a very extensive and superior stock of unusually well-grown EVERGREEN TREES and SHRUBS, many of which are handsome specimens, in excellent condition for removal ; 10,000 bushy Laurels, of sorts, 2 to 5 feet ; 1000 Laurustinus, Green and Variegated Hollies, including pyramidal specimens, 5 to 10 feet ; Box, Aucubas, 10,000 choice CONIFERS, including 3000 Cedrus Deodara, 1500 Hybrid and Ponticum Rhododendrons, Andromeda floribunda, and other choice American Plants ; strong LIMES, WEEPING WILLOWS, &c. ; also some selected ROSES and FRUIT TREES. May be viewed any time previous to the Sale.

N.B. This Sale offers a grand opportunity to gentlemen making extensive plantations and wishing to produce an immediate effect. The proprietor will remove at purchaser's expense if required. One month allowed for clearing.

Park Road, West Dulwich, S.E.

(Near the Railway Station, L.C.D.)

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. F. & A. Smith to SELL by AUCTION, on the Premises as above, without reserve, on WEDNESDAY, October 13, at 12 o'Clock punctually, 5000 EVERGREEN CONIFERÆ and other SHRUBS of various sizes, carefully prepared for transplanting, viz., 2000 Laurels, Variegated and Green Hollies, Cedrus Deodara, Thujas of sorts, Thujopsis, Cupressus, Piceas, &c. ; 3000 Standard and Dwarf ROSES, 2000 FRUIT TREES, 1000 DECIDUOUS TREES, &c. ; also, 5000 GREENHOUSE and STOVE PLANTS, embracing choice Double Camellias, Azaleas, Ericas, Epacris, &c.

View prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 99, Gracechurch Street, E.C., and Leytonstone, E.

Brixton Hill, S.W.

CLEARANCE SALE of WELL-GROWN NURSERY STOCK, 1000 Standard and Dwarf Roses, &c., the Land being immediately required for building purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Peed to SELL by AUCTION on the Premises, the Effra Nursery, Effra Road, Brixton Hill, S.W., without reserve (this branch Nursery being required for other purposes), on THURSDAY, October 14, at 11 for 12 o'Clock, the whole of the valuable NURSERY STOCK, consisting of a large and general assortment of well-grown Evergreens and Coniferæ, ranging all sizes, and lotted to suit the Trade and private buyers, and including some fine specimens and thousands of border and other small stock ; also a considerable number of fine Fruit Trees, 1000 Standard and Dwarf Roses, a varied collection of Ornamental Trees, Pot Vines, &c.

May be viewed the day prior to the Sale. Catalogues may be had on the Premises ; of Mr. J. PEED, Roupell Park Nurseries, Norwood Road, S.E. ; and of the Auctioneers, 98, Gracechurch Street, E.C.

Hornsey, N.

CLEARANCE of the remaining portion of GENERAL NURSERY STOCK, consisting of 20,000 Ornamental, Forest, and Fruit Trees ; Evergreen Coniferæ and Deciduous Shrubs ; also 1000 English-grown Camellias, beautifully grown and well-set with buds, and including Double White and other well-known kinds ; Maidenhair Ferns, Genistas, Acacias, Primulas, and other Greenhouse Plants ; by order of Mr. M. Cleall, without reserve, a portion of the Nursery being required by the New River Company for the extension of their works, now in progress.

MESSRS. PROTHEROE AND MORRIS will SELL the above on the Premises, the Hornsey Nursery, Hornsey, Middlesex, N., close to the Hornsey Station, G.N.R., on FRIDAY, October 15, at 11 for 12 o'Clock precisely.

The stock may at any time be moved. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.

Erith, Kent, for Occupation or Investment.

To Gentlemen, Builders, Amateur and Market Gardeners and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, in one lot, at the Mart, Tokenhouse Yard, City, on MONDAY, October 18, at 2 o'Clock precisely, a compact LEASEHOLD ESTATE, comprising two semi-detached Brick-built Villa Residences, Nos. 1 and 2 North End Villas, Erith, in the parish of Crayford, in the county of Kent. There is connected with and in the rear of No. 1 (which is in hand) about five acres of productive Orchard Land, cropped at present with choice Fruit Trees, but presenting great attractions for building purposes. There are several outbuildings standing thereon, including Greenhouse, Cart and Potting-Sheds, Piggeries, &c., the whole being held on Lease for an unexpired term of seventy-two years at a Ground Rent of £80 per annum, and of the estimated value of £138 per annum. Early possession can be arranged.

May be viewed. Particulars may be had of Messrs. WHITE, RENARD AND CO., Solicitors, 28, Budge Row, Cannon Street, E.C. and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Tottenham.

UNRESERVED SALE of First-class NURSERY STOCK, FRUIT TREES and ROSES.

Important to Gentlemen, Market Gardeners, Nurserymen, and Others.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Thomas Ware to SELL by AUCTION, without reserve, on the Premises, Hale Farm Nurseries, Tottenham, Middlesex, adjoining the Railway Station, on TUESDAY, October 19, at 11 for 12 o'Clock precisely, a large quantity of particularly well-grown NURSERY STOCK, comprising thousands of remarkably fine Fruit Trees, consisting of Dwart-trained and Standard Apples, Pears, Plums, and Cherries, Dwarf-trained Peaches and Nectarines, 5000 unusually good Standard and Dwarf Roses in rich assortment ; also a considerable assortment of Evergreen and Coniferæ Shrubs, a fine collection of Standard Ornamental Trees, including 1000 of the beautiful variegated Negundo Maple, Planes, Limes, Laburnums, Poplars, &c., 2000 Moss Roses, Yucca filamentosa, Herbaceous Plants and Bulbs, Gladioli, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

Woking, Surrey.

GREAT SALE of beautifully-grown NURSERY STOCK, in fine condition for removal.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. George Jackman & Co. to SELL by AUCTION, without reserve, on the Premises, the Woking Nursery, Surrey, on TUESDAY, October 19, and three following days, at 11 for 12 o'Clock precisely each day, a considerable quantity of valuable NURSERY STOCK, in capital condition for removal, the whole having been carefully prepared, comprising 2000 remarkably well grown specimen Coniferæ and Evergreens of symmetrical form and great beauty ; also thousands of quartered stock, worthy the attention of the Trade and other large buyers, including 11,000 English Yews, 2 to 5 feet ; 1000 Golden Yews, 1½ to 3 feet ; 1600 handsome Piceas, of sorts ; 1500 Green and Variegated Hollies, 15,000 Cedrus Deodara, 2500 Hybrid and Pontica Rhododendrons, 6000 Common Laurels, 2 to 3 feet ; fine Thujas and Retinosporas ; also a fine collection of Ornamental Trees, 8 to 20 feet, including 7000 Limes, 4 to 12 feet ; 4000 Thorns, of sorts ; Scarlet and Yellow Chestnuts, Acacias, Maples, and Elms, &c. ; 80,000 extra strong Quick, 2 to 3½ feet ; a large and nicely varied assortment of Deciduous Shrubs, Fruit Trees, and Roses in large quantities and of clean growth.

The stock may be viewed prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

Wallington, Surrey.

IMPORTANT CLEARANCE SALE of THOUSANDS of FRUIT TREES and other NURSERY STOCK.

Important to Gentlemen, Fruit Growers, Nurserymen, and Others.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Clark to SELL by AUCTION, without reserve (the term of this branch nursery having expired and the Land being immediately required for Building purposes), on the Premises, The Nursery, Wallington, Surrey, on WEDNESDAY, October 20, at 11 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, comprising 10,000 Fruit Trees, mostly in bearing condition, including Standard and Pyramid Apples, Pears, Plums and Cherries, in capital assortment ; also 15,000 Evergreens, various, including 4000 Green Hollies, Yews, Portugal and Common Laurels, Thujas of sorts, Wellingtonias, &c., also an assortment of choice Border Shrubs, together with thousands of Forest and Ornamental Trees.

May be viewed any time prior to the Sale. Catalogues may be had at the Home Nursery, Wallington, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

Balham, S.W.

IMPORTANT SALE of THRIVING NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. George Edwards to SELL by AUCTION, without reserve, on the Premises, the Balham Nursery, close to the Balham Railway Station, Surrey, on FRIDAY, October 22, at 11 for 12 o'Clock precisely, a large quantity of valuable NURSERY STOCK, worthy the attention of the Trade and Private Buyers, and particularly suitable for planting in the London suburbs, comprising beautifully-grown Coniferæ and Evergreens in rich assortment ; also, the whole of the handsome Border Shrubs, a considerable number of fine Fruit Trees and Roses, and a choice selection of Deciduous Flowering Shrubs, Climbing Plants, Tea Roses in pots, &c.

The Stock may be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, as above.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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Important Notice to Foreign Subscribers.

FOREIGN SUBSCRIBERS are PARTICULARLY REQUESTED, *when sending Post Office Orders through the Post Office, to Advise the Publisher that they have done so. (Signed)*

W. RICHARDS, Publisher.

Post Office Orders should be made payable at the King Street Office, Covent Garden, London, W.C.

ROYAL HORTICULTURAL SOCIETY.
SHOW of FUNGI, October 6.
AWARDS of the JUDGES.

CLASS 1.—Collection of Fungi, arranged according to their Botanical Affinities. (Open.)
1st, Mr. J. English, Epping, Essex.

CLASS 2.—Collection of Edible Fungi. (Open.)
1st, Mr. J. English.

CLASS 3.—Collection of New or Rare Fungi. (Open.)
1st, Mr. J. English.

COCOS WEDDELLIANA, nice Seedling Plants, well rooted, and with two to three leaves. Six plants for £3 3s.; twelve plants for £6.
J. LINDEN, Ghent, Belgium.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.
Agents — Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Vines, Vines, Vines.

W. G. CALDWELL AND SONS have a splendid stock of GRAPE VINES to offer—fine, well-ripened, short-jointed canes—consisting of Black Hamburgh and all other popular sorts. Prices (low) on application.
The Nurseries, Knutsford, Cheshire.

GRAPE VINES.—A fine stock of Black Hamburgh and other popular sorts, including the new varieties—Venn's Black Muscat, Waltham Cross, and Duke of Buccleuch—in strong, well ripened Fruiting and Planting Canes. Prices on application to
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

Fruit Trees.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE for the present season is now ready, and may be had on application. The Trees are extra fine this season. The Royal Nurseries, Slough.

Splendid New Apple,

LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, 3s. 6d. each, 21s. for seven; 2-yr. plants, 5s. to 7s. 6d. each.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c. Free by post for one stamp.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Cabbage Plants for Spring and Summer Feeding.

SUTTON AND SONS can supply fine strong plants of SUTTONS' IMPROVED LARGE DRUMHEAD, SUTTONS' IMPERIAL, NONPAREIL, ENFIELD MARKET, and others, for immediate planting, at low prices. Price per 1000 on application.
Royal Berks Seed Establishment, Reading.

Cabbage Plants, Cabbage Plants.

EARLY RAINHAM, EARLY BATTERSEA, EAST HAM, LITTLE PIXIES, at 3s. 6d. per 1000, including package, and free to rail.
WILLIAM MEADMORE, Nurseries, Romford, Essex.

How to Grow the Best Hyacinths.—See SUTTONS' AUTUMN CATALOGUE, profusely illustrated, gratis and post free.

How to Grow Tulips.—See SUTTONS' AUTUMN CATALOGUE, profusely illustrated, gratis and post free.

How to Grow Gladiolus.—See SUTTONS' AUTUMN CATALOGUE, profusely illustrated, gratis and post free.

How to Grow Lilies.—See SUTTONS' AUTUMN CATALOGUE, profusely illustrated, gratis and post free.
SUTTON AND SONS, The Queen's Seedsmen, Reading, Berks.

Dutch Flower Roots.

JAMES DICKSON AND SONS will be happy to send, post free on application, Priced CATALOGUE of their large and very superior stock of DUTCH and other FLOWERING BULBS.
108, Eastgate Street, Chester.

Bulbs, Tubers, and Perennials.

THOMAS S. WARE'S A. B. C. Descriptive BULB CATALOGUE is now ready, free on application, containing one of the largest collections of Bulbs and Tubers in cultivation, to which is added a selection of Spring Flowering and other Perennials for Autumn Planting.
Hale Farm Nurseries, Tottenham, London.

CROCUS, large Dutch, yellow, blue, white, striped, or mixed, 1s. 6d. per 100, 15s. per 1000. Good named HYACINTHS, twelve distinct varieties, selected roots, for 6s. CATALOGUES free.
W. HOOPER, 88, Oxford Street, London, W.

GLADIOLUS BRENCHLEYENSIS, extra fine roots. Price on application to
SANDER AND CO., Seed Growers, St. Albans.

Imported Flower Roots.

CHARLES TURNER has received his first Consignment of the above. The Bulbs are very fine and sound.
Descriptive CATALOGUES can be had on application.
The Royal Nurseries, Slough.

Spring Flowers.

THOMAS S. WARE'S new A. B. C. BULB GUIDE (now ready, free on application) contains a selection of all the best Spring-flowering Perennials and Bulbs in cultivation.
Hale Farm Nursery, Tottenham, London.
N.B.—See Cheap Collections of the above.

Carnations and Picotees.

THOMAS S. WARE'S AUTUMN CATALOGUE of the above, including Pæonies, Phloxes, Pyrethrums, Pansies, Violas, and other Hardy Florists' Flowers, is now ready, free on application.
Hale Farm Nurseries, Tottenham, London.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., having a large stock of unusually fine and sound DUTCH BULBS, will be pleased to submit Special Prices to Buyers on application.

W. LIGHTBODY, of Falkirk, N.B., has a lot of BLOOMING TULIP ROOTS remaining from his late father's stock, which he would like to Dispose of as Mixtures. Particulars on application to him at Falkirk.

JULIUS HOFFMANN, NURSERYMAN, 131, Koepnicknerstrasse, Berlin S. O., Germany.
LILY of the VALLEY, every one strong flowering, 40s. per 1000 pieces. Stock 200,000.

Pansies and Violas.

THOMAS S. WARE'S AUTUMN CATALOGUE of the above, including Carnations, Picotees, Pæonies, Phloxes, Pyrethrums, and other Hardy Florist's Flowers, is now ready, free on application.
Hale Farm Nurseries, Tottenham, London.

WM. POTTEN can still supply select GERANIUMS, COLEUS, and FUCHSIAS, as advertised in *Gardeners' Chronicle*, September 11.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

Cinerarias (Standish Strain).

H. APPLEBY can supply good strong plants of the above, in small 60-pots, 3s. per dozen.
Box Hill Nursery, Dorking, Surrey.

To Amateur Orchid Growers.

ORCHIDS—ORCHIDS, in excellent condition, to be Sold cheap, including rare varieties. Available up to October 20 only, the owner going abroad. Apply for particulars and LIST to
The Cottage, Sibbertoft, Market Harborough.

WANTED, good CUTTINGS of CALCEOLARIA AUREA FLORIBUNDA. Sample by post, saying quantity for disposal and price per 1000, to WOODROFFE AND SON, The Westbourne Nursery, Harrow Road, London, W.

WANTED, a few strong BULBS of LILIUM GIGANTEUM. Quote size and price for cash to
A. H., *Gardeners' Chronicle* Office, W.C.

To the Trade.

EPIPHYLLUMS, grafted, stout, strong stuff, clean and healthy, the best varieties only, 84s. per 100. Pot ROSES, Tea-scented varieties, extra strong, 105s. per 100.
W. G. CALDWELL AND SONS, The Nurseries, Knutsford.

ROSE SHOWS, 1875.—50 First Prizes, 25 Guinea Silver Challenge Cup, and other Premier Prizes. See Cranston & Mayos' DESCRIPTIVE ROSE CATALOGUE for 1875. Address,
CRANSTON'S Nurseries, King's Acre, Hereford.

Roses.

CHARLES TURNER'S carefully prepared CATALOGUE is now ready, and may be had on application. The stock, of all heights, is very large and most healthy.
The Royal Nurseries, Slough.

Roses, Roses.

DOWNIE AND LAIRD, Royal Winter Gardens, West Coates, Edinburgh, will be prepared on and after the 15th November to supply the finest Roses in cultivation at 9s. per dozen, their own selection.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Special Culture of Fruit Trees and Roses.

THE DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS (by THOMAS RIVERS) is now ready; also CATALOGUE of Select ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
The Ottershaw Nursery, Chertsey.

Plants on Sale.

PALMS, TREE FERNS, STOVE and GREENHOUSE PLANTS, CAMELLIAS, AZALEAS, &c.—a choice collection to be Disposed of privately. Apply, GARDENER, Woodcote, Aigburth Road, Liverpool.

A. STANSFIELD AND SON beg to say that their NEW CATALOGUE of FERNS, No. 10, for 1875-6, is now ready, and may be had for 3 stamps. It contains more than 1000 species and varieties, many of them new and rare, with Descriptive and Cultural Remarks.
Vale Nurseries, Todmorden.

B. MALLER begs to inform the Trade and the Public in general that his extensive NURSERY STOCK, consisting of Fruit, Forest, and Ornamental Trees, Standard and Dwarf Roses, Evergreen and Deciduous Shrubs, is in the finest possible condition. An inspection is solicited.
The Nurseries, Lee and Lewisham, S.E.

LARCH, LARCH.—A large quantity of the above to be disposed of, for Cash, 1½ to 2 feet, 21s. per 1000; 2½ to 3 feet, 35s. per 1000, clean grown and well rooted. Address, for particulars,
A. B., Windlesham, Surrey.

LARCH, transplanted, fine, 1½ to 2½ feet, and 2½ to 3 feet. Price low.
H. JACKSON, Nursery, Kidderminster.

ACORNS of the true SCARLET OAK (Quercus coccinea), for Sale.
C. HASTIER, 6, Water Street, New Bridge Street, E.C.

LAURELS, One Hundred Thousand, 2 to 2½ feet, good stuff, 40s. per 1000. Trade price on application. General Nursery Stock second to none in England. CATALOGUES now ready.
H. BLANDFORD, The Dorset Nurseries, Blandford.

Hardy Evergreens.

JAMES DICKSON & SONS solicit attention to their very extensive and excellent hardy and well-rooted EVERGREENS, as well as to all other Nursery Stock, which for quality, variety and extent, is unsurpassed.
"Newton" Nurseries, Chester.

HOLLIES.—Twenty thousand of the finest varieties of Green and variegated Hollies, 4, 5, 6, 7, 8, and 10 feet. The plants are all handsomely grown and properly rooted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

HOLLIES (Green).—About 2000 of the above is offered, in splendid condition, well furnished, and transplanted last autumn; ranging in height from 4 to 7 feet. A good opportunity for any one wanting a first-class hedge at once. The whole or a part can be had at a reasonable price for cash. For particulars, apply to
T. THORNTON, Heatherside Nurseries, Bagshot, Surrey.

Yews.

YEWS.—For Sale, from 3000 to 4000, all well grown and rooted, and recently moved, from 3½ to 4½ feet high, at 90s. per 100.
Well adapted for hedges or ornamental trees; of first-rate quality as any one would wish to see.
JOSEPH SPOONER, Goldworth, Woking, Surrey.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

Small Nursery.—Walthamstow, E.

TO BE LET or SOLD, in Summit Road, Walthamstow, E., five minutes' walk from Hoe Street and Wood Street Railway Station, a NURSERY, with Cottage, half an acre of Ground, one large Span-roof Greenhouse (80 feet long, heated with hot-water), one Span-roof House, and a Span-roof Pit, both heated by flues, all recently put into good repair. Rent £45, or the Freehold to be Sold for £700, half of which may remain on Mortgage.

Apply to Messrs. PROTHEROE AND MORRIS, Auctioneers, Leytonstone, E.; or to WILLIAM HOUGHTON, Esq., Solicitor, 15A, Saint Helen's Place, London, E.C.

BUDDENBORG BROS., FLORISTS, Hillegom, by Haarlem, Holland, have on hand a very large stock of extra strong clumps of LILY of the VALLEY, strong crowns of do., strong clumps of HOTEIA (SPIRÆA) JAPONICA, GLADIOLUS, &c.

Special offers made for quantities on application either to BUDDENBORG BROTHERS, as above; or, to Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

SPRING FLOWERS: — 100,000 strong plants of Pansies, Violas, Primroses, Daisies, Aubrietias, Violets, and other Spring Bedding Plants, in best varieties; also a Select Importation of the very finest varieties of Hyacinths, Tulips, Narcissus, Crocus, Anemones, and other DUTCH BULBS, suitable for grouping or mixing with the above. Priced CATALOGUE free on application.

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

Now Ready.

CABBAGE PLANTS, excellent—Early Enfield Market and Robinson's Champion Drumhead, at 3*s.* 6*d.* per 1000; and Red Dutch Pickling, at 5*s.* per 1000, for cash with orders. Contracts made to supply or to plant any quantity by the acre, on the most reasonable terms. References given if required.

FREDK. GEE, Seed Grower, &c., Biggleswade, Beds.

THE NEW PLANT AND BULB COMPANY beg to call attention to their unrivalled collection of LILIUMS, the present being a most suitable time for planting. Their Bulbs are this season remarkably fine.

For further particulars see CATALOGUE, sent free on application, which also contains Bulbs of all kinds, rare Terrestrial Orchids, and other plants from North America; Tropical Orchids, Tree and other Ferns, all at very low prices.

Lion Walk, Colchester.

New Rose, H.P. Triomphe de France.

J. MARGOTTIN, FILS, NURSERYMAN, Bourg la Reine, near Paris, begs to inform his Customers, and the Trade in general, that he will sell in November next a magnificent New Rose, under the name of TRIOMPHE DE FRANCE. The flower is of beautiful bright carmine, of extra large size, very full, perfect form, and a free bloomer, moderate or vigorous habit; a most distinct and grand Rose. Price £1 each.

The CATALOGUE of ROSES will be sent on application.

Cabbage Plants—Cabbage Plants.

MESSRS. W. VIRGO AND SON can now supply in any quantities the following sorts, viz.:—Early Battersea, Pullen's Nonpareil and Enfield Market, at 3*s.* 6*d.* per 1000; Robinson's Drumhead, at 3*s.* per 1000. All good strong healthy plants, and delivered on rail. Post-office Order must accompany all orders from unknown correspondents.

Wonersh Nursery, Guildford, Surrey.

Roses, Camellias, Gladioli, and Pæonies, from Paris.

LÉVÊQUE AND SON, NURSERYMEN, 26, Rue du Liegat, Ivry-sur-Seine, Paris, beg to offer:—

ROSES, at per thousand, in beautiful and very strong Standards and Dwarfs of Perpetuals and Tea-scented varieties, and also on their own roots. Prices (low) sent on application.
CAMELLIAS, best sorts, splendid pyramids, from 12*s.* to 30*s.* each; small plants, 2*s.* 6*d.* to 6*s.* each.
GLADIOLI (named), very numerous, healthy and cheap.
,, seedlings, splendid and large stock; large flowering bulbs, 8*s.* per 100, and £3 per 1000.
PÆONIES, arborea and sinensis, low price, choice of the best sorts.

LISTS and prices on application.

TO BE SOLD, large specimens of PALMS and FERNS, from a private collection, for want of space.

CYCAS REVOLUTA, Palm, with twenty-five large leaves.
CHAMÆROPS HUMILIS, Palm, 8 feet high, 9 feet through.
CHAMÆROPS FORTUNEI, Palm, of same dimensions.
ANGIOPTERIS GIGANTEA, Fern, fronds 15 feet long, trunk 5 feet in circumference.
CIBOTIUM BAROMETZ, Fern, large clump, fronds 6 feet.

And several other rare and choice specimens.

For particulars, prices, &c., apply to

C. E. WATERS, Gardener, Morley's Library, Forest Hill, S.E.

E. G. HENDERSON AND SON respectfully announce their new BULB and AUTUMN CATALOGUE, containing an extensive miscellaneous Collection of Bulbs and allied Plants, from all parts of the world, suited to the conservatory, flower garden, stove and drawing-room. In connection with these will be found choice collections of the finest Roses, Grapes, Hardy and Wall Fruits, Strawberries, Spring Bedding Plants; also Hardy and Wall Climbing Shrubs, Carnations, Pinks, &c.

In the above Catalogue is given the following, priced and fully described:—A selection in Six fine named varieties of DOUBLE-FLOWERED CINERARIAS; over 5000 Plants of DOUBLE CHINESE PRIMROSE (Primula sinensis, pl.), for winter and spring bloom, comprising the finest new kinds in the group. E. G. HENDERSON & SON are prepared to execute orders—12 varieties, 25*s.*, 30*s.* or 42*s.*

The Wellington Nursery, St. John's Wood, London, N.W.

TREE FERNS.

THE LARGEST AND BEST STOCK IN EUROPE.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above; also of his

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

ROSE (H.P.) MARIE CONTET, awarded First Prize at Crystal Palace, 1875, for the best twelve blooms of any Rose, also for the best twelve blooms on any Rose introduced in 1872 (exhibited by H. Bennett); very strong bushy plants, Manettis, 1*s.*, dwarf Seedling Briars, 1*s.* 6*d.* each. CAPITAINE CHRISTY (Hybrid Tea), the finest autumn-blooming Rose yet produced, extra strong plants on Manetti, 1*s.* 6*d.*; on Seedling Briar, 2*s.* each.

50,000 H.P. ROSES, dwarf Manettis, very strong, all the best new and old varieties (La France particularly large and good, no such plants in the trade), from 9*s.* per dozen. Trade price on application.

HENRY BENNETT, Manor Farm Nursery, Stapleford, Salisbury.

Roses, Roses.

SPECIAL OFFER to the Trade, &c.

ROSES, Standards, of the finest varieties in cultivation, strong stems and large heads, by the dozen, 100, or 1000.
,, Dwarfs, on Manetti, suitable for potting; 2-yr. cut back.

CATALOGUES on application.

PELARGONIUMS—Queen Victoria, Captain Raikes, and Marie Lemoine — the three best Pelargoniums ever offered to the Trade; cheap by the dozen or 100.
PANSIES—Blue King and Cloth of Gold. Splendid for Spring or Summer Bedding.
VIOLET—Marie Louise. I have a large stock of this most beautiful Violet, suitable for potting, to offer by the dozen, 100, or 1000.

Also 100,000 SPRING BEDDING PLANTS, now ready. Special low prices to large Buyers.

CATALOGUE on application.

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

TH. MULIÉ, NURSERYMAN, Neuville-en-Ferrain (Nord), France, offers the following:—

FRUIT TREES, of all sizes.
FOREST and ORNAMENTAL TREES, all varieties.
Young PLANTS for HEDGES and PLANTATIONS.
Collections of all varieties for the garden, very strong.
CHESTNUTS, from 1-yr. to 2-yr., for plantations.
AILANTUS GLANDULOSA, 1-yr., do.
BEECH, Common, 1-yr. to 2-yr., do.
ELM, 1-yr. to 4-yr., do.
ACER NEGUNDO, for Stocks, 1-yr. to 3-yr.
THORNS, transplanted, of all sizes, by the 100,000.
OAKS, 1-yr. | ACACIAS, 1-yr.

Prices very moderate, according to quantity.

JEAN VERSCHAFFELT, Ghent, Belgium, having a most splendid stock of the under-mentioned plants, begs to offer them at the following very low prices, viz.:

CAMELLIAS, well set with buds, 1 to 1½ foot high, all named sorts, £7 per 100.
,, stronger, £10 to £20 per 100, and upwards.
,, ALBA PLENA (the old double white), without buds, extra fine, strong, bushy plants, 2 to 2½ feet high, £20 per 100.—Note. Of this, the old double white Camellia, J. V. holds the largest stock in the trade. The plants are exceedingly fine and healthy.
AZALEA INDICA, fine plants (only the best varieties grown), well set with buds, £6 to £12 per 100.
,, ,, stronger, 4*s.* to 12*s.* each, and upwards.
,, ,, fine specimen plants, 20*s.* to 80*s.* each, and upwards.
OTAHEITE ORANGES, in fruit, 28*s.* per dozen.
JASMINUM GRANDIFLORUM (true), fine grafted plants, flowering throughout the winter months, 28*s.* per dozen.
DRACÆNA LINEATA, extra fine and large plants, 3 feet high, 80*s.* per dozen, £20 per 100.

Early orders are solicited by JEAN VERSCHAFFELT, The Nurseries, Ledeberg, Ghent, Belgium.

Agents in London: Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, E.C.

Gladioli.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), has the honour to inform his numerous Friends and the Public that he will be prepared to supply them, on and after November 15 next, at the lowest possible price, with all they may require in Gladioli.

NEW VARIETIES for 1875-76 (Souchet's):—

Amaranth	Leandre
Camille	Miriam
Christophe Colomb	Niobe
Esther	Phœnix
Fiammetta	Rosita
Hecla	Titania.

The Twelve Varieties for £3 12*s.*, carriage free to London.

CATALOGUES will be forwarded on application, about the end of October.

Gladioli.—New Roses.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), will place in commerce, in November next, the following magnificent ROSES, obtained by him from seed, and which gained a Silver-gilt Medal at the Paris Exposition in June:—

HYBRID PERPETUALS.

Abel Carrière	Guillaume Koëlle
Dingee Conard	L'Etincelante
Duchesse de Chartres	Mme. Grandin-Monville
Edmund Wood	Mme. Prosper Langier
Général de Cissey	Mdlle. Berthe-Sacavin
Général Duc d'Aumâle	Mdlle. Emilie Verdier.

The Twelve Varieties for £10 16*s.*, carriage free to London.

IMMENSE STOCK of GLADIOLI.

CATALOGUES of Gladioli and of all the New Roses may be had on application, about the end of October.

EVERGREENS and AVENUE TREES.—Aucuba japonica, 1 to 3 feet; Laurustinus, 1 to 3 feet; Laurels, 3 to 8 feet; Yews, 2 to 6 feet; Hollies, 2 to 6 feet; Limes, Planes, Birch, Poplars, Chestnuts, 8 to 16 feet, of unsurpassed quality.

For prices per dozen or 100, see CATALOGUE, post free on application.

WM. RUMSEY, Joyning's Nurseries, Waltham Cross, N.

HYACINTHS, TULIPS, CROCUS, GLADIOLI, LILIES, IRIS, NARCISSUS, COLCHICUMS, HELLEBORES, PÆONIES, &c.

Our English CATALOGUE of the above for 1875 is now ready, and will, as usual, be sent post-free to all applicants.

ANT. ROOZEN AND SON (late Ant. Roozen), Overveen, near Haarlem, Holland.

To the Trade.

ROSES.—STANDARDS—including Hybrid Perpetuals, Teas, with splendid plants of Maréchal Niel, Noisettes, Bourbons, &c., per 100, 80*s.*
HALF STANDARDS—Including as above, per 100, 60*s.*
DWARFS—Principally Hybrid Perpetuals, per 100, 40*s.*

WILLIAM BRYANT is now booking Orders for the above; all the plants are vigorous and healthy.

The Nursery, Rugby.

Rhubarb Roots.

W. FROMOW, having lately taken some ground of a Market Gardener, has a large quantity of extra strong Roots of LINNÆUS to Dispose of, the ground being wanted for nursery stock. Excellent for forcing. Price to Trade and others on application. Low price for quantity.

Sutton Court Nursery, Turnham Green, W.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

Pelargoniums for the Million.

JAMES HOLDER can supply Show, French and Fancy Pelargoniums, in 50 or 100 varieties, strong healthy plants, at 25*s.* per 100, during September and October. Also strong cut-back plants for immediate forcing, early sorts, at 9*s.* per dozen, 60*s.* per 100, package included. Terms cash.

CATALOGUES on application.

Crown Nurseries, Reading.

SPIRÆA (HOTEIA) JAPONICA and LILY of the VALLEY.—Good strong clumps for Forcing of Spiræa (Hoteia) japonica, 24*s.* per 100, £10 per 1000. Lily of the Valley, £3 per 100; in single pips, for forcing, extra strong, 10*s.* per 100, £3 per 1000, if ordered at once, from

JEAN VERSCHAFFELT, The Nurseries, Ledeberg, Ghent, Belgium.

New Roses.

CHARLES TURNER can supply the Four fine NEW ROSES of his own raising, viz.:—Miss Hassard, the Rev. J. B. M. Camm, John Stuart Mill, and Royal Standard, as Standards, Half-standards and Dwarfs.

For full descriptions and opinions of the Press, see ROSE CATALOGUE, now ready.

The Royal Nurseries, Slough.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.

Highgate Nurseries, London, N.

Dutch Bulbs.

WILLIAM FROMOW has received his annual supply of the above from the best Continental Growers, in very fine condition.

AUTUMN CATALOGUE of BULBS, ROSES, and GENERAL NURSERY STOCK, now ready.

Sutton Court Nursery and Seed Establishment, Turnham Green, London, W.

Specimen Stove and Greenhouse Plants.

EDWARD MORSE has a great number of specimen and half-specimen STOVE and GREENHOUSE PLANTS for Sale, including Ericas, Azaleas, Stephanotis, Clerodendrons, Ferns, Palms, &c.

Priced LIST on application.

Original Nurseries, Epsom, Surrey.

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.

Carlton, Tasmania.

Mulberries.—Important to the Trade.

SALTMARSH AND SON'S stock of the above consists of several thousand fine, healthy, well-grown Standards of various sizes, and may fairly be said to be unsurpassed, if equalled, in the Trade. The system adopted in their cultivation prevents the ugly knotty stems so frequently seen. Prices per dozen or per 100 on application.

N.B.—A few fruit-bearing trees with good heads can be supplied. The Nurseries, Chelmsford, Essex.

Sunningdale.

HIGHLY IMPORTANT EXTENSIVE UNRESERVED SALE of NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Noble to SELL by AUCTION, without reserve (the lease of a portion of the Nursery having expired necessitating an immediate clearance), on the Premises, the Sunningdale Nursery, close to the Station near Bagshot, Surrey, on MONDAY, October 25 and five following days, at 11 for 12 o'Clock precisely each day, an immense quantity of beautifully grown NURSERY STOCK, including a great number of magnificent specimen Coniferæ and other Evergreens, also many thousands of young and thriving stock in splendid condition for removal, particularly worthy of the attention of large consumers, comprising 5000 Cupressus Lawsoniana, 2 to 7 feet; 5000 Thujas of sorts; 5000 Portugal Laurels, 1 to 2 feet; 6000 Common Hollies, 1 to 2 feet; 5000 Aucubas of sorts; 20,000 Privet; 1000 English Yews, ½ to 2½ feet; 8000 Mahonias, Piceas, Hollies, Thujas, Junipers, Araucarias, &c.; 50,000 choice named Hybrid and Pontica Rhododendrons, Kalmias, Andromedas, and other American plants, 4000 Deciduous Flowering Shrubs, 50,000 Ornamental Trees in great variety, 10,000 Standard and Dwarf Roses, Fruit Trees, Manetti and Plum Stocks, Hardy Climbers in pots, and thousands of other stock too numerous to specify.

The stock may at any time be viewed. Catalogues may be had on the Premises, and of the Auctioneers.

Preliminary Notice of

FORTHCOMING SALES of NURSERY STOCK, &c., by PROTHEROE AND MORRIS.

OCTOBER 27 and 28.—EXOTIC NURSERY, Tooting, S.W. By order of Mr. R. Parker. A considerable quantity of beautifully-grown Nursery Stock.

OCTOBER 29.—The NURSERY, Epsom. By order of Mr. Tanton. A quantity of useful Nursery Stock.

NOVEMBER 2, and following days.—At one of their BRANCH NURSERIES, Kingston-on-Thames. By order of Messrs. Jackson & Son. An extensive assortment of about 8 acres of fine Nursery Stock.

NOVEMBER 2 and 3.—NORTHGATE NURSERY, Chichester. By order of Mr. D. Scott. A large and rich assortment of clean-grown Nursery Stock.

NOVEMBER 4, 5 and 6.—GROOMBRIDGE NURSERY, Tunbridge Wells. A large quantity of beautifully-grown Nursery Stock.

NOVEMBER 9.—The HOME NURSERY, Atherstone. By order of Mr. H. Baker. A fine assortment of thriving Nursery Stock, adapted for immediate effect.

NOVEMBER 8 to 13.—The NURSERIES, Streatham Place, Brixton, S.W. By order of Geo. Clark, a fine stock of large Evergreens and Coniferæ, &c., for immediate effect; also bearing Fruit Trees, &c.

NOVEMBER 11.—The NURSERY, Beddington, Surrey. By order of Messrs. Rollisson & Sons. A quantity of choice American Plants and other Nursery Stock.

NOVEMBER 16, 17 and 18.—The BRANCH NURSERY, Teddington. By order of Mr. Laing. A beautiful assortment of well-grown Nursery Stock.

NOVEMBER 16.—The NURSERY, Caterham, Surrey. By order of Mr. G. Woollett. A quantity of fine Nursery Stock, growing on land adjoining the Home Nursery, the term for which is about to expire.

NOVEMBER 17.—HOLLAND NURSERY, Holland Street, Brixton Road, S.W. By order of Mr. J. Fowle. General Stock.

NOVEMBER 19 and 20.—The NURSERY, High Road, Lewisham, S.E. By order of Mr. Biggs. A fine assortment of Nursery Stock.

NOVEMBER 23 and following days.—ASCOT. By order of the surviving Partner of the late Mr. John Standish, deceased. A very large quantity of Nursery Stock, Plants in pots, &c.

Catalogues, when ready, of any of the above Sales may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, Essex.

Berkhamsted, Herts.—Expiration of Lease.

IMPORTANT SALE of VALUABLE NURSERY STOCK. Must be cleared by the 18th of December.

MESSRS. WOODMAN AND SON have received instructions from Messrs. H. Lane & Son to SELL by AUCTION, at their Wigginton Nurseries, on MONDAY, TUESDAY, and WEDNESDAY, October 18, 19, and 20, at 11 for 12 o'Clock each day, a fine COLLECTION of TREES and SHRUBS consisting of large specimens of Araucaria imbricata, Wellingtonia gigantea, Picea Nordmanniana, Picea nobilis, Cupressus Lawsoniana, Thujopsis borealis, Thuja Lobbii, Thuja gigantea, Cedrus atlantica, Junipers, Retinosporas, Rhododendrons, Hollies, Pinus austriaca, Mahonias, Oaks, &c. Also Pyramidal Pears, Apples, and Plums.

CATALOGUES may be had of Messrs. WOODMAN AND SON, Auctioneers, Hemel Hempstead; or, free by Post, upon application to Messrs. H. LANE AND SON, The Nurseries, Great Berkhampstead.

Conveyances will be provided at the Berkhampstead Station to convey purchasers to the Wigginton Nurseries, if previously advised by Post.

Castle Eden Hall, County of Durham.

HIGHLY IMPORTANT SALE of PURE-BRED and FIRST-CLASS SHORTHORNS and a few HALF-BRED HORSES.

MR. THOMAS WETHERELL will SELL by AUCTION, on FRIDAY, October 22, at the Dene Leazes Farm (half a mile from Castle Eden Colliery Station, on Ferryhill and Hartlepool Railway), the valuable HERD of SHORTHORNS late belonging to Rowland Burdon, Esq., deceased. The herd comprises twenty-eight females and six males, directly descended from the Broomley herd—in the year 1862 three females having been purchased from Messrs. Angus at a high price. The sires used in this herd were purchased from Messrs. Atkinson, of Peepy, Mr. Fawcett, of Sealeby Castle, Mr. Wood, of Stanwick Park; and the bull in present use is Mountain Hero (31,994, from the Aylesby herd, bred by the late Mr. Torr). The calves are by him, and the cows and heifers are all served by him.

Catalogues to be had of WM. DARLEY, Esq., Castle Eden, and of THOMAS WETHERELL, 32, Claypath, Durham.

Hook Heath Nursery, Woking.

NOTICE of SALE.

MESSRS. WATERER AND SONS beg to inform the Nobility, Gentry, and the Trade, that they have received instructions from the Executors of the late Mr. Chapman to SELL by AUCTION, in OCTOBER, the very valuable NURSERY STOCK on Hook Heath Nursery.

Further particulars will appear in future Advertisements, and Catalogues had of Messrs. WATERER AND SONS, Chertsey, Surrey.

Hare Hill, Chertsey, Surrey.

NOTICE of CLEARANCE SALE.

MESSRS. WATERER AND SONS beg to inform the Nobility, Gentry, Nurserymen and others that they have been favoured with instructions from Mr. G. Chapman to SELL by AUCTION, upon the Premises, Hare Hill, Chertsey, EARLY in NOVEMBER, the whole of the very choice young and thriving NURSERY STOCK.

Further particulars will appear in future Advertisements, and Catalogues had of Messrs. WATERER AND SONS, Chertsey, Surrey.

Goldsworth, Woking, Surrey.

NOTICE of SALE.

MESSRS. WATERER AND SONS beg to inform the Public that they have received instructions from Mr. Newey to SELL by AUCTION, upon the Premises, Goldsworth, Woking, in OCTOBER, a quantity of very choice well-grown NURSERY STOCK, the land being required for building purposes.

Full particulars will be announced in future Advertisements, and Catalogues had of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, Surrey.

Binstead House, near Ryde.

TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

SALE of a CHOICE COLLECTION of STOVE and GREENHOUUSE PLANTS, FRUIT and ROOT CROPS, LIVE STOCK, &c.

MESSRS. WALLIS, RIDDETT AND DOWN have received instructions from the Executors of the late Sir Charles Locock, Bart., to SELL by AUCTION, in the pleasure grounds of the above Estate, on MONDAY, October 18, at 12 o'Clock precisely, the whole of the valuable collection of STOVE and GREENHOUSE PLANTS, including fine specimens of Allamanda, Stephanotis, Hoya, Bougainvillea, Hibiscus, Clerodendron, Croton, Allocasia, Maranta, Anthurium, Aphelexis, Pimelea, Palms, Azaleas, Aloes, and a good assortment of Pines. The Collection of Exotic Ferns, which is considered to be the finest in the Island, includes beautiful specimens of Adiantum Farleyense, A. cuneatum, Cibotium princeps, C. Schiedei, Dicksonia antarctica, &c. Also the Crop of Orchard Fruit and the various Root Crops of the Kitchen Gardens. The LIVE STOCK comprises four prime Dairy Cows, a Heifer, Sow and Litter, and a quantity of Poultry.

May be viewed the preceding Saturday and morning of Sale. Catalogues may be had at Messrs. WALLIS, RIDDETT AND DOWN'S Auction Office, Ryde.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 14, at half-past 12 o'Clock precisely, a quantity of plants of the new

ODONTOGLOSSUM CIRRHOSUM,

now introduced in living plants for the first time. From the extraordinary character of dried flowers collected many years ago, plants of this new and splendid Odontoglossum have been coveted, but no Collector could since succeed in introducing or even finding it. M. Roezl has had the good fortune to import a quantity of living plants in the most superb condition about two months since, and the plants are now making healthy strong growths. On the arrival of this Odontoglossom in London the great Orchidologist, Professor Reichenbach, telegraphed, "Grand success, first time imported," and afterwards wrote in ecstasies about it.

This superb Odontoglossum is a much handsomer species than the still rare O. nævium, somewhat resembling it in colour and character, but infinitely superior. It produces fine strong branched spikes of blossom, each flower 3 to 4 inches across, white, marked and spotted in the way of O. nævium, exceedingly chaste and beautiful.

Also several hundreds of PHALÆNOPSIS SCHILLERIANA, AMABILIS, LUDDEMANNIANA, and ROSEA, on blocks, as imported; and a quantity of ODONTOGLOSSUM HALLII. Many of the plants of this rare Odontoglossum, which is one of the most magnificent of the family, are splendid plants, such as have never before been imported. Also a collection of established and semi-established ORCHIDS, including many rare kinds, and comprising ONCIDIUM SARCODES, ODONTOGLOSSUM BLANDUM, ANÆCTOCHILUS INTERMEDIUS, ODONTOGLOSSUM PESCATOREI, CATTLEYA ELDORADO SPLENDENS, ODONTOGLOSSUM DAWSONIANUM, MASDEVALLIA HARRYANA, ODONTOGLOSSUM RAMULOSUM, a quantity of the rare ODONTOGLOSSUM HYSTRIX and O. CRISPUM, and an importation of CATTLEYA MOSSIÆ from La Guayra; also a quantity of New CATTLEYAS from Ibague.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

NEW PLANTS.

Mr. WILLIAM BULL'S Houses being overcrowded with NEW PLANTS and NOVELTIES continually arriving from his Collectors abroad, he has instructed

MR. J. C. STEVENS to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 21, at half-past 12 o'Clock precisely, a portion of some of the best of his recent introductions. The Sale will be one of the most remarkable that has ever taken place of

NEW AND BEAUTIFUL PLANTS.

Most of them have only lately been offered to the public for the first time, and all are well known to be extremely handsome and of the highest merit. It will comprise a quantity, in large and small plants, of such magnificent plants as the following:—

CROTON MAJESTICUM,
DIPLADENIA BREARLEYANA,
PLEOCNEMIA LEUZEANA,
CROTON VOLUTUM,
SPATHIPHYLLUM PICTUM,
MACROZAMIA PLUMOSA,
CROTON SPIRALE,
ARTOCARPUS CANNONI,
ANTHURIUM CANDIDUM,
DIOSCOREA ILLUSTRATA;

with many other New and Rare Plants, and some of the most handsome specimens of New and other DRACÆNAS that have ever been seen. Also some fine specimens of well-known New and beautiful Ornamental Plants, an inspection of which alone will amply repay a visit to the Auction Rooms.

There will also be included in the Sale some hundreds of choice PALMS, and among them a large quantity of the elegant and handsome varieties of DÆMONOROPS.

If desired, and on intimation being made to Mr. STEVENS, Purchasers can have their plants packed with the usual care taken by Mr. William Bull's packers.

A CATALOGUE, containing illustrations of many of the New Plants, can be had on application to Mr. J. C. STEVENS.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

THE LAWSON NURSERIES,

EDINBURGH.

Evergreen Shrubs for Present Planting.

Rhododendrons, Ivies in Pots, &c., &c.

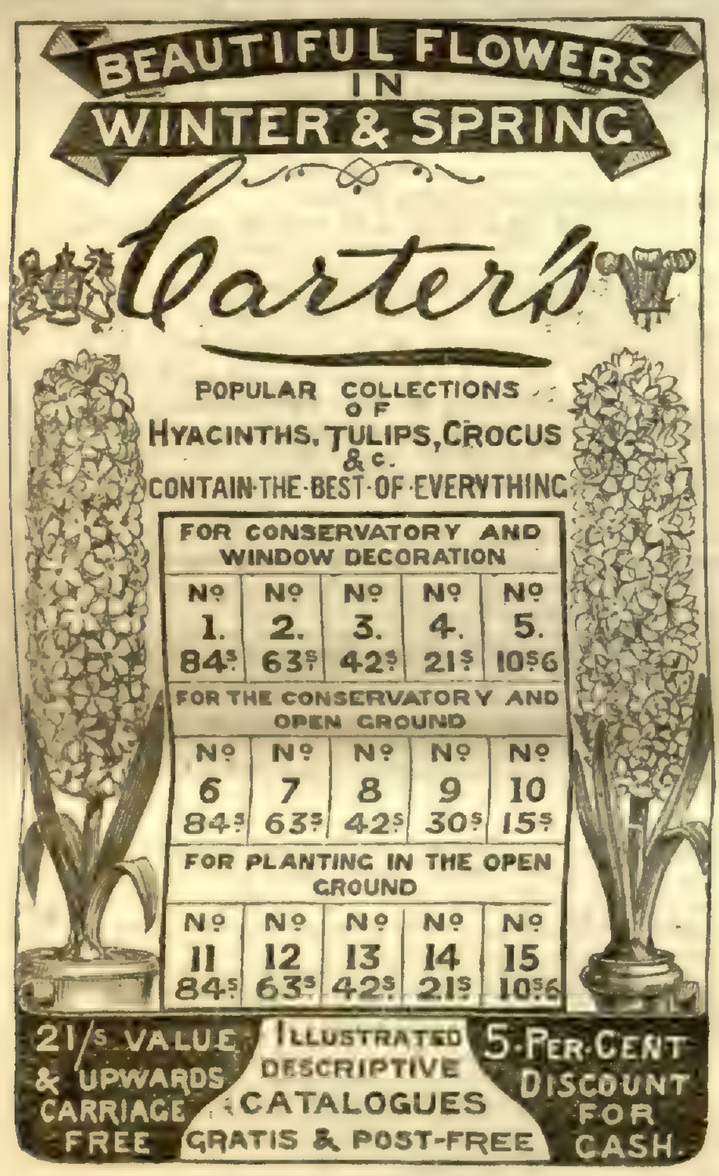
Hothouse, Greenhouse, and Bedding-out Plants in great variety.

TODEA SUPERBA — several hundreds, among which some magnificent specimens, perhaps the finest ever imported.

CLEMATISES in POTS—a large Collection of all the leading varieties, including the splendid flowers raised by I. Anderson-Henry, Esq., viz.: Henryi, Lawsoniana, and Symeiana; 10s. 6d. the set of 3 plants.

CATALOGUES ON APPLICATION.

The Lawson Seed and Nursery Company
(LIMITED),
106, SOUTHWARK STREET, LONDON,
AND EDINBURGH.



From FRED. WALTON, Esq.
"October 15, 1874.

"The Collection of Bulbs is truly a wonderful one for money."

Early Orders ensure the Best Roots.

Carter's

The Queen's Seedsmen,
237 & 238, HIGH HOLBORN, LONDON, W.C.

Hooper's — for Spring and Autumn blooming Bulbs.

Purchasers will find a REAL ADVANTAGE in procuring one or more of Hooper's assortments of Bulbs, which are prepared as under:—

For both INDOOR and OUTDOOR CULTURE.
No. 1, £4 4s. (containing 1345 bulbs); No. 2, £3 3s.; No. 3, £2 2s.; No. 4, £1 1s.

For CONSERVATORY and WINDOW CULTURE.
No. 5, £4 4s. (containing 446 bulbs); No. 6, £3 3s.; No. 7, £2 2s.; No. 8, £1 1s.

For OUTDOOR CULTURE only.
No. 10, £4 4s. (containing 1701 bulbs); No. 11, £3 3s.; No. 12, £2 2s.; No. 13, £1 1s.

All carriage free on receipt of remittance.
CATALOGUES may be had on application.
HOOPER AND CO., Covent Garden, London, W.C.

WORCESTER PEARMAIN APPLE.

Awarded a First-class Certificate by the Royal Horticultural Society, October 6, 1875.

Fruit 2¾ inches wide, and same in height, conical; skin smooth, brilliant red, with minute fawn-coloured dots; flesh very tender, crisp, juicy, and sweet, with a very pleasant flavour, perhaps the most valuable of all for market. The tree is as productive as Lord Suffield Apple, and one of the handsomest fruits in cultivation. Ripe end of August, and will keep till Christmas.

Maiden Trees, 10s. 6d. *each; Pyramid or Trained Trees,* 21s. *each. Coloured Plates,* 6d. *each.*

RED HAWTHORNDEN APPLE.—Dr. Hogg describes this as large, oblate, and angular; skin smooth, greenish yellow, with a red blush next the sun; flesh white, tender and juicy, with a sprightly and agreeable placidity. A very early and valuable culinary Apple; ripe August and September. Maiden trees, 7s. 6d. each; Pyramid or trained trees, 10s. 6d.

YORKSHIRE BEAUTY APPLE.—Dr. Hogg, in his *Manual*, says this fruit is 3½ inches wide and 3 inches high, roundish, flattened, and angular; skin bright yellow, with a bright red blush on the sunny side; flesh tender and juicy, with an agreeable acidity. A first-rate culinary Apple for August and September, the great size and excellent quality ought to commend it as a good orchard fruit for the market. Maiden trees, 5s. each; Pyramid or trained trees, 7s. 6d.

NEW GOLDEN LABURNUM.—Unquestionably the finest hardy golden-leaved tree known, of immense value for park and garden scenery; it will take a foremost position among pictorial and garden trees; the foliage is a brighter golden-yellow than the flower of the ordinary Laburnum. First-class Certificate awarded by the Royal Horticultural Society, August 4, 1875. Price 10s. 6d. each; Standard and extra strong trees, 21s. Coloured plates, 6d. each.

OTHERA JAPONICA.—A new and beautiful evergreen shrub. One of the most distinguished Japanese travellers says this is perhaps the prettiest evergreen they have in Japan; it grows about 20 feet high, has dark green leaves and a profusion of bright red fruit; it is very effective and perfectly hardy. Price 10s. 6d. each; extra strong, 21s.

CLIMBING ROSE, COUNTESS OF OXFORD.—The old variety in all respects, except in being a free climber. 7s. 6d. each.

FIFTY ACRES OF FRUIT TREES.

Standard and Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, very fine trees for walls.

Standard, Pyramid, Dwarf, Bush, and Cordon APPLES, PEARS, PLUMS, and CHERRIES.

ORCHARD HOUSE TREES, Established in Pots, for Immediate Fruiting.

PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, APPLES, FIGS, ORANGES, and MULBERRIES.

VINES, Planting Canes, 3s. 6d. to 5s. each; Extra Strong Fruiting Canes, 7s. 6d. to 10s. 6d. each.

All the above of superior quality, perfect in form, roots, and health, and true to name. See Descriptive Price List.

TWELVE ACRES OF ROSES,

Standards and Dwarfs, all the popular sorts; 80,000 choicest Tea-scented and Noisette Roses, in pots. Extra strong Hybrid Perpetual Roses, in pots for immediate forcing. Climbing Roses in great variety. *See Descriptive Price List.*

FOR SHRUBBERIES.

		Per 100.
LAUREL, Colchic, the best hardy variety	3 to 4	feet, 35s.
,, Portugal, very fine	1½ to 2	feet, 35s.
,, Portugal, very fine	2 to 2½	feet, 50s.
,, Caucasian, very fine	2 to 3	feet, 50s.
,, Round-leaved, extra fine	2 to 3	feet, 70s.
,, Six distinct and beautiful vars.	2 to 3	feet, 50s.
COTONEASTER SIMONSII, fine	3 to 4	feet, 35s.
PYRUS JAPONICA	2 to 3	feet, 50s.
EUONYMUS RADICANS VARIEGATA	1	foot, 40s.

		Per 100.
CISTUS LAURIFOLIA, in pots	1½ to 2	feet, 50s.
ARBUTUS (Strawberry tree)	1½ to 2	feet, 60s.
,, (Strawberry tree)	2 to 2½	feet, 75s.
CEPHALOTAXUS DRUPACEA	1½	foot, 60s.
TREE IVIES, full of flower	1 to 1½	foot, 75s.
LAURUSTINUS	1 to 1½	foot, 40s.
BROOMS, White and Yellow	2 to 3	feet, 30s.
YEW, English, bushy	1½ to 2	feet, 40s.
,, English, bushy	2 to 2½	feet, 60s.
,, English, bushy	2½ to 3	feet, 80s.
,, Golden, bushy	1 to 1½	foot, 90s.

		Per doz.
JUNIPER, Chinese	4 to 5	feet, 36s.
,, Chinese	5 to 6	feet, 42s.
OAK, Austrian Evergreen	2½ to 3	feet, 30s.
,, Austrain Evergreen	3 to 4	feet, 42s.
,, Ford's Evergreen	3 to 4	feet, 36s.

		Per doz.
CRYTOMERIA ELEGANS	2 to 2½	feet, 21s.
PICEA PINSAPO	2 to 2½	feet, 36s.
,, PINSAPO	2½ to 3	feet, 42s.
YUCCA GLORIOSA PENDULA	12 to 15	in., 12s.
,, GLORIOSA PENDULA	15 to 18	in., 18s.

		Per 100.
IVY, strong, for climbing	3 to 4	feet, 40s.
VIRGINIAN CREEPER	3 to 4	feet, 40s.

		Per 100.
ROSES, Climbing, in variety	3 to 4	feet, 40s.
HONEYSUCKLES, in variety	3 to 4	feet, 40s.

DECIDUOUS FLOWERING SHRUBS in 50 beautiful varieties, 30s. per 100.
AVENUE AND ORNAMENTAL TREES, many thousands in great variety. See Priced Lists.

RICHARD SMITH,

NURSERYMAN AND SEED MERCHANT, WORCESTER.

SPRING-FLOWERING PERENNIALS, &c., for Spring Gardening, Carpet Bedding, and Herbaceous Borders :—

Ajuga reptans fol. var., Aubrietia purpurea fol. var., Campanula persicifolia, and C. persicifolia alba, C. carpatica and C. carpatica alba, Cheiranthus Marshallii, C. alpina, Dianthus barbatus fl.-pl., D. barbatus nanus compactus, Seedling Delphinium, Helianthemums in named sorts, Lithospermum prostratum, Lychnis of sorts, Œnotheras in variety, Saxifrages in twelve kinds, Sedums in twelve sorts, Spiræa filipendula fl.-pl., Schizostylis coccinea, Violet Victoria Regina. All the above at 2*s.* 6*d.* per dozen.

Alyssum saxatile, Antennaria tomentosa, Aubrietia purpurea, Barbara præcox fol. var., Canterbury Bells, double and single, Iberis coriifolia, I. Tenoreana ; Violas, alba, Enchantress, Magnificent, lutea, and grandiflora ; Arabis albida, Phlox frondosa, P. verna, Silene pendula compacta, S. pendula compacta alba, Armeria rosea, and Veronica incana. Any of the above at 1*s.* 6*d.* per dozen ; 50 for 5*s.*; 100 for 9*s.*

Daisies, red, white, or rose ; Wallflowers, double or single ; Dactylis elegantissima, Golden Pyrethrum, Myosotis dissitiflora, M. sylvatica, M. sylvatica alba or rosea, Polyanthus, Sedum acre elegans, S. glaucum, S. lividum, Sempervivum tectorum, S. californicum, Stellaria graminea aurea, and Sweet Williams. Any at 1*s.* per dozen ; 50 for 3*s.*; 100 for 5*s.*

For descriptions, &c., of above, and for Spring-flowering Bulbs to plant with above see CATALOGUE, post free on application.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

C. VUYLSTEKE, NURSERYMAN, Loochristy, near Ghent, Belgium, offers to Amateurs and the Trade a large number of beautifully grown plants, in splendid varieties :—

CAMELLIAS, best named sorts, well set with buds, £5, £6, and £7 per 100.

Hardy Ghent AZALEAS, very strong plants, of the best named sorts, with buds, £5, £6, and £7 per 100.

New Japanese AZALEA MOLLIS, strong plants, in twelve named varieties, with buds, 36*s.* per dozen ; with and without buds, £12 per 100.

AZALEA MOLLIS, mixed seedlings, strong plants, with buds, 24*s.* per dozen, or £8 per 100.

Descriptive CATALOGUES of New AZALEA INDICA, CAMELLIAS, AZALEA MOLLIS, Ghent AZALEAS, RHODODENDRONS, &c., will be sent free on application.

Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C., to whom Orders should be sent.

LARGE EVERGREENS, &c.

AUCUBAS, 2½ to 3½ feet high, and as much through.
LIGUSTRUM OVALIFOLIUM, 3 to 8 feet, and bushy.
GREEN HOLLIES, 3 to 10 feet, and bushy.
EUONYMUS, of sorts, 2 to 3 feet, and bushy.
TREE BOX, of sorts, 2 to 4 feet, and bushy.
LAURELS, of sorts, 3 to 5 feet, and bushy.
LILACS, of sorts, 3 to 8 feet, and bushy.
IVIES, of sorts, well established in pots, 4 to 8 feet.

LIMES, 6 to 18 feet.	THORNS, 6 to 10 feet.
PLANES, 6 to 18 feet.	LABURNUMS, 6 to 10 feet.
POPLARS, 6 to 20 feet.	BIRCH, 8 to 12 feet. [12 feet.
ACACIAS, 6 to 10 feet.	HORSE CHESTNUTS, 6 to

WEEPING ASH, with straight stems, 10 to 12 feet, and bushy heads.
,, WILLOWS, of sorts, 6 to 10 feet, and bushy heads.
EVERGREEN PRIVETS for hedges, a large quantity, 3 to 5 feet, and very bushy.

RICHARD J. WOOD begs to offer the above at very low prices. The whole have been frequently transplanted, and move with large balls.

The Bedford and Haverstock Nurseries, Haverstock Hill, N.W.

LAURUSTINUS FOR SALE.

Apply to
WM. TRESEDER, Nurseryman, Cardiff.

Well-grown and recently transplanted, in large quantities.

Good Plants, 9 in. to 1¼ foot, 8*s.* per 100, sample doz. 1*s.* 3*d.*
Bushy Plants, 1 to 1½ foot, 12*s.* 6*d.* per 100, sample doz. 2*s.*
Very good, 1-yr. old, 20*s.* per 100, sample doz. 2*s.* 9*d.*
Large and good bushes, two and three times transplanted, 40*s.* per 100, sample doz. 6*s.*
Extra large, well-furnished plants, 2 to 3 feet, 50*s.* per 100, sample doz. 7*s.*

Post Office Order or Stamps must accompany order for sample dozen. Sample dozen will be carefully packed gratis.

AVENUE TREES.

	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 ,,
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 ,,
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 ,,
,, Scarlet, 10 to 14 feet high	8 to 10 ,,
,, Double, 10 to 14 feet high	8 to 10 ,,
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 ,,
ELMS, 15 to 18 feet	7 to 9 ,,

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots.

They are without doubt the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.

Knap Hill Nursery, Woking, Surrey.

ROSES, 30,000 Dwarf, on the Manetti stock, at 40*s.* per 100, £16 10*s.* per 1000. The above consists fall the finest kinds, in splendid plants, such as La France, Baroness Rothschild, Alfred Colomb, Francois Lacharme, Mons. Etienne Levet, Countess of Oxford, &c. Also some thousands of Specimen Roses, in 8-inch pots, such plants as H. M. was awarded all the First Prizes for at the Great Yorkshire *Gala* at York and the Leeds Horticultural Society for years past—the only places he has exhibited them at. Price 3*s.* 6*d.* each, 36*s.* per dozen, or cheaper in quantity. The above are well adapted to force, and would make a great display, or for exhibiting ; also Tea-scented Roses, in 6-inch pots, very fine, at 24*s.* per dozen. The Roses in pots can be supplied any time, the Dwarf Roses in the open ground as soon as they will remove.

Also 30,000 GOOSEBERRIES, in all the most useful kinds. Price 10*s.* per 100, or 80*s.* per 1000.

Trade price of the above and CATALOGUES on application to HENRY MAY, The Hope Nurseries, Bedale, Yorks.

Potato Prizes at the Royal Berks Root Show.
Saturday, November 20.
NOTICE OF ALTERATION.

MESSRS. SUTTONS' CUP.—In consequence of the comparative failure of the early Potato crop the restrictions as to sorts to be included by Competitors for the above Cup will be modified, and stands thus :—The Best Collection of Potatos, twelve dishes, distinct sorts, twelve tubers to comprise a dish, to include SUTTON'S REDSKIN FLOURBALL and HUNDREDFOLD FLUKE : 1st Prize, a Silver Cup, value £5 5*s.*; 2d Prize, value £1 1*s.*

LUCOMBE, PINCE AND CO. beg to draw the attention of the Trade to their Stock of TREES and SHRUBS, STOVE and GREENHOUSE PLANTS, &c.

Wholesale LIST just published.

Also a quantity of noble Specimens, fit to produce an immediate landscape effect, regularly transplanted and roots pruned.

Exeter Nursery, Exeter.

Winter Flowers.

RUSSIAN VIOLETS, the hardiest and best of all for winter blooming ; good plants, 3*s.* per dozen, package included.

CHRISTMAS ROSE (Helleborus niger), strong blooming plants, 20*s.* per dozen, package free.

DIELYTRA SPECTABILIS, strong plants for forcing, 6*s.* per dozen, package free.

The money must accompany all orders.

THOMAS KITLEY, Oldfield Nursery, Bath.

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other DUTCH ROOTS, in fine condition. Early orders are requested. CATALOGUES free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Camellias and Azaleas with Bud.

A. VAN GEERT, Ghent, Belgium, begs to offer :—

CAMELLIAS, with bud, at £6, £8, £10, and £12 per 100.
INDIAN AZALEAS, with bud, at £5, £6, to £8 per 100.
GHENT AZALEAS, at £4 to £6 per 100.

Early orders respectfully solicited. Reference from unknown correspondents required.

M. A. VAN GEERT'S New GENERAL CATALOGUE, the most complete in the trade, is now ready, and may be had, free, either from himself or his Agents, Messrs. R. SILBERRAD AND SON, London, E.C.

TO THE TRADE.

WHITE ROMAN HYACINTHS, true, pure white early variety, price very low.
LEUCOJUM VERNUM—Spring Snowflake.
HELLEBORUS NIGER—Christmas Rose.
GLADIOLUS BYZANTINUS.

Snowdrops	Star of Bethlehem
Winter Aconites	Pancratium maritimum
Narcissus poeticus	Cyclamen persicum.
,, double Roman	Lilium bulbiferum
,, paper-white	,, excelsum
Dielytra spectabilis	,, martagon
Hepatica, single white	,, tigrinum
,, single blue	,, candidum, fol. var.
,, single red	,, chalcedonicum
,, double red	,, eximium
Iris pumila azurea	,, lancifolium roseum
,, germanica	,, Humboldtii
Hyacinth, blue grape	,, Washingtonianum
,, blue feathered	,, Szovitzianum
Cyclamen europæum	,, tenuifolium
Triteleia uniflora	,, pulchellum
Scilla campanulata	,, auratum
Jonquils, double	,, lancifolium rubrum
Dog's-tooth Violets	White Garden Lilies
Double Daffodils	St. Bruno Lilies.

All in extra fine bulbs. Prices very low. On application to SANDER AND CO., Seed Growers, St. Albans.

DUTCH BULBS.

B. S. WILLIAMS

begs to announce that he has received his

ANNUAL SUPPLY OF HYACINTHS,

TULIPS, NARCISSI, CROCUS, &c.,

in splendid condition.

CATALOGUE Gratis on application ;

also of New Plants, Fruit Trees, Roses, &c.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

THE KNAP HILL CYPRESS,

Cupressus Lawsoniana erecta viridis.

ANTHONY WATERER

Will be happy to supply beautiful specimens of this famous hardy Evergreen, at the following prices :—

3 feet high, 2½ feet in circumference, 30*s.* per doz.
4 feet high, 3 to 4 feet do., 42*s.* to 60*s.* per doz.
5 feet high, 4, 5 and 6 ft. do., 10*s.* 6*d.*, 15*s.* to 21*s.* ea.
6 and 7 feet high, 6 to 7 and 8 ft. do., 21*s.* to 31*s.* 6*d.* ea.

No cuttings have been taken from the plants here referred to, which are simply perfect in growth and splendidly rooted.

KNAP HILL NURSERY, WOKING, SURREY.

The Gardeners' Royal Benevolent Institution.

NOTICE IS HEREBY GIVEN that an ADDITION will be made to the LIST of PENSIONERS in JANUARY NEXT. All Persons desirous of becoming Candidates are required to send in their applications to the Committee on or before NOVEMBER 13 NEXT, after which date they will not be received. Preference will be given to those applicants who may have been Subscribers for fifteen years and upwards. Should there not be a sufficient number of applicants of that class then the claims of those who have not subscribed so long, or not at all, will be considered.

By Order, EDW. W. CUTLER, Sec.

14, Tavistock Row, W.C.—October 6.

P.S.—Printed Forms of Application can be had upon writing to the Secretary.

SPRING FLOWERS.—CATALOGUE of all the most beautiful, fragrant, and effective Spring-flowering Plants now ready. Prices very low, consistent with size and quality. Now is the best time for planting.

Cheap FRUIT TREES, ROSES, FOREST TREES, and ORNAMENTAL SHRUBS, in great variety.

R. THORNHILL, Bowdon Nurseries, Bowdon, Cheshire.

Fruits.

W. PAUL AND SON beg to state that the COLLECTION of APPLES and PEARS exhibited by them before the Royal Horticultural Society on the 6th inst. is now re-arranged in the Fruit-room at their Nurseries, Waltham Cross, and they will have much pleasure in showing it to any one interested in these fruits.

PAUL'S Nurseries, Waltham Cross, adjoining the Waltham Station, Great Eastern Railway.

Planting Season 1875.

MESSRS. JOHN STANDISH AND CO. beg to inform the Public that their stock of CONIFERS, EVERGREENS, RHODODENDRONS, FRUIT TREES, ROSES, &c., is unusually fine this season, and the plants, having been very recently removed, are well worthy of the attention of buyers.

They have also a large quantity of STOVE and GREENHOUSE PLANTS, such as Camellias, Azaleas, Bouvardias, Ferns, Decorative Plants, &c., to offer, all strong and healthy, at very reasonable prices.

The business at Ascot and at Knightsbridge is being carried on as usual under the same name.

CATALOGUES free on application.
Royal Nurseries, Ascot, Berks.

Richmond Nurseries, Richmond, Surrey.

To GENTLEMEN, NURSERYMEN, LARGE CONTRACTORS, LANDSCAPE GARDENERS, and OTHERS.

G. AND W. STEELL beg to call the attention of all Planters to their very extensive and fine grown NURSERY STOCK, consisting of an excellent selection of Ornamental Evergreen and Deciduous Shrubs and Trees, Standard and Dwarf Rose Trees, Standard and Dwarf Variegated and Green Hollies of the newest and best varieties, Standard and Dwarf Fruit Trees, &c., which they can highly recommend for their fine growth and moving qualities.

N.B.—Where large quantities are required they can be supplied at very low prices.

From Paris—New Roses for 1875-1876.

LÉVÊQUE AND SON, NURSERYMEN, 26, Rue du Liegat, Ivry-sur-Seine, near Paris, beg to announce that their LIST of NEW ROSES is now ready, and and will be sent immediately on application. They recommend particularly the following four sorts of their production :—H.P. Duc de Montpensier, H.P. Avocat Duvivier, H.P. Monseigneur Fournier, and a seedling of Cloth of Gold, Madame Miolan Carvalho, a deep yellow. Fifty other sorts of different growers are described in their List. On application they give confidential information. They give, as Discount, one plant or one sort over in each dozen ordered.

Cranston's Nurseries.—Established 1785.

THE FOLLOWING CATALOGUES are now Published :—

Descriptive CATALOGUE of ROSES, 1875—1876.
Descriptive CATALOGUE of FRUIT TREES.
Descriptive CATALOGUE of CONIFER TREES and SHRUBS.
Descriptive CATALOGUE of BULBS.
Descriptive CATALOGUE of GREENHOUSE and HERBACEOUS PLANTS.
Descriptive CATALOGUE of SEEDS. Address,
CRANSTON AND MAYOS, King's Acre, near Hereford.

VINES, VINES, EPIPHYLLUMS, TREE CARNATIONS, and CYCLAMENS.

VINES.—Strong, well-ripened, and short-jointed fruiting and planting Canes of the following varieties, 2*s.* 6*d.* to 5*s.* each :—Buckland's Sweetwater, Black Hamburgh, Black Alicante, Foster's Seedling, Gros Colman, Lady Downe's, Muscat Hamburgh, Madresfield Court, Dr. Hogg, Mrs. Pince, Muscat of Alexandria, Seacliffe Black, Trentham Black, White Lady Downe's, West St. Peter's ; a few of Waltham Cross, 7*s.* 6*d.* to 15*s.* each ; Duke of Buccleuch, 7*s.* 6*d.* to 10*s.* 6*d.*

EPIPHYLLUMS. — Strong grafted plants, 6 to 15 inch stems, heads 6 to 9 inches in diameter, 9*s.* per dozen, 60*s.* per 100 ; larger plants, 12*s.* per dozen, 90*s.* per 100.

TREE CARNATIONS and CYCLAMENS, fine for this season's blooming, 9*s.* and 12*s.* per dozen, 70*s.* and 90*s.* per 100.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

New Plants.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to offer the following new and desirable plants, at the annexed moderate prices :—

COREOPSIS NUDATA, from Florida, with handsome rosy-purple flowers, young plants, 2*s.* 6*d.*

ERYNGIUM PANDANIFOLIUM, handsome foliage, from Southern Brazil, 2*s.* 6*d.*

HORKELIA CALIFORNICA, allied to Potentilla, elegant Fern-like foliage, white flowers, 2*s.* 6*d.*

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show you." On our way to the cottage, which, to him, was a fountain discovered in a desert, the wanderer confessed that, after residing twelve years in Boulogne-sur-Mer, he was able to produce no larger stock of French than that.

Business people of the middle class, living in seaside towns on either side of the Channel, and knowing the value of international communication by word of mouth and letter, frequently adopt a system which insures that advantage to their successors, although they may not enjoy it themselves. They exchange children. John Smith has a likely lad, a very chip of the paternal block, destined to continue the concern, extend its connection, and increase its prosperity. Jacques Bonhomme has a rising Young Hopeful of about the same age and with the same expectations, but with the additional pleasure of the conscription before him. The bargain is struck between the fathers, in the intervals of their talk about shillings and francs. Often, before putting it into execution, Mrs. Smith takes the boat and comes over, to inspect the material arrangements and see whether she likes the looks of the people; Madame Bonhomme less frequently does so, being harder to draw out of her lair. If bedrooms and faces turn up satisfactory, the cross migration is effected forthwith. Bonhomme junior, forming one of Smith's family, is regularly sent to day-school exactly as if he were an English boy, and gradually, through sheer necessity, learns English, including the mysteries of pence and farthings, pounds avoirdupois and troy, bushels, quarters, chaldrons, tons. Young Smith, after a short acclimatisation to soup, having taken in the multiplication table at home, finds the decimal system of moneys, weights, and measures far easier than Practice and Vulgar Fractions. The good results of the plan are evident, both educationally and socially. Each family has given a hostage to the other. If you treat my son well, so will I treat yours. And, should political tempests be brewed, the Bonhommes may not be sorry to have tried friends on this side of the water. There seems no valid reason why like interchanges should not extend further into the interiors, and through more numerous social strata, both of those and other countries.

Many people hesitate to venture on speaking a foreign language until they feel sure that they shall speak it faultlessly and perfectly; in which case, unless they vanquish their diffidence, it is tolerably clear that they will never speak it at all. They are like those over-cautious mothers who forbid their children to bathe until they have learned to swim. But the thing must be done by girding up one's loins with the resolution to perform an act of courage. It is like getting married or taking a dip in the sea. When the moment arrives you must say to yourself, "I'm in for it at last; now or never; here goes!" And in nine cases out of ten the outcome is not so bad as was feared. There may be a little splashing and spluttering; one is apt to turn red; but, after all, one survives the adventure. Besides which, with languages, the *experimentum* can be made in *corpore vili*. You are not obliged to make the first attempts in a crowded and fastidious drawing-room. There are domestics, strangers whom one will never see again, secluded opportunities, friendly *tête-à-têtes*, with whom, and when, the linguistic trial-trip can be made.

Your correspondent, long ago (Consule Louis Philippe), was riding in a hack cab from Paris to St. Denis on business, in company with a bourgeois who belonged to the National Guard. After a long chat, the military *citoyen* suddenly exclaimed, "*Mon Dieu*, monsieur, how badly you speak French! What an accent! Like Lord Chose's, in 'Fra Diavolo.'"

"When you speak English, *mon cher*," retorted your correspondent, "as badly as I speak French, you will have a little right to find fault. At present you have none."

As the soldier-citizen was never set eyes on from that day to this, the sting of his criticism did not rankle long. The truth is that the person criticised had arrived at man's estate charged with a certain quantity of Latin and Greek, but without a single word of any living language to help him in his hour of need; a linguistic fund which cool reflection pronounced to be inconveniently limited, and whose deficiency ought to be remedied forthwith. But it is easier to fill the memory with new words than to train the oral organs to utter them properly. That is a work of time, patience, and practice. "To learn the pronunciation," says Cobbett, "there is no way but that of hearing those, and speaking with those, who speak the language well."

With grammatical knowledge and a fair stock of words, writing a foreign language correctly is far easier than speaking it. In writing you can proceed leisurely, can stop when in doubt; can reflect or consult your dictionary when uncertain about genders, orthography, or accentuation. But in speaking you must go on and on. When once mounted on the back of a sentence you must take the fence before you, heedless of consequences and defiant of accidence. You must keep your seat on it till you reach the end. In the middle of a heat you can neither change horses nor forms of phrase. Even if you stumble a little you must still push forward. Study and perseverance will make the feat every day an increasingly easier performance; but both those conditions are indispensable. To no branch of knowledge can Lord Bacon's maxim be more truly applied than to languages: "Reading maketh a full man, conference a ready man, and writing an exact man."

Essayers of strange tongues should be encouraged by the thought that sensible people make full allowance for their shortcomings, and that for people who are not sensible they would be foolish to care. If everybody were equally susceptible where would our public speakers come from? Budding orators, like tickled snails, would draw in their horns, and, unlike snails, never put them out again. It is a consolation to know that, as *orator fit*, so may an interpreter be made. The point to be really anxious and self-critical about is to speak one's own native language well. What English-speaking person does not delight to hear English spoken with correctness, purity, and grace? "How admirably Madame Asterisk speaks French!" said a French gentleman of a French banker's lady, whose presence he had just left. "Does she speak good English?" was a question put by a French captain's wife respecting a young Englishwoman who had married their *chef de musique*, the regimental band-master. "Very good English indeed," was the reply; and it had its influence on the newcomer's status amongst the ladies of the regiment. For language is a touchstone of race and rank as well as of nationality. Nice distinctions show who is who, and immediately betray the false pretender. To tag this long digression aptly: "As many languages as a man can speak, for so many different men does he count, instead of for a single individual." *E. S. D.*

New Garden Plants.

HOODIA GORDONI, *Sweet.*

A DWARF bushy succulent, with erect, many-angled glaucous-green stems, 12—18 inches high and about 2 inches thick, the angles vertical and closely beset with simple aculei; when freshly cut the sap flows copiously, it is very mucilaginous, and has a very peculiar sweetish taste, something like starch and liquorice, that remains in the mouth for a considerable time.

The flowers are solitary, and produced near the apex of the stems; the buds are of a very peculiar form, which it is difficult to describe in words, but a cone with five broad, slightly hooked wings attached from apex to base may convey some idea of them. When expanded the flowers are about 4 inches in diameter, round and obsoletely 5-lobed, each lobe terminated by a slender arista; concave or flat with revolute margins, pale purplish with radiating pale greenish yellow nervures, the disk covered with minute dark red papillæ, everywhere else quite glabrous, but presenting a velvety appearance to the naked eye. The dark purple-black double corona is included in the very short tube of the corolla, consisting of an outer corona of five subpatent obtuse bifid lobes; down the centre of each is a linear obtuse shining space, which probably secretes nectar; between the lobes the sinus is inflected upon the backs of the five linear, truneate, incumbent lobes of the inner corona. Like most of the Stapeliæ, the flowers are possessed of a fœtid odour, which resembles that of decaying fungi.

A fine plant of this rare, remarkable and almost unknown Asclepiad has just flowered in the Royal Gardens, Kew, probably for the first time in Europe. It was sent to Kew some time in 1874 by Sir Henry Barkly, who collected it in Namaqualand. The plant remained dormant until about six weeks ago, when it suddenly pushed into rapid and vigorous growth, producing one flower with several abortive buds, and some others still likely to come to perfection.

The chief point of interest attached to Hoodia Gordoni is the great length of time so remarkable a plant remained utterly unknown, except from a drawing. Its history is briefly this:—It was first discovered in Great Namaqualand, by Colonel Gordon, who made a drawing of it on the spot, but preserved no specimens. It was first made known to the public in 1796 as Stapelia Gordoni by Mr. Masson, who published a figure and description, drawn up from the sketch made by Colonel Gordon (to whom he dedicated it), in his *Stapelia Novæ*, p. 24, pl. 40, where the spines are represented as irregularly placed, instead of upon regular vertical angles. This figure and description was all that was known of the plant for over forty years, and it was thought by many to be an imaginary representation, when it was re-discovered by Burke and Zeyher about 1841-42 on the Karro near the Gamtka River; specimens were dried, and living plants were sent home to Mr. Burke's employer, the Earl of Derby, but it probably died out, for there seems to be no further record of it than that given in Hooker's *Icones Plantarum*, p. 625, from which I have gleaned the above information. Thirty years have now elapsed since that time, during which period nothing has been heard or written of it; it is therefore probable, as I have previously remarked, that the plant sent last year by Sir H. Barkly is the first that has ever flowered in Europe; and possibly this specimen, and the few cuttings from it, are the only ones in cultivation.

Besides Stapelia, three other distinct generic names have been proposed for it, viz.:—Hoodia by Sweet in his *Hortus Britannicus* (1830), under which name it stands at present; afterwards, in ignorance of Sweet's having already generically distinguished it, Don in 1837 proposed the name Monothylaceum for it; and in 1844 Sir W. Hooker figures it, and a new species (H. Currori), as Scytanthus, in the *Icones Plantarum* above referred to. *N. E. Brown, Kew.*

NOTES FROM A LANCASHIRE GARDEN.

September 14.—The cold and rainy weather, of which we have now had so much, has been fatal to the proper ripening and flavour of our wall-fruit. Some Peaches are watery, and some are woolly; some fall off, quite unripe, and we have to make Peach-tart of them. And yet the rain has not destroyed the wasps; and we have been hanging up bottles of beer on the branches, swathing up Golden Drop Plums in linen bags, and taking all the nests we have been able to get at. We have got the best of the fight on the whole, and yet, only the other day, as I shook a tree of Franklin's Golden Pippin, and two yellow grey-speckled Apples fell upon the ground, I found in the heart of each a great wasp, so full-fed and lazy that he could hardly stir: and certainly, after we had found him, he had no further chance of stirring!

The Apples are particularly fine; such Keswick Codlins I never saw before, and now the orange-red Delawares are nearly at their best. The Ribston Pippins and the King of the Pippins promise well, but they are later.

The only Pears we have yet had are Jargonelles—a delightful Pear, if you will only sit up all night to watch the precise moment before its juicy mellowness

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January 28. — "I am very pleased to say the Haycinths are blooming very well indeed, in fact, the best we ever had."

From the Rev. C. J. SALE, *Holt Rectory, Worcester.*

October 12. — The Hyacinths you sent me last autumn were very much admired. I never had a finer bed."

From F. R. BARKWAY, Esq., *Grove House, Lavenham.*

March 5. — "The Hyacinths are especially fine."

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SATURDAY, OCTOBER 9, 1875.

A LINGUISTIC DIGRESSION.

IT is good for young gardeners to spend a year or two in Belgian, Dutch, or French horticultural establishments, because, if they make the most of the opportunity, they will learn more than mere horticulture. It is no trifling advantage, on starting in life, to know something of other tongues besides English, and to feel an interest in and a respect for even little-used and narrowly-spread languages. For instance, Flemish, of which we see and hear so much at Ghent, is, like Dutch, a distinct and independent language. Both belong to the same family as our own; but although, like Dutch, Flemish has its literature, of which Henri Conscience's novels are well-known and popular examples, it is not, like Dutch, the recognised state language of a nation. Belgium professes to be a French-speaking country; nevertheless, Flemish is cultivated and acquired by educated Belgians as well as by the people. At Antwerp a handsome theatre is devoted to plays in Flemish, original or translated. At Brussels, on grand festive occasions, the multitude are treated to theatrical performances in the vulgar tongue.

Country speech even, and *patois*, are not to be despised, because their words often reveal curious analogies and derivations of race as well as of language. A Norfolk ploughman will say, "Very roky this morning, sir"—*i.e.*, foggy, misty: from the German *rauch*—fume, smoke. In the same county, the German plural *housen*, for houses, is prevalent in rural districts. Chicken, as the plural of chick, is preferred by many purists to chickens, which offends their ear almost as much as "beloved brethrens" would. In the North of France, the peasantry, instead of saying *fils* for son, change it to *fieu*, thus approaching the Italian *figlio* with its liquid *gl*, and still closer to the Venetian *fio*. The same rustics often harden their *ch*, making *charrette* a *carrette* or cart; *charretier*, a carter. *Charogne* is *carogne*, or carrion; *chapeau*, a hat, is turned into *capiau*, a cap; *cloche*, a bell, becomes a clock, and *clocher*, a steeple, a *clocker*, or clock-place. The meaning of the change is less obvious when for *chaise*, a chair, *cayelle* is substituted. This brief hint indicates the extent of the subject.

Switzerland possesses many good linguists, who illustrate both the usefulness and the possibility of mastering that great accomplishment. Their country is the annual resort of every branch of the Caucasian family, and they have no notion of sending away good customers through inability to talk to them. They have no language proper of their own; that is, no Swiss language. Some cantons speak French, others German, others Italian: and therefore a really well-educated Swiss is bound to know all three: for any one of them may be spoken in the Federal Palace, or Swiss Parliament House, at Berne, an interpreter being present to assist non-understanding members in seeing their way through a sharp polyglot debate. Well-to-do Swiss devote much of their winter leisure (and so do those who are hoping to become well-to-do) to study, when there is little else to occupy their time; or they travel during that season in foreign countries to perfect their linguistic and commercial knowledge, which has the same or even a better result. Upper-class Russians suck in foreign tongues with their nurses' milk, and thereby acquire a proficiency which sometimes attains the marvellous.

A foreign language is possible to be learned by any one gifted with common intelligence, although some individuals have a much greater aptitude for learning languages than others. There have existed monsters of erudition, masters of sixty or seventy tongues, like the famous Mezzofanti of Rome, to whom Babel itself would have been no puzzle, and whom the present writer has heard, after conversing in sundry forms of accepted and recognised European speech, turn to another group of visitors and address them in some out-of-the-way lingo, as Irish, Gaelic, or Breton. Others, like George Borrow, have a special affection for linguistic curiosities, and are capable of passing, at a skip, from Gipsy Romannee to Mantchu Tartar. I once knew a gentleman who, when gay after dinner, could not resist breaking out in Chinese, although nobody about him knew a word of it. At those moments, he regretted (though married to an excellent English wife) having declined, while in China, a matrimonial union, proposed to him by a professional match-maker, with a Chinese beauty whom of course he never saw, but whose golden Lilies, he assured us, were exquisitely small.

There are even national linguistic aptitudes. The English pronounce Italian well and French badly, the Scotch pronounce French well and Italian badly. The young men who offer their services, by advertisement, as couriers speaking fluently four or five languages, and enjoying no special educational advantages that we know of, must possess some native talent for that branch of knowledge, independent of the industry necessary for making it their own.

Age is no imperative reason for not taking a language-master. After youth is past, a foreign tongue may still be acquired until, like Gibbon, one can think in French. Van Houtte, the well-known Ghent horticulturist, at the age of twelve knew no language but Flemish, but his travels in Brazil and Western Africa compelled him to acquire several others. Cato the elder began to learn Greek at seventy. Languages learned late must be well kept up and frequently practised, or they are apt to get stiff and rusty by disuse. But reading or speaking a little bit of them every day—the bedside-book, the weekly journal, the occasional transcript—suffice to keep them oiled and ready for service. It is inconceivable that a mother-tongue, solely employed during childhood and youth, can ever be seriously damaged or weakened, much less completely forgotten.

There is a popular idea that languages may be imbibed, like health and strength, by merely breathing the air of any given country; but, except in the case of earliest childhood, the notion is a vulgar error. Even those who are resolved to work hard at the task, will do well to take preparatory lessons at home before they go to the country with whose speech they desire to become familiar. Mere residence is futile without study—*cælum, non linguam, mutant.* Witness the number of young people who are sent to France and Germany, who associate there solely with their fellow-countrymen, and consequently bring back with them extremely light linguistic baggage. But "this talent"—the ability to speak French—says Cobbett, "gives a reasonable and just claim to real superiority; because it must be manifest to every one, that it is the effect of attention and of industry as well as of a good natural capacity of mind."

During a walking tour along the south coast of the Channel, I was accosted by an individual who made vain efforts to ask a question in French. After listening awhile, I said, "I think, sir, we shall get on better in English. I guess you want to know where you can find a glass of good beer. Come with me, and I will

steamer Canada from New York, which had been eighteen days *en route*, and were packed under the auspices of the Allegreti Refrigerator Company. They were, on the whole, in fair condition. The estimates of the American crop of Peaches are of remarkable magnitude, the aggregate number of baskets being fixed at from 8,000,000 to 10,000,000 from the Maryland and Delaware peninsula alone. These are not pottles, but good sensible baskets, holding about 3 pecks each. Strenuous efforts are being made to find markets for the yield, and a degree of enterprise is manifesting itself among the fruit growers which can hardly fail to win merited remuneration. A special train is dispatched daily over the Baltimore and Ohio railroad to carry supplies to the cities of the West; 1150 cars are chartered to transport the fruit to New York and other eastern cities, and the American Steamship Company of Philadelphia is said to have fitted up huge refrigerators in its vessels, to carry 25,000 to 30,000 cases to Liverpool at each trip. By these refrigerators fruits and vegetables of the most delicate and perishable nature are kept for weeks in perfect freshness, with all the qualities of flavour, odour, colour, and texture retained, as when they were first gathered. Strawberries have been kept for more than two months in a thoroughly fresh condition, while the ruling temperature outside was above 80° Fahr. in the shade.

New Jersey is another State especially noted for its immense produce of Peaches. Orchards of 10,000 to 20,000 Peach trees are not uncommon in that State; and each tree yields when in bearing an average produce of a bushel of perfect fruit.

In Delaware the Peach orchards form a very important branch of industry and profit. Thousands of acres are devoted to the growing of the Peach, which finds its market in Philadelphia, New York, Boston, and Albany. Peach growing is still increasing—new orchards are set out every season to meet the increasing demand. The ground has to be well prepared, ploughed, and harrowed thoroughly, and the trees, two years old from the stone, planted about 18 feet apart each way, giving about 125 to the acre. The orchard yields a full crop the third year, though there may be a half crop the second season. The orchards continue in bearing from ten to twelve years, and when cut down furnish a large amount of fuel, equal in value, when seasoned, to Hickory wood.

The produce varies very much, in some years being less than a bushel per tree; in a full bearing year, the trees will reach as much as five baskets of three-quarters of a bushel each. Even when the average is not more than one-fifth of a basket per tree, the orchard is remunerative, and this year the average yield exceeds three baskets. The production of Peaches and Apricots in Ohio, California, and other States is also very large. In California one orchard in Yuba county sells annually over 1,000,000 lb. weight of Peaches and Nectarines. This orchard consists of a solid block of fruit trees covering 210 acres, among which are 8000 Peach trees of sixteen varieties, and 3000 Apricot trees of 12 varieties.

The fact that some southern tribes of Indians had orchards producing superior Peaches has led many persons to suppose that the fruit was among the products of America when first discovered. This is an error. The Peach was introduced into Louisiana by the Spaniards prior to its settlement by the French. It has since grown spontaneously, and in many respects apparently indigenous; but the original stock was imported. It is believed that this fruit has been produced throughout the world from the stock originally obtained in Persia.

The Americans consider a good dish of Peaches and cream a great luxury; and yet sometimes so plentiful is the crop that Peaches are used in many places to fatten swine, for want of facilities to get them to a remunerative market.

Peaches are preserved for shipment in several ways. They are sliced and dried by rapid evaporation, with artificial heat. Mr. Boynton has obtained a patent for an evaporator, as it is called, which contains several chambers and revolves on a pivot or axle, thus exposing the fruit successively to different degrees of heat. The advantage of such a process in regions where vast quantities of fruit are produced is manifest. Most fruits are rapidly perishable in their natural state, and this method, when the market is over-supplied, carries them over to the following season. A large trade is done in canning or tinning Peaches at Cincinnati and other large towns. About one million tins are put up annually at Cincinnati, principally Peaches. As these are air-tight the fruit are preserved in an almost perfectly natural state and in its own juice.

The tins or jars are filled with fruit fresh from the tree, care being taken to put in as much as possible without injuring the form of the fruit. When a sufficient number are filled ready to boil, cold water is filled in. If sugar is used it is better to heat or steam the fruit without adding water, filling the cans as they come from the fire with a syrup made by dissolving the sugar in boiling water. If motives of economy are practised, it is better not to sweeten the fruit, except Pears and Peaches, whose flavour is improved by it, for the fruit will not keep any better.

The time required for boiling whole Peaches is fifteen minutes, and half Peaches eight minutes. The proportion of sugar to be added to the fruit is 4 oz. to the quart. The quantity of fruit preserved in its own juice annually received here is very large, and the imports are increasing year by year—comprising Pine-apples, Peaches, and other fruit. In 1873, according to a Board of Trade return, the imports amounted to 7,702,191 lb., valued at £98,242. *P. L. S.*

HOW TO FORM A KITCHEN AND FRUIT GARDEN.

Kitchen gardens should be sheltered especially from north and north-east winds; where, therefore, there is not natural shelter, it must be secured artificially. This may be effected by planting belts of evergreens on the bleak sides of them, or by raising the walls on exposed positions somewhat higher than on the others, so as to break the force of cold blasts. The best aspect for a kitchen and fruit garden is the south or south-east. While recommending the garden to be in a well-sheltered spot, it must at the same time be exposed to the full action of the morning and evening sun. The walls on the south side of the garden should be somewhat lower than those on the north. Shaded borders or borders on the north sides of south walls are not of much value; few vegetables grow well on them, and with the exception of Morello Cherries and black Currants, &c., few fruits succeed on such an aspect.

The kitchen garden should always be at some little distance from the house, but at the same time it should be near enough to it to be convenient and accessible. Where choice can be had, the ground should slope gently to the south or south-east, or it may be quite level ground; that sloping to the north is to be avoided, and the situation should neither be on a hill-top nor in a valley, for in the latter fogs are apt to nestle and late spring frosts are common, both of which would be injurious to fruit crops.

Soil is an important consideration for a kitchen garden. The most useful is a calcareous sandy loam resting on a dry gravelly bottom; in this nearly all vegetables and fruits succeed. It is easily worked, and by no means difficult to keep in order. A heavier loam may be better fitted for the majority of fruit crops; but for early vegetables, the sowing and raising of seeds, sandy loam is preferable. If expense, however, is not an object, while the greater portion should consist of this kind of soil, either naturally or artificially, it would be useful in some cases to have a portion stronger and another much lighter, in order to suit some plants that may require stronger or lighter material to grow in. The depth of soil in a kitchen garden should range from 2 to 3 feet. Depth, in short, should be regulated according to the nature of the subsoil. If the latter is naturally damp, then 2 feet will be enough, while if of a dry, porous character, it should be at least 3 feet. It should, however, never be less than a foot or 18 inches in depth, and if not naturally so deep as that, it should be made up to the required depth artificially.

The most convenient form for a kitchen garden is that of a square or at least a rectangle, for in that case all measurements which may be required in the way of planting, sowing seeds, or other operations of that sort, can be made more readily than they could be under any circumstances, and greater regularity can be observed in all matters relating to culture, besides effecting a considerable saving of time and labour. Vegetables or fruits themselves would, of course, grow equally well on an irregular piece of ground as on any other; but as kitchen gardens are generally enclosed by means of walls for the double purpose of assisting the ripening of fruits and of affording shelter, the form of the enclosure consequently greatly depends upon the way in which these walls can be most advantageously placed, so as to secure the best aspect and the greatest amount of the sun's rays during the period of the day when they are most wanted. The sun's greatest heating powers are in the afternoon; therefore, it is evident that a wall with a west aspect must be warmer than one with an east aspect. Practically this has been proved to be the case, and it follows that a wall with a slightly south-west aspect is, and must be, the warmest. In order to make the most of walls, suppose the south aspect wall to be just inclined a little to the south-east, the western aspect wall would, in consequence, be turned a little more to the south. Two good aspects would thus be secured, on which the choicer kinds of fruit trees, viz., Peaches, Nectarines, &c., might be grown.

Let me now say a few words as regards materials for walls. Bricks are best; being of a porous character, they absorb heat by day, giving it out at night, and thereby warding off cold, and even frost, and a considerable time elapses before they get cooled down to the level of the surrounding temperature. As regards the height of walls, that must vary; much depends on the size of the garden. In a small enclosure of, say, an acre, I would recommend the north boundary wall to be, say, 10 feet in height, and the two side walls to be 8 feet, while the south wall may also be 8 feet in height. The larger the garden, however, the higher should be the walls, but none need exceed 14 feet in height.

When the situation and form of the kitchen garden has been decided upon, the next point to determine is the conformation of the ground; the latter may be apparently level, but of this we must make ourselves quite certain. This having been ascertained the boundary walls erected, and the various buildings which may have to be built decided upon, the next subject which demands attention is drainage.

This is a most important matter in reference to most soils and situations. It should be done before trenching or any other earthwork takes place—*i.e.*, immediately after the levels have been ascertained. First the nature of the subsoil should be considered, because on that may depend the necessity or otherwise of draining. If the subsoil is dry and gravelly, and the ground lies on a natural or artificial slope, little or no drainage will be necessary. If, however, the subsoil is of a close impervious character and the ground on a dead level, then it should be thoroughly drained. The next important subject after drainage, and one frequently overlooked, is levelling the subsoil in order that the surface mould may be of uniform depth and trampled pretty firmly—the top good soil from the next trench being placed on the top, the bottom again levelled, and so on until the operation is completed. If any hothouses, vineries or orchard-houses are to be erected, the best site for them is against the north boundary wall in a south-east aspect or as near that as possible. The various outhouses connected with them can then be conveniently placed at the back of the wall, where they will be concealed from view, as is the case in all good gardens now in existence.

Having trenched and levelled the ground the construction of walks should next command attention—that is, they may be hollowed out, all the good soil in them being thrown on the borders. The excavations thus made will form receptacles for stones, broken bricks, and other rough materials that may be found in digging the ground over. In a walled-in kitchen garden of rectangular shape the most convenient position for the walks, so as to make all parts of the garden readily accessible, is to first have one main walk leading from north to south through the middle of the garden, and as this will be the principal and most important pathway it should be of good width. The exact measurement will of course depend on the size of the garden, 8 feet may, however, be accepted as a good width for an enclosure of, say, an acre. Then a walk from east to west should cross this, thus forming the ground into four squares. Next should be a walk encompassing the entire garden, and this is a very important one, confronting as it does the walls and fruit tree borders.

The width of the wall borders must be determined by the height of the wall, its situation, aspect, and the trees that may have to be grown against it. The general rule is that the width of the borders should be in proportion to the height of the walls—*i. e.*, a wall 10 feet in height should have a border 10 feet in width. In the case of the south aspect border, however, which will be the warmest and most sheltered part of the ground, it is well to have it as wide as can conveniently be secured—say 15 or 18 feet. On this border all the early vegetables will have to be raised, such as first crops of Peas, Potatos, &c. The borders on the east and west aspects should also be about 10 or 12 feet in width, and the one with the north aspect on the south side of the garden should be about 8 feet in width. Besides these wall borders it is desirable to form others of a similar width along both sides of the two cross walks, and on the other or inner side of the other walks, thus making borders on both sides of the walks all round, these outer being intended for the growth of various kinds of fruit trees as well as for that of vegetables. By planting the larger kinds of fruits, such as Apples, Pears, Plums, &c., on these borders the interior quarters will be open for vegetables, for which the ground must be occasionally trenched, an operation which of course cannot be readily done when the ground is covered with trees. These walk-side borders may also be made ornamental by being judiciously planted with the various kinds of fruit trees, trained in different styles, such as espaliers, pyramids, cordons, &c. As respects planting, in certain cases the natural mould of the border is so good that nothing but trenching and manuring, in common with the rest of the garden, is required. This, however, rarely happens, and where it is not so it is advisable to go to some expense in making the borders good at first, so that future disappointment may not be experienced. In vegetable culture very poor ground may be much improved by the addition of manure, but with fruit tree culture the case is somewhat different. The addition of much manure to fruit borders may encourage mere growth, but it is fruit that is required, and if the trees are made

has begun to turn into a brown decay; and Citron des Carmes, which really does not seem to be worth ground-room. But the little Aston-towns will soon be ready, and then the Marie Louise—one tree is laden—and all the late autumn kinds. Our Quince tree is as yet but young, and has shed its downy fruit before it came to maturity.

Of course, like all the rest of the world, we have had some fine bright autumn days—days when the garden was full of warm scent and warmer colour—days when the children could swing for hours in the hammock which hangs between two large Sycamores, or have their tea-table out upon the terrace—days when the still air was only stirred by the patter of a falling Chestnut, or the note of some solitary bird, or the sound of church-bells far away. Beyond the grass field, which comes nearly up to the house, was a field of Wheat, and it was pleasant to watch the harvesting, and follow with one's eye the loaded waggons as they passed along by the hedgerow trees. The orchard hedge, which we see from the drawing-room window, will, next year, I hope, be an object of real beauty. It occurred to me that we make too little use of hedges, and that it shows a somewhat feeble imagination when we are content to let Hawthorn and Bramble have undisputed sway. So I have planted Virginian Creepers and various Clematises at intervals along the hedge, and shall add other climbing plants by degrees, and thus have variety at once of tint and foliage.

In the shrubbery border only one shrub is now in flower; it is the curious Bladder Senna, with its yellow Pea blossom and its bladder pods, which, as you press them, burst with a little sharp report.

October 1.—We had last Sunday night the most violent gale known here for many years. When I woke in the morning, I found the ground strewed with leaves and branches. Four Elms had gone, and two Damson trees in the orchard, and a branch had fallen from my finest Ash, and a splendid Beech tree on the lawn had broken off some 12 feet from the ground, and lay "a darkened ruin" upon the grass. I had feared for it some little time, but still I thought it would have lived on some years yet. An enormous fungus had been growing in the hollow part whence two large branches forked, and, though we had cut and torn it away more than once, it was clear that there was serious mischief and decay behind. We are clearing off the wreck as fast as we can, but the lawn will long seem to miss the green shade and graceful presence of that beautiful tree.

As for the garden, I have but little to say; everything is ragged, and withering, and unkempt. Some late-lingering Rose, still sweet and perfect, may be gathered, and Fuchsias and Japanese Anemones and a few more will stay with us till the frost may come, but the wind and the rain have done their work with nearly all our flowers. As in the last sad days of the garden where grew "The Sensitive Plant," so now with us;—nearly all our cherished summer flowers,

> "of scent and hue
> The sweetest that ever were fed on dew,
> Leaf after leaf, day after day,
> Are massed into the common clay."

The Tuberoses, which are brought into the house, and which may last us for another fortnight, are the best things now left, and, when they are over, we must look to Roman Hyacinths and Primulas, and so round again to spring and the Crocuses, and Hyacinths, and Tulips.

There is one scent which, if Lord Bacon be right, ought to be strong in the garden just now. He classes next to the white double Violet and the Musk Rose, as the sweetest perfume in the open air, "Strawberry leaves dying, which yield a most excellent cordiall smell." I find, too, in an old play by Sir John Suckling—

> "Wholesome
> As dying leaves of Strawberries."

But my dying Strawberry leaves give me no sense of sweetness. Was it a mere fond and foolish fancy? or were the Strawberries of Elizabethan gardens different from those we now are growing?

Another curious question has lately come before me. I was asked whether I had noticed the growth of Peas in the pod this year, and was told that they are growing differently from their wont. As I never remember to have studied the habit of unshelled Peas, I know nothing about their usual manner; but this year they are certainly growing with an inclination towards the stalk, instead of sloping towards the point of the pod, "growing backwards," as I was told. Still it did not strike me as anything very wonderful, till I was further informed that Peas normally grow the other way, and that Nixon, the famous Cheshire prophet of Henry VII.'s time, had predicted the marvel for this very year. Unfortunately, I can find nothing about it in the small edition of Nixon that I possess, and I have no desire to believe in him, or his prophecy, or the miracle. But it's a strange idea. Will any one tell me if Peas do not always "grow backwards"? *H.*

BRITISH GARDENERS.—XXVII.

John Caie.

Some forty years ago, or thereabouts, the name and person of Mr. John Caie were familiar to the horticulturists of the metropolis. About that time, when residing at Bedford Lodge, Campden Hill, Kensington, he was one of the foremost, if not actually the first, to carry out to successful results the "bedding system" of flower gardening, which, by a revolution of the wheel of fashion, it has now, in some quarters, become the wont to decry. Whatever may be advanced in opposition to this system, and the heaviest charge against it appears to be that of creating monotony by producing its effects with comparatively few subjects, there can be no question that it has had an immense influence in brightening up and improving the flower gardens throughout the country, the toning-down and other modifications we are now introducing being, in fact, merely the outgrowths of lengthened experience in working out the system. For much, at least, of this improved flower-gardening, the gardeners and employers of gardeners of the present day have to thank Mr. Caie, whose portrait we now introduce, and who has obligingly sent us the following sketch of his horticultural career.

"I was born, April 15, 1811, in Renton, a small village in Dumbartonshire, but I was soon removed from this place to Dowanhill, near Glasgow, my father having taken the management of the garden and farm there. The property belonged to James Buchanan, Esq., one of those merchants who, having made a large fortune, are anxious to have a well cultivated garden and farm. The garden was enclosed with brick walls and covered with fruit trees, such as Peaches, Plums, and Pears. Melons and Cucumbers were successfully grown. My father lived here forty-six years, and died very much respected by the family. It was here that I received my first lessons in gardening. I was educated in the parish school at Partick, and also in Glasgow. About this time I had the privilege of attending a course of private lectures on botany in the neighbourhood of Glasgow, and the progress I made was such that Mr. Daniel Ferguson, afterwards Curator of the Belfast Botanic Gardens, made mention of me to Mr. Stewart Murray, the highly esteemed and accomplished Curator of the Glasgow Botanic Gardens, who kindly made an opening for me at the Martinmas term, 1827. At this time the gardens had attained great celebrity for their extensive collections of plants, and for the indefatigable exertions made by Sir W. J. Hooker and Mr. Murray to uphold their character. Such being the case it was no mean advantage for young men to get into the gardens, for the rules were such as any man anxious to distinguish himself could not but approve of. I set to work in earnest, gathering specimens of plants at one time, learning their names with their culture at another, and attending the lectures delivered at intervals by Sir W. J. Hooker in the garden-hall; and I also had the privilege of accompanying him in his botanical excursions to the Highlands.

"Mr. Murray was proud of his men, and when he found them worthy of his support he considered no trouble too great to advance their interest. In 1829 I went to Buchanan House gardens, the seat of the Duke of Montrose. Mr. Duncan Montgomrie, the gardener, placed me in the frame-ground, to look after succession Vines, Melons, Cucumbers, and other things belonging to this department, with occasional work in pruning bush fruit, and nailing on the walls. Everything was done according to method and system. On entering my second year here I was put in charge of the forcing-houses, which were known at that period to carry good crops of fruit, and not less good in quality. Pines, Grapes, Peaches, and Apricots were grown, and I carried through the forcing to Mr. Montgomrie's satisfaction.

"On March 7, 1831, I started for London, and after a three week's sail I reached Chiswick House gardens, the seat of the Duke of Devonshire, where I was found employment by Mr. Lindsay, the Duke's gardener, who very kindly said to me that in the event of a more suitable situation turning up I should be at liberty to leave him: which I did soon after this for Woburn Abbey. Here the new kitchen garden and forcing-houses were finished and in good working order, as was afterwards shown in the fine fruit produced by Mr. Forbes, both for family use and for exhibition purposes. The plant-houses in the pleasure ground were being filled with collections of plants, such as Cacti and Orchids. Ericas held a very prominent place here, and these were placed under my care, with a degree of liberty to exercise my own judgment in their cultivation which seldom falls to the lot of one in such a situation. That success attended our efforts will be obvious from a remark made by the late Mr. McNab, of the Royal Botanic Garden, Edinburgh, in reference to the growth of Heaths, that 'our method was worth knowing.'

"In 1835 I left Woburn Abbey gardens for Bedford Lodge, a small place near Kensington, belonging to the Duke of Bedford, for the purpose of carrying out the bedding system of planting flower gardens, which was not much practised at that time, but which has become, as the late Sir Joseph Paxton remarked, strictly speaking the gardener's art. About this time the West London Gardeners' Association for Mutual Improvement was commenced, under the direction of the late Mr. Robert Fish, whose character and abilities attracted young men from all parts of the country. I connected myself with them, greatly to my own advantage; and the interests of horticulture in genera were not a little advanced by the Association.

"March 10, 1856, I came to Inverary Castle garden; and, considering that the garden is not very favourably placed for high cultivation, owing to local peculiarities, inseparably bound up with such a mountainous country as this is, where the rainfall for 1874 measured 6 feet, still our bush fruit and wall trees, consisting of Pears, Plums, Cherries, and Apricots, with boards projecting 23 inches from the top of the wall, seldom fail to produce good crops. The soil taken from the low ground here is very suitable for all kinds of fruit trees, but especially so for Vines and Peaches. Our lean-to Peach-houses have a back wall, 17 feet high, and without any artificial heat; these houses, and our old vineries, carry good fruit. The flower garden and pleasure grounds have been very much extended, and many of the Conifers and hybrid Rhododendrons succeed well here. But anything which has been done in the way of ornamental gardening, when compared with the bold conception of the original design of this place, and the grandeur of the sylvan scenery which lies beyond, is but small indeed; still, the great variety of trees, shrubs, and flowers, in close connection with the Castle, have an interest in themselves as a home scene."

Mr. Caie intimates that at some future time he may discuss more fully some of the modes of culture adopted at Inverary, with reference to climate and other peculiarities, and we feel sure our readers would derive some useful hints should he find leisure to do so.

In connection with the gardens at Inverary Castle it may be mentioned that on the occasion of her recent visit to the Duke of Argyll, Her Majesty the Queen planted some trees as memorials of the auspicious event.

THE PEACH CROP.

Seldom has the Londoner seen Peaches so common and cheap in this country as to be found on the street barrows of the costermongers, as they have been this year. Not only has the fruit harvest been prolific on the Continent, but it is also so abundant in the United States that they are now sending us cargos of Peaches kept cool in refrigerators, as well as the usual stock of dried and preserved Peaches. This week Messrs. Keeling & Hunt submitted to public sale 140 cases of American Peaches, brought by the

and the Turkey Oaks, but it has very large acorns in big thick cups with long bracts; a tree of medium size, the lobes of the leaves with long bristle points. There is a weeping variety of this species, possessing, however, no special merit.

Before leaving the Oaks of Europe and the countries bordering the Mediterranean, I may say a few words respecting the evergreen forms of the latter region. It is a well-known fact that the British Oak will not flourish near the sea, and the effects of the sea breeze may be seen in trees growing several miles inland, at least in the South and West of England in districts exposed to the south-west winds; but it is not so with the Holm Oak, Q. Ilex, and indeed it is one of the best subjects for sea-side planting and for bleak situations generally; and it also succeeds well in town gardens. It appears to have been introduced into this country nearly three centuries ago, and there are many fine old trees in different places, including Kew; but it is not till within the last twenty years that it has been extensively planted. Though not so handsome as many other evergreens, it is useful to shelter less hardy subjects (by hardy I mean capability of withstanding the wind, especially when it bears salt-impregnated vapour), and it is not devoid of beauty either as a shrub or tree. In foliage, it is exceedingly variable from seed, and there are several very distinct forms in cultivation which are propagated from layers or by grafting. The most noteworthy variety is called latifolia, in allusion to its broad leaves, which are from 3 to 4 inches long by 2½ to 3 broad. The variety crispa has curiously curled leaves. A few years ago nearly all the Holm Oaks were killed by frost in the North, and it is only in the southern and western districts that this species is truly hardy. The Cork Oaks, Q. Suber, occidentalis, &c., are so little grown that I can say very little about them. There are only comparatively small specimens at Kew, the largest I have seen there is near the Temple of the Sun. I may add that there are some very fine specimens in Goodwood Park, Sussex, where the subsoil is chalk and the situation elevated. Q. coccifera is a dwarf shrubby species of dense growth, with leaves somewhat smaller and less lustrous, but otherwise very much like those of the common Holly, so much like indeed that the plant might readily be taken for a variety of Holly.

(*To be continued.*)

PYRUS SINENSIS.

THE Sand Pear—Pyrus sinensis—so rarely fruits in this country, that we avail ourselves of the opportunity kindly furnished us by Messrs. Lee to give an illustration of it (fig. 95). Mr. Charles Lee, in writing to us on the subject, informed us that, though he had cultivated the tree for some thirty years, yet he had not previously known it to produce fruit. It will be seen that the fruit presents in some respects a considerable resemblance to the Japan Pear, figured in our number for January 23 of the present year from specimens obligingly forwarded by Dr. Thurber and Mr. Quinn. The shape of the fruit, however, and the much coarser warts on its skin, afford ample distinctions. Pyrus sinensis has no claims to be considered a useful tree, but it is by no means unornamental—the deep brown colour of its shoots, and the richness of its foliage, rendering it a desirable tree in collections.

Foreign Correspondence.

A RAMBLE THROUGH THE WOODS NEAR MOULMEIN, IN BURMAH.—In 1872 there was a good deal of thin jungle close to the Circuit House, Moulmein, and in several places it crept up almost to the edge of the verandah, affording shelter to many interesting birds, and contrasting pleasantly in the softness of its outlines and the varying greenery of its foliage with the monotonous regularity of the further Paddi fields, whose level surfaces of the brightest and most dazzling emerald were so uniform in hue and character generally as to be wearisome, and, indeed, almost painful to the eye.

My companion, who had strong orchidaceous proclivities, was very anxious that we should devote at least a portion of a day to the exploration of these attractive-looking woods, and, accordingly, one afternoon towards the end of July we plunged into their grateful shade. At first we kept along the higher portion of the ridge, just below its crest or summit; but finding little or nothing of special interest there, we altered our course, and followed the gently-sloping hill-side down to a little murmuring brook, which wandered amongst green Ferns, and mosses, and beautiful Lycopods, through a shallow valley to a larger streamlet further on. Beyond this the land, after very slightly rising again, stretched away flat and almost level to the roots of the hills lying to the southward of the station, some two or three miles away.

The walking was good and pleasant, the ground, though almost dry, being soft and yielding to the foot; while, owing to the thinness of the underbrush, progression was not the matter of difficulty it usually is in a tropical forest. There were very few large trees, and scarcely any that showed symptoms of age. All the older ones had evidently been cut away long before, and there only remained a sparse second growth, which, according to Nature's custom in such cases, was in all probability composed of genera differing widely from those which originally occupied the ground.

The sun shone out so hotly at intervals that the shelter of the woods was very pleasant and refreshing, while the cool, damp earth exhaled a fragrance of its own—a peculiar forest smell, which struck the chords of memory, and sent one's thoughts dancing back to other lands, and days of the long and almost forgotten past, when the pale flowers of a Northern spring-time were more familiar objects than the rich-hued productions of the East.

Cattle tracks, as well as footpaths, were numerous in the little stretch of woodland, and we followed one of the latter along the margin of the brook that I have mentioned. Somewhat to my surprise, I found very few plants in blossom; and, curiously enough, the first that presented itself was a stranger (Clerodendron squamatum), an importation, I believe, from China, which has, however, become thoroughly naturalised and very plentiful in Burmah. The Burmese generally are very fond of flowers, and they usually cultivate, or rather encourage them near their dwellings, where this grand Clerodendron, with its glowing pyramid of scarlet bloom, appears to be an especial favourite. Whilst we stopped for an instant to admire its radiant beauty—heightened by the darkness of the forest, from the green shade of which it stood out in fine relief—there came from a little copse near by a sound that resembled, in some degree, a burst of ridiculous and discordant laughter, combined with much shrieking and chattering. I at once recognised the strange harsh voice of the laughing thrush; and, peeping through the bushes, beheld a dozen or so of the Garrulax Belangeri, playing about on the ground and amongst the branches of a neighbouring tree, their snow-white crests appearing in striking contrast with the rich brown of the remainder of their plumage. They did not seem in the least afraid of us, and it was only when we approached them closely that they moved off, still chattering and making outcry enough to disturb the whole forest. A pair of the splendid large racket-tailed drongos (Edolius paradiseus) were also in view at the same time, but their sweet, flute-like voices were silent; and although I saw several others in the course of our walk, I only heard one of them sing as we passed below where he was sitting amongst the branches of a tallish tree on the brow of the hill.

A very pretty Kæmpferi (K. elegans) was plentifully in blossom, its gay little flowers studding the lower herbage with pink-purple stars; and a species of Osbeckia—which I believe to be the Osbeckia rostrata of Don—was also abundant. These two plants seemed to divide the colouring of the earth pretty much between them, though here and there we saw the elegant spikes of a very handsome Curcuma. Overhead, Flora was amply represented in the profuse white bloom of a beautiful little Orchid (Dendrobium cuspidatum), which was growing in great quantity on many of the trees, amongst the Ferns, mosses, lichens, and other parasitical plants that usually adorn the moist, hot forests of the torrid zone. Ants thronged these trees in myriads, and rendered specimen-collecting amongst them rather an unpleasant operation. We also found the Pholidota imbricata, Dendrobium articulatum, Luisia brachystachys, Dendrobium parcum, and D. secundum. Of this last, after some trouble, my companion procured an immense example, which was growing near the top of one of the tallest trees in the jungle.

I found a Gardenia in fruit, and also Strychnos nux-vomica, the scarlet berry of which is very handsome. It is a common and well-known tree in India, and is, I believe, also found abundantly in various parts of Burmah, including Tenasserim. Ferns of various kinds met us at every step; and the small, thorny Bamboo (Bambusa spinosa) seemed to grow everywhere, as also the little dwarf Palm, Phœnix paludosa.

Two kinds of squirrels—one, a red species, with a yellowish-white tip to its tail (Sciurus Keraudrenii of Lesson, and the other with a rufous belly and a greyish back (Sciurus hyperythrus of Blyth)—were so exceedingly common that I might easily have obtained a dozen of each. Some splendid ground-thrushes, so like Pitta bengalensis that I have no doubt of their having been representatives of Pitta cyanoptera of Temminck—the Brachyuras moluccensis of Mr. Elliot's synopsis*—were very conspicuous. There seemed to be a small colony of them, for I saw no fewer than three during the afternoon. They were not at all shy, and they repeated, at rapid intervals, for a considerable time, a single, harsh, loud note. I did not once see them on the ground, but in every case, when they flew, they afterwards alighted upon the lower boughs of trees, and as I followed two of them up for some distance I observed this occurrence repeatedly.

Three of the fine and striking-looking Alexandrine ring-parrakeets, the Palæornis Alexandri of Linnæus,† flew screaming over my head, whilst I was watching the pittas; and close to the little brook I disturbed a very lovely kingfisher (Alcedo bengalensis), whose radiant plumage shone through the green woods like a meteor, as he dashed past me to some more unfrequented locality. The common coucal or crow-pheasant (Centropus rufipennis) was evidently abundant, though we did not see it, for its well-known hollow call was constantly heard; as also another peculiar cry, which I imagine to have been produced by the large green-billed malkoha (Zanclostomus tristis), of which, though said to be plentiful, I only met with one specimen. Excepting ants, mosquitos, and a few butterflies, we saw no insects; and the only reptiles were two or three small lizards.

Before returning we visited a native bazaar, a short distance from the bungalow, and there obtained a very handsome and delicious oval-shaped fruit, about the size of a large Plum—bright orange in colour, with soft green bristles. I suppose it was the berry of some species of Nephelium, or perhaps a Schleichera. *George E. Bulger, F.L.S., in the "Field."*

* Ibis. 1870, p. 413. *Vide* also Capt. Beavan on various Indian birds. Ib. p. 322, and Jerdon's *Birds of India*, vol. i., p. 504.

† Vide *Stray Feathers*, vol. i. p. 335.

THE FARM.

PESTS OF THE POULTRY-YARD: RATS.—In all cases of disappearance in the poultry-yard the rats form such un unfailing resource, that whether as the pests they are in reality, or as the screen their imaginary presence furnishes to domestic neglect, too much pains cannot be taken to clear them out where existing, and, once banished, to keep them so.

Happily for all concerned a large proportion of those who see the rat at all, see it either thrown out dead, or skulking solitarily along, or when numerous, too terrified and confused under the united attack of all the farm hands on some infested stack to be of serious importance as assailants; but when driven to extremity by hunger, or acting in combination either in their migrations or gathered in numbers on the defensive in some confined place, their boldness and formidable incisors make them foes dangerous to trifle with, whilst their extraordinary cunning and apparent foresight in the government of the community make it most difficult to counteract their plots. When once established in a suitable locality, from the rapid increase given by several broods of ten, twelve, or more in one year, they are almost impossible to extirpate.

On well ordered farms, where stacks are on proper supports, walls are in order, and the courses of the drains are so far known that they may be kept in command, these vermin may readily be got under, but it is very different in many country holdings where disused outbuildings, bits of walls suffered to lie in heaps as they fell, accumulating gradually into piles of rubbish, and, worse than all, networks of disused drains give the rats perpetual change of hiding-ground which they know how to turn to account as pests by day, while at night they become still more intolerable and bold, even to sitting by the bedside of the invalid, and gnawing the candle out of its socket.

In such situations the offensiveness of their presence by no means ceases with their lives, but occasionally it happens that on opening the walls some old patriarch rat is found, who, instead of annoying everybody up to his last stage of decomposition, is still in excellent preservation, with his hairless skin tightly dried on his bones as if he had died from old age and famine—wasted away till there was scarcely anything perishable left about him. In such places, where the rats cannot be expelled, it is of all the more importance to keep an eye to every detail round what are likely to be special points of attack. Round the ponds all heaps of rubbish, stones, timber, or poles—everything that can shelter a rat or hide a rat-hole, should be scrupulously moved, Briars and bushes should be cleared, and any decayed tree or network of large woody roots above the water especially watched; whilst all openings of disused drains should be filled up, and those of drains in use grated, the grates being fixed so as to keep the rats from burrowing a roadway round them.

In many cases the disappearance of the goslings and ducklings successively beneath the surface of the water is probably much more attributable to the cramp than to the rats, who bear the blame; and also, though the common rat (brown rat or Mus decumanus) will take readily to the water in search of prey, yet "there be land rats and there be water rats," and the water rat proper (the water vole, or Arvicola amphibius), though bearing both blame and

to grow very vigorously it is often at the expense of a crop. In small gardens, with the exception of trees on walls, which may grow large, it is advisable to have all others in a rather dwarf and fruitful state. If these trees, therefore, are planted in rich alluvial loam in which vegetables would delight, they will not answer well, and very little fruit will be obtained from them, except by means of expending on them great attention.

As regards fruit trees on walls, the south aspect wall, being the warmest, should be devoted to the culture of Peaches and Nectarines, such as Early York, Acton Scott, Grosse Mignonne, Bellegarde, Barrington, and Walburton Admirable Peaches; and Hunt's Tawny, Balgowan, Elruge, and Pitmaston Orange Nectarines, planted at about a distance of 10 or 12 feet one from the other.

The Peach delights in a rather fresh alluvial loam, with a porous subsoil. If this is not found naturally in the border it should be obtained—an operation which the produce will amply repay; indeed very little success in Peach culture need be expected if, in the first place, the border is not good. An Apricot or two, if desirable, may be introduced; and a Green Gage Plum, which, when grown on a south wall, is exceedingly rich. A May Duke Cherry, for earliness, may also have a place on a south wall.

The west aspect wall, which is the next best for fruit trees, should be principally devoted to the more choice sorts of Pears, such as Duchesse d'Angoulême, Glou Morçeau, Beurré Rance, Marie Louise, Beurré Diel, Gansel's Bergamot, Williams' Bon Chrétien, and Joséphine de Malines. A tree or two of Plums, such as Coe's Golden Drop or Denyer's Victoria; some Cherry trees—as, for example, May Duke, Elton, or Bigarreau Napoléon—and a Fig or two, may likewise be introduced. The Pear trees should be planted about 12 feet apart, and should be trained in the ordinary horizontal fashion. The soil most suited for Pear trees is a rather strong and heavy yellow loam. The east aspect wall will be most advantageously cropped with a few Pears, such as Williams' Bon Chrétien, Beurré d'Aremberg, and Easter Beurré; Breda and Moor Park Apricots; Denyer's Victoria, Jefferson, and Coe's Golden Drop Plums; and Cherries; and the north aspect should be devoted to Morello or Kentish Cherries, Red Currants, and a few late Plums, such as the Ickworth Impératrice, Coe's Late Red, &c., all of which will succeed in any part of England, and they are comparatively cheap and readily obtainable.

With reference to the main walk leading from north to south, I would have its borders gay with flowers, which would serve to brighten up the tameness of the other occupants of the garden. I recommend, therefore, a border for flowers, say 6 feet in width, to be made on both sides; if to this 10 feet were added to the back it would make in all 16 feet of a border. At the distance of 14 feet from the edge of the walk I would plant a line of pyramidal Pear trees on the Quince stock at 12 feet distances the one from the other; these trees should be allowed to grow to a uniform height of say 10 feet. Being thus all of one height and form, their appearance cannot fail to be effective. Between these pyramids, and in the same line, another lot of Pears may be planted and trained on the dwarf bush system, *i.e.*, about 3 or 4 feet in height and as much in diameter. In front of these again, if desired, another line of dwarf Pear trees may be planted as low pyramids.

On the borders of the walk leading from east to west a line of pyramidal Apple trees may be planted in the manner just described. Apples, however, do not so soon assume the pyramidal form as Pears, and, therefore, greater care will be required to induce them to take that shape.

Other borders may be furnished with lines of espaliers, the trees constituting which should be planted at 8 feet distances from the edging of the walk.

Separate quarters should be devoted to the cultivation of small fruits, such as Raspberries, Gooseberries, and Currants. *J. Newton.*

HALF-HOURS AT KEW.—VII.

OAKS.

The genus Quercus, to which all Oaks belong, is one of the largest and most important in the vegetable kingdom, whether we regard it from a purely utilitarian point of view, or as one of the richest in ornamental trees and shrubs. Oaks vary in stature from dwarf bushes 1 foot or 2 in height; in the size of their leaves, from an inch to more than a foot in length; in the texture of their foliage, from the thickest-leaved evergreen to the most delicate-leaved deciduous plant; which in regard to shape the variation is illimitable. The Box, Holly, Phillyrea, Sweet Bay, Pyracanthus, Sweet Chestnut, Willow, Magnolia, and many other things, find their counterparts; but, as a rule, when the fruit or acorn is present no botanical knowledge is necessary to distinguish an Oak, through all its numerous variations in form and foliage. True, some of the Indian species exhibit a transition or intermediate state between the true Oaks and the Sweet Chestnut, but as they are not in cultivation there is no danger of confusion.

The species are exceedingly difficult to discriminate, and botanists differ widely in their estimate of the number of forms entitled to that rank; but, even taking a very broad view of the variability of species, this genus embraces a larger number than any other genus of trees and shrubs. In De Candolle's *Prodromus* 281 are described, and this number future discoveries and investigations will probably augment rather than reduce. The distribution of the species is very interesting, for some districts abound in different forms, while others, Central Europe, for instance, have very few, though these few constitute a very important part of the arboreous vegetation. Oaks are almost exclusively confined to the northern hemisphere, abounding in all parts, from the tropics nearly up to the arctic circle. Those found in the tropics grow chiefly in mountainous districts, and a few species occur south of the equator, in America and in the Malay Archipelago; but none have hitherto been found in the mountains of tropical Africa. The number of species growing in the temperate regions of the Old and New World, and hardy in this country, is considerable, but of late years the coniferous trees and shrubs have so entirely superseded almost everything else that comparatively few of them are cultivated by our nurserymen. The varieties of Q. Robur, Cerris, Ilex, and coccinea are the only ones at all generally planted, and many of the best varieties of these species are seldom seen.

The object of this article is to point out the riches and variety of this magnificent genus for ornamental planting. About ten years ago the collection at Kew was commenced, and it now includes a large number of species and varieties; but many of them are at present represented by quite small specimens only. Those first planted are now from 15 to 30 feet high, and the shelter trees planted with them are being gradually thinned out. This collection of Oaks will be found in the young wood bordering the Thames and in some beds skirting the broad walk, opposite the lake, in the pleasure grounds. As already observed, Oaks are very difficult to distinguish from each other, and without a practical knowledge of a large number of forms it would be idle to attempt to name them from descriptions; hence the value of an authentically named collection of living specimens accessible to the public. And here it should be stated that although most of the forms in the collection at Kew are correctly named, in some cases different plants of the same species or variety bear diverse names, which are usually synonymous. The nomenclature of the whole collection will soon, it is announced, be subjected to a strict revision.

In the first place I will notice a few of the more striking varieties of the indigenous Oak, Q. Robur. There are two very distinct forms, which are regarded by some botanists as good species. One, Q. pedunculata, has nearly or quite sessile leaves and stalked acorns; and this is much the commoner of the two, in the South of England, at least, and the most prolific in varieties. The other, Q. sessiliflora, has distinctly petiolate leaves and nearly stalkless acorns. Although these forms are so very distinct from each other, intermediate forms connect them. Whether these intermediate forms are of hybrid origin between the two, or simply seminal variations, matters little from our point of view. It should be mentioned, however, that Dr. Asa Gray, and other competent American botanists, regard many of the North American Oaks as being of hybrid origin.

The varieties of Q. Robur pedunculata may be counted by scores, but here only a few of the most remarkable and ornamental ones will be noticed. One of the most noteworthy is fastigiata, sometimes called pyramidalis. This is of erect dense growth, like the Lombardy Poplar or a Cypress, and it is sometimes called the Cypress Oak. At a distance it might easily be mistaken for the Poplar, but except in habit of growth it differs in no respect from ordinary pedunculata. Although Loudon states that this variety will come true from seed, we have no proof of the assertion; and Dr. Caspary, who has been investigating the subject for some years past, is of opinion that neither this Oak, the Lombardy Poplar, nor a similar fastigiate variety of the False Acacia will come true from seed, though perchance some of the seedlings might inherit the same character. There are three or four specimens at Kew, from 20 to 25 feet high, in the plantation between the "Hollow Walk" and the Thames. Q. ped. Louettii is a distinct variety, with narrow, oblong, wavy leaves from 8 to 10 inches long, on vigorous young trees, and slightly and irregularly lobed; I found only quite young plants of this variety. Q. ped. scolopendrifolia, as the name indicates, has long wavy leaves, not, however, remarkably like the fronds of the Hart's-tongue Fern. The varieties heterophylla and cucullata are more curious than beautiful. Q. ped. pendula, although not represented by a good specimen in the Kew collection, is a handsome weeping variety where it thrives well. Q. Granbyana, which I take to be a variety of this, though I have found no reference to the name, has fine glossy foliage, and reddish purple acorns. The young shoots are of a rich red, and the inner bark is the colour of claret.

Among cut-leaved varieties of Q. pedunculata are taraxacifolia, pectinata, filicifolia and asplenifolia. The first has leaves 8 to 10 inches in length, with four or five pairs of long, narrow lobes at a considerable distance from each other, resembling the leaves of some varieties of the Dandelion. Q. pectinata is perhaps the handsomest of the cut-leaved varieties, as the leaves are less ragged than the others, the lobing being close, regular, and equal. One or two fine specimens of this exist in the collection. Q. filicifolia and Q. asplenifolia, if indeed they are different, have the leaves cut up into very slender lobes, and are very elegant when in good health, but they often present a diseased appearance. The variegated and coloured leaved varieties are some of them very attractive, whilst others are, to say the least, undesirable. Q. ped. nigra, nigricans, and atropurpurea are all more or less deeply tinged with a rich vinous purple. I have seen no good specimens of either of these varieties at Kew, but the latter seems to be a free grower, and the leaves are of a very rich colour. Q. ped. Concordia is one of the best of yellow-leaved shrubs or trees; it is a free-growing variety, with handsome golden-yellow foliage. The golden and silver variegated varieties are numerous, and, as it appears to me, the names are of rather uncertain application. In some cases the terms foliis aureo-variegatis and argenteo-variegatis are used to designate the golden and silver variegated varieties, without regard to the nature of the variegation. One of the most elegant and striking varieties has the leaves narrowly, though distinctly, margined with white; and it retains its character in large specimens, as may be seen at Kew in the older plantation. There are various other kinds of variegation in yellow and white, but most of these varieties show a tendency to reversion. There are varieties with mottled and marbled foliage, which are very pretty when young.

The varieties of Q. sessiliflora are by no means so numerous, and I have seen few of them at Kew. There is, however, a very beautiful Oak named Q. sessiliflora pannonica. It has handsome obovate leaves about 6 inches in length, and very regularly and deeply lobed, having the appearance, at a distance, of being pinnate, and showing a general resemblance to the Mountain Ash. I cannot too strongly recommend this admirable Oak, of which a handsome small tree exists in the collection. I cannot identify it with any of the varieties of sessiliflora described in De Candolle's *Prodromus;* but pannonica of Booth appears to be a variety of pyrenaica, which, in the work quoted, is merged in Q. Toza. The figure of pyrenaica in the *Nouveau Duhamel* is not much unlike the plant I have in view, though certainly not exactly like it.

Q. Cerris, the Turkey Oak, is the next to engage our attention, being equally as hardy as the native species, and fully as fertile in varieties. The typical form is a deciduous tree of rapid growth and symmetrical habit, attaining a height of 70 or 80 feet, or perhaps more. It is a native of various parts of the Mediterranean region; and, although it is recorded to have been introduced less than 150 years ago, there are many very fine trees of this species in the United Kingdom. In Kew Gardens there are several majestic specimens, notably, in the Botanic Garden, one near the Temple of the Sun, and another on the left-hand side—going towards the Palm-house—of the broad walk, about half-way between the Museum (No. 3) and the lake. The leaves are smaller than those of the common Oak, with narrower sharply-toothed lobes. In the ordinary form they are deciduous, or only persist in a withered state; but it has given birth to several (hybrid?) varieties, in which the leaves are almost evergreen. The principal of these is called Lucombeana, having originated in the nursery of Lucombe & Pince, at Exeter; but the name of subperennis is applied to all of the varieties having this peculiarity. There is a large tree of the Lucombe Oak to the right, just within the Botanic Garden, entering by the broad walk leading from the river. A sub-variety of this, called crispa, has elegantly curled foliage. There are several varieties differing in the size and hairiness of their foliage. Q. Cerris cana minor and major, and several others which I need not particularise here, are in the plantations. There is also a very pretty variety with silver-variegated foliage.

The Valonia Oak, Q. Ægilops, was introduced from the Levant in 1731. It is a beautiful deciduous tree, intermediate in appearance between the common

fences, border palings, or stone dykes, than contend with insurmountable difficulties in growing hedges, which terminate in ruin and disappointment. Each of the various descriptions of fences have their own peculiar and special adaptations and advantages, as stone dykes for dividing fields, iron fences for enclosing plantations, and hedges for beautifying roadsides, sheltering and adorning the landscape, &c.

It must be admitted there are various soils and many situations upon which hedges cannot be successfully grown, yet one grieves to see the maltreatment to which hedges are often subjected at every stage of growth. The Whitethorn or Quick, of which our common and best hedges are composed, comprises many very distinct varieties. I have often counted five or six of them in a few yards of hedge, differing either in the time of coming out in leaf, in the form, size, and colour of the foliage, in the number and formation of the spines or prickles, in the slowness or vigour of growth, in the colour and substance of the bark, in the earliness or lateness in the season of maturing the annual top-growths, and in the time of defoliating, &c. Some varieties of Thorn will continue healthy and vigorous for hundreds of years, while others will not survive a quarter of a century. In no department of forestry is there greater room or more necessity for improvement than in the selection of hedge plants, and this can very well be done in the nursery before the plants are removed to their final destination as hedges. The summer season is the only term in which proper selection can be made, by marking all those specially characteristic.

Before planting hedges of any description the ground into which they are to be placed (termed the hedge bed) should be well trenched, the subsoil loosened, and the active soil thoroughly pulverised. For Thorn hedges lime may in certain soils be used with advantaage, and dung, if well decomposed and thoroughly incorporated with the soil, will prove advantageous to Thorn, Holly, or Elder hedges, but neither lime nor manure of any kind should be applied to a Beech hedge; sandy soils are what it prefers.

One of the greatest evils connected with the propagation and culture of young hedges is the too frequent use and misapplication of the hedge-bill or pruning-hook. The top shoots of Beech hedges, and also Holly hedges, should in no manner of way be either cut or pruned in till the hedge is as high as required, after which the tops should be cut off, and the hedge allowed to thicken and assume strength and consistency.

The last and best improvement achieved in hedge culture is that of running a No. 4 or 5 common fencing wire along the central and upper part of the hedge. This is accomplished by first allowing the hedge to grow up to, or a little over, its desired height, and then reducing it about 1 foot below the height required. In cutting the top for this purpose, it should be kept uniform and level, and along the centre a row of small posts about the thickness of sheep-net stakes driven in at a distance of about 6 to 8 feet apart. To the stakes the wire is stapled in the usual way of wire fencing, and drawn moderately tight by means of iron strainers and winding brackets attached at the ends or gateways when they occur in the line of fence. In a few years the hedge grows completely over the wire, and conceals it from view and from where it could injure the pruning knife.

The principal uses and advantages of the wire thus inserted are to constitute a permanent back-bone, as it were, to the hedge, thereby preventing animals, as cattle and horses, from pushing themselves through, which they are very liable to do at all thin and weak parts of a hedge. When once the hedge grows over and fairly covers the wire, the posts are of little further use, and do not require renewal, as the fence itself sufficiently supports the wire, and keeps it ever afterwards in its place.

In many situations unfavourable to Thorn or Beech hedges, fences of a very serviceable kind, and by no means devoid of a certain description of beauty, may be formed in the following manner:—A slight mound, ridge, or back of a drain or ditch may be chosen or prepared, and along it a sort of zig-zag double row of some of the fast-growing descriptions of Willows stuck in, either as cuttings or rooted plants. If the former is used I prefer them from wood three or four years old, and about 2 feet long, pushed or driven in about half their length into the ground. In the centre of the row a few rough stakes of any description of wood are driven in, and two or three wires extended upon them, as formerly recommended. The Willows soon grow up, and, with a very little attention, to twist some of them into the wires, and give them from time to time a cut over each side in alternate succession, a permanent and substantial fence is maintained, cheap, and by no means void of adornment. The hedge may be allowed to grow to any desired height, but when shelter is a desideratum the higher the better, as the tops of the plants are thereby farther removed from the reach of cattle, which of course browse on them to some extent if within their reach. *C. Y. Mechie, Cullen House, Cullen, Sept.* 28.

Florists' Flowers.

ALPINE AURICULAS.—While it is thought by some that there is no really onward movement being made in the matter of the show or stage Auricula—a statement in which I do not concur in the face of the newer flowers of Lightbody's, Headley's, Trail's and Meiklejohn's raising—there is no doubt but that in the matter of the alpine varieties we have seen a marked advance made during the past few years. Mr. Charles Turner, of Slough, in particular, has been making considerable headway, raising magnificent varieties of great size, substance, and rich beauty.

Between some of Mr. Turner's largest and boldest flowers, and the estimate of an alpine Auricula set up by the northern florists, there is a great gulf fixed. This remark applies only to some of Mr. Turner's flowers be it remembered: and why this difference? Because, as the northern florists remark, Mr. Turner is getting them too near to the self Auricula, and probably not a few of those that have received certificates at the hands of the Floral Committee of the Royal Horticultural Society, would be absolutely rejected by the leading growers among the Auricula fanciers in the North.

The latter attach much importance to a golden centre to an alpine Auricula, and at one time so strong was this feeling expressed in favour of this particular type of flower that alpines with white centres stood no chance whatever when competing with them. This year, however, the schedule of the National Auricula Society contained classes for golden-centred and white-centred alpine Auriculas, each being shown by themselves. The importance attached to a golden-centred over a white-centred flower was seen in the fact that a much larger number was staged in the former than in the latter class, and more of a telling character belongs to a flower with a golden centre.

According to the northern standard, all alpines, yellow and white-centred flowers alike, must have shaded petals, *i.e.*, the margins of the segments of the flower must be of two shades of colour, a dark paling off to a lighter tint, and the more clearly defined and regular the two shades are expressed so much the more does the flower gain in quality. Now, whether a flower have a golden or a white centre, if it have an unshaded petal it is no true alpine, and in a competition would be passed over as unworthy of notice; while the self Auricula "must have its body-colour or marginal colour extending from the circumference of the paste to that of the pip, and there must be no ascending or descending scale of perceptible shade. In the alpine Auricula the opposite prevails, for the leading property—some term it the first property—is the shaded petal, a dark colour paling off to a lighter one, and the more richly shaded the body-colour is the better. Then, whether the centre be white or cream-white, or yellow or custard-yellow, it must be entirely free from that meal or paste so much prized in the show varieties, and which must be present in a true self Auricula." Such, then, are the points of quality as recently laid down in the *Florist and Pomologist.*

And while it not unfrequently happens that seed saved from choice edged Auriculas, even when the flowers have been fertilised with great care and quite isolated, will produce alpine flowers, it also happens that seed of true alpines will produce flowers that might best be designated "nondescripts," having mealless centres like the alpines, but unshaded margins like the self Auriculas. By some these have been termed hybrids, the which, however, they are not strictly, for after all the distinctions of the florist are to a great extent artificial and arbitrary. On the other hand, some of Mr. Turner's most gorgeous alpines have three distinct shades of colour on the margin, which again gives them a kind of nondescript character. Thus it was that flowers of this character were designated in the schedules of the Royal Horticultural Society "fancy Auriculas," outsiders, as might be expected, finding considerable difficulty in defining the characteristics of a fancy Auricula. They are yet a valuable group of decorative flowers for pot culture in early spring.

Only at a comparatively recent date have the alpine Auriculas been recognised at the meetings of the National Auricula Society. Ten years ago they found no place there, and so the advent of the alpine Auricula as a show flower is by means remote. Mr. Turner's very successful improvements brought it into notice, and it is now recognised as a competitive subject.

The growers of the alpine Auricula in the North cultivate it in poor soil, in order to get the tints of shading well-defined. Large pips are of less consequence than a correct shading, and a poorness of soil is conducive to the latter. As one of the leading cultivators remarked, "I grow my alpines in the greatest rubbish." They are repotted in May or June, when they have gone out of flower, in the same way as the edged varieties, but they will bear more exposure than the latter, and they make on the whole a more vigorous growth.

They, however, will repay cultivation in good soil, as they then throw up bold trusses of fine flowers, the which, if not absolutely perfect from the florist's point of view, are yet high-class decorative objects, richly beautiful in early spring, and lasting a long time when carefully shaded from the burning sun.

Some of Mr. Turner's finest new alpines will be found among the following:—Bessie Ray, rich golden centre, the body colour dark maroon edged with bright orange-claret, very fine pip, and as flat in shape as could well be desired by the most rigid adherent to the laws of properties in flowers; this splendid flower obtained the premier award in the class for golden-centred alpines at the National Auricula Show at Manchester in April last. Topaz, bright gold, margined with rich velvety maroon; Diadem, gold centre, velvet margin edged with crimson-red; Bessemer, golden centre, and velvety maroon margin edged with bright purple, very handsome and striking; Queen Victoria, white centre, margined with rosy lilac, very fine quality; King of the Belgians, golden centre, dark margin paling to fiery red, very fine; Napoleon III., rich golden centre, rich shaded maroon margin, very fine; Selina, white centre, margin shaded with pale rosy violet; Beatrice, white centre, very broad rich velvety margin edged with violet, and immense pip; White Beauty, white centre, and broad margin of bright deep maroon; Susie Matthams, white centre, velvet margin paling off to bright violet; National, white centre, pip very large, and broadly margined with a striking hue of rich, bright maroon; Captain, white centre, broad margin of purplish maroon; Ensign, white centre, large pip, broadly edged with plum; Clipper, pale golden centre, rich shaded plum margin, very fine; Bronze Queen, golden centre, dark margin, broadly edged with fiery bronze, very fine; and Titian, golden centre, shaded margin, with a bright red edge, very fine.

Among the varieties already catalogued must be named Diamond, bright gold centre, margined with bright claret; John Leech, golden centre, and rich crimson margin; King of Crimsons, bright yellow centre, and rich crimson margin; Mercury, very fine; Percival, a very fine flower, of great beauty; Spangle, bright golden centre, and very dark margin; and Wonderful, yellow centre, and broad crimson margin, shaded with violet. *R. D.*

Apiary.

FOUL-BROOD.—I have seen the effects of that fearful disease, the rinderpest, amongst our live-stock, and never witnessed one clear case where an animal was attacked and showed unmistakable signs of the disease, in which it recovered. We have also heard heartrending accounts of the cholera, and, what was even worse, the dreadful plague of London. Bad though all these were, yet in their desolating effects they are as nothing compared with the foul-brood amongst bees. Some of your readers may smile at my making this comparison, and may even think foul-brood is made too much of by scientific apiarians, but if they witnessed its frightful ravages when it makes its appearance in an apiary, they would be, as I have been, amazed at its effects. I write, not as most of our authors and writers upon this subject, merely to describe the disease, but "we speak that we do know and testify that we have seen;" in other words, I speak from experience. I have observed it as introduced into an apiary of fifteen fine stocks, kept by a medical man, who prided himself upon his advanced system of management, and had the most improved Woodbury hives and other appliances; in this instance it was brought in with an Italian queen, and though everything was adopted on scientific bases to check the disease, all was in vain. In one season every stock was infected, and by the autumn my friend had not a single stock living—they were all dead. Had the disease not spread, the matter would not have been so serious, but in one season almost every stock throughout the whole neighbourhood—and some were nearly half a mile apart—were diseased and worthless. This will to some extent show its frightfully infectious nature, and the fearful rapidity with which the infection spreads.

punishment for its supposed evil deeds, is in reality innocent of this mischief—a feeder on vegetables above or below the surface of the water, and not a destroyer of poultry. In the yards, wherever there are rats about, the poultry should be placed at night in secure pens, these, if possible, locked, as the responsibility then rests with the holder of the key. If the birds are allowed to find out their own roosting-places they will probably settle down on the tops of walls, beneath cart-sheds, on heaps of sticks, or similar places—exactly in the prowling-ground of the rats; and insecure hutches, empty pig-sties, or pens apparently secure, but with a shallow gutter running beneath, and leaving just room for a rat to squeeze himself in by, are even worse, as giving a known locality of prey.

For a purpose of this sort, that is, for a permanent shelter, a gable-ended or lean-to shed, with one end (like the back) of brick or stone, the rest of stout, upright, wooden bars, with a strong iron wire between each, a tiled or slated (not wooden) roof, and stone floor, wtih a properly fitting entrance door, and small sliding door for the fowls, will answer perfectly. It is more expensive to start with than slighter work with different expedients fitted on to exclude rats, but the roughest material will be quite good enough, as long as the workmanship is sound, and the timbers thick enough, and in the long run the firm building will answer much the best. The foundations should be deep enough to exclude burrowing, and if the base of the wooden part is not laid also on a deep foundation, the ground outside should be paved or pitched quite continuously with the floor, so that if a rat should burrow beneath he should not be able to come up through the stones at any unguarded edge.

The shed should also be kept entirely for the use of the fowls—if barrels, old sacks, and scores of different kinds of lumber which it is convenient to pile anywhere out of the way are allowed to accumulate, it is impossible when shutting-up time comes to see if all is safe; and even the vexation of finding a rat or weasel has been fastened up with the fowls, and massacreing at pleasure all night, may be added to by the household, in their astonishment at the *post-mortem* exhibition of the morning, overlooking the marauder, and allowing him to get clear off. The terror and confusion amongst the fowls caused by a rat hunt inside a pen is most undesirable, but by quietly waiting till a gun or a dog can be fetched, or, better still, a good stout cat who understands his work, and leaving him quietly in the shed to his own way of doing it, the rat will probably meet his deserts without any commotion.

In the case of ornamental pens care should always be taken that the floor is secure, if it is merely of thin board, or of nicely laid gravel, a rat will burrow or gnaw his way through with the greatest ease, but with all his skill he cannot get through properly laid stone or brick in one night, and where proper attention is paid his work will be noticed in time. Strong wire netting, properly secured at the edges, is often a great assistance, but the chief reliance is to be placed in strong permanent work and constant attention, and it is also a good plan to have the poultry sheds as far as possible from anything that may serve as an attraction for rats, such as corn-stacks, wood-heaps, depôts of bones, and arrangements connected with sewerage or with slaughter-houses.

Where a rat-hole has to be stopped it is best to do it with such solid masonry as may put an end at once to rat passage, but where plaster must be used it is recommended to mix *it* with broken glass, and to put a little quicklime first in the hole, but a small quantity of sulphate of copper in crystals seems to me a surer remedy. This may be used instead of the lime, if broken up small or powdered; and if some of the crystals are also mixed with the plaster or mortar the rat will probably never try to force the passage again. For a temporary remedy, it is a good plan to soak a lump of hay thoroughly in tar, and if this is well driven down any hole it will probably act excellently for some time.

When neighbouring stacks or old buildings are pulled down is an especial time to guard against an invasion; the rats will then sometimes emigrate in a body, unpleasant enough to meet, even though they should not, as described by a labourer who had retired up a tree for safety on the occasion of such an encounter, all stand still and "nicker" at him.

With regard to all common kinds of traps, their uses are as well known as the difficulty of attracting a rat into them; but a few of the vermin as troublesome as themselves in the poultry-yard keep the rats slightly down also. The larger weasel, or stoat, may occasionally be met with doing this work well, even in broad day. Whilst lately walking near Isleworth, my attention was attracted by a most indescribable shaped mass of fur, moving steadily along at a little distance, and by quietly watching the leafy ditch where it had vanished, in about a minute the whole affair reappeared, and turned out to be a good-sized rat, just killed in the usual way by a bite behind the head, which was being dragged along, wrong side up, at a good pace over rough ground and up a steep bank, by a weasel or stoat hardly a quarter its size, which did not give up its prey till I almost took it from its jaws. A stout well fed cat is also a great help in keeping down rats. There is no reason he should be starved to do his work well, a weak cat will do nothing in a rat fight, and if chosen of a good breed the pet of the household will fight all the better for his strength and spirits being well kept up.

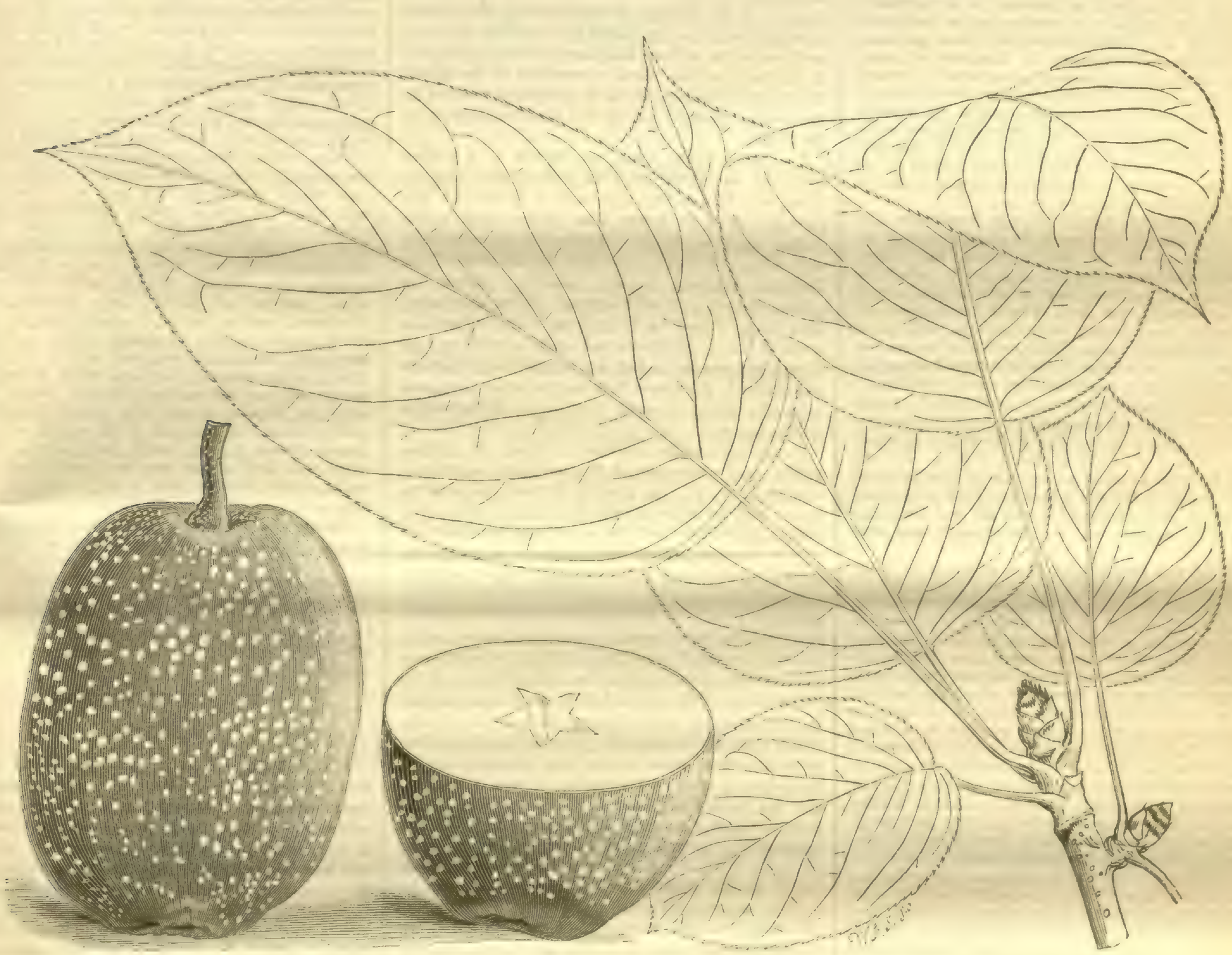

FIG. 95.—THE SAND PEAR (PYRUS SINENSIS).

Where rats and poultry exist together there will always be risk, and sometimes losses, but by keeping the fowls as clear as can be managed of all known haunts or special attractions of the rats, and by making their accommodation as far as may be sound, and clear of all unnecessary incumbrances, a great deal may be done to mitigate an evil too often allowed in out-of-the-way homesteads to pass without more notice than constant complaint. *O.*

Forestry.

THE beauty and elegance, not to speak of the comfort and utility, which well laid off, properly kept, and neatly trimmed hedges impart to an agricultural country, are so great that the wonder is that comparatively so little attention is paid to them. If we except the Lothians, Berwickshire, and Teviotdale, in Scotland, there are no other extensive agricultural districts in Britain of which it can be said they are properly hedge-fenced. I would not recommend hedges on all soils and in every situation, because in many they would not succeed satisfactorily, and better have Whin

The "Gardeners' Chronicle" in America.

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TO THE
GARDENERS' CHRONICLE,

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AGENTS :—Messrs. B. K. BLISS AND SONS, Seed Merchants, 34, Barclay Street, New York ; Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia ; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia ; through whom Subscriptions may be sent.

HORTICULTURAL EXHIBITIONS, 1875.

NOVEMBER.

10.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
15 and 16.—Loughborough Chrysanthemum and Fruit Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.
16 and 17.—Borough of Hackney (late Stoke Newington) Chrysanthemum Society's Show, in the Town Hall, Hackney. Sec., J. Rainbow jun., London Road, Clapton, E.
25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

DECEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 9, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Oct. 11—Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY, Oct. 12—Sale of Imported Orchids, at Stevens' Rooms.
WEDNESDAY, Oct. 13—Jersey Horticultural Society's Chrysanthemum Show. Sale of Dutch Bulbs, at Stevens' Rooms.
THURSDAY, Oct. 14—Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY, Oct. 15—Sale of Established Orchids, at Stevens' Rooms.
SATURDAY, Oct. 16—Sale of Dutch Bulbs, at Stevens' Rooms.

AS it should be the aim of every man to make one day's labour provide for more than the day's wants, so it should be the aim of a country to produce not only that which is necessary for its own consumption but also as much as possible for exportation. When the acreage of cultivated ground is large, the population scanty, or the soil rich and climate propitious, this is easily done; but when, as in England, the country is very limited in extent, compared to the numbers of people depending upon its produce for subsistence, it becomes highly important to husband every resource and utilise every foot of ground. When speaking of comparatively barren lands or bleak exposed tracts it is commonly said, in answer to any questions as to why it is not cultivated, "Oh, nothing would grow there!"—a reply, the absurdity of which is evident on a moment's reflection. Vegetation springs spontaneous from every soil, and Nature clothes the rocks as well as the valleys with verdure, although not of the same kind; we, then, should take a hint from Nature, study her in every phase, and thus be enabled to aid in her development and add to our own resources. We cannot grow Grapes on Thistles, nor expect sand to produce the plants common to alluvial soils. Man's labour can do much, but man's labour aided by scientific knowledge can do more—can make the wilderness smile with plenty, and render barren places fruitful.

The IMPROVEMENT OF WASTE LANDS is a subject which rises every now and again to the surface, is discussed for a time, and then falls into temporary oblivion, and nothing, or comparatively nothing, is done towards the furtherance of so desirable an object.

We allow thousands of acres of ground to grow wasteful weeds year after year, while we annually import tons upon tons of fruits and vegetables. That it would be possible to bring the greater part of our so-called waste lands to a remunerative state of cultivation is evidenced by what has already been done in certain districts. A portion of the Connor Downs in Cornwall has been reclaimed by miners at the same rent—2*s.* 6*d.* per acre—as was formerly paid for it, and the men have a ninety-nine years' lease. The size of the holdings is limited to from 3 to 10 acres, and by degrees the workmen have transformed the waste into thriving pleasant garden ground. The great majority of the miners in addition have built houses and outbuildings for themselves on their plots, and it is satisfactory to be able to record that now all are prospering, happy and contented.

That which has been done in Cornwall might be done in every county in England, for in every one there is more or less land lying idle, land which might be worked and made to yield remunerative crops—if not of choice vegetables at any rate of hardy ones fit for the consumption of man or useful as food for cattle.

Some parts would be suitable for one purpose, some for another; the labour bestowed would be sure to meet an adequate reward with the right thing in the right place. There are miles upon miles of railway banks in England which would grow any of our kitchen garden produce; and many of these banks, from the formation of the soil, the sunny and sheltered situation, would produce the very choicest of our outdoor vegetables; yet, save for the few yards around station-masters' houses, these valuable slopes remain uncultivated. This need not be; it might not, nay, would not, be possible to utilise every yard of railway embankment, for many places are too steep or ineligible from other causes. Yet, allowing for all those parts unsuitable for cultivation, there are hundreds and hundreds of acres, now only covered with poor grass, which might be made into excellent gardens, both useful and ornamental; indeed, no more striking instance of what it is possible to do with such places could be found than that at New Cross Station, where may be seen an excellent example of the modern style of gardening.

On the sunny slopes of the southern counties Tomatos, Cucumbers, Vegetable Marrows, and even Melons might be grown by the ton. Again, there is no reason why the Vine should not be cultivated here; the gentle, sloping banks of Kent, with their chalky subsoil, would surely be the very spot on which to put the matter to the test, in a manner similar to that now being carried on at the Marquis of BUTE'S estate, Castle Coch, near Cardiff. To lease out the surplus land adjoining the lines of rail could not but prove advantageous in every way. To labourers and cottagers, who might thus rent sufficient ground to provide vegetables for their families, and, in some instances, roots to feed a pig, it would prove invaluable, while the companies would derive the advantage of increased dividends.

Every acre of this ground cultivated would represent an accession of wealth to the nation, and be the means of providing work for that surplus population which is year by year carrying more and more of its manhood and its strength to enrich other lands with its labour.

—— THE Gold Medal given annually by the Pomological Society of France "to the person who has contributed most to the cause of pomology," was awarded at the recent Congress at Ghent to the distinguished Belgian Minister of State, M. CHARLES ROGIER, the founder of the Royal Commission of Pomology, of the Arboricultural Society, and of the Schools of Horticulture in Belgium.

—— At the Congress of the French Pomological Society, held in connection with the recent International Exhibition of fruit at Ghent, the following FRUITS were "admitted," that is, considered worthy of cultivation :—Apricots: Gros Rouge d'Alexandrie and Musqué de Provence. Raspberry: Surprise d'Automne. Peaches: Belle de Toulouse, Belle Impèriale, Noblesse, Prècoce Louise, Salway. Pears: Madame Grégoire, Marie Benoist, Professeur Hortolès, Sœur Grégoire. Apples: Reinette de Burchard, Reinette des Carmes, Transparent de Croncels. Plums: Early Favourite, Tardive Musqué. Grape for the table: Rosaky; for wine-making: Mourvède. The following varieties were rejected :—Cherries: Gros Bigarreau Noir, Grosse de Turquie, Guigne de Chavannes, Nouvelle Royale, Transparent de Coe. Figs: Angélique Jaune, Concourelle Blanche, Montégasse. Peaches: Anne Précoce de Fay, George IV., Madeleine Hariot, Malte de Gouin. Pears: Beurré d'Août, Beurré de Ghélin, Beurré Doré de Bilboa, Colorée d'Août, Jacques Chamaret, Léon Grégoire, Madame Favre, Marie Guise, President Payen, Professeur Hennau, Sénateur Reveil, Souvenir de la Reine des Belges, Stevens' Genesee. Grape for the table: Pécon Tendre.

—— One of the most beautiful features seen lately in a garden in Bedfordshire were some masses of SEEDLING PETUNIAS. In their way they are unsurpassed by any other flower. The beds in the main were full of their flowers, and each one seemed finely marked and striped. Where Petunias would do well like this they are certainly worth taking a note of.

—— OXALIS LOBATA is beautifully in flower on the rockwork at Kew. Though not a new species, it is comparatively rare, and is not only one of the best of the genus, but also a very choice plant for rockwork. It is a native of the Cape, and if not quite hardy is very nearly so. The leaves are produced in a dense and neat tuft, almost hidden by the golden-yellow flowers, which are borne on stout stalks about 4 inches high; about sixteen are here fully expanded. This plant is growing in a small 60-sized pot, plunged in the soil. It should have a sunny position. Liatris pycnostachya is extremely handsome. The stems are 3 feet in length, thickly covered with narrow, graceful leaves, and bending over with the weight of their dense terminal spikes of lilac flower-heads. It is a very fine plant for autumn decoration, lasting in flower a considerable time. Begonia Martiana, an old species, presents a rosy pink colour, quite distinct from any other of the tuberous forms, and might prove useful for the production of new colours in this very useful section. In the garden of a well-known cultivator in Cornwall we believe it grows almost wild.

—— The current number of the *Florist and Pomologist* contains a coloured plate of LANE'S PRINCE ALBERT APPLE, not a new variety, but one which has been well proved in certain districts, and which deserves to be much more widely cultivated. "It was raised some years since by Messrs. LANE & SON, of Berkhampstead, from the Russett Nonpareil, crossed with Dumelow's Seedling, and is remarkable both for its excellent quality as a culinary Apple, and for its prodigious bearing qualities, even the smallest trees being usually densely laden with fruit." It is a very handsome and peculiarly solid fruit.

—— The illustration (fig. 96) which we give at p. 461 shows the exterior of the WINTER GARDEN in the Flora Garden at COLOGNE, to which we have alluded on several occasions, especially in connection with the recent International Horticultural Exhibition held in the garden. The garden itself was designed by the famous German landscape gardener, LENNE, and the works were executed by Herr NIEPRASCKH, the present Director.

—— In the *Transactions of the Academy of Science of St. Louis* (vol. iii., No. 2), Mr. CHARLES RILEY gives detailed descriptions and histories of the HACKBERRY (Celtis) BUTTERFLIES. There are two species which feed indiscriminately upon the different species of Celtis, belonging to the same genus as the beautiful Purple Emperor. They are Apatura Lycaon and A. Herse, and they had not previously been properly distinguished. Both species are very handsome, though not equal to the European A. Iris. As far as is known they feed exclusively on the Hackberry trees. A. Lycaon is better known as A. Celtis, and A. Herse as A. Clyton.

—— Mr. TEMPLE, having resigned the superintendence of the gardens at Blenheim Place, Oxon, Mr. W. CRUMP, late foreman in the gardens of Heckfield Place, Hants, has been appointed to succeed him.

—— The DORSET NATURAL HISTORY AND ANTIQUARIAN FIELD CLUB, which was only established this year, promises, though late, to be not the least important of field clubs, as it now numbers two hundred members, many of whom have made a name in some walk of science. The last meeting for the present season took place at Dorchester on Sept. 28, and was well attended. The out-of-door work consisted in the exploration of the celebrated vestiges of Celtic and Roman occupation about the district—matters which gave rise to much interesting discussion, in which the Rev. W. BARNES, Professor BUCKMAN, and Mr. E. CUNNINGTON took part. After dinner an interesting paper was given by Mr. E. CHARLESWORTH on some shark's teeth from the Suffolk crag, which appear to have been perforated in the same way as the South Sea Islander does the modern shark's teeth for the purpose of stringing them for necklaces; the conclusion being, that if the crag teeth really were bored by human agency, man must have been coeval with the mammoth. A paper was then read by Professor BUCKMAN on two parasites occurring abundantly on his farm, namely, Cuscuta Trifolii and Orobanche Picridis, both of which, though now so common, he viewed as introductions from the

Dzierzon, the celebrated scientific apiarian of Germany, commenced about 1838 with a single stock, but these had so wonderfully increased that in the year 1848 he prided himself upon having more than 500 stocks. In the interval he had lost seventy colonies from thieves, sixty were destroyed by fire, and twenty-four by a flood. In the year 1848, he states, "a fearful pestilence made its appearance in my apiary, which spread so fast that it contaminated every stock and artificial swarm I then possessed." He lost this year more than 500 stocks from the foul-brood. This was almost enough to dishearten any man, and make him resolved never to keep bees again.

It made its appearance amongst my stocks five years since (1870). At first I could not tell what was amiss, for the bees became quite dispirited. If any were seen working it was only with a lazy kind of effort, which seemed to indicate disease. I then removed those which were infected to a distance of nearly three miles, thinking it was possible to save them, but I had my trouble for nothing, for they gradually dwindled away, until before the autumn all became so weak that I buried both hives and bees to stop the spread of the foul-brood. I find from experiments that if a healthy colony is fed with honey from a diseased stock they will be quickly infected; again, the disease is spread more by robbing than all other causes combined. When a stock is weak the neighbouring colonies, as well as those at a distance of a mile or so around, will prey upon it; but if a few bees from an infected stock are placed in a healthy hive they seem to carry the infection with them, although they are strong and healthy; but we must bear in memory it is the young brood in the cells which become diseased and putrify, and not the old bees. Some authors have proposed to remove the queens and, thus preventing breeding, the disease could not spread from hive to hive. The better plan is to destroy the stock if they are diseased. It is a hopeless task to attempt to cure them by any means; they only make matters worse by keeping them on the stand.

Can nothing be done to stay its ravages? Nothing has yet had any influence in this direction, for chemicals, &c., all seem to be powerless. First we must not forget the disease infects the brood in the cells, and induces putrefaction, thus causing a most intolerable stench to issue from the diseased hive. The cells, as already stated, are filled with a dark-coloured, half liquid mass, resembling treacle.

Many causes have been assigned for this disease. Some talented and thoughtful bee-keepers have supposed it was caused at first by the brood being chilled; thus dying they decay in the cells, and become a putrifying mass. This theory has long since disappeared. Microscopical science has revealed the true secret, which is a kind of mould (fungus), the spores from which may float about in the atmosphere, and when they find a suitable nidus they speedily generate the foul-brood so called.

I cannot do better than quote a few extracts from the *Manual of Beekeeping*. It is a translation by Mr. Wood, from experiments made by Dr. Schönfeld, for the German beekeepers are far in advance of British apiarians, and they have done much more than we have to investigate this hindrance, in many instances, to successful beekeeping.

"Dr. Dzierzon proposed, by the wish of the editor of *Bienen Zeitung*, at the last Vandrefors-amlingen Exhibition at Saltsborg, the following question:—'What is to be looked upon as decided relative to foul-brood, both as regards theory and practice, and what remains now undecided?'

"Firstly. It must uncontrovertibly be proved that the spores of the fungus leave the dried-up foul-brood, and they must, inasmuch as they float in the air, be able to be caught.

"Secondly. It must next be shown that such fungus spores as are caught in the atmosphere, when placed on healthy larva, can grow, and increase to an uncountable number, until at last they kill the brood, and so prove themselves the cause of the sickness.

"Although the problem appeared difficult, I went even confidently to the work. I wrote immediately to Herr Locher, in Sigmaringen, and asked him for a little foul-brood. On June 18 I received, enclosed in a letter, as much as I could form into a ball about the size of a Pea. The substance was very dark, nearly black, moist, and tenacious, and its odour was exceedingly disagreeable. A careful examination under the microscope proved the presence of fungus of the same form as Micrococcus. Had I, after having solved my problem, began first to show that the spores could escape through the fly holes (entrances) of hives containing foul-brood, it would have been necessary for me, in order to have obtained such a hive, to dissolve the infectious substance in water, and therewith sprinkle a comb containing healthy brood. It is most probable that such a proceeding would have failed, as the bees would most assuredly have cast out the dead larvæ and pupæ before the artificially produced sickness had had time to develope itself fully, and infect the whole hive. In every case there would have been gone a much longer time by that means before I had arrived at the result. I had not, however, in the meantime the opportunity as I already wished to discuss my experiment at Halle. I, therefore, immediately made the experiment to catch the spores that were escaping, and were floating in the atmosphere, from the infected substance, that had been sent me, and thereafter use them for infecting healthy brood. For this purpose I constructed the following apparatus—'On a smooth planed board I placed a bell-glass, in the top of which was a round hole; in this I fixed a glass tube 2 feet long: there was also fixed a similar glass tube in the board. In the top of the uppermost tube was fixed a plug of cotton wool, as also in the under end of the bottom tube, and the wool was not pressed tight, but so that the air could circulate freely through both tubes. The foul brood substance that I had received from Herr Locher was now placed under the bell-glass on June 21, and left to dry slowly. If then the assertion that the spores escaped in the air when the substance was dry was correct, then it was only necessary for me now and then to place the apparatus by the window in my study, and expose it to the full influence of the sunbeams, as, if the air in the bell-glass by the power of the sun-beams was warmed up to 40°, it must by a well-known physical law escape through the uppermost tube, while the cooler air from the floor of the study must enter the bell-glass through the bottom tube, and at the same time it was quite as certain that therewithal the spores of the fungus that were carried by the upward current of air would be caught in the wool above.'

"On July 5, on which day the substance was quite dry, I got four plugs of wool, each of which had served as the top plug for about eight days; besides these I had two pads of wool, each of an area of about 4 square inches, which I had placed inside at the top of the bell-glass.

"Had the spores from the substance really been escaping? and had the wool caught them as they were coming out into the world? All rested on the answering of these questions, and examination gave the following results:—

"(1.) When quite a small portion of the wool was washed in distilled water, and thereafter a drop of this water placed under a microscope, it showed a considerable quantity of fungus Micrococcus.

"(2.) If a plug of wool as large as a pin's head was laid dry on a piece of glass, thereafter moistened with distilled water, and placed under the microscope, the Micrococcus could be seen partly in the water and partly adhering to the threads of wool.

"(3.) If the wool was examined dry, it was difficult to see the Micrococcus, and it could only be seen by aid of the strongest lens and through three objectives.

"(4.) Of gun cotton, of which I had two plugs which were prepared with water, as sub. 1 and 2, Micrococci were to be seen in still greater quantities than in the ordinary wool, probably because the one is finer and better suited to retain the spores.

"Thus by a practical method I have solved the first part of my problem, and it is without a doubt proved, though in an unequal degree, that the spores of the fungus from the dried-up matter escape, and are borne away by the atmosphere.

"Therefore, there cannot be the slightest doubt of the fact that in consequence of the bees ventilating so strongly, as they so often do, that the spores must be driven out of a severely infected hive in very large quantities.

"When Von Molitor-Mühlfeldt, in order to refute this assumption, declares that there is no circulation of air in a bee-hive, but that owing to the motionless air the spores must sink down and not pass from cell to cell, it sounds almost as if he had no idea of ventilation being caused by the bees, and as if he had not read paragraph 111 of Von Berlepsch's *Der Biene*. When Günther has succeeded in working a small windmill of paper by placing it at the entrance of a hive containing a strong stock, then it is evident that the circulation of air produced in the hive by the bees must in proportion be a much stronger hurricane for these light spores than any such hurricane Von Molitor-Mühlfeldt has witnessed on the earth. And when the same opponent declares on the whole that the atmosphere cannot be the bearer of the infection, so has that invalid assertion been so thoroughly refuted by Dr. Ulde, of Halle, that I will not waste a word on the subject.

"It is quite certain that it is not over all, and at all times that the atmosphere will contain such a quantity of seed-germs; and Dr. Prensz goes too far when he declares that the atmosphere is everywhere loaded with these germs. If such was the case, foul-brood infection would appear in every district where there are bee-keepers; but there can be shown many districts where this disease is quite unknown—in my district, up to the present time, it has not appeared.

"I certainly succeeded in producing a whole comb of dead, rotten, and stinking brood; but though I experimented with this comb in the most various ways, placed it at the fly-hole at the open door, and exposed to the sun's warmth and the atmospheric currents about my pavilion, I, after examination, found no more fungus than Fischer, who never had anything to do with foul-brood.

"*Where there is no fungus present there never can arise infectious foul-brood.* Herewith we have approached nearer to the solution of the second part of my problem.

"It next requires to show, and afterwards to prove, that pure fungus collected from the atmosphere by means of the cotton-wool, has the power to kill larvæ, and by so doing, cause foul-brood. To do this, I took on July 30 a comb with brood from a first swarm, brushed off all the bees, and covered about 100 larvæ with wool, which was made fast by means of some thread. The comb was hardly replaced again before the bees attacked the wool, and commenced casting it out in small pieces. On examination of the comb on August 1 it showed that all the larvæ which had been covered with the wool was cleared away by the bees. Three larvæ above the previously covered cells died shortly after the bees had sealed the cells which they were in. The cell-covers were sunk, and the well-known small hole was in the centre.

"After this, about 100 other larvæ were covered with wool; but again, as also a third time, the larvæ and wool were torn out. I had nearly lost my patience, and I had only now two plugs and one of the squares left, which should be used for other experiments.

"I now rather anxiously for a fourth time covered a brood comb, and this time, fortunately, the bees let most of the wool remain in the cells. After an interval of four days seven larvæ died. An instantaneous and conscientious examination by aid of the microscope revealed the presence in their bodies of immense numbers of Micrococci.

"Unfortunately I was obliged now, on August 12, to defer my experiments, as I could not postpone for a longer time a bath tour, on which I should have started at the beginning of the month. I forgot now to slide in a wire netting, to prevent those larvæ that remained being torn out by the bees, but on my arrival at home from the baths I found all in the best order.

"Still the fact that Micrococcus possesses an enormous power of infection, and that it also attaches itself to perfectly healthy brood until it kills them, cannot longer be denied. As incomplete (which I myself acknowledge) as the above proof turned out, owing to the scantiness of material that I had at my disposal, and the haste with which I was compelled to operate, as strikingly and unrefutably have I succeeded by another process to prove it.

"As I at once saw beforehand that under the circumstances before mentioned, and the well-known propensity of every strong hive of bees to remove as quickly as possible every sickly or dead larva from the hive, it would be extremely difficult to arrive at a complete and satisfactory result, so the idea occurred to me to try the experiment of infection on the larvæ of other insects, which it would be possible to observe without obstruction.

"Herr Molitor-Mühlfeldt rightly enough declares, in answer to my earlier articles, that no fungus spores can take root on the undamaged skin of healthy animals, because the main principle—the suitable underlayer—is only found when the animal is unhealthy, or when about, and unnoticeably has already begun, to decompose or dissolve: and this assertion does not allow of scientific proof. And even if it were correct, Dr. Prensz' theory is by no means refuted thereby, or even threatened, as in reality every larva that is seized by infection finds itself in an extremely sickly state, which may be traced to another cause.

"In general the larva dies soon after the cell is closed and before it developes itself as a pupa; during the time that the larva changes itself to a pupa, not alone the skin of the larva decomposes, but the larva, certainly as the result of the natural metamorphosis, finds itself in a sickly condition, and is to every deadly attack peculiarly and specially adapted for infection.

"We could therefore, if we might allow Mühlfeldt's assertion a little attention, very easily say at the sickening time of preparation for transformation, and during transformation, the dying and decomposing skin of the larva is the very best and most suitable condition for the support of the fungus growth, so that it multiplies at a rapid rate and kills the larva before the transformation is at an end. Therefore since Dr. Prensz, and Vogel, at Saltsborg, have given the decided assurance that there are always found Micrococci in foul-brood, and since I have practically proved that healthy brood can be infected by Micrococci, so can there be no longer doubt, that where foul-brood appears as an epidemic, there the infection is produced and carried to effect by Micrococcus."

Speaking from my limited experience of this fearful malady as it appeared in North of England apiaries, I cannot hold out any hopes of a successful remedy. Where the bees are in straw skeps it is wise to destroy the stock, of course saving both honey and wax, for these are in no case injured for domestic consumption; then either burn the hive, or destroy it in some way, for to use it again without disinfection is only to foster the disease. But where wood-hives are employed in the apiary I should advise the bee-keeper to boil them well in soda, then disinfect them thoroughly by means of either carbolic acid or chloride of lime. Never allow any of your healthy stocks to feed on honey taken from a diseased stock; some of my friends have thought they could do no harm by so doing, until when too late they discovered their folly.

The appearance of the foul-brood, or of a stock thus infected, is a thoroughly disheartening sight; they seem to have no energy or wish to labour—they fly about in a lazy kind of manner, and linger much about the entrance. Inside is worse still; the cells, generally sealed over, may be detected at once by having a dark colour, and with a few holes in each: every cell cover is sunken. I hope none of your readers may have the sad experience of myself from this infectious disease. It is enough, especially in the case of a young apiarian, to compel him to give up the pursuit in disgust, after labouring hard to make the apiary profitable; besides, the expense incident to all enterprises of the kind is far from trivial, and then to find all in vain—nothing but loss—is very disheartening. My advice to everybody is simply this: Take care, in the first instance, to secure your first stocks from a healthy apiary, and do not employ or use any foreign honey in feeding your colonies—syrup, after all, is the best and most reliable food; and be careful in introducing any new queens. *R.*

servatory. Doubtless the Japanese variety or species would succeed in the open air in the most favoured parts of the south-west.

—— Some weeks since we drew attention to a splendid new Lily, which had been flowered at Knap Hill, and since then we have seen another at the same place, which, if less gorgeous than the former, is scarcely less beautiful: we allude to Mr. G. THOMSON'S hybrid LILIUM (auratum × speciosum), called PURITY. This was exhibited before the Floral Committee in August, 1870, and received a First-class Certificate, but has scarcely been heard of since. It has quite the habit and aspect of a vigorous-growing, large-flowered form of L. speciosum, the perianth segments being at first spreading, then reflexed, the ground colour pure white to the very base, and spotted after the fashion of L. speciosum with rich carmine-crimson dots and papillæ. The fragrance is intermediate between that of the two parents, more subdued than in L. auratum, and sweeter and more pronounced than in L. speciosum. It is a very choice acquisition, which we may hope soon to see more plentiful now that it has got to the congenial soil of Knap Hill.

—— One of the most interesting novelties to be seen in M. LINDEN'S Orchid-houses at Ghent is a new Odontoglossum, of the type of O. gloriosum, but having a very distinct white lip.

—— In a recent number of the *Transactions of the Academy of Science of St. Louis*, Mr. CHARLES RILEY describes two INSECTS WHICH BRAVE THE DANGERS OF SARRACENIA VARIOLARIS. The first is Xanthoptera semicrocea, a small, glossy, straw-yellow and black moth. The egg, it is stated, is laid within the tube of the leaf, and the young larva covers the smooth surface with a gossamar-like web, generally closing up the mouth by webbing the lips together. As it increases in size it frets the leaf within, feeding on the parenchyma and leaving only the epidermis. Its ochre-coloured excrement falls in pellets to the bottom of the tube, where it gathers in a compact mass above the putrid remains of insects which had been captured before the closing of the mouth. The transformations are undergone in a slight cocoon, usually constructed just above the mass of excrement. There are at least two broods of the insect each year, the first larvæ appearing during the early part of May, the second towards the end of June. Many specimens were taken, both on S. variolaris and S. flava. The second is a dipterous insect, belonging to the genus Sarcophaga. The mother-fly drops her living larvæ within the tube to the number of upwards of a dozen, and these easily find their way to the bottom, where they feed on the softer parts of the macerated insects which have accumulated there. As a rule, but one of the Sarcophaga larvæ matures, the others having fallen victims to its gluttony and superior strength. When full fed, or rather when it has appropriated all the nourishment at hand, this maggot works through the tube, and burrows in the ground, where it undergoes its transformations, and whence, in a week or more, according to the season, the fly emerges. This is a new species (S. sarraceniæ), and is always found connected with Sarracenia.

—— At a recent meeting of the St. Louis Academy of Science Dr. ENGLEMANN exhibited a section of the trunk of JUNIPERUS CALIFORNICA VAR. UTAHENSIS which was not quite 4 inches in diameter and yet showed an unmistakeable age of 127 years, each ring being on an average about one-fifth of a line wide. The largest growth in ten years had been about 4 lines, the smallest during a similar period about 1¼ line. It was one of the most remarkable instances of slow growth that had come under his notice.

—— The following interesting communication on the ORIGIN OF RAVINES ON THE PRAIRIE, by Mr. AMOS, is copied from the second number of the third volume of the *Transactions of the Academy of Science of St. Louis*:—

"The prairie, situated 1 mile east of Hillsborough, could, thirty years ago, during the wet season, truly be said to be an immense lake interspersed with islands; for the tough sod, together with the rank growth of grass, weeds, and flags, offered a considerable barrier to the rapid flow of the water during the spring and summer floods, as it had to filter through the roots of the grass, or percolate the drifts of broken and decayed vegetation which always lined the shores of the prairie-lakes, to again encounter the rough surface of the tough native sod in its struggle to reach the fluid's goal. Its progress was necessarily so slow that it did not attain sufficient velocity to cause any washing of the soil; however, it forced the water to spread over a large area of country, requiring at that time weeks to discharge the same volume that will now pass off in forty-eight hours. The change was wrought in this way: After June 1, until quite late in the fall, the prairies used to swarm with 'green-head' flies, and so vigorous in their attacks were they that all domestic animals were driven to the woods after eight o'clock in the morning, nor did they dare to return until just before sunset, when they would emerge from their retreats and march in single file through the long grass to the nearest pond of water, and thence on to their feeding-ground. In course of time this constant passing to and from the pond completely killed the sod, and when the spring rains came, the cow-path being lower, and the water meeting with no obstruction, poured down the new-found channels and in time cut a ravine, which in most instances has become of sufficient size and importance where it crosses a public road to require bridging. In conclusion I would say I have watched quite a number of these cow-path streams from their inception to the present day, and the size they have attained during this time would astonish any one after becoming acquainted with their history.

—— We are informed that Mr. E. W. RIDER, late of the Hall Gardens, Thirsk, Yorkshire, is about to take the management of the gardens of JAMES RATCLIFFE, Esq., Swinton Park, Pendlebury, Manchester.

—— Mr. ROBERT CROSS arrived in London on Saturday last with a collection of Indiarubber plants (CASTILLOA ELASTICA) in good condition, obtained from the forests of Darien. These are deposited for a short time at Kew, and will afterwards be transferred to India, with the object of forming plantations there. The tree was found growing in the interior of the Isthmus, around the base of undulatory eminences and low hills in a dense lofty forest. Sluggish streams and swamps intervened in places, the margins of which swarmed with mosquitos, and an extraordinary abundance of snakes and croaking frogs. The Darien Indiarubber tree is of rapid growth, and sometimes attains to a height of 180 feet. Large trees have been known to yield more than 100 lb. of rubber. It seems probable that this experiment of the Indian Government, to cultivate these trees in India, will be successful.

—— The jurors at the Cologne Exhibition have awarded Messrs. JAMES CARTER & Co. a silver medal for the grass seeds supplied by that firm for the creation of turf on the exhibition grounds, &c.

Home Correspondence.

Bougainvillea glabra Flowering Out-of-Doors.—I send you a sample of Bougainvillea glabra which has been flowering in the open air for the last two months. It is planted inside a cool house, where it has been for the last five years, covering a great portion of the roof; and the roots having free access to the open-air border, proves its partial hardiness. In February last I had the one half of the plant pruned in the same way as a Vine and taken outside, where it was trained upright against the glass end of the house. It began to break into growth the first week in April, and has made better growth and foliage than the part of the same plant under glass. It began to flower in July, and probably will do so until nipped with frost. The flowers and foliage have withstood a continuous south-east wind and rain for the last three days without the slightest effect or damage, as you may see by the sample sent. I would highly recommend every one who has plants to spare to try one or two young ones outside, and so prove its hardiness. *John Fraser, Gr. to E. Pike, Esq., Bessborough, Cork.*

Heat without Cost.—I was sorry to see the article with this title in your number of Sept. 25, by Mr. D. T. Fish, as I am afraid that it will persuade some of your readers who may not be acquainted with science, that the heat given by the combustion of coal may be increased by mixing chalk with it. Chalk is composed of lime and carbonic acid gas, and the object of burning it is to drive off the gas, leaving the lime behind. When chalk is mixed with coal and burnt a considerable amount of heat is used in raising the chalk to a red heat, and a still greater amount is required to drive off the carbonic acid gas. When the lime is slacked it becomes very hot, and this heat represents part of the heat taken from the coal when the chalk was burnt. So that instead of the chalk adding to the heat of the fire it takes away a large amount from it. It cannot possibly add to the heat, because it is not combustible. Many persons place balls of fire-clay in their fire-grates, which have the property of storing up the heat given by the coal of the fire, and then imparting it gradually to the air of the room when the fire dies down, but the heat given out by the coal is not increased by the use of these balls, they merely increase the heat of the room by utilising part of the heat which usually passes up the chimney. The mixture of chalk with coal has precisely the same effect. Most boilers are so badly constructed that a great proportion of the heat passes up the chimney, instead of into the boiler, and when compared with boilers of this description the use of chalk will no doubt show a considerable saving; but as a great part of the heat is wasted in burning the chalk, the use of a boiler which passes nearly all the heat into the water, and reduces the amount wasted up the chimney to a minimum, will show a very much greater saving than that effected by the use of chalk. At Garston Mr. Fish says that three kilns have superseded sixteen boilers, this change in itself will account for a great part of the saving which he states has been effected, as it must be more economical to have one fire in place of five. But I believe that a still greater saving might be shown by substituting one or two first-class boilers for the sixteen boilers, which were possibly very bad ones. Then Mr. Fish seems to imagine that the gas made in the kiln at Garston is made free of cost, but this cannot possibly be so, as it takes a large amount of heat to convert coal into gas and other products. Mr. Fish pleads that the medal of the Royal Horticultural Society should be given to Mr. Cowan for his invention. He seems to entirely forget that if it is possible to heat glasshouses free of cost, it is possible to drive manufactories free of cost. The man who gives us heat free of cost will be the greatest benefactor to the world that has ever lived; it would be a good bargain for the country to give him £100,000,000 for his patent. "Heat without cost," that is, heat without the consumption of anything that is worth money—perhaps Mr. Fish would be surprised to hear that this is perpetual motion in a new guise. Perpetual motion has been discovered several times in America, but it is very comforting to think that one of our countrymen has the possession of the patent. *S. E.*

Gourds.—People are not aware how long Gourds with their leaves, &c., will live out of water, and so form an ornament. I have had two "bottle" Gourds for three days, whose leaves show no signs of flagging yet. *East Somerset.*

Successional Strawberries.—For the benefit of "E. S. D.," and others interested in this subject, I venture to suggest that probably the variety of Strawberry producing a second crop (mentioned by a *Times* correspondent, and to which attention was drawn by "E. S. D." in last week's *Gardeners' Chronicle*), is Stirling Castle. This variety is grown in this neighbourhood in preference to Keens' Seedling (not, however, for forcing), being early prolific, and of a fine flavour. It annually produces a second crop, which, however, is seldom perfected in sufficient quantities to be of any real service. This season, however, is an exception. After the first crop was gathered and the plants trimmed, noticing a second lot of flowers stronger and better than usual, I had the soil loosened about them, gave them a good soaking with moderately strong liquid manure, afterwards breaking the soil fine and firm. Had we been able to have followed up with several waterings, we should have been amply repaid for our trouble; as it was, I gathered a nice dish on September 18, and since then have sent in several really nice and much admired dishes. I gathered the last October 2. There are more to ripen, and with favourable weather we shall doubtless pick more. We grow several varieties of Strawberries here, but second cropping appears to me to be characteristic of Stirling Castle only. *W. I., Stanhope Park Gardens, near Southall, Middlesex.*

Voice's Amateur's Cucumber Frame.—I saw the frame answering to this designation exhibited by Mr. Voice at South Kensington, and whilst thinking it to be an admirable and useful invention, at the same time believed it to be far stouter and heavier than there was necessity for. Stoutness in timber is not at all times strength, neither does it at all times promote durability, and if the bulk of the framework were reduced one-third, the frame would not suffer, whilst the purchaser would gain in greater elegance, in additional light, and a great reduction of weight. All this might result without any loss of stability or strength. As constructed, the frame is only useful for summer use, but if it could be made available for the housing of tender plants during the winter months it would prove of much greater service to the amateur. A frame of this size could easily be covered with some non-conducting material during frost, but that would not exclude it if severe. If, however, Mr. Voice could enclose the stand on which it rests, and introduce a small gas-stove which would, whenever desired, give off a small but regular supply of heat that could pass through into the frame, it would render the patent of much greater value. *A. D.*

Lime, and the Potato Disease.—In the beginning of August, and before the Potato fungus had shown itself on the foliage of some of the late varieties, I dusted quicklime over them, and left some of the rows undusted. This was after the heavy rains had ended on the 13th, and there was a long season of fine dry weather nearly up to September 18. The lime, therefore, was not much washed off the foliage, and on taking up the tubers last week of the following kinds, namely, Wood's Scarlet Prolific, and the Red-skinned Flourball, there was hardly a diseased tuber amongst them, but I found those not limed were

Continent with different kinds of seeds. It should not be forgotten that at the dinner was introduced a dish of Lycoperdon Bovista, slices of which in their virgin whiteness were fried with egg and bread crumbs, like veal cutlets. It was pronounced to be most exquisite and delicate by all who partook of it.

—— M. HÉNON, a correspondent of the *Revue Horticole*, writing from Japan, gives a narrative of a TRIP TO THE MOUNTAINS NEAR IKOUNO, where there are large woods of a Rhododendron, which he believes to be R. arboreum. They are at an altitude of about 5000 feet, on a slope fully exposed to the north. There is no soil on the porphyritic rocks, but a layer about a foot thick of rotten leaves and moss, and the Rhododendrons were deeply rooted in the clefts of the rock. Within a circle of about 100 yards there were from 500 to 600 plants, large and small. The larger specimens were from 15 to 20 feet high, and the trunk of one tree measured 73 centimetres (about 28.7 inches) in circumference. The climate of the locality where these Rhododendrons grow is very severe. Last winter it appears that there was snow more than 7 feet deep, and large patches were found (May 11) not more than half a league from the spot. In summer the mountains are frequently enveloped in fog, and the writer thinks this may be the cause why this species does not thrive out-of-doors in the north of France. This is doubtless true, for this species and some others succeed pretty well in the south-western parts of the United Kingdom. In the Himalayas R. arboreum is sometimes met with at an altitude of 11,000 feet, and R. campanulatum grows between 9000 and 14,000 feet above the level of the sea, and therefore is hardy in most parts of Britain, although the flowers are often injured in the spring.

—— Mr. WILLS, of the Royal Exotic Nursery and Winter Garden, South Kensington, asks us to state, in consequence of various reports having been extensively circulated that his is the extensive West-end business advertised for sale, and that he had stopped payment, &c., that he has no intention whatever of disposing of his business, and that he intends shortly to open another establishment, making the fifth branch, at Westminster.

—— Mr. RILEY gives some additional particulars respecting the OVIPOSITION OF THE YUCCA MOTH in a recent number of the *Transactions of the Academy of Science of St. Louis*. In this case analogy has proved a false guide, and the curious female Pronuba Yuccasella adds to the anomalies which belong to her. Instead of being thrust into the stigmatic opening, as formerly supposed by Mr. RILEY, the eggs are actually conveyed into the young fruit from its side. The female for the most part gathers her load of pollen from the contracted and curled anthers; in ovipositing she almost always stations herself between two stamens, and, puncturing the fruit with her ovipositor, conveys the egg to its destination. This egg is very narrow and elongate, and of the exact colour of its surrounding; it lies curved in the ovarian cavity, always on the rounded side, next to the primary dissepiments, and with the anterior end generally close to the placenta. The operation of thus consigning an egg lasts but a few seconds, and the ovipositor is no sooner withdrawn than the moth runs up to the top of the pistil, uncoils her pollen-bedecked tentacles and thrusts them into the stigmatic tube, working her head vigorously at the same time.

FIG. 96.—EXTERIOR OF WINTER GARDEN, IN THE FLORA GARDEN AT COLOGNE.

—— One of the most beautiful of all ornamental trees in Greece, says Dr. X. LANDERER (*Flora*, August, 1875), is MELIA AZEDARACH. Its seeds contain from 6 or 8 to 10 per cent. of oil suitable for burning, and other purposes; but, although they might be collected by the hundredweight, no use is made of them. The elegant bipinnate leaves of this tree, and its large clusters of exceedingly fragrant flowers, render it desirable for the winter garden or con-

"railway cutting" made for the single purpose of removing the lime from the kiln, must have cost a little fortune itself. I am not by any means hostile to Mr. Cowan's invention; indeed, I have had a good opinion of it hitherto, both from what I have seen and heard about it, and my employer contemplates adopting it if it turns out as well as it is said to do; but Mr. Bennett's negative testimony to its merits can only have one effect. He has volunteered excuses for not adopting his own pet scheme, which, unlike his stokeholes, "will not hold water." *Jonathan.*

New Vegetables.—"How often we find an old friend with a new name" has become a household word amongst Cabbage growers. This season, however, we find amongst Cauliflowers a new name and a new friend in "Dean's Early Snowball." It is the most distinct, and also the earliest Cauliflower I am acquainted with. It is no giant in size, which is not required, but is the *beau ideal* of what a Cauliflower should be—close white heads with short stems and leaves, and can be planted 16 inches apart. I have great pleasure in recommending this little gem to all my gardening friends, feeling sure of many a pleasant look from those who take my advice when we meet at the whispered "provincial" next season. *R. Gilbert.*

Lasiandra macrantha.—Some few months since Mr. Baines, in alluding to the growth of Lasiandra macrantha, stated that justice could not be done to that beautiful plant in the same house that would be required to grow Ixoras, Allamandas, and some other few things to perfection. I think he chiefly alluded to Ixoras and Allamandas. At the time the statement was made we had on the roof of the same stove-house, beautifully in flower, Lasiandra, Allamanda, Stephanotis, and Ixoras, and I have forwarded to your office a basket of blooms cut from plants growing all in the same stove. I may just say that I have been able to cut Lasiandras for two months, and shall expect to cut bloom until April; have cut Allamandas two months, and shall cut two months more. In sending this to you it must be understood that it is not my desire to call in question the valuable information given by your worthy contributor. I often read with pleasure the hints that he frequently gives in your valuable journal, but it is in the interest of justice and truth, which I always understood is due to all things, that I have taken the liberty to trouble you. *William Bishop, Gr., Bylaugh Park, East Dereham.*

Reports of Societies.

THE FUNGUS SHOW AND CONFERENCE OF CRYPTOGAMIC BOTANISTS AT PERTH.

THE Woolhope Club doubtless owes a great deal of its success to its hard-working and excellent officers. The President is always a fitting and superior man, highly popular with the members, and the officers (admirably led by Dr. Bull) have one and all the entire welfare of the Society at heart. The members meet on an equal footing, and, from the President downwards, all are prepared for hard work. Whilst pleasant excursions are enjoyed for the excursions' sake, as is proper, yet really first-class work (which cannot be ignored or passed over) is annually done.

Doubtless the Scottish Society, which held its first meeting at Perth, will be equally successful in its work with the English Society. The President, Sir Thomas Moncreiffe, Bart., already well known as an entomologist, and as the President of the Perthshire Society of Natural Science, is thoroughly in earnest in his desire to give a good start to the Crgptogamic Society of Scotland: he devoted one whole day to escorting several members and visitors over the rocky Moncreiffe woods, and each day he was one of the hardest workers, and amongst the first and last to leave the City Hall, where the specimens of fungi were being laid out for exhibition. Last, and not least, he most hospitably entertained several visitors from a distance at Moncreiffe House; but it is hardly necessary to affirm what no one disputes, viz., that Sir Thomas Moncrieffe is an excellent and thoroughly good President, and a model for all future Presidents of the Society who may succeed him. The Vice-President this year is Dr. George Dickie, Professor of Botany at the University of Aberdeen. As for the excellent Secretary, Dr. F. Buchanan-White, of Rannoch, he is the double of Dr. Bull, of Hereford; and all who know what Dr. Bull has done for the Woolhope Club will know what Dr. Buchanan-White has done for the new Scottish Society. From my long and pleasant acquaintance with Dr. Bull, of Hereford, and knowing Dr. Buchanan-White only by name and repute, I expected to see the Rannoch Doctor of Medicine like an ordinary physician, or at least like the "Doctor of Physic" of the fifth act of "Macbeth." Instead of this, Dr. Buchanan-White, who lives in the historical and almost immediate country of "Macbeth," is "Macbeth" himself of the eleventh century, and wears a grey kilt. Learned, hearty, and hard-working, Dr. Buchanan-White made his special table (with the assistance of Mr. Carrington) one of the most instructive in the City Hall. The Treasurer is the Rev. James Stephenson, of Glamis (I was almost writing the "Thane of Glamis"), whose name is so often mentioned by the Rev. M. J. Berkeley at the meetings of the Royal Horticultural Society. The members of the Council, all good men and true, are the Rev. J. Fergusson, the Rev. Mark L. Anderson, the Rev. J. Keith, J. Roy, Esq., Colonel Drummond Hay, Dr. Ogilvie, and Mr. Charles Howie. Leaving the men for a few moments, we will glance at their work. Each of the principal officers exhibited a fungus new to Britain. Sir Thomas Moncreiffe showed in his collection the true Agaricus aureus of Mattusch, perfectly distinct in its characters from the Agaricus herefordensis of Renny, and new to Britain. Some of the specimens were of great size and extreme beauty, and the moment I saw the plants with their velvety pilei at Moncreiffe, I knew they belonged to the species above-named. Agaricus aureus was one of the most notable plants in the City Hall. Dr. Buchanan-White, well up to the fore, brought the distinct and interesting Boletus flavidus of Fries, also new to Britain; whilst Mr. Stephenson, of Glamis, exhibited Agaricus Caput-Medusæ, a plant in every way remarkable and noteworthy, also new to the British floras.

FIG. 98.—GEASTER MICHELIANUS.

The real work of the Conference programme commenced on Wednesday, September 29, with the searching of the Moncreiffe woods, with rocks 400 feet high, under the guidance of Sir Thomas Moncreiffe; the Dupplin woods, by Dr. M. C. Cooke, the Rev. J. Keith, and the Rev. J. E. Vize, who were the guests of the Countess of Kinnoull, one of the original members of the Society; and the Scone woods (who has not heard of the Palace of Scone?) under the conductorship of Colonel Drummond-Hay and Dr. Buchanan-White. This party included the Rev. Mark Anderson, the Rev. James Fergusson, and many others, whilst the Moncreiffe party included Mr. Hobkirk, of Huddersfield; the Rev. James Stephenson, Mr. Young, of Perth; the writer of these lines, and several others. Assistants were in attendance, carrying great baskets, and the whole of the spoil, recruited by innumerable hampers from every direction, was carted into Perth early on the morning of September 30. During these excursions the parties were several times overtaken by driving and pitiless storms of drenching rain known in the North as "Scotch mists" but in the South as hurricanes. At the City Hall, on Thursday, September 30, every member of the Society worked hard at unpacking and arranging the fungi till late in the afternoon, when a meeting was held in a neighbouring room for the transaction of the business of the Society, the President in the chair. Dr. M. C. Cooke then read a paper "On certain Scotch Fungi;" Mr. C. P. Hobkirk read one on a critical question relative to mosses, with special reference to Zygodon rupestris; the third was by the Rev. James Stephenson, on "The Fungi of Scotland North of the Tay," whilst the fourth and last was by Mr. Stephen Wilson, of Aberdeen, "On Ergots" a thoroughly practical paper, full of suggestive matter and detailing many experiments of great interest. It was pleasant to note Mr. Wilson's thorough acquaintance with and his estimate of the works of Tulasne and others on the same subject. The meeting concluded with the election of new members, local, honorary, and foreign, one of the latter being a famous Professor of Strasburg. After this meeting the President and members returned to the exhibition room, and worked on the arrangement of the specimens till darkness fairly put an end to their labours, and the party strolled over to the "Salutation" Hotel to partake of the "fungus dinner." After the hard work of unpacking, sorting, criticising, and naming some thousands of species of fungi, this pleasant dinner came both as a relief and a surprise. The "bill of fare" included—1, stewed pigeon with Chantarelles; 2, curried fungi; 3, dressed calf's head with fungi; 4, Fistulina hepatica à l'Anglaise; 5, Hydnum repandum à la President; 6, Cantharellus Cibarius à la M. Worthington Smith; 7, Hydnum imbricatum à la militaire; 8, Boletus edulis à la Dhonuil Dhu; 9, Agaricus rubescens à la Grevillea; 10, Polyporus intybaceus à la MM. les Curès; 11, Boletus scaber à la Société Cryptogamique; 12, Marasmius oreades à la Reine des Fées; 13, Sparassis crispa à la Scottish Naturalist.

Amongst these thirteen "puddock stool" dishes the greatest novelties were Hydnum imbricatum, Polyporus intybaceus, and Boletus scaber; all were pronounced good, and the first, "à la militaire" was especially so. At the head of the table and immediately opposite the President, was a trophy or "cairn" of fungi surmounted by a cairn-master in the shape of a great stuffed toad or "puddock." The dinner was well served "à la Russe," and was thoroughly delightful, being interspersed with a few brief speeches and some good racy songs, concluding with "Auld lang syne," with joined hands all round the table.

As to the exhibition itself it was three times larger than last year's Aberdeen show, and the most comprehensive exhibition of fungi ever seen in the world. It fully paid all its expenses (which were very considerable), and a band of excellent music enlivened the proceedings from beginning to end. Of fresh and dried specimens included, there were more than 150,000 specimens. There were ten tables, each 21 feet long (one 31 feet long) and 5 feet 6 in. broad, covered with fungi, besides tables all round the hall. In two positions in the hall there were great trophies or cairns of fungi, most skilfully and scientifically built up by the local secretary, Mr. John Young, C.E. No less than 3000 square feet were covered with specimens of fungi, mosses, and lichens. Owing to the unflagging exertions of the President, Secretary, and other officers, parcels were made up from all parts of Scotland, and some arrived even from England and Wales. Dr. Bull, of Hereford, sent some of his famous juicy "Vegetable Beefsteaks," which are amongst the rarest of fungi in Scotland; and Mr. Plowright sent a number of species of great botanical interest. Many of the specimens were unusually large; for instance, there was a mass of Stereum hirsutum, 2 feet long; a mass of Polyporus versicolor, 2 feet 2 inches long; a Giant Puffball, 3 feet 9 inches round; a Boletus edulis, 3 feet 3 inches, and another 2 feet 6 inches round; Agaricus maximus, 3 feet round, with a stem 4½ inches in circumference; Polyporus applanatus, 2 feet across; a Phallus impudicus, with a volva 9 inches round and 3½ inches high, stem 10 inches high, and pileus 3 inches deep and 6 inches round. There was a Helvella crispa (fig 99), 9 inches round and 9 inches high; and a Sparassis crispa, 2 feet 9 inches in circumference, with several sheets of dry-rot, 18 inches across and 1½ inch in thickness.

There were also about 120 species of very great rarity and botanical interest, as Agaricus Storea, A. resplendens, Cortinarius pholideus and C. cinnabarinus, Helotium æruginosum, the verdigris-green Peziza, which stains old Oak wood, with a beautiful vase made of this stained wood, and commonly known as Tunbridge ware, sent by Drs. Grierson and Sharp, of Dumfriesshire. The rare Clavaria rufa was on the table, and amongst Truffles the curious Rhizopogon rubescens was shown by Dr. Buchanan-White in some abundance. Polyporus melanopus was shown by Mr. Keith, and Agaricus conissans by several exhibitors—in fact this latter is a common plant in the Moncrieffe woods, where Solenia ochracea was found, in company with Agaricus aureus and Clavaria Krombholzii, the two last new to our flora. Agaricus gallinaceus, which is rare in the South, was common at Moncrieffe, as was Agaricus cucumis, with its odour of stinking fish. Geoglossum viride, uncommon elsewhere, seems quite common in Perthshire. Cortinarius lividoochraceus was met with in the same woods, together with Agaricus flammeus, and the rare and curious

quite as sound as the others. These leathery red-skinned sorts with strong woody haulms, seem to be proof against the fungus which attack them as it does others of the white thin-skinned section. At the time I limed the above two varieties I likewise tried it on the foliage of the pink-eyed Regents, the Yorkshire Hero, Fenn's Bountiful, the Hundredfold Flukes and Dunbar Regents, and left some of the rows of each unlimed, but find on taking up the tubers that they are all very badly diseased, the limed being as bad as the unlimed. The Hundredfold Fluke has turned out the soundest sample of tubers, only a very few of them being diseased. Some rows of each of these diseased varieties were likewise well dusted with soot over the foliage at the same time as the liming was done, but they show quite as large a percentage of diseased tubers as the others. The quicklime here is made from the magnesian limestone, and is of a very caustic quality, for when used in too large quantities in the soil it kills vegetation. For the purification of the soil this quicklime might be put in the rows in the autumn, where Potatos were intended to be planted in the spring, and there would be a chance of its killing any resting-spores of the Peronospora embedded in the soil. *William Tillery, Welbeck.*

Ollerhead's Rose Hurdle.—The accompanying photograph (see fig. 97) represents a hurdle that I brought into use this spring. On entering my present situation I found a quantity of isolated Roses, worked on Manetti stocks at the ground level and planted in small beds along each side of one of the principal walks in the flower garden, about 6 feet from the walk, each plant being trained up two rough stakes about a foot apart, with pieces of tar cord from one stick to the

Fig. 97.—Ollerhead's rose hurdle.

other. The idea occurred to me that something could be done to improve their appearance, which led to the construction of the hurdle referred to. The sides of the hurdle are made of half-inch round iron 5 feet high, with claws or feet 1 foot long, and braced together at top and bottom as shown in the figure, with rods ¾ inch thick and 18 inches long. The diamond network is made of No. 9 bright wire, 5 inches apart, the wires being twisted around the sides of the hurdles, and where they cross each other are tied with lacing-wire, so as to make the whole of sufficient strength to resist any pressure in tying strong shoots, &c. These hurdles are of simple construction, and can be made by any country smith at a small cost; and where stakes have to be purchased, as in our case, they will soon pay for themselves, as, being durable, they will last for years; and where such things are required they certainly have a neater appearance than a lot of rough stakes. *James Ollerhead, The Gardens, Wimbledon House, S.W.*

Watercress Culture.—In Mr. Earley's admirable paper on the above subject I observe that he makes no reference to house or frame culture, and yet I am at a loss to understand why the Watercress should not be had in abundance in every place where there is plenty of glass all through the winter months. Last spring I exhibited at South Kensington a pan of Watercress, showing how easily it could be grown in a shallow pan in a cool house; but if a number of pans or boxes were filled with plants in the autumn, and were introduced into a vinery, or indeed anywhere in a gentle heat and where plenty of water could be given, a constant supply might be had all the winter. Watercress so grown is even more tender than that grown in the open air, the frequent sprinklings with water keeping them perfectly clean, and with a good batch of boxes very frequent gatherings might be had. Where forcing-houses are not, a spare frame might be utilised for the purpose, only in this case the cuttings should be pricked out into the bed, and the frame kept shut close. During severe weather a lining of long manure and some straw over the glass would exclude frost, and although gatherings could not then be had the growth of the Cress would not be materially checked. *A. D.*

Strawberry Garibaldi.—In reference to the above I do not wish to say that it is not the same as the Vicomtesse Héricart de Thury, but I can say that there is a great difference between them here, as the first named are now looking as fresh as they did in June, but the "Vicomtesse" are as brown as though they had a fortnight's frost on them, and they do not ripen their fruit; they have not been forced, but were both planted in the border (south) three years ago. I had my plants of Garibaldi direct from Mr. Armstrong, of Carlisle, and all I can wish to say about it is that it does well with me, and several friends whom I have recommended to grow it are well pleased with it. Of the large-fruited kinds Dr. Hogg has been a grand Strawberry this summer. This and Garibaldi are the two I intend to grow for the future. *W. Dixon, The Temple, Goring, Oxford.*

Celosia pyramidalis from Cuttings.—Having found the above, as Messrs. Swan and Sheppard describe it, a most beautiful thing for autumn and winter use, and having some seasons obtained but few out of a batch of seedlings that were worth keeping, last autumn, having one amongst others pretty good, I kept it on through winter (by cutting away the flower), and in April took off a nice pot of cuttings, which soon made root, and by June were nice stuff, ready for vases, and in flower. Thus one need not so much rely on seedlings. Allow me also to recommend to those who have not used it the blue Browallia; it comes in at this season of the year a most useful plant for conservatory decoration. *J. Batters, Gr. to Mrs. Willis Fleming, Chilworth Manor, Romsey, Hampshire, Oct.* 5.

The Vine Mildew.—Mildew forming a subject of discussion in your columns at the present time, I send you a few facts gleaned from experience. On entering this place eight years ago I found it in a wretched condition with mildew, every Vine on the place thoroughly affected and brought to a premature stand, both fruit and branch—not a Grape fit to send to table, and so diminutive in size, so unripe and thoroughly set fast with the pest, that I cut the whole crop of one large house and threw the bunches away, together with the greater part of that of another. The first of three large houses, cut before I came here, was nearly as badly affected, and so were others a considerable distance away—the whole of the foliage being of a dingy grey, and the wood, instead of being ripe and brown, was most of it soft, and from grey to almost black in colour. Such was the state the Vines were in, as is well known to different gardeners in the neighbourhood. It being quite useless to apply anything to them till the foliage had fallen, the houses were each in turn well closed up and sulphur burned in them; afterwards pruning took place, and the houses were thoroughly washed, the Vines dressed with a mixture of sulphur, quicklime, &c., the walls whitewashed, the soil removed a couple of inches all over the surface,—in fact, all was done that was considered likely to prevent the return of the infectious pest. Everything now appeared clean and sweet. The houses were started in turn, according to the wants of the family; the Vines broke weakly, but certainly better than I expected, and most of them showed sufficiently for a moderate crop of Grapes, which progressed pretty well without sign of mildew until the berries were about commencing to stone. Mildew then appeared very slightly, but not all at once—the two first houses, in turn, as the berries reached the above stage. The third being considerably later in starting, the pest did not appear until some of the berries were of the size of Peas. As soon as the pest was seen the pipes were heated as hot as could be and well coated with sulphur, the house was closed and kept so all night, the water being kept hot for a few hours; the second house was in turn served the same; also the third, but it was kept hot and airy for a time after it was first seen to be affected, as it would have been ruin to have operated on them in that state. To keep off the infectious pest the whole had to be done a second time during the summer, which prevented the least harm being done to Vine or fruit, and the mildew now appeared to be clean gone; but being determined to be clear of it, if possible, as the leaves fell I again treated each house to burning sulphur, and dressed and cleaned them the same as the previous winter. The houses were started again as wanted, the first in November: but with all my care the pest appeared again a little in the two latest houses, so thoroughly had the whole place been infested with it. It became now necessary to apply the remedy as before, but once was enough, and quite effectual, for I have never since seen the least sign of mildew on Vine or Peach at this place, and the produce has been highly satisfactory to all concerned. How the mildew first came I never learnt; I heard different reports, but I may say that I never could see how it was caused. The Vines were planted inside, but with the exception of half a yard, just planting room, the roots were altogether outside, and they have never received any water, except from rains, since I came here. For several seasons the rain has never penetrated more than a few inches into the border from the time of starting till the Grapes were ripe, and although the border appeared very dry a time or two, the Grapes were, if possible, finer those seasons than others with more rainfall, though about three Vines seemed to suffer a little one autumn, the foliage going a little too soon. In conclusion, I beg to say that I think it must be extreme drought that causes mildew. If free from infection, and, where sufficient fire and air are used, it is not easily caused by wet; but, as is well-known, if existing, it is soon brought to a ruinous state by a close damp atmosphere. *W. Wallis, Kirkby Hall, Yorkshire.*

The New Pea, Dr. Maclean.—This Pea, the stock of which is in Mr. Turner's hands, I have tried and seen growing at Slough. It is a remarkably fine Pea of the Turner's Prolific type, grows about 3 feet high, is very productive, with pods which are large and well filled, and produced from the bottom to the top of the haulm; it is of excellent flavour, and is altogether a first-class Pea. Before I lay down my pen a word or two about Cottager's Kale. This delicious sprouting green is not grown so extensively as it ought to be; I would strongly recommend every one who has a garden to grow it. It is one of the best flavoured, most productive and hardiest of all sprouting greens. *Thomas Bailey, Shardeloes Garden, Amersham, Oct.* 5.

Hardy Border Plants.—It is comparatively rarely that one sees now a good border of hardy plants arranged, which can be simply done, in satisfactory order. No border of hardy plants can give the brilliancy in summer of the bedding out; still, taking the interest of the hardy assortment throughout the year, it has a good deal in its favour, and taking one, a border, as an instance, that has a few bedding plants amongst the rest to brighten up the dull time, it has always been found pleasing to look at. This border is wide enough to allow the planting of a riband of seven or eight rows of bedding things. Two rows of Phloxes are at the back, these are mixed in colour, red and white with pink eye; and in August there is no prettier piece of flowers than these two rows of Phloxes, their colours are so pure. In front of these is a row of mixed Pelargoniums, from scarlet to pale lilac. This row it is proposed to have made up of another hardy row — the pretty double-flowering Pyrethrums in variety. Next, and second from the Box edge, is a strong row of Iberis gibraltarica and Carnations, alternately. The Iberis in this row is very attractive early in the season, and the Carnations are interesting later on, though in most cases not so showy. In front is a broad band of Pinks, principally Anne Boleyn, with a few of the common white. In the front part of the border all that is done extra is the putting in a plant here and there of bedding things where there is a vacancy, to brighten up a bit, and with the pleasant light shade of green in the foliage of the Pinks, altogether a very interesting border is made in this way. *Z.*

Limekiln Heating.—As water in stokeholes is apparently the great and only tangible obstacle to the adoption of the kiln at Rabley Nursery, I think I can suggest a cure. It is summed up in two words—"drain" or "puddle." If the first is impracticable on the slopes about Barnet, the latter is simple enough, and, I can assure Mr. Bennett, will make his kiln safe enough, as any one will tell him who has had to do with puddling either on a large or small scale—and his is not a difficult case by any means. Ten years ago I puddled an ice-house only about 12 feet from and below the level of a lake with about 11 inches of clay, and it is as dry as a room at this day, and likely to be. I state these facts to remove Mr. Bennett's objections to the adoption of a mode of heating, of which he has been the strenuous advocate from first to last. I think it is an exceedingly regretable circumstance that the trifling obstacles he mentions should hinder him from exhibiting a practical belief in his statements by adopting the kiln himself, more especially as he has every inducement to save coal, and the best facilities for procuring lime. According to his own showing on more than one occasion, the kiln not only compensates for a large original outlay, but entirely defrays the cost of fuel, which, to him, with "half as much glass again" as at Hatfield, must at least be equal to the sum of £200 per annum—a sum which would, judging from estimates before me, defray, or nearly defray, the whole cost of erecting the kiln, &c. I have been to Hatfield to see the kiln at work, and it occurred to me that it had been erected there on the assumption that it would pay for a very large outlay indeed. The small

Take hold of that fungus and suck in its sap,
And you'll get jolly drunk without paying a rap.
Chorus—Then hurrah! hurrah! for the fungus show,
Thither let every one cheerfully go;
Believe me you'll pick up a wrinkle or two,
How to live upon nought and have luxuries too.

Och Sandy I see by your nose that you snuff,
Go gather a few of those balls termed "puff;"
And without a "bawbee" you may lay in a store,
Fill your nose and mull, too, be they big as Ben More.
Chorus—Then hurrah, &c.

Arrah Pat! did you say that you wanted a light?
Here is tinder bedad! to your heart's delight,
And that too for nothing if you will but come,
And gather that big lump of withered Mushroom.
Chorus—Then hurrah, &c.

And fungi do live on the richest decay;
It is rampant disease that provides their prey.
What then! though old sources afford no supply,
Their failure insures greater growth of fungi.
Chorus—Then hurrah, &c.

Though our crops should decay and the rinderpest
Consume all our kine, we may still be blest:
Though the Colorado beetle our "taties" assail,
Grim famine can't touch us while fungi prevail.
Chorus—Then hurrah, &c.

What a debt do we owe, sirs, to White and Moncreiffe,
For teaching us how we may live without beef.
Go out in the damp woods when autumn prevails.
Gather fungi and stew them with frogs' legs and snails.
Chorus—Then hurrah, &c.

W. G. Smith.

Royal Horticultural: *October* 6.—David Wooster, Esq., in the chair. The Rev. M. J. Berkeley, after announcing the awards made by the Fruit and Floral Committees, and by the judges of the fungi, called attention to the merits of the Worcester Pearmain Apple, a new variety shown by Mr. Smith, nurseryman, Worcester, of which there were none more beautiful, reminding the speaker of the saying applied to a beautiful lady "she has a cheek as beautiful as a Borsdorffer Apple." For Borsdorffer they could now substitute Worcester Pearmain, its colour being so rich and beautiful. As regards its flavour it was no better than the Nonpareil or Ribston, but it would still be valuable for the dessert. The St. Edmunds Pippin, shown by Mr. Harvey, resembled the Golden Russet, and was almost first-rate in quality; but its great merit was its early ripening, coming into use now, when but few really good Apples were to be had. Mr. Berkeley next alluded to the correspondence in the *Times* on the subject of bees attacking fruit. They had been troubled with but few wasps this year, but he could affirm that the bees had been ten times more destructive than the wasps ever were, attacking the ripe fruits, and not the partially rotten or decayed ones, as had been stated.

Mr Berkeley then referred to the exhibition of fungi in the adjoining corridor, which he described as small yet very interesting, for, comparatively speaking, no competition had taken place. Mr. English, of Epping, really had the field all to himself, for although there were other exhibitors they had not entered their names as competitors, and so their collections were ineligible for prizes, and they must be content with a cordial vote of thanks in place of anything more solid. Mr. Berkeley first referred to a curious specimen of a Bovista (Puffball) exhibited by Mr. English, in which the outer coat was split and thrown back after the manner of one of the Starry Puffballs (Geaster); he then explained the differences in structure of various Puffballs known under the names of Bovista, Lycoperdon, and Geaster. Mr. Berkeley then spoke of Boletus edulis, praised its edible qualities, and pointed out its characteristic features. He then referred to some dark-coloured Horse Mushrooms that were exhibited under the name of Agaricus arvensis: this particular variety of the Horse Mushroom Mr. Berkeley considered was the same with Mrs. Hussey's Hedge Mushroom or A. augustus, and described it as a suspicious plant, possibly made dangerous by its peculiar habitat under hedges, &c. Mr. Berkeley then spoke of how the true Mushroom was forbidden entry to the Roman markets, and expressed an opinion that the unusual heat of Rome and its neighbourhood might in some way influence the alkaloids of the Mushroom there.

He then spoke of Celery and other plants which are acrid and dangerous when wild, but become pleasant, mild, and wholesome under cultivation. He then referred to the fine starry Puffballs sent by Mr. Beech from Castle Ashby, and which belonged to Geaster Michelianus, a plant illustrated in the *Gardeners' Chronicle* for May 3, 1873 (see fig. 98). This handsome fungus, Mr. Berkeley said, had not been found elsewhere north of Italy, and he considered it quite possible that the spawn had been brought accidentally with earth and plants from Italy. As a case in point, Mr. Berkeley said the late Mr. Masters, of Canterbury, once sent him some Camellias infested with a fungus peculiar to Italy, and on his inquiring of Mr. Masters whether his curious varieties of Camellia were Italian, he at once replied, Yes; which showed that the parasite was introduced with the plants. Mr. Berkeley then adverted to the collection of fungi brought by the Rev. H. W. Sawyer, and especially to the discovery of Craterellus clavatus as a British plant by that gentleman; but this fungus had now gone off, and, consequently, was not at the exhibition.

Mr. Berkeley, as in former years, then gave a brief and lucid *resumé* of the progress of fungology during the year, and gave the first place to the recent discoveries by Mr. Worthington Smith respecting the Potato disease, which were first published in the *Gardeners' Chronicle*. He described how the resting-spores had been after this met with by various investigators in this country, but only from the plants grown at Chiswick. Mr. Berkeley then referred to the photographs of Peronospora recently shown at the Royal Horticultural Society and elsewhere, and referred to De Bary's work on the same subject. Speaking of Cryptogams, Mr. Berkeley explained how some species went on growing and propagating themselves for twenty, thirty, or even forty years without producing perfect fruit; he then referred to certain species of mosses which are never found in fruit in this country, although the plant in a barren state may be quite abundant. He said it was quite possible that the same state of things might hold good with the fungus which causes the Potato disease. Mr. Berkeley then adverted at some length to a new series of drawings exhibited by Mr. W. G. Smith, illustrative of the reproductive process in the Mushroom tribe; this is a subject in which horticulturists and botanists till now have been quite in the dark, entirely depending for their results of cultivation on mere chance. As we intend to reproduce some of Mr. Smith's drawings and print his notes which are to be read next week at Hereford, we will leave this important subject for the present. Mr. Berkeley then referred to the genus Ascomyces, which causes the disease of Almonds, Peaches, and various other fruits, and spoke with approval of the illustrations of the subject published in this paper; he then referred to the Alder and the diseases of its fruit caused by an Ascomyces, and referred to by Mr. Berkeley at some length in the last number of the *Gardeners' Chronicle*. In concluding his notice of the year's work on fungi, he referred to the fungus known as Peridermium columnare, and its bad effect on some Coniferæ, especially Abies cephalonica.

Mr. Berkeley then commented upon an extremely interesting collection of Conifer cones, sent by the Hon. and Rev. J. T. Boscawen, from Lamorran, Cornwall, accompanied by a letter, from which the following extract was read:—

"I have sent two hampers from my garden of common Fir cones, thinking that you may care to have them, for although they are common yet they may interest some lovers of Coniferæ. The cones of Pinus insignis I have sent for you to compare with the other Californian Pinus radiata, which, I believe, grows on the coast at Monterey. This Pinus is most interesting to me on account of its being one of the very best, if not the best, for planting in exposed situations near the sea, and will grow in the poorest soil. Please notice the peculiar way the cones grow, and the number of them. It is with me the only Conifer the squirrels do not attack, and I can quite understand why. It must indeed puzzle squirrels as the Araucaria imbricata is said to do monkeys! This Pinus ought certainly to be more grown than it is, but I seldom see it. I have a large plant given me twenty years ago by Mr. Harry Veitch's grandfather. I have sent also of the two Himalayan Silver Firs, Abies Webbiana (true) and the variety so often sold for it, A. Pindrow. You will see that the cones of the latter are shorter and smaller. Webbiana is so much more beautiful to my mind and practically in the spring when it looks like silver. I have sent also the common Silver Fir (Abies Picea), A. cephalonica and A. Nordmanniana, for you to compare the cones one with the other. They appear to me, in my ignorance, so much alike, but no doubt the learned will see as great a difference in the cones as I do in the habit and growth of the plants. I have three good specimens of A. cephalonica, and all different in habit. The Pinus austriaca is true from imported seed. I send it because I wish you to compare the cone with one of Pinus Laricio, if you have one—I mean the Corsican Pine we hear so much about. I have seen many trees under the name of austriaca, but they are unlike mine. I send a cone of the "Sikkim Larch," Larix Griffithii, to compare with our common Larch, which I think is superior, and ought to be more cultivated than it is, because it suits our damp climate better than the Larch we plant, the wood of which is often diseased after a few years, indeed I do not believe a sound tree has ever been cut in Cornwall after twenty years' growth, and this is chiefly owing to our early spring and the damp climate. You will wonder at my sending cones of Cupressus macrocarpa. I do so because so many believe C. macrocarpa and Lambertiana to be different, and I have been told that Hartweg said so! I have many trees all different in habit—the two specimens I send are certainly different. Sequoia sempervirens and S. gigantea have both fruited with me many times. One ripens the same year, the other takes two years to ripen. I could not convince a gentleman who was here a short time ago that they were different, although I showed him the cone."

The Chairman proposed that a vote of thanks be passed to Mr. Beech, Castle Ashby; Mr. Burnett, The Deepdene; Mr. Henry, Mrs. Lloyd Wynne, and the Rev. H. W. Sawyer, Maidenhead, for their various collections of fungi. The proposition was seconded by Mr. Fortune, and carried unanimously.

Attention was next called by the Chairman to the great beauty of the autumn tints on the hardy trees and shrubs in the public parks, and he remarked that it was much to be regretted that this point was not more attended to, as the most beautiful scenes could be produced by their aid at a moderate expenditure, due regard being had to the nature of the soil and influences of the climate.

EXHIBITION OF FUNGI.—The exhibition of fungi was this year uncommonly small and in marked contrast with the great show at Perth. Mr. English as usual brought the well-known plants peculiar to his district in Radulum fagineum, Polyporus cuticularis, P. Schweinitzii and Thelephora multizonata. This gentleman also had the poisonous Lactarius controversus, Russula vitellini, R. virescens, Nyctalis parasitica; and some other plants, as Agaricus clavipes, A. dryinus, A. flaccidus, and A. conissans, were all well represented.

The Rev. H. W. Sawyer exhibited a large white mass of Hyphomyces, some fine specimens of Hydnum (Tremellodon) gelatinosum, good plants of the rare Agaricus fimbriatus of Bolton, with large masses of Clavaria aureus and C. pistillaria, and the two starry Puffbulls, Geaster limbatus and G. fimbriatus.

Unusually large specimens of Cynophallus caninus were upon the table, with Paxillus panuoides, Agaricus macrocephalus, Merulius tremellosus and Cortinarius cœrulescens, and other plants of less interest.

Mr. Beech again sent Geaster Michelianus from Castle Ashby, a plant which has been fully illustrated in these pages (May 3, 1873), and the credit of its identification with Micheli's plant is entirely due to the Rev. M. J. Berkeley. It has become the fashion of late, with certain Continental botanists, to more or less ignore the work of British botanists, we were therefore hardly surprised to find Mr. Berkeley's plant recently described under a new name by Professor F. Hazslinsky, of Eperies. The description occurs in *Grevillea*, No. 28, p. 162, where G. Michelianus is termed G. cryptorhynchus, and is figured on plate 47 of the same work. The new name is given by Kalchbrenner, who not long since substituted a mere MS. name of a new subgenus of Agaricus for one which had been previously published in print in a scientific journal of this country.

Professor Dyer brought a specimen of Geaster coliformis, sent by Professor Van Eeden from the sandhills of Haarlem. *W. G. S.*

FLORAL COMMITTEE.—W. B. Kellock, Esq., in the chair. The weather, bright, warm, and genial, was the means of drawing a much better company than was expected to the meeting to-day, and fortunately there was a capital display on the whole to interest them. Mr. Bull sent a remarkable group of new plants, in which the specimens were large, well-grown, and most beautifully coloured, the subjects being Dracæna Fraseri, Mooreana, Baptistii, and amabilis; Crotons majesticus, imperialis, Weismanni, spiralis, and volutus; several Cycads, Aralias, Palms, &c. The committee passed a vote of thanks, and recommended the collection to the Council for the award of a silver medal. From Mr. B. S. Williams came a nice group of choice plants, including a flowering specimen of Miltonia Moreliana, Oncidium tigrinum, with five spikes; Reedia glaucescens, Adiantum gracillimum, the white Pancratium speciosum, Cypripedium Harrisianum, Dracænas, Palms, &c. A vote of thanks was accorded. Messrs. Veitch & Sons sent a small group, which included a nice plant of Renanthera coccinea, with a beautiful four-branched spike of flowers; Areca Dicksonii and Brahea filamentosa, two very distinct new Palms, the latter of which obtained a First-class Certificate; Masdevallia amabilis, no great beauty; and Exacum zeylanicum, &c. These also gained a vote of thanks, and a Cultural Commendation was voted to the Renanthera. A Cultural Commendation was awarded to Mr. Wills for a very fine group of the showy feathered Celosias, admirably grown and wonderfully attractive. To Mr. Croucher, gr. to J. T. Peacock, Esq., Sudbury House, Hammersmith, a First-class Certificate was awarded for the new and strikingly distinct Mexican Agave Victoria Reginæ, and the committee recommended the plant to the Council for the award of a gold medal. From Mr. Peacock's garden also came a fruit-bearing plant of Ficus Cooperi. Mr. Noble, Sunningdale Nursery, Bagshot, showed a basket of small plants of Thujopsis borealis aureo-variegata, the foliage of which presented a beautiful combination of green and gold—a valuable introduction; and some fine specimens of Gynerium argenteum pumilum, noticed at p. 1666 of our volume for 1870, which seldom grows higher than 5 feet, flowers very freely, and is a seedling raised by Mr. Noble. A First-class Certificate was awarded. Mr. Turner showed some stands of fine large-flowering and bouquet Dahlias, amongst the latter being one named Dove, an exceedingly well-

Agaricus hæmatopus: the latter plant is full of a deep blood-red juice, and is very seldom seen. Sir Thomas Moncrieffe several times lighted on the extremely rare and true Cortinarius triumphans: this plant has hitherto only been found in one other locality, and must not be confounded with C. claricolor, under which name it was exhibited in the Kinnoull collection. The goat-smelling C. traganus was also in the room, with numerous specimens of C. cœrulescens. The sweet-scented Lactarius glyciosmus and L. mitissimus are both common at Moncreiffe. Amongst notable plants at the Perth show were several specimens of the very rare and large Hygrophorus Clarkii from Abernethy Glen, H. calyphæformis, together with Hydnum fragile, and numerous magnificent plants of H. imbricatum and Agaricus porrigens, brought by Dr. Buchanan-White from Rannoch; this gentleman also exhibited Agaricus Bloxami and Lactarius fulginosus. Cortinarius armillatus and C. torvus were in the room, from Kinnoull; Lactarius volemum and many specimens of the rare and handsome Peziza Onotica (fig. 100), from Moncreiffe, where Agaricus clavipes is a common plant; Thelephora palmata, with its corpse-like *fœtor*; Hydnum auriscalpium, Agaricus nebularis, and Helvella elastica, were all met with in the same rocky woods, where A. carcharius is one of the prevailing plants.

Pytchogaster albus was found in several places at Moncreiffe, and it was also exhibited in fine condition by Dr. Buchanan-White. Fries considers this plant to be a degeneration of Polyporous destructor, and in confirmation of this view Mr. Stephenson informed the members that he had really seen the plant with true pores.

It will be manifest to all readers of the *Gardeners' Chronicle* that it is simply impossible to enumerate even the best species exhibited at this great Perth meeting, and quite as impossible to mention the names of all the exhibitors and others, who, with a hearty good will, took good leading parts in the Conference. No less than fourteen Perthshire gardeners contributed hampers of fungi to the show.

Mr. English, of Epping, sent an instructive collection of his now well-known prepared fungi. Miss Johnson sent a large number of beautifully executed water-colour drawings of fungi. Gyromitra esculenta and Vibrissea margarita were present in a dried state; and one of the original specimens of Battarea phalloides, from the grounds of the Earl of Egmont, was also exhibited.

The Rev. M. J. Berkeley allowed his original specimens of Montagne's Artotrogus to be exhibited, together with Mr. Stephens' drawings of the resting-spores of Peronospora infestans, one of which was illustrated in the last number of the *Gardeners' Chronicle*. The writer of these lines took all the original drawings of the same fungus (which is the cause of the Potato disease), as well as the actual materials from Chiswick which furnished the originals for the drawings and photographs. Sir Thomas Moncrieffe had his microscope set up upon one of the tables for the use of those who might be desirous of examining the microscopic structure of any of the various fungi exhibited.

Mr. Croall, Stirling, had a collection comprising 200 sheets of mosses, Ferns, anatomical dissections of seaweeds, and microscopic fungi. Professor Dickie, Aberdeen, besides sending a fine collection of dried fungi, principally Agarics, exhibited the plant which gives colour to the Red Sea and parts of the Indian Ocean. Among the more curious objects was a soft hat made from Polyporus fomentarius, from Transylvania, Eastern Hungary. The hat was beaten out of the plant, and in appearance and touch closely resembled chamois leather. A hat of a somewhat different nature was worn by one of the Moncrieffe excursionists during part of Wednesday, the hat in question being no other than a gigantic inverted specimen of Lactarius vellereus. There was one particularly fine collection on one of the tables, which was regarded by scientific men with great interest, and to which they attached great importance, and which was especially worthy of the attention of agriculturists. This was a collection of ergotised grasses (sixteen genera and twenty-one species), exhibited by Mr. A. Stephen Wilson, North Kinmunday, Aberdeen. The ergot is the first stage of the fungus called Claviceps purpurea, and it is supposed to have the baneful effect of causing cows and mares which partake of it to cast their offspring prematurely. Mr. Wilson has been able to grow the fungus upon the ergots of eleven species of grass, and the fungi upon the different grasses were exhibited in small bottles.

There was a magnificent collection of fungi of all sorts from Sir William Stirling-Maxwell, Bart., M.P.; and Lord Kinnaird sent a general collection, which was greatly admired. A collection sent in by the Countess of Kinnoull was remarkable for its beautiful variety of colours; and a number of large and beautiful specimens were sent by the Earl of Mansfield, from Scone Palace grounds. A good collection was also sent by Mr. J. M. Drummond, from Megginch Castle; and close beside them was a tastefully-arranged table of specimens from Seggieden.

A large table was entirely devoted to fungi from Rannoch, collected in the neighbourhood of Kinloch-Rannoch by Mrs. Buchanan-White; and in the Black Wood of Rannoch by Dr. Buchanan-White and Mr. J. T. Carrington, and very tastefully arranged by the latter gentleman. This collection was considered by the *savants* to be the richest in rare and local species in the show. The Right Hon. W. E. Baxter, M.P., had a nice collection of lichens and fungi. Another very fine collection was sent by Mr. C. Home Moray Drummond of Abercairny, gathered within the policies. Sir John Stewart Richardson, Bart., Pitfour Castle, exhibited a number gathered in the St. Madoes district; and Miss C. M. Boyle had a neat collection gathered in the neighbourhood of Methven Castle. Messrs. Dickson & Turnbull, George Street, sent a large collection.

Mr. Howie, Largo, exhibited upwards of 1000 sheets of dried specimens of mosses, and 300 different sorts of microscopical fungi. This collection included forty-eight sheets obtained from Mr. Thomson, secretary to the Field Naturalist's Club, Dunedin, New Zealand; and 461 sheets of foreign mosses from Professor Schimper, Strasburg.

Mr. Henry Coates, Bridgend House, exhibited a number of lichens, fungi, and preserved seaweeds (algæ). Messrs. Laird & Sinclair, nurserymen, Dundee, exhibited a large Lycoperdon giganteum, or Giant Puffball.

The whole Conference passed off with the greatest pleasantness, and without the slightest hitch of any sort, and it was unanimously agreed to hold the next annual meeting at Kelso, the Duke of Roxburghe being elected President for the ensuing year. We cannot do better than conclude this brief report with a transcript of an original racy song, composed and sung, to the great delight of the meeting, by the local secretary, Mr. John Young, C.E., and at the same time to heartily wish "Prosperity to the Cryptogamic Society of Scotland:"—

THE FUNGUS SHOW.

AIR—"*The Young May Moon.*"

Oh hurrah! hurrah! I have been to see
A show of toadstools of every degree,
And feasted on fungi—with scientific folks—
From the beefsteak one down to the devil's snuffbox.
Chorus—Then hurrah! hurrah! for the fungus show,
Thither let every one cheerfully go:
Believe me you'll pick up a wrinkle or two
How to live without beefsteak and mutton eschew.

Ye butchers look out! for your trade is gone,
Ye dairyman have not a cow to own,
Henceforth, for a fungus shall yield the lacteal,
And a big puddock stool shall supply beef and veal.
Chorus—Then hurrah! &c.

Distillers desist, too, for certain I am,
Without distillation we can have a dram;

FIG. 99.—HELVELLA CRISPA.

FIG. 100.—PEZIZA ONOTICA.

Oct. 3.—Overcast, dull, and wet throughout.
— 4.—Overcast and dull till noon. Fine, but cloudy afterwards. A little rain fell in early morning.
— 5.—Fine and bright till 4.15 P.M., when the sky became suddenly overcast, and heavy rain fell till 5 P.M. Fine, and cloudless at night.
— 6.—A very fine clear day.

—— During the week ending Saturday, October 2, in the vicinity of the metropolis the reading of the barometer at the level of the sea decreased from 30.04 inches at the beginning of the week to 29.53 inches by about midnight on the 26th, increased to 29 88 inches by the evening of the 27th, decreased to 29 68 inches by the afternoon of the 28th, increased to 29.86 inches by the morning of the 29th, decreased to 29.81 inches by the afternoon of the same day, increased to 30.08 inches by the evening of September 30, decreased to 29 64 inches by mid-day on October 2, and increased to 29.91 inches by the end of the week. The mean reading for the week was 29.84 inches, being 0.14 inch less than that of the preceding week, and 0.05 inch below the average for the same week.

The highest temperatures of the air at the height of 4 feet above the ground, as registered day by day, varied between 66° on September 26 and 62° on October 2. The mean value for the week was 64½°. The lowest temperatures of the air, as recorded night by night, ranged from 52¼° on September 26 to 44¾° on September 29 and October 2—being the lowest value recorded since August 2, when the reading was 44¼°. The mean for the week was 48°. The mean daily range of temperature in the week was 16½°, the greatest range in the day being 20° on September 29, and the least 14° on September 26. The mean daily temperatures of the air, and the departures from their respective averages, were as follows :—September 26, 58°.5, +3°.8; 27th, 55°.6, +1°; 28th, 55°.7, +1°.2; 29th, 53°, —1°.4; 30th, 53°.5, —0°.8; October 1, 55°.2, +0°.8; 2d, 51°.2, —3°. The mean temperature for the week was 54¾°, being 0°.2 higher than the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 126¾° on the 27th, and 116° on September 29; the mean for the week was 102°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 42° and 41° on September 29 and October 2; the mean for the seven low readings was 44¼°.

The direction of the wind was W.S.W. and S.W., and its strength brisk. The weather during the week was tolerably fine, showers of rain fell occasionally, and the sky was generally cloudy.

Rain fell on four days in the week, the amount collected was 0.83 inch, of which 0.71 inch fell on October 2.

In England, the highest temperatures of the air by day, at the height of 4 feet above the ground, was 73° at Sunderland; at Wolverhampton the highest temperature was 63½°. The mean from all stations was 66°. The lowest temperatures of the air at night were 41° at Newcastle-on-Tyne and 41½° at Bristol. At Truro the lowest temperature in the week was 51°; The general average from all stations was 44½°. The average range of temperature in the week from all stations was 21½°; the greatest range was 29° at Sunderland, and the least was 14°, at Truro. The mean of the seven high temperatures observed by day was the largest at Sunderland, 65½°, and the smallest at Wolverhampton and Liverpool, both 59¾°. The general mean from all stations was 62°. The mean of the seven low temperatures observed at night was the greatest at Truro, 55°, and the least at Leicester, 46½°. The general average from all stations was 48¾°. The mean daily range of temperature in the week from all stations was 13¼°; at Sunderland it was the greatest, 18½°, and at Truro the least, 8½°.

The mean temperature of the air for the week varied from 58° at Truro to 52½° at Eccles; the general mean value from all stations was 54½°, being the same as the value for the corresponding week in 1874.

Rain fell on every day in the week at Wolverhampton, Liverpool, Manchester, and Eccles; and on four, five, and six days at all other stations. The various amounts collected varied from 1 inch two-tenths at Bristol and Eccles to one-tenth of an inch at Sunderland. The average over the country was seven-tenths of an inch.

The weather during the week was tolerably fine, but the sky was generally cloudy, and frequent showers of rain fell.

In Scotland the highest temperatures of the air in the week varied between 66° at Leith and 59° at Glasgow. The lowest temperatures of the air ranged from 45° at Greenock to 39¼° at Aberdeen. The average value of the former was 62½, and that of the latter was 42¾°. The average range of temperature in the week was 19¾°. The mean temperature of the air for the week was 52¼°, being 2° lower than that of England, and the same as the value for the corresponding week in 1874. The highest in the week was 53½° at Leith, and the lowest, 50½°, at Glasgow.

Rain fell at Glasgow to the amount of 3¼ inches, at Greenock to 2⅝ inches, at Aberdeen to 2½ inch, and at Dundee, Leith, and Perth the fall was somewhat less than 1 inch; the average fall over the country was 1¾ inch.

At Dublin the highest temperature was 67¼°, the lowest 41°, the mean 54°, and the fall of rain 0.58 inch.

JAMES GLAISHER.

Enquiries.

He that questioneth much shall learn much.—BACON.

70. WALKS. — Will any one vouchsafe to tell of a remedy (not asphalte) to prevent steep walks being washed by heavy rains? The gravel we have binds readily and hard, but is frequently washed away by heavy storms. *W.*

71. CINERARIAS ROTTING OFF. — I have a large quantity of Cinerarias, beautifully established in 48-sized pots; one-third have already died, and the remainder, I am afraid, will also go. The only apparent anomaly is rotting at the collar, but certainly not caused by overwatering. Can any of your correspondents give me any information upon the matter? *Subscriber.*

Answers to Correspondents.

CHILIAN BEET: *Stuart & Mein.* Your strain is a highly ornamental one, richly coloured, and showing much diversity of character.

CLEMATIS: *Anxious.* The Clematises of the ordinary types are perfectly hardy, and would therefore be quite safe plunged out-of-doors, and well mulched with litter. The early-flowering ones would need shelter from spring frosts as soon as the flower-buds began to push forth.

FERNS: *Anxious.* The Ferns mentioned would, no doubt, live in a temperature which did not fall below 48°, especially if they were well established and rested plants to start with, and got increased warmth early in spring, when growth recommenced.

FUNGI: *E. Williams.* The fungus found growing on an accumulated heap of sweepings is Clavaria stricta. —*A Constant Subscriber.* The fungus on your Pear leaves is Rœstelia cancellata. Pick them off and burn them. It is cheaper to send fruits by rail, but you must not send more than six specimens at a time.

MOSSES: *B. C. Baines.* 1, Hypnum rusciforme; 2, H. myosuroides; 3 and 4, Trichostomum rubellum.

NAMES OF FRUITS: *Charles Young. Pears:* 1, General Todtleben; 2, Glou Morceau; 4, Gansell's Bergamot; 5, Passe Colmar; 7, Bergamotte Esperen; 8, Josephine de Malines; 9, Easter Beurré; 10, Bergamotte Esperen; 11, Bergamotte de Paques; 19, Beurré d'Aremberg; 21, Glou Morceau. *Apples:* 12, Peach Apple; 13, Cornish Gilliflower; 14, Mickleham Pearmain; 15, Court of Wick; 16, Keddlestone Pippin; 17, Golden Noble; 18, Winter Braading; 20, Blenheim Orange. Gather and burn all the leaves from the Pear trees infested when they fall, and in the winter dress the trees well with strong Gishurst Compound. Please send only six specimens another time. —*H. S.* Five Pears, folded in tissue-paper, without initials. 1, Louis Bonne d'Avranches; 2, Doyenné d'Alençon; 3, Beurré Sterkmans; 4, Beurré Clairgeau; 5, Beurré de Caen.—*J. E. B.* Two Pears, no numbers: long one, Flemish Beauty; round one, Bergamotte d'Automne.—*S. C.* One Pear, Beurré Clairgeau.

ORCHIDS IN STOVE: *J. C.* Stop the rotting as quickly as you can, and keep the plants a little drier and warmer.

SKIMMIA OBLATA: *Z. Z.* The plant is dicœcious; so that in order to obtain a crop of berries you should get the male plant, which is known as S. fragrantissima, and is, of course, always barren.

SOWING GRASS SEEDS FOR LAWN: *F. H. H.* It is now too late for autumn sowing. The best time, however, to sow upon soil of "a stiff clay nature" is during the last week in March and the month of April inclusive. Have the ground well broken up, prepared, and only sow during a dry fine period, and with the ground moderately dry. Do not omit the Hardish Fescue and Crested Dog's-tail varieties on your stiff land. Sow during calm weather. *W. E.*

TRANSPLANTING LARGE EVERGREENS: *J. F., Chatteris.* Though we have transplanted common Laurels, seven years grown, most successfully, during the first week in May in a favourable season, we would recommend you to transplant your large evergreens by the end of October, as you suggest, in preference to spring.

WALNUTS: *An Inquirer.* Put them in a barrel, and keep them in a damp cellar, or failing this bury the barrel in the ground.

WHITE GRAPE: *J. B. M.* The Grape is evidently the Calabrian Raisin, and it may have been used as a stock whereon to graft a black Grape; it depends, therefore, on the system of pruning practised. If on a succession of rods annually, the occurrence is easily accounted for on the supposition that a rod has been brought up from the stock and the graft cut away. It would therefore be interesting to know if the fruit is produced from spurs on an old rod, and also if all the bunches on the rod are white, and if it can be proved that the same identical rod has formerly brought black Grapes; also if the white Grapes sent are on the top or the bottom of the old rod. Please enlighten us on these points.

COMMUNICATIONS RECEIVED: — Far North. — A. D. (next week). — J. C. & Co. — W. H. F. — Foggylone. — B. M. — J. A. T.—J. G.—H, L.

Markets.

COVENT GARDEN, *October 7.*

A good demand for Cobbs, with a limited supply, has caused prices of best samples to advance, while quotations for all other goods remain same as last week. Pears, such as Duchesse d'Angoulême, Marie Louise, Gansel's Bergamot, and Beurré de Capiaumont—good samples of table Apples, such as Ribston and Cox's Orange Pippins—meet with a ready sale at good prices for the season. *James Webber, Wholesale Apple Market.*

CUT FLOWERS.

	s. d.	s. d.
Camellias	6	0–12 0
Carnations, 12 blooms	1 6–	4 0
Cornflower, p. doz. bun.	3 0–	6 0
Eucharis, per doz. ..	4 0–	9 0
Gardenia, per doz. ..	2 0–	6 0
Heliotropes, 12 spr.	0 6–	1 0
Mignonette, 12 bun.	3 0–	6 0
Myosotis, per bunch	0 4–	0 9
Pelargoniums, 12 spr.	1 0–	2 0
— Zonal, do. ..	0 3–	1 0
Primula, dbl., p. bun.	0 9–	1 6
Roses, indoor, p. doz.	2 0–	6 0
— outdoor, 12 bun.	3 0–	9 0
Spiræa, 12 sprays ..	1 0–	3 0
Stephanotis, 12 sprays	3 0–	9 0
Sweet Peas, 12 bunch.	4 0–	6 0
Tuberoses, per doz...	1 0–	4 0

PLANTS IN POTS.

	s. d.	s. d.
Begonias, per doz. ..	6 0–	12 0
Bouvardias, do. ..	12 0–	18 0
Calceolarias, do. ..	6 0–	18 0
Chrysanthemum, do.	4 0–	9 0
Coleus, do.	4 0–	6 0
Cyclamen, do. ..	12 0–	24 0
Cyperus, do... ..	6 0–	12 0
Dracæna terminalis	30 0–	60 0
— viridis, per doz.	12 0–	24 0
Ficus elastica ..	1 6–	7 6
Fuchsia, per doz. ..	3 0–	18 0
Heaths, in var., doz.	12 0–	30 0
Heliotrope, per doz.	3 0–	12 0
Lilium auratum ..	12 0–	36 0
Mignonette, do. ..	3 0–	6 0
Myrtles .. do.	3 0–	9 0
Pelargoniums, dble., per doz. ..	4 0–	12 0
— Scarlet, do. ..	3 0–	9 0
Primula sinensis, do.	4 0–	12 0
Solanums, do. ..	6 0–	24 0
Veronica, do. ..	4 0–	12 0

FRUIT.

	s. d.	s. d.
Apples, per ½-sieve	1 0–	2 6
Cobbs and Filbts., lb.	0 6–	0 9
Damsons, per bushel	3 0–	5 0
Figs, per doz. ..	0 9–	3 0
Grapes, per lb. ..	0 9–	5 0
Lemons, per 100 ..	8 0–	12 0
Melons, each ..	2 0–	5 0
Oranges, p. 100 ..	20 0	..
Peaches, per doz. ..	2 6–	12 0
Pears, per doz. ..	1 0–	4 0
Pine-apples, p. lb. ..	3 0–	5 0
Plums, per bushel ..	2 0–	6 0
— per punnet ..	0 6–	1 6
Walnuts, p. bush. ..	16 0–	..

VEGETABLES.

	s. d.	s. d.
Artichokes, per doz.	4 0–	..
— Jerusalem, p. lb.	0 3–	..
Beans, French, per bushel	6 0–	..
— Scarlet Run., do.	5 0–	..
Beet, per doz. ..	1 0–	2 0
Brussels Sprouts, lb.	0 4–	..
Cabbages, per doz. ..	1 0–	2 0
Carrots, do.	0 6–	..
Cauliflowers, p. doz.	4 0–	..
Celery, per bundle ..	1 6–	2 0
Cucumbers, each ..	0 3–	0 9
Endive, per doz. ..	1 0–	2 0
— Batavian, p. doz.	2 0–	3 0
Herbs, per bunch ..	0 2–	0 4
Horse Radish, p. bun.	3 0–	5 0
Leeks, per bunch ..	0 2–	0 4
Lettuces, per score..	1 0–	..
Mint, per bundle ..	0 4–	..
Mushrooms, per pott.	1 0–	2 0
Onions, young, bun.	0 4–	0 6
Parsley, per bunch..	0 4–	..
Radishes, per bunch.	0 2–	0 4
— Spanish, doz. ..	1 0–	..
Shallots, per lb. ..	0 3–	..
Tomatos, per doz. ..	1 0–	2 0
Turnips, per bundle.	0 4–	..
Veg. Marrows, doz.	1 0–	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

SEEDS.

LONDON: *Oct. 7.*—There is nothing of special interest to report this week concerning the agricultural seed trade. For winter Tares the demand keeps exceedingly active, and as stocks are now getting reduced quite low, an advance has been established of one shilling per bushel. Orders for Trifolium still come to hand, and although it is getting rather late, there is no yielding in values. Clover seeds do not yet excite much attention; thus far, owing to the neglect of the English trade, there has been considerable concession for French seed from the top opening quotations. Our advices from New York do not lead us to expect this season the swamping shipments of American Red which have marked some past years. There is a little more inquiry for Alsikes and White Clovers. In Trefoils we have nothing doing. Great firmness continues to characterise the Canary seed trade; the article is still in short supply, and meets a fair sale, notwithstanding the high rates now current. White Millet and Hemp seed are both dearer. For winter Barley, Oats, and Rye, there is a good seasonable demand. Blue boiling Peas are in improved request. In Rape seed the tendency is upwards. White Mustard shows no change. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

HAY.

The Whitechapel market report states that meadow hay was rather cheaper, but a slight advance was established in straw, and for most classes of fodder a steady trade was experienced. Prime Clover was quoted 100*s.* to 157*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 140*s.*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 40*s.* per load.—Cumberland Haymarket quotations:—Superior meadow hay, 130*s.* to 140*s.*; inferior, 90*s.* to 110*s.*; superior Clover, 140*s.* to 155*s.*; inferior, 105*s.* to 118*s.*; and straw, 45*s.* to 50*s.* per load.

POTATOS.

The Borough and Spitalfields markets reports state that trade has been steady, and full prices given for sound Potatos, of which there was a moderate supply. Regents, 100*s.* to 120*s.*; Essex kidneys, 110*s.* to 130*s.*; Victorias, 100*s.* to 130*s.*; shaws, 70*s.* to 85*s.*; middlings, 50*s.* to 65*s.*; Rocks, 75*s.* to 85*s.*; and chats, 25*s.* to 30*s.* per ton.—The imports of foreign Potatos into London last week were: 743 bags 134 packages from Antwerp, 1520 sacks 50 bags from Dunkirk, 648 bags from Bremen, 26 bags from Rotterdam, 80 sacks from Boulogne, and 40 sacks from Ostend.

formed flower, creamy white, tipped with rose and pink, which deservedly gained a First-class Certificate. Mr. Stevens, Trentham, sent Masdevallia Harryana; Mr. Douglas, Loxford Hall Gardens, cut flowers of the single Macartney Rose; and Mr. G. Smith, Tollington Nursery, Hornsey Rise, specimens of his fine semi-double scarlet Pelargonium Wonderful, which must become a grand market plant, from its excellent habit, and the persistency with which its petals adhere together. Mr. Green, Holmesdale Road, Reigate, again showed a plant of × Streptocarpus Greenii, which has been flowering over four months, and has been exhibited at four successive meetings.

Fruit Committee.—Henry Webb, Esq., in the chair. This was a more than usually interesting meeting, owing to the exhibition by Messrs. William Paul & Son, and Mr. Dancer, of Chiswick, of large collections of Apples and Pears. The Messrs. Paul & Son's collection of Apples included some 165 sorts, amongst which were all the leading varieties, and many that are very seldom seen. This was also the case with the Pears, which numbered 138 sorts. A vote of thanks was accorded, and they were recommended to the Council for the awarding a medal. Mr. Dancer had forty-five sorts of Pears and twenty-seven of Apples—the cream of the varieties in cultivation, of splendid size and grand quality. Mr. Dancer also was awarded a vote of thanks, and his collection was also reccommended for a medal. A vote of thanks was also given to Mr. Fenn for a collection of his seedling Potatos, numbering over thirty sorts. Mr. R. Smith, St. John's Nursery, Worcester, was awarded a First-class Certificate for the Worcester Pearmain Apple, a medium-sized, very highly-coloured Apple, in season from October to December, of good quality, and a certain bearer. A similar award was also made to Mr. R. Harvey, Bury St. Edmunds, for the St. Edmunds Pippin, a richly-flavoured, medium-sized Apple, resembling the Golden Russet, and ripe now. Mr. P. Grieve showed a seedling Pear, which, being unripe, was reserved for the next meeting.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Orchids.—As many showy kinds will yet be blooming the practice of removing them into a drier atmosphere may be continued; the temperature necessary for plants in flower should be from 50° to 55°. The flowers will last much longer and be more enjoyable than when kept in a moist atmosphere. Many of the Oncidiums are beautiful objects at this season of the year, and will bear a cool, dry temperature, as will *Vanda cærulea* and *Odontoglossum grande* and the *Pleiones*. The following are amongst the best Oncidiums for autumn and winter-flowering:—*O. tigrinum*, *O. ornithorhynchum*, *O. aurosum*, *O. macranthum*, *O. incurvum*, *O. bicallosum*, *O. flexuosum majus*; the latter variety will frequently flower twice in the year, and is one of the best old Oncidiums. Give just water enough to prevent the plants from suffering, and endeavour to prolong the blooming period, as flowers are fast losing their brightness. Some decline must now be made in the temperature—for the East India-house a mean of 70° by day and 60° by night, for the Cattleya-house 65° by day and 55° by night, and for the Odontoglossum-house 55° by day and 45° by night is desirable. Very little ventilation will now be necessary, except at mild intervals, when a little air may be given. The atmospheric moisture must also be reduced, and syringing overhead must be discontinued, except in the case of newly-imported plants, or when a plant has become shrivelled; in either case syringing will be necessary. The *Calanthes* are now throwing up their flower-spikes; these should have every encouragement in the shape of heat and moisture; their leaves should also be frequently sponged. *Zygopetalums* and other plants which are commencing to grow must be kept moderately moistened and placed in the most favourable part of the house, where there is plenty of light and moisture; repot, if necessary, or renew the surface with some fresh material. *Dendrobiums*, *Cattleyas*, and any other kinds which have completed their growth will now require very little water. *Phalænopsis* must be very carefully supplied with moisture, as, should the leaves get overcharged with water at this season, they are very liable to rot. Let the glass and woodwork, both inside and out, be thoroughly cleansed. Advantage should be taken of wet weather to give the plants a thorough cleaning, and all young shoots should be neatly staked. Slugs are very destructive to the young growths and the roots of Orchids; these should be sought after by candle-light, as they are then very easily caught. *G. Baker*, *Coombe Wood*.

FRUIT HOUSES.

Vines.—The heavy and almost incessant rain of the past three weeks will have rendered the covering over of late Vine borders a matter of necessity, *i.e.*, if the fruit is to keep satisfactorily; wooden shutters are the best for the purpose, but tarpauling, or a thick thatch of straw or bracken, sloped so as to carry off the water quickly, will answer admirably. Personally I prefer the borders of late vineries to be entirely inside, and to those intending to plant such I strongly advise them thus to arrange the borders. Mats, or a light covering of straw placed on inside borders, will, to some extent, prevent the rising of moisture, and also the cracking of the soil. The Grapes should be frequently looked over for the removal of mouldy berries, as if left others are soon affected, but if thoroughly ripe very little trouble will be caused in this respect. The houses should be kept as cool and airy as possible, and fire-heat only applied when the external atmosphere renders it necessary to keep the air of the houses light and dry. The past week or two has been a trying time for Hamburghs, and others of that class; damp—their greatest enemy—abounds, and up to the end of November, daily examination of the fruit will be necessary. Keep the ventilators of the house closed against all damp, and open only when the outside air is dry, at which time also fire-heat should be applied, the more effectually to expel all moisture from the atmosphere. If already done, the earliest Vines should now be pruned, and the house receive a thorough cleansing, the border being top-dressed, as previously advised and directed. Fermenting material should now be prepared, to be placed on outside borders, at least a fortnight previous to closing up the houses, and the introduction of a quantity inside at starting time will aid in the more kindly breaking of the Vines. The earliest pot-Vines may now be gently started, and if a light bottom-heat can be afforded them, such as a bed of leaves, they will break all the better. The temperature at starting should not exceed 55°, but it may gradually be increased to 65° as the Vines show signs of breaking. The canes should be slung in a horizontal position, to induce them to push their buds evenly throughout the entire length of rod. Lay in a stock of soil for the making and replenishing of Vine borders. If dry and stacked now, during the winter wireworm and other insects likely to be injurious will make their exit. *W. Wildsmith*, *Heckfield*.

Variorum.

THE POTATO DISEASE.

By A. Murphy.

Be aisy a minnit, I'm going to prate
Of the dreadful disease that has tak' the Potate—
Of the years that have passed since the trouble first come,
Of the way it has struck the philosophers dumb,
Of the stuff that's been talked, and the letters been writ,
Only to lave the Pitatees as bad every bit;
And to speak like a parable—bedad how ye'll wink!
I'll compare it all, sure, to the new Skating Rink.

Here's first, the great wise men, who know it all clane,
They clap on their skates, but they go it in vain;
To show off their knowledge they start with no brief,
Break crowns, redden noses, and all come to grief.

"Stand aside, ye poor cripples!" cries Shirley the great—
"In my wireworm skates see me cut the Potate;
Sure it's me only knows! See me finish the job!"
Then he sprawls on the ice with a dint in his nob.

Then next comes the Doctor, the "Carpenter" bold,
"Let *me* show the right way before ye catch cold:
"*I knew it before, lads!* How is it?—*Why so!*
One slide,—and the Doctor has gone down below.

Hurroo! See new skaters, the gardeners stout,
Who come with a rush, and some blunder about—
Down forwards—down backwards—they growl and they swear
As their heads all get cracked to their utter despair.

Poor sliders! they'd teach all the world how to skate;
And to spake in plain Irish they'd cure the Potate;
Where angels daren't tread they rush in neck and heel,
But, like the poor 'Tater they only shed peel.

And there sit the angels—ould B. and young S.,
With a fungus-like smile (and their names ye can guess),
Just waitin' their time, till the others have done,
They are strapping their skates on, with blades marked A 1.

There's a hush, and a whisper, ye can hear every sound
As the dufters are clustering and lingering around,
Expecting an *accident* shortly to see
To the person of fine ould Agaricus B.

But B. goes with a glide, and friend S. on his part
Puts skate to the ice with a knowledge-won start;
He joins with the parson, so together they glide
Round and round, up and down, with the calmness of pride.

The scene it grows painful—the wounded all groan,
As they throw up their skates and their folly bemoan;
While S. and stanch B. both skate as they please—
Bedad, boys! they'll skate out Potato disease.

So much for my ditty, lads: what do ye think
Of comparing it all to the new skating rink?
The subject's a slippery one, Strasbourg, no doubt!
"Potato disease," but now *who found it out?*

Sale of the Mayfield Orchids.—Mr. Stevens recently sold the valuable collection of Orchids formed during the last twelve years by John Russell, Esq., of Mayfield, Falkirk, and the following gives an indication of some of the prices realised:—Cypripedium Lowii, 4 feet across, 220*s.*; Oncidium splendidum, eight old bulbs and two young growths, 630*s.*; Saccolabium Russellianum, fourteen leaves, 588*s.*; another plant of the same, 567*s.*; S. Holfordi, 30 to 36 inches across; 462*s.*; Angræcum sesquipedale, twenty-six leaves, 504*s.*; Lælia Perrinii majus, seventy old bulbs, 189*s.*; Chysis bractescens, eight old bulbs, 357*s.*; Aerides Fieldingii, sixteen strong leaves, 210*s.*; another plant, with twenty leaves, 441*s.*; Odontoglossum citrosmum roseum, 231*s.*; Angræcum eburneum, 4 to 5 feet across, 210*s.*; Vanda tricolor rubra, 6 feet high and 3 feet across, 231*s.*; Saccolabium guttatum, "2 to 3 feet high and wide, twenty-two strong leaves, two strong young plants at bottom, with ten and eleven leaves respectively—ten spikes this year," 1305*s.*; Aerides Larpentæ, thirty-eight leaves, two young breaks, 147*s.*; Cypripedium Stonei, 3 feet across, 399*s.*; Aerides margaritaceum, 32 inches high, 525*s.*; Vanda tricolor superba, 3 feet 6 inches high, thirty-eight leaves, 189*s.*; V. suavis, 7 feet high, fifty-six leaves, two strong young growths, 210*s.*; V. suavis Rollissoni, fifty-six leaves and three strong young plants, 210*s.*; V. tricolor Russelliana, 6 feet high, with forty leaves, and two strong plants at bottom, with twenty-two leaves each, the whole stock of the plant, 546*s.*; Aerides Veitchii, over 2 feet across, and 18 to 20 feet high, 725*s.*; Angræcum Ellisii, four healthy leaves, 200*s.*; Lælia Schilleriana, sixteen bulbs, two strong leading growths inclusive, 180*s.*; Lælia elegans Turneri, nine bulbs, one extra strong leading break, 220*s.*; Cattleya lobata superba, seventy to eighty bulbs and growths, from 3 to 4 feet across, 300*s.*; Cymbidium Mastersii superbum, 30 inches high, and 3 feet through, 220*s.*; Cattleya Skinneri, twenty-five bulbs, and five young growths, 210*s.*; Cypripedium caudatum, 33 inches across, 320*s.*; Cattleya Warneri, fifteen bulbs and three growths, 462*s.*; C. labiata Warneri, 30 inches across, 280*s.*; Dendrobium densiflorum var., nine bulbs, 220*s.*; Epidendrum prismatocarpum, 3 feet across, 210*s.*; Cattleya Russelliana, about thirty strong bulbs, and five strong leading growths, 882*s.*; Lælia Pilcheri, 2 feet high, fifteen bulbs, 199*s.* 6*d.*; Cattleya Warneri, nearly 3 feet across, 252*s.*; Cattleya exoniensis, twelve old bulbs and five young breaks, 320*s.*; Cattleya labiata Warneri, spring-flowering variety, fifteen bulbs, 609*s.*; another plant, with ten bulbs, &c., 252*s.*; Odontoglossum niveum majus, 230*s.* to 210*s.*; Lælia anceps Dawsoni, 210*s.*; Zygopetalum maxillare, 30 inches across, 378*s.*; Lælia grandis, fine specimen, 210*s.*; Cattleya Dowiana, eighteen bulbs, five leading growths, 550*s.*; Cattleya Mendelii, about 3 feet across, 315*s.*; another specimen, 252*s.*; Cattleya Trianæ, forty to fifty bulbs, 131*s.*; Colax jugosus, "finest plant in the country," 294*s.*; Masdevallia Lindeni, twenty-five leaves and six young breaks, 294*s.*; M. Harryana, twenty leaves, five breaks, 210*s.*; another specimen, 20 inches across, ninety leaves, 273*s.*; Cœlogyne cristata, 3 feet across, 300*s.*; Cœlogyne cinnamomea, 3 feet across, 460*s.* Total amount realised, £2211 14*s.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,

For the Week ending Wednesday, Oct. 6, 1875.

Month and Day	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Sept. 30	In. 29.87	In. +0.16	° 63.1	° 47.1	° 16.0	° 53.5	° − 0.8	° 46.5	77	WNW : N.W.	In. 0.00
1	29.77	+0.07	64.6	47.3	17.3	55.2	+ 0.8	51.3	87	S.W. : S.S.W	0.02
2	29.62	−0.07	62.1	44.8	17.3	51.2	− 3.0	49.4	94	WNW : N.W.	0.71
3	29.62	−0.07	59.8	43.6	16.2	50.9	− 3.0	46.0	84	S.S.W. : S.W.	0.22
4	29.68	−0.01	68.2	49.8	18.4	58.1	+ 4.6	56.0	92	WSW : W. : WNW	0.05
5	29.88	+0.19	70.7	52.1	18.6	60.6	+ 7.4	55.4	84	W. : S.W.	0.14
6	30.25	+0.57	64.4	44.4	20.0	52.9	0.0	43.1	69	W. : WNW	0.00
Mean	29.81	+0.12	64.7	47.0	17.7	54.6	+ 0.9	49.7	84	W. : N.W.	sum 1.14

Sept. 30.—A fine day, but cloudy, and strong wind.
Oct. 1.—Overcast, dull and windy throughout. Slight rain fell at 7 A.M.
— 2.—Heavy rain fell in early morning. Fine till noon. Heavy rain again fell from 0.5 P.M. to 0.15 P.M.—0.30 inch having fallen in 10 minutes; dull and occasional showers till 3 P.M. Fine afterwards.

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APPLES and PEARS, Dwarf-trained, 18*s.* to 24*s.* per dozen.
PYRAMIDS of all sizes and BEARING TREES, 75*s.* to 150*s.* per 100.
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APPLES and PEARS, Dwarf Maiden, on stout stocks, in variety, 50*s.* per 100. [per 100.
CHERRIES, Dwarf Maiden, on stout stocks, in variety, 50*s.*
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,, Black Naples, 10*s.* to 15*s.* per 100.
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,, Half-standards, 600 varieties, 70*s.* to 80*s.* per 100.
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,, China, dwarf, of sorts, 20*s.* per 100.
,, Moss, dwarf, common or red, 20*s.* per 100.
,, Cabbage Provence, dwarf, 16*s.* per 100.
,, Globe, dwarf, white hip, 15*s.* per 100.
,, Spong and Demeaux, dwarf, 16*s.* per 100.
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,, PONDEROSA, bushy, 1 to 2 feet, well rooted, 10*s.* per dozen, 75*s.* per 100.
,, MURICATA, 2 to 3 feet, well rooted, 12*s.* per dozen, 85*s.* per 100 ; 1 to 2 feet, well rooted, 6*s.* per doz., 40*s.* p. 100.
,, TUBERCULATA, 12 to 15 inches, well rooted, 6*s.* per doz.
,, EXCELSA, 1 to 2 feet, well rooted, 25*s.* per 100.
,, CEMBRA, 2 to 3 feet, well rooted, 12*s.* per dozen.
,, LARICIO, 1-yr., 1-yr., 10*s.* per 1000 ; 1½ to 2 feet, well rooted, 20*s.* per 100.
,, AUSTRIACA, 2½ feet, well rooted, 70*s.* per 1000.
CEDRUS DEODARA, thrice moved, nice little stout plants, about 9 to 12 inches, 25*s.* per 100.
,, ATLANTICA, 1 foot, 25*s.* per 100.
CUPRESSUS LAWSONIANA, very bushy, good shaped and well rooted, 2 feet, 40*s.* per 100.
,, ,, NANA COMPACTA, 9 inches, 6*s.* per dozen.
,, GOVENIANA, beautifully rooted, 6 to 9 inches, 6*s.* p. doz.
,, MACROCARPA, 1-yr., in pots, 20*s.* per 100. [1000.
THUJA ORIENTALIS (Chinese Arbor-vitæ), 1-yr., 10*s.* per
,, LOBBII, 1½ to 2 feet, 25*s.* p. 100 ; 3 to 4 feet, 80*s.* p. 100.
,, AUREA, 9 to 12 inches, 50*s.* per 100.
,, SEMPER AURESCENS, 9 to 12 inches, 18*s.* per dozen.
,, GIGANTEA, 1½ to 2 feet, 9*s.* per dozen, 70*s.* per 1000.
,, ERICOIDES, 6 to 9 inches, 6*s.* per dozen.
,, OCCIDENTALIS, American, 9 to 12 inches, 10*s.* per 100 ; bushy, 4 to 5 feet, 60*s.* per 100.
ABIES DOUGLASII, 1-yr. replanted, 30*s.* per 1000 ; 9 to 12 inches, 10*s.* per 100.
,, MENZIESII, 6 to 9 inches, 10*s.* per 100.
,, NIGRA, 9 to 12 inches, 6*s.* per 100.
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LAUREL, Common, 1-yr. and 2-yr. cuttings, 30*s.* per 1000.
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,, Portugal, 1½ feet, 20*s.* per 100.
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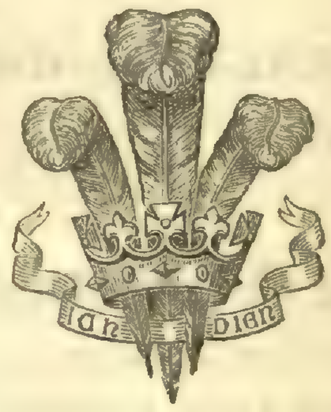

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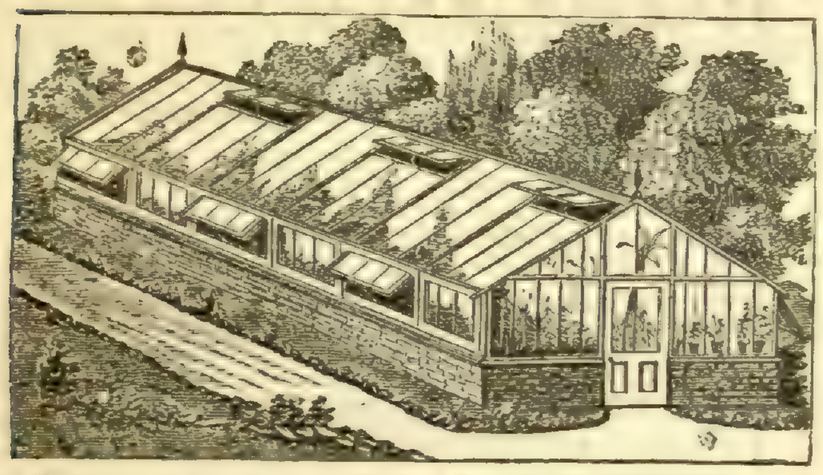

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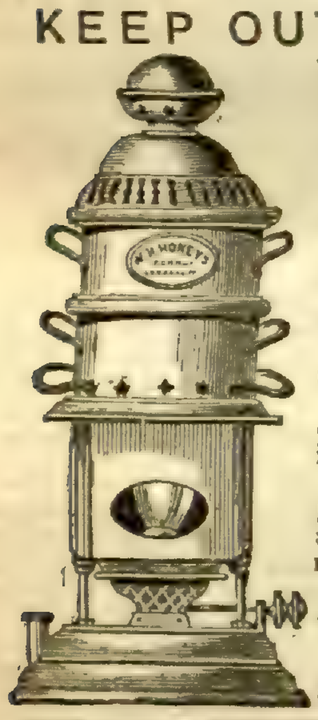

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Suitable for greenhouses, conservatories, halls, bed-rooms, &c.
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Prices, in block tin, 30s.; in copper, 50s. Copper, with glass, to give light and heat, 55s. Either will be sent on receipt of Post-office Order.

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ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.
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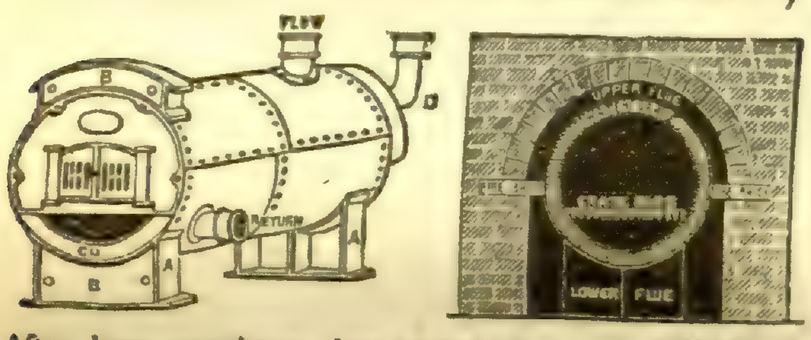

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Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.
UNSOLICITED TESTIMONIAL.
"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.
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H.R.H. THE PRINCE OF WALES,
The British, Indian and Colonial Governments,
8000 of the Nobility, Gentry, and Clergy,
Railway and Canal Companies, Collieries, Ironmasters, &c., &c.,
Is extensively used for all kinds of
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CAN BE LAID ON BY UNSKILLED LABOUR.
Sold in all Colours.
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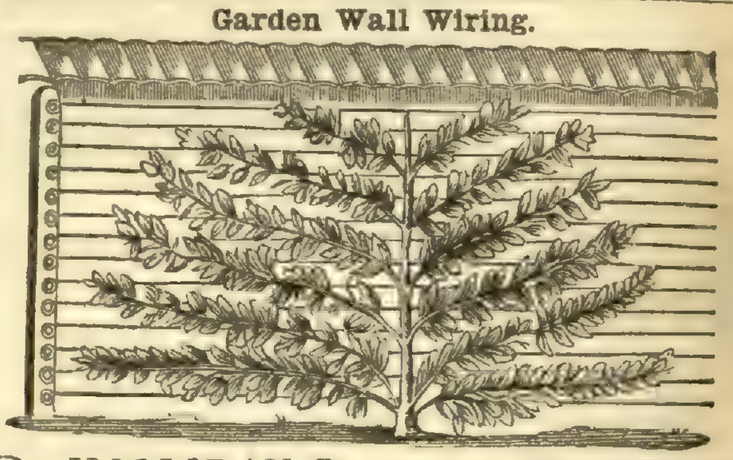
Garden Wall Wiring.



R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.
For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.
For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.
For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.
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Genuine PERUVIAN GUANO, &c.
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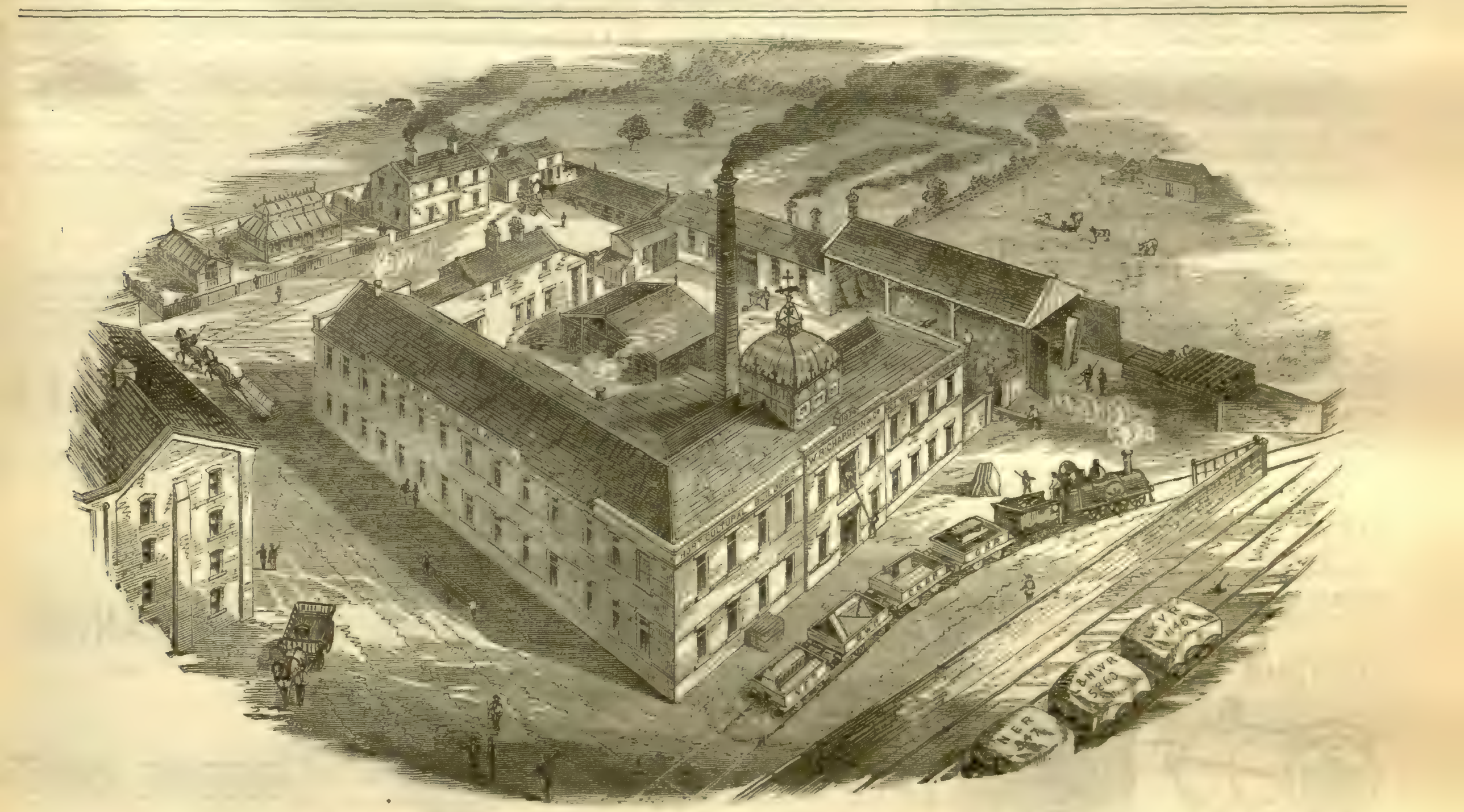

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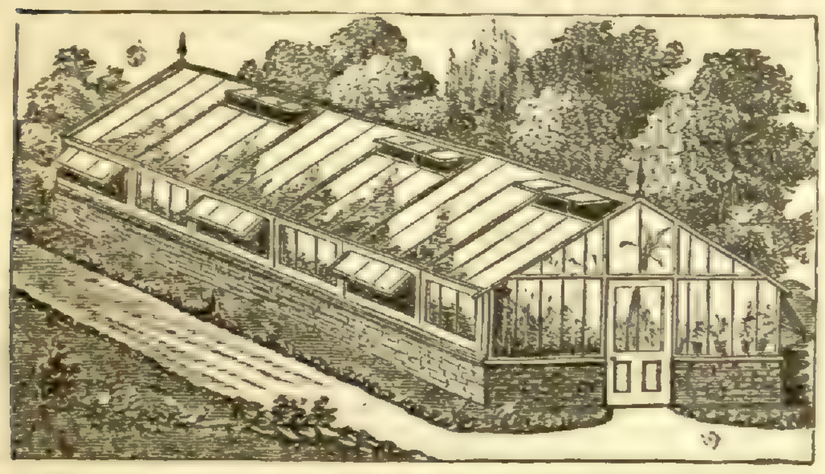

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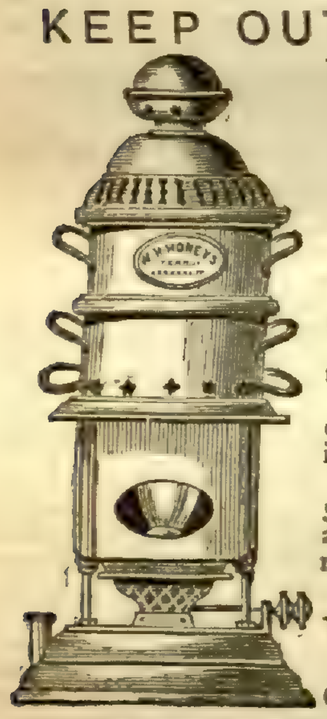

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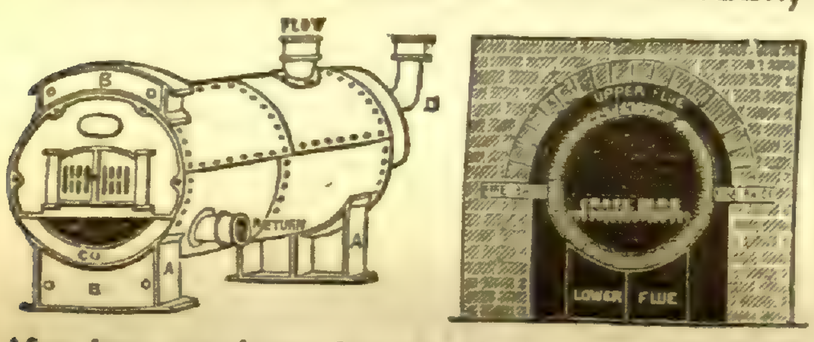

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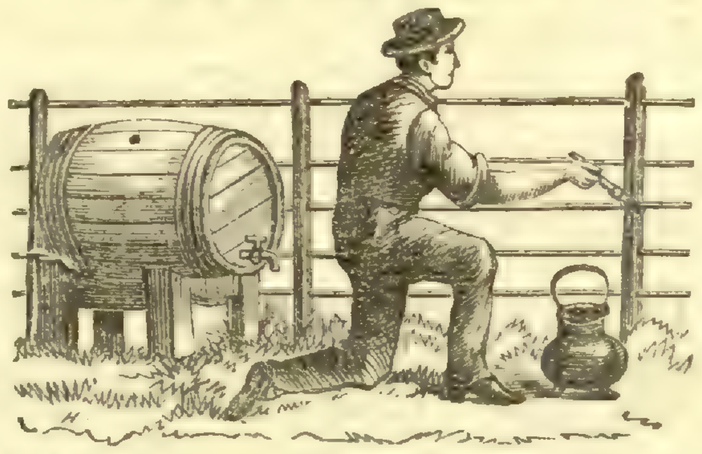

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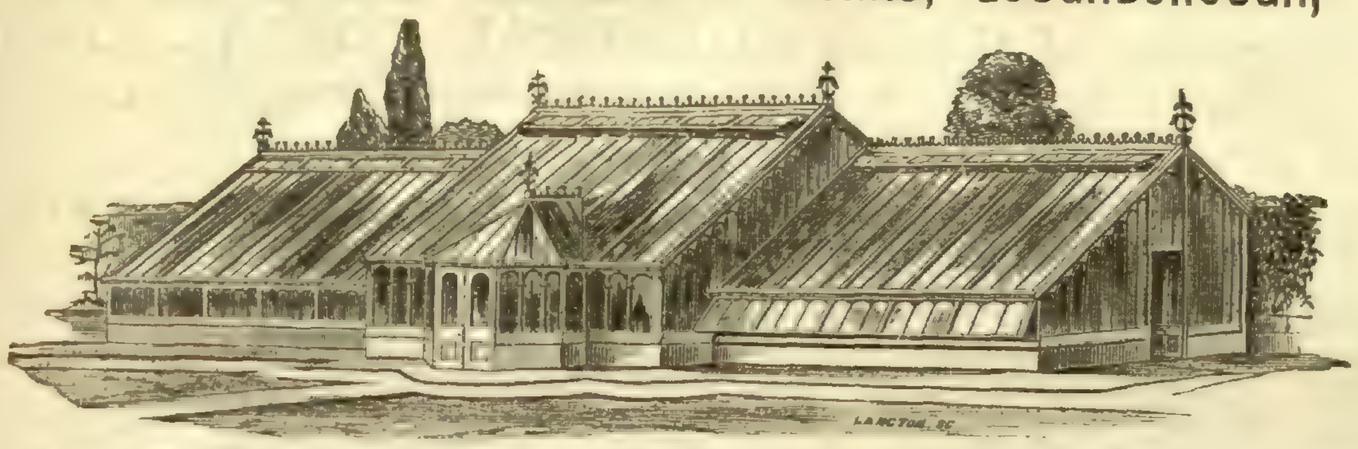

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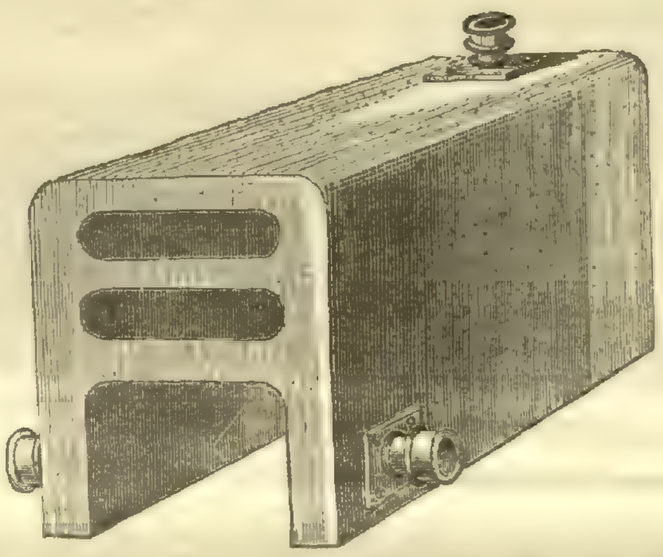

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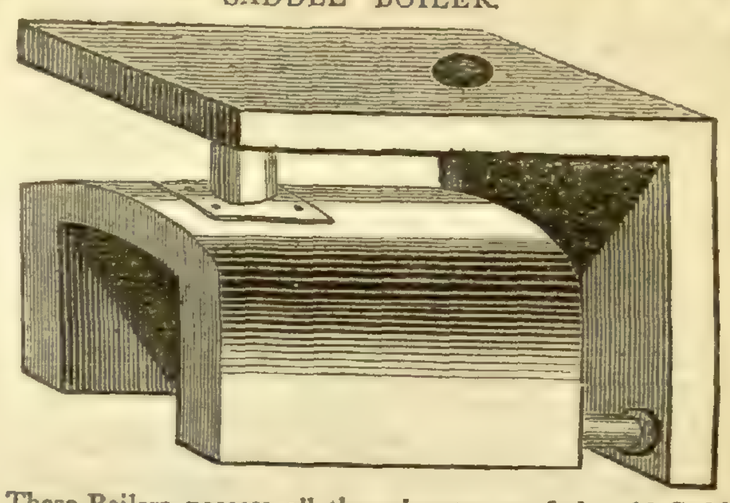

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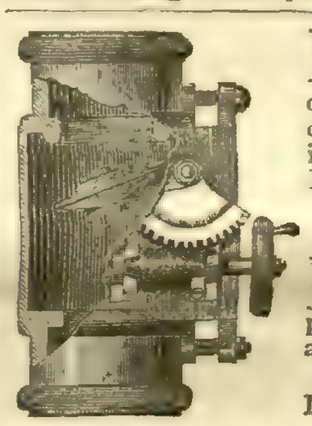

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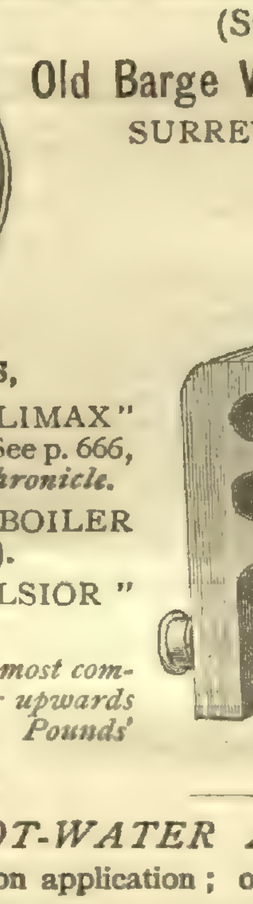

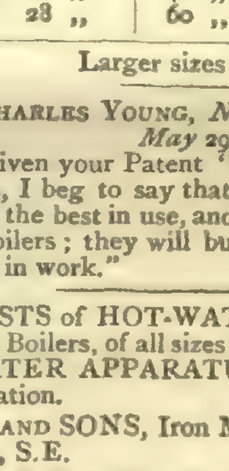

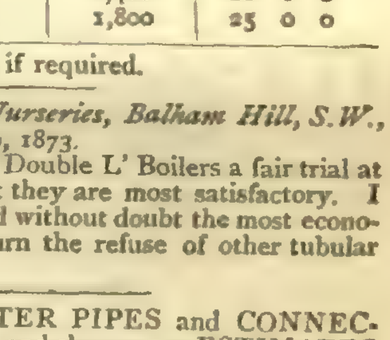

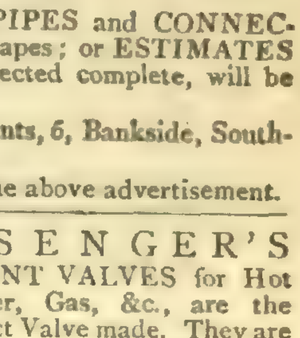

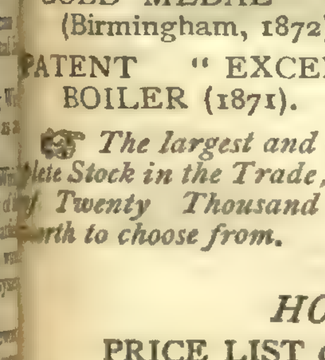

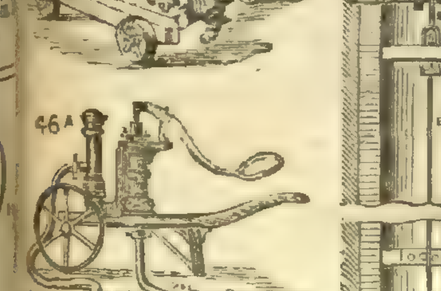

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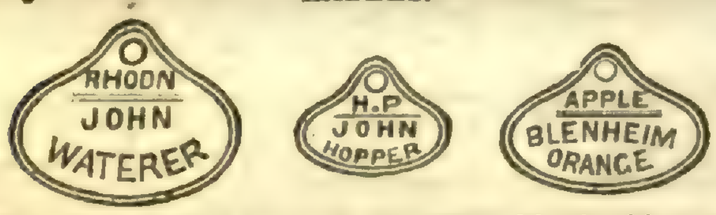

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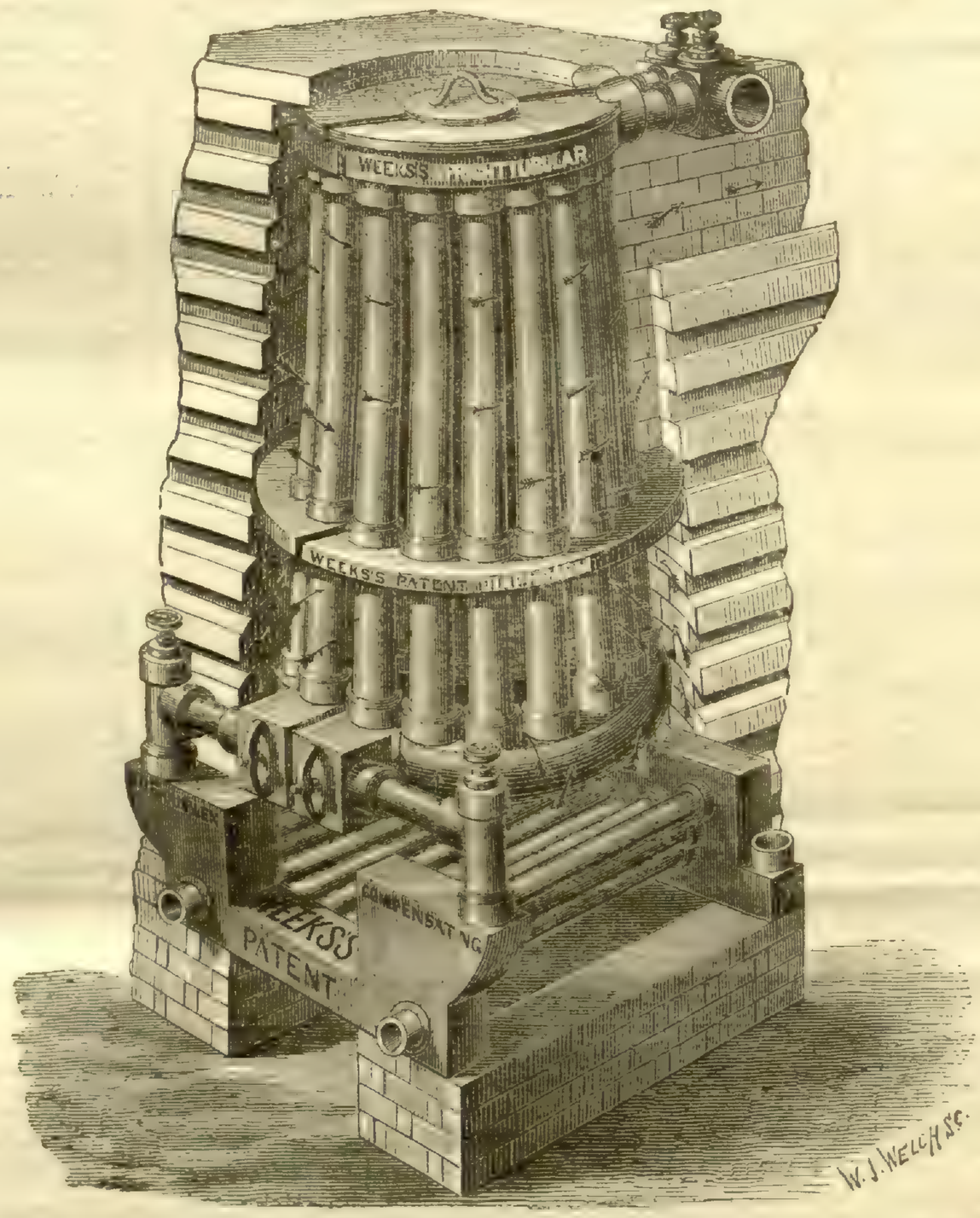

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THE

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IMPORTANT CLEARANCE SALE of THOUSANDS of FRUIT TREES and other NURSERY STOCK.

Important to Gentlemen, Fruit Growers, Nurserymen, and Others.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Clark to SELL by AUCTION, without reserve (the term of this branch nursery having expired and the Land being immediately required for Building purposes), on the Premises, The Nursery, Wallington, Surrey, on WEDNESDAY, October 20, at 11 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, comprising 10,000 Fruit Trees, mostly in bearing condition, including Standard and Pyramid Apples, Pears, Plums and Cherries, in capital assortment; also 15,000 Evergreens, various, including 4000 Green Hollies, Yews, Portugal and Common Laurels, Thujas of sorts, Wellingtonias, &c., also an assortment of choice Border Shrubs, together with thousands of Forest and Ornamental Trees.

May be viewed any time prior to the Sale. Catalogues may be had at the Home Nursery, Wallington, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

Balham, S.W.

IMPORTANT SALE of THRIVING NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. George Edwards to SELL by AUCTION, without reserve, on the Premises, the Balham Nursery, close to the Balham Railway Station, Surrey, on FRIDAY, October 22, at 11 for 12 o'Clock precisely, a large quantity of valuable NURSERY STOCK, worthy the attention of the Trade and Private Buyers, and particularly suitable for planting in the London suburbs, comprising beautifully-grown Coniferæ and Evergreens in rich assortment; also, the whole of the handsome Border Shrubs, a considerable number of fine Fruit Trees and Roses, and a choice selection of Deciduous Flowering Shrubs, Climbing Plants, Tea Roses in pots, &c.

The Stock may be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, as above.

Sunningdale.

HIGHLY IMPORTANT EXTENSIVE UNRESERVED SALE of NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Noble to SELL by AUCTION, without reserve (the lease of a portion of the Nursery having expired necessitating an immediate clearance), on the Premises, the Sunningdale Nursery, close to the Station near Bagshot, Surrey, on MONDAY, October 25 and five following days, at 11 for 12 o'Clock precisely each day, an immense quantity of beautifully grown NURSERY STOCK, including a great number of magnificent specimen Coniferæ and other Evergreens, also many thousands of young and thriving stock in splendid condition for removal, particularly worthy of the attention of large consumers, comprising 5000 Cupressus Lawsoniana, 2 to 7 feet; 5000 Thujas of sorts; 5000 Portugal Laurels, 1 to 2 feet; 6000 Common Hollies, 1 to 2 feet; 5000 Aucubas of sorts; 20,000 Privet; 1000 English Yews, ½ to 2½ feet; 8000 Mahonias, Piceas, Hollies, Thujas, Junipers, Araucarias, &c.; 50,000 choice named Hybrid and Pontica Rhododendrons, Kalmias, Andromedas, and other American plants, 4000 Deciduous Flowering Shrubs, 50,000 Ornamental Trees in great variety, 10,000 Standard and Dwarf Roses, Fruit Trees, Manetti and Plum Stocks, Hardy Climbers in pots, and thousands of other stock too numerous to specify.

The stock may at any time be viewed. Catalogues may be had on the Premises, and of the Auctioneers.

Tooting, S.W.

IMPORTANT SALE of EXTRA THRIVING NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. R. Parker to SELL by AUCTION on the Premises, the Exotic Nursery, Tooting, Surrey, on WEDNESDAY and THURSDAY, October 27 and 28, at 11 for 12 o'Clock precisely each day, a large quantity of valuable Extra NURSERY STOCK, remarkably well-grown and in excellent condition for removal, comprising several thousands of choice Evergreen and Coniferæ Shrubs in borders, admirably adapted for effective planting; also a large quantity of handsome specimea Coniferæ, beautifully grown and symmetrically formed. A fine assortment of Ornamental and Forest Trees, including Standard Acacia inermis and variegated Acers, 500 Standard and Dwarf Roses, clean grown, Fruit Trees in bearing condition, Herbaceous Plants, Clematis, Ivies, and Hardy Climbers in pots, &c.

May be viewed prior to Sale. Catalogues may be had on the Premises and of the Auctioneers.

Chichester.

IMPORTANT SALE of Valuable Surplus NURSERY STOCK, worthy the attention of Gentlemen and the Trade.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. D. Scott to SELL by AUCTION, on the Premises, The Northgate Nurseries, Chichester, on TUESDAY and WEDNESDAY, November 2 and 3, at 11 for 12 o'Clock precisely each day, a great quantity of SURPLUS NURSERY STOCK, including a large number of Specimen Coniferæ; also many thousands of beautifully grown Evergreens.

A more descriptive advertisement will shortly appear.

Tunbridge Wells.

GREAT SALE of Valuable NURSERY STOCK at the Goldsmith's Park Nurseries, Groombridge, Tunbridge Wells.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Ed. Hollanby to SELL by AUCTION, without reserve, on the Premises as above, on THURSDAY, November 4, and two following days, at 11 for 12 o'Clock, many thousands of handsome specimen CEDRUS DEODARA, CUPRESSUS, THUJAS, CEDARS, Portugal LAURELS, AUCUBAS, and other remarkably well grown CONIFERÆ and EVERGREENS; 1000 splendid RHODODENDRONS, 4 to 5 feet, well set with buds; 1000 choice named Standard ROSES, Hardy, Ornamental, and Forest TREES, and a large quantity of Border SHRUBS, of all sizes, too numerous to name.

More detailed particulars will appear next week.

Preliminary Notice of

FORTHCOMING SALES of NURSERY STOCK, &c., by PROTHEROE AND MORRIS.

OCTOBER 29.—The NURSERY, Epsom. By order of Mr. Tanton. A quantity of useful Nursery Stock.

NOVEMBER 9.—The HOME NURSERY, Atherstone. By order of Mr. H. Baker. A fine assortment of thriving Nursery Stock, adapted for immediate effect.

NOVEMBER 8 to 13.—The NURSERIES, Streatham Place, Brixton, S.W. By order of Geo. Clark, a fine stock of large Evergreens and Coniferæ, &c., for immediate effect; also bearing Fruit Trees, &c.

NOVEMBER 11.—The NURSERY, Beddington, Surrey. By order of Messrs. Rollisson & Sons. A quantity of choice American Plants and other Nursery Stock.

NOVEMBER 13.—LOAM PIT VALE NURSERY, near the Railway Station, Lewisham. By order of Mr. W. Epps. A fine stock of Ornamental Trees, Shrubs, and Greenhouse Plants.

NOVEMBER 16, 17 and 18.—The BRANCH NURSERY, Teddington. By order of Mr. Laing. A beautiful assortment of well-grown Nursery Stock.

NOVEMBER 16.—The NURSERY, Caterham, Surrey. By order of Mr. G. Woollett. A quantity of fine Nursery Stock, growing on land adjoining the Home Nursery, the term for which is about to expire.

NOVEMBER 17.—HOLLAND NURSERY, Holland Street, Brixton Road, S.W. By order of Mr. J. Fowle. General Stock.

NOVEMBER 19 and 20.—The NURSERY, High Road, Lewisham, S.E. By order of Mr. Biggs. A fine assortment of Nursery Stock.

NOVEMBER 23 and following days.—ASCOT. By order of the surviving Partner of the late Mr. John Standish, deceased. A very large quantity of Nursery Stock, Plants in pots, &c.

NOVEMBER 23 and following days.—The EXETER NURSERIES, Exeter. By order of Messrs. Lucombe, Pince & Co., in consequence of a Branch Nursery being required for Farming purposes. An immense quantity of remarkably handsome specimen Coniferæ and other stock.

Catalogues, when ready, of any of the above Sales may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, Essex.

Spring Flowering Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, Importations of first-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, GLADIOLI, and other BULBS, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

New Plants.

Mr. WILLIAM BULL'S houses being overcrowded with NEW PLANTS and novelties continually arriving from his Collectors abroad, he has instructed

MR. J. C. STEVENS to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 21, at half-past 12 o'Clock precisely, a portion of some of the best of his recent introductions. This sale will be one of the most remarkable that has ever taken place of NEW and BEAUTIFUL PLANTS, most of them have only lately been offered to the Public for the first time, and all are well known to be extremely handsome and of the highest merit. It will comprise a quantity, in large and small plants, of such magnificent plants as the following:—

Croton majesticum	Macrozamia plumosa
Dipladenia Brearleyana	Croton spirale
Pleocnemia Leuzeana	Artocarpus Cannoni
Croton volutum	Anthurium candidum
Spathiphyllum pictum	Dioscorea illustrata,

with many other New and Rare Plants, and some of the most handsome specimens of NEW and OTHER DRACÆNAS that have ever been seen; also some fine specimens of well-known NEW and BEAUTIFUL ORNAMENTAL PLANTS, an inspection of which alone will amply repay a visit to the Auction Room.

There will also be included in the Sale some hundreds of choice Palms, and among them a large quantity of the elegant and handsome varieties of Dæmonorops.

If desired, and on intimation being given to Mr. Stevens, Purchasers can have their plants packed with the usual care taken by Mr. William Bull's packers.

A Catalogue, containing illustrations of many of the New Plants, can be had on application to Mr. J. C. STEVENS, Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C.

Lilium auratum, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, October 29, at half-past 12 o'Clock precisely, a valuable Collection of New and Rare LILIES, of very fine English growth, including 2000 Lilium auratum, in superb condition; Liliums—Wilsoni, longiflorum Wilsoni, Szovitzianum, dalmaticum, Brownii, canadense (true) in its three forms, giganteum, pulchellum, the rare Catesbæi, which has not been in commerce for years; callosum, pulchellum, tigrinum splendens, tigrinum flore-pleno, &c.; the choice Tulipa Greigii, Freesia Leichtliniana, &c. Also a small collection of extra fine BULBS of HYACINTHS, TULIPS, and CROCUS; fine plants of CYPRIPEDIUMS, viz., arietinum, acaule, pubescens, parviflorum, and spectabile; fine masses of North American FERNS, viz., Osmundas and Struthiopteris; extra fine AMARYLLIS, &c. The whole in lots to suit Private Buyers and the Trade, and will be sold without reserve.

On view the morning of Sale, and Catalogues had.

The late M. Stelzner's Collections

Of LARGE and BEAUTIFUL GREENHOUSE and HARDY PLANTS of all kinds.

M. VAN SCHOOTE, NOTARY, will SELL by AUCTION, at the Establishment of the late M. Ad. Stelzner, 38, Faubourg de Bruxelles, Ghent, under ordinary conditions, and by the direction of M. Verschaffelt, on MONDAY, October 18, and following days, at from 9 to 1 and from 2 to 5 o'Clock each day, the fine Plants in the above Establishment, as follows:—A large quantity of FERNS, hothouse, cool house and hardy; a fine collection of DRACÆNAS, comprising all the latest novelties; a great quantity of young PALMS, including all the finest kinds, such as Areca aurea, A. lutescens, A. sapida, A. Verschaffeltii, Corypha australis, Latania borbonica, Kentia, Phœnix reclinata, Thrinax argentea, &c., also many Cycas circinalis and revoluta; a quantity of CAMELLIAS (with and without buds), AZALEA INDICA, RHODODENDRONS, and CONIFERS, such as Sciadopitys verticillata, Thuja Vervaeneana, Cryptomeria spiraliter, Biota japonica, Retinospora filicifolia, Cupressus albo-spica, Thuja occ. globosa gracilis, Retinospora plumosa, R. leptoclada, R. pisifera argentea, Thuja Lobbii, Cupressus Lawsoniana albo-spica, Pinus seedlings, &c. There is also a quantity of PHORMIUMS, as tenax fol. var., Colensoi fol. var., atro-purpureum, Cookii, Veitchii, &c.; many ARAUCARIA, excelsa, excelsa glauca, excelsa robusta glauca, Cunninghamii, &c.; a quantity of SPIRÆA, japonica aureo-lineata, S. palmata; DRACÆNA, indivisa, and others; ARALIA, Sieboldii, A. Sieboldii fol. var., A. dactylifolia, &c.; LILIUM lancifolium, L. tigrinum flore-pleno, YUCCA quadricolor, Y. aloifolia fol. var., &c., and ANTHURIUM Scherzerianum. There are, further, many beautiful LAURELS, and a mass of plants for the hothouse, cool house and outdoor culture, the enumeration of which would take up too much space—all of them of that class for which M. Stelzner's establishment is renowned.

On view October 15, 16 and 17, from 10 to 3 o'clock.

Persons desirous of Purchasing, but who are unable to attend the Sale, should send their Orders either to M. Verschaffelt or the Auctioneer in charge.

Berkhampstead, Herts.—Expiration of Lease.

IMPORTANT SALE of VALUABLE NURSERY STOCK.

Must be cleared by December 18.

MESSRS. WOODMAN AND SON have received instructions from Messrs. H. Lane & Son to SELL by AUCTION, at their Wigginton Nurseries, on MONDAY, TUESDAY, and WEDNESDAY, October 18, 19, and 20, at 11 for 12 o'Clock each day, a fine COLLECTION of TREES and SHRUBS consisting of large specimens of Araucaria imbricata, Wellingtonia gigantea, Picea Nordmanniana, Picea noblis, Cupressus Lawsoniana, Thujopsis borealis, Thuja Lobbii, Thuja gigantea, Cedrus atlantica, Junipers, Retinosporas, Rhododendrons, Hollies, Pinus austriaca, Mahonias, Oaks, &c. Also Pyramidal Pears, Apples, and Plums.

CATALOGUES may be had of Messrs. WOODMAN AND SON, Auctioneers, Hemel Hempsted; or, free by Post, upon application to Messrs. H. LANE AND SON, The Nurseries, Great Berkhampstead.

Conveyances will be provided at the Berkhampstead Station to convey purchasers to the Wigginton Nurseries, if previously advised by Post.

Promenade Gardens, Malvern.
ANNUAL SALE of SURPLUS NURSERY STOCK.

MESSRS. LYTHALL AND CLARKE, by direction of Mr. R. H. Vertegans, of the well known Promenade and Nursery Gardens, Malvern, will SELL by AUCTION, at the Gardens and Nurseries as above, on TUESDAY NEXT, October 19, at 11 o'Clock, the SURPLUS NURSERY STOCK, consisting of choice Ornamental Trees and Flowering Shrubs, fine strong Pyramidal Pear and Apple Trees, in fruiting condition, &c.

The Auctioneers beg to state that the stock consists of choice Cedars, Cypresses, Hollies (Gold, Silver, and Green), Rhododendrons, Aucubas, Arbutus, Laurustinus, Laurels (Portugal, Colchic, and common), Yews (English and Irish), Arbor-vitæ, and other Nursery Stock, and, having been recently transplanted, are in the best possible condition for removal.

Catalogues may be obtained from the Auctioneers, the Midland Counties' Repository, Birmingham.

Hook Heath Nursery, Woking, Surrey.
Within 1½ Mile from the Woking Station, on the South-Western Railway.

MESSRS. WATERER AND SONS have been instructed by the Executors of the late Mr. J. Chapman to SELL by AUCTION, upon the Premises, on WEDNESDAY, October 27, and following day, at 12 o'Clock, the very valuable NURSERY STOCK, comprising 5000 Variegated Holly, from 1 to 4 feet; 20,000 Common Holly, from 1 to 5 feet; 2000 English Yews, from 1½ to 4 feet; 14,000 Portugal and Common Laurel, from 1 to 4 feet; 3000 Spruce Firs, from 1 to 3 feet; 1000 Horse Chestnuts, 5000 Tree Box, from 2 to 4 feet; 5000 American Arbor-vitæ, from 2 to 5 feet; 6000 Rhododendron ponticum, 1 to 3 feet; 3000 Standard and Dwarf Roses of the most choice sorts, which will be sold in lots suitable for private buyers and the Trade; 1000 Aucuba japonica, 2 feet; 200 Arbutus, 200 Thujopsis borealis, 1000 Berberis Darwinii, Thuja Lobbii, 2 to 7 feet; 500 Cupressus Lawsoniana; 2 to 7 feet; 10,000 Privet of sorts, 1000 Lilacs, Yuccas, &c.; Standard and Pyramidal Fruit Trees, Dwarf-trained Peaches, Nectarines, Apricots, and a variety of other Shrubs.

The Auctioneers beg to call the special attention of Gentlemen, Nurserymen, and others to this Stock, the whole being in excellent condition for removal. May be viewed one week previous to the Sale, and Catalogues had at the Albion Hotel, Woking; the White Hart Hotel, Guildford; upon the Premises; and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, who will forward them on application by Post.

There is Railway communication from Woking to all parts of the Kingdom.

Goldsworth, near Woking, Surrey.

MESSRS. WATERER AND SONS have received instructions from Mr. Newey to SELL by AUCTION, on FRIDAY, October 29, at 12 o'Clock, the land being required for building purposes, a quantity of very choice well-grown and thriving NURSERY STOCK, comprising 500 Gold and Silver Hollies, from 2 to 4 feet, fine grown plants; 7000 Portugal Laurels, from 2 to 3 feet; 1000 Common Laurels, from 3 to 6 feet; 1500 Rhododendrons, 2 to 3 feet; 100 specimen Yews, well furnished plants, from 5 to 8 feet; quantity of Arbor-vitæ, 8 feet: ditto Cupressus Lawsoniana, from 5 to 8 feet; 55 yards of Arbor-vitæ Hedge, 8 feet; 500 Aucubas, Thuja Lobbii, Lilac, and other plants, the whole in excellent condition for removal.

The Nursery is situate near the Woking Station, on the South-Western Railway, affording great facility for carriage to all parts of the Kingdom.

May be viewed six days previous to the Sale, and Catalogues had upon the Premises, and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey.

Tan House Nursery, Halton Holgate, near Spilsby.
To NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others engaged in Planting.

MR. EDWARD RAINEY, favoured with instructions from Mr. J. W. Cole, will offer by PUBLIC AUCTION, on the Tan House Nursery Grounds, in Halton Holgate, on TUESDAY, November 2, the whole of the valuable Stock of FOREST, PARK, and HEDGE-ROW TREES, including Roses, Border Shrubs, &c., comprising 25,000 Ash, 3 to 6½ feet; 50,000 Larch, 1 to 2 feet; 25,000 Larch, 3 to 5 feet; 20,000 Oak, 2 to 3 feet; 10,000 Oak, 4 to 6 feet; 50,000 Quick, 3 to 4 yr.; 100,000 Quick, 2 to 3 yr.; 30,000 Spruce Firs, 18 inches to 3 feet; 30,000 Scotch Firs, 18 inches to 3 feet; 5000 Austrian Pine, 18 inches to 2 feet; 3000 Laurels, 3000 Privet, 5000 Berberry, 1 to 2 feet; 3000 Holly, 1 to 2 feet; 500 Variegated Hollies, Gold, Silver, Hedgehog, &c.; 250 Portugal Laurels; 160 large bearing Apple and Plum Trees; 1000 Plums, Cherries, Apples, &c.; 2000 Park and Hedgerow Trees, 6 to 8 feet stems, and 10 to 14 feet high, all transplanted within the last two years, comprising Ash, Beech, Birch, Mountain Ash, Oak, Elm, Sycamore, Cherry, Crab, Laburnum, Horse Chestnut, Walnut, Thorn, Poplar, &c.

May be viewed three days prior to the Sale. Sale to commence at 9 o'Clock with the General Stock, and the Forest Trees at 1 o'Clock.

The Auctioneer invites attention to this very important Sale, the valuable stock being sold in consequence of the property being offered for building purposes.

Catalogues may be had of Mr. COLE, and of the Auctioneer, Spilsby.

The Nursery is situated within half-a-mile of Halton Holgate and Spilsby stations on the Great Northern Railway.

Auction and Estate Offices, Spilsby.—October 1.

Hare Hill, Chertsey, Surrey.
NOTICE of CLEARANCE SALE.

MESSRS. WATERER AND SONS beg to inform the Nobility, Gentry, Nurserymen and others that they have been favoured with instructions from Mr. G. Chapman to SELL by AUCTION, upon the Premises, Hare Hill, Chertsey, EARLY in NOVEMBER, the whole of the very choice young and thriving NURSERY STOCK.

Further particulars will appear in future Advertisements, and Catalogues had of Messrs. WATERER AND SONS, Chertsey, Surrey.

Roselands Nursery, Heavitree.
PRELIMINARY NOTICE.

MR. JOHN KENSHOLE has been favoured with instructions from the Trustees of the late Mr. Arthur Bustard to SELL the whole of the valuable NURSERY STOCK at the above address, comprising several thousand FRUIT TREES, &c., APPLES, PEARS, PLUMS, RASPBERRIES, CURRANTS, STRAWBERRIES, &c., all of the choicest varieties; several thousand LAURELS, LAURUSTINUS, and a general assortment of forest NURSERY STOCK; a large quantity of four year-old ASPARAGUS, SEAKALE, RHUBARB, PLUM STOCKS, &c.

Further particulars and date of sale will appear in future advertisements. On view daily, by application to Messrs. BUSTARD, Nurserymen, Mont-le-Grand, Heavitree; or to the Auctioneer, Mr. J. KENSHOLE, Church Street, Heavitree.

THE LOCAL BOARD of WEST DERBY are prepared to receive TENDERS from any person willing to become TENANT of their SEWAGE FARM at Fazakerley.

The Farm, which is within about 5 miles of the borough of Liverpool (which contains important Markets for Farm and Market Garden produce), covers an area of about 207 acres, and has been laid out for the Disposal thereon of the Sewage from the greater part of the district of West Derby.

Any Person taking the Farm would be required to take the Sewage as delivered by the Local Board, and to dispose of the same on the Farm by Irrigation.

Tenders are to be made in Accordance with and subject to the Terms and Conditions of the Specification, which can be seen on application to us, the undersigned, at our Office, 12, Hackins Hey, Liverpool.

Copies of such Specification, with map of the Farm annexed, can be had on application to us at our said Office, at the price of 5s. each.

Orders to view the Farm can also be had on application to us.

Sealed Tenders are to be sent in, addressed to us, to our said Office, endorsed "Tenders for Sewage Farm," on or before December 1, 1875.

The Board do not bind themselves to accept the highest or any Tender.—By order, RADCLIFFE AND LAYTON,
Clerks to the Local Board of West Derby.
Public Offices, Green Lane, West Derby, near Liverpool.—October 11, 1875.

FOR SALE a FLORIST and SEED BUSINESS, in a populous district, very healthy and pleasant, where there is a constant active demand for Flowering and Decorative Plants, Spring and Summer Bedding Plants, Roses, Bulbs, Seeds, &c., Cut Flowers paying the Rent, and for which there is an increasing demand. Purchase money, £350. Thirteen years' Lease. Good Dwelling-house, Greenhouses, double-fronted Shop, in a leading position. Wages small, weekly. Failing health cause of Proprietor giving up. Apply to
FLORIST, *Gardeners' Chronicle* Office, W.C.

FOR SALE—a BARGAIN—a small DAIRY FARM, in the Channel Islands, with about 8 acres of Grass Land, in fine condition, and well Fenced in, Farm-house, Large Sheds, Stables, Coach-house, Piggeries, and Fowl-house. The Stock consists of 4 Cows, 4 Heifers, 4 Pigs, 50 Head of Poultry, Mangels, Turnips, and a small quantity of Hay, with or without a large Lodging-house, which ets off at double its rent. The House is partly furnished, and has a very large Garden and Vinery. Reason for disposal, present tenant going abroad. Apply by letter, in first instance, to W. G. H., 2, Rolls Terrace, King's Road, Chelsea, London, S.W.

TO BE SOLD, by Private Treaty, the GOLDEN CROSS NURSERIES, with Dwelling-house, long range of Glass-houses, Pits, &c. Delightfully situated near Stroud, Gloucester. To treat, apply to
Messrs. RESTALL AND FORD, Auctioneers, Stroud.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

Small Nursery.—Walthamstow, E.

TO BE LET or SOLD, in Summit Road, Walthamstow, E., five minutes' walk from Hoe Street and Wood Street Railway Station. a NURSERY, with Cottage, half an acre of Ground, one large Span-roof Greenhouse (80 feet long, heated with hot-water), one Span-roof House, and a Span-roof Pit, both heated by flues, all recently put into good repair. Rent £45, or the Freehold to be Sold for £700, half of which may remain on Mortgage.

Apply to Messrs. PROTHEROE AND MORRIS, Auctioneers, Leytonstone, E.; or to WILLIAM HOUGHTON, Esq., Solicitor, 15A, Saint Helen's Place, London, E.C.

Burton, Westmoreland, Lake District, and within a mile of the Station on the London and North-Western Railway. An excellent opportunity for a Market Gardener or Fruit Grower.

TO BE LET, in consequence of the decease of the late Proprietor, about THREE ACRES of GARDENS, with Grape, Peach, Nectarine, Pine, and other Glasshouses, comprising nearly 5000 superficial feet, and all heated on the most approved principle. The Houses and Gardens are furnished with the choicest collection of Fruit Trees and Vines. There is a good Residence, besides a Gardener's Cottage, but the gardens could be let off exclusive of the residence at a moderate rent.

For further particulars apply to Mr. H. RANTHMELL, Holme, Burton, Westmoreland; or Mr. MORRIS, on the Premises.

CROCUS, large Dutch, yellow, blue, white, striped, or mixed, 1s. 6d. per 100, 15s. per 1000. Good named HYACINTHS, twelve distinct varieties, selected roots, for 6s. CATALOGUES free.
W. HOOPER, 88, Oxford Street, London, W.

Plants on Sale.

PALMS, TREE FERNS, STOVE and GREENHOUSE PLANTS, CAMELLIAS, AZALEAS, &c.—a choice collection to be Disposed of privately. Apply, GARDENER, Woodcote, Aigburth Road, Liverpool.

LARCH, transplanted, fine, 1½ to 2½ feet, and 2½ to 3 feet. Price low.
H. JACKSON, Nursery, Kidderminster.

To Amateur Orchid Growers.

ORCHIDS—ORCHIDS, in excellent condition, for Sale cheap, the property of a Gentleman going abroad. Available up to October 21 only. Apply for particulars and LIST to
E. S. BERKELEY, The Cottage, Sibbertoft, Market Harborough.

To Nurserymen and the Trade.

SEAKALE and ASPARAGUS for forcing, extra fine, 80s. per 1000; second size, 50s. per 1000.
HENRY PAGE, Walham Green, Fulham, S.W.

HERBACEOUS PLANTS.
A Large and interesting Collection.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

Dielytra spectabilis.

E. H. KRELAGE AND SON, Haarlem, Holland, have yet to spare a few thousand plants of DIELYTRA SPECTABILIS, fit for forcing. Price on application.

Lilies of the Valley.

E. H. KRELAGE AND SON, Haarlem, Holland, have a splendid Stock of 3-yr. old Clumps of the best variety of LILY of the VALLEY at the disposal of the Trade. The plants are extra fine this year. Prices per 100 and 1000 on application.

B. MALLER begs to inform the Trade and the Public in general that his extensive NURSERY STOCK, consisting of Fruit, Forest, and Ornamental Trees, Standard and Dwarf Roses, Evergreen and Deciduous Shrubs, is in the finest possible condition. An inspection is solicited.
The Nurseries, Lee and Lewisham, S.E.

Hoteia (Spiræa) japonica.

E. H. KRELAGE AND SON, Haarlem, Holland, have a very fine Stock of the SPIRÆA JAPONICA, good plants for forcing, to offer to the Trade. The plants are remarkably well grown this year. Price per 100 and 1000 on application.

LARGE SPECIMEN PLANTS for Sale. from 5 to 8 feet high, of GARDENIAS, STEPHANOTIS FLORIBUNDA, ARALIAS, HOYA CARNOSA, and very fine plants of ROSE MARÉCHAL NEIL. Apply to
W. HOWITT, Ilford, Essex.

To the Trade.
Home-grown GARDEN and AGRICULTURAL SEEDS.

H. AND F. SHARPE'S Wholesale Special Priced LIST of the above Seeds of 1875 growth is now ready; it comprises all the best sorts in cultivation. The quality is very fine, and the prices will compare favourably with those of other growers.
Seed Growing Establishment, Wisbech.

ORANGE TREES.—To be Sold, either together or in pairs, four fine grown Tangierine Orange Trees, measuring about 5 feet high, and 3 feet 6 through the centre; they are thickly set with fruit, and planted in handsome slate boxes. Apply to
The GARDENER, Beech Grove, Sunninghill, Berks.

Rose Trees in Fine Condition.

F. W. COOPER is now prepared to receive Orders for the above on the following terms:—
Standards, 15s. to 18s. per dozen, £5 per 100; Half-standards, 12s. to 15s. per dozen, £4 per 100; Dwarfs on Manetti, 9 to 12s. per dozen, £2 10s. per 100. All first-class sorts, with fine heads. List of names on application. Cash with order.
F. W. COOPER, Florist, Huntingdon.

Fruits.—Roses.

A. M. C. JONGKINDT CONINCK'S Wholesale TRADE LIST of FRUITS and ROSES is now ready, free on application.

Large quantity of home-grown, very sound bulbs of LILIUM AURATUM.
Tottenham Nursuries, Dedemsvaart, near Zwolle, Netherlands.

To the Trade.—Seed Potatos.

H. AND F. SHARPE are prepayed to make Special Offers of SEED POTATOS grown on their own Farms from the finest selected stocks. Their list this season comprises all the English and American varieties worthy of cultivation. The prices will be found very moderate.
Seed-growing Establishment, Wisbech.

Large Yellow Crocus.

E. H. KRELAGE AND SON, Haarlem, Holland, have a large surplus stock of large Yellow CROCUS of all Sizes at the disposal of the Trade. Prices per 1000, 10,000, and 100,000 on application. Large quantities will be offered at a very low figure.

Billing Road Nurseries, Northampton.

JOHN PERKINS AND SON beg to call particular attention to their large stock of Standard and Dwarf-trained FRUIT TREES, APPLES, PEARS, PLUMS, PEACHES, NECTARINES, and APRICOTS, strong GOOSEBERRIES and CURRANTS, EVERGREEN SHRUBS, CONIFERÆ, and FOREST TREES. Trade LIST upon application to
52, Market Square, Northampton.

Vines, Vines, Vines.

B. S. WILLIAMS begs to announce that his stock of VINES is now in fine condition, and ready for sending out. It comprises all the leading kinds, strong Canes of Pearson's Golden Queen.

For prices and description see BULB CATALOGUE!
Victoria and Paradise Nurseries, Upper Holloway, London, N.

To the Trade.—Lilium eximium.

MR. MYATT has still a few thousand second size BULBS of this LILY, for which he solicits offers for not less than 1000; or will EXCHANGE for good varieties of ROSES, or best sorts of PHLOX, PENTSTEMON, or TREE CARNATION (White and Scarlet). Also a few first size Flowering Bulbs, for which he will receive orders to the 25th inst., after which time they will be replanted.
Manor Farm, Lewisham Road, New Cross, S.E.

E. G. HENDERSON AND SON respectfully announce their new BULB and AUTUMN CATALOGUE, containing an extensive miscellaneous Collection of Bulbs and allied Plants, from all parts of the world, suited to the conservatory, flower garden, stove and drawing-room. In connection with these will be found choice collections of the finest Roses, Grapes, Hardy and Wall Fruits, Strawberries, Spring Bedding Plants; also Hardy and Wall Climbing Shrubs, Carnations, Pinks, &c.

In the above Catalogue is given the following, priced and fully described:—A selection in Six fine named varieties of DOUBLE-FLOWERED CINERARIAS; over 5000 Plants of DOUBLE CHINESE PRIMROSE (Primula sinensis, pl.), for winter and spring bloom, comprising the finest new kinds in the group. E. G. HENDERSON & SON are prepared to execute orders—12 varieties, 25s., 30s. or 42s.
The Wellington Nursery, St. John's Wood, London, N.W.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

FIR (Scotch, Austrian and Corsican), Two Year's Seedling. Extra fine strong Plants. Samples and Prices on application.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

New Roses.

CHARLES TURNER can supply the Four fine NEW ROSES of his own raising, viz.:—Miss Hassard, the Rev. J. B. M. Camm, John Stuart Mill, and Royal Standard, as Standards, Half-standards and Dwarfs.
For full descriptions and opinions of the Press, see ROSE CATALOGUE, now ready.
The Royal Nurseries, Slough.

SPIRÆA (HOTEIA) JAPONICA and LILY of the VALLEY.—Good strong clumps for Forcing of Spiræa (Hoteia) japonica, 24s. per 100, £10 per 1000. Lily of the Valley, £3 per 100; in single pips, for forcing, extra strong, 10s. per 100, £3 per 1000, if ordered at once, from
JEAN VERSCHAFFELT, The Nurseries, Ledeberg, Ghent, Belgium.

Mulberries.—Important to the Trade.

SALTMARSH AND SON'S stock of the above consists of several thousand fine, healthy, well-grown Standards of various sizes, and may fairly be said to be unsurpassed, if equalled, in the Trade. The system adopted in their cultivation prevents the ugly knotty stems so frequently seen. Prices per dozen or per 100 on application.
N.B.—A few fruit-bearing trees with good heads can be supplied. The Nurseries, Chelmsford, Essex.

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.
Carlton, Tasmania.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

Pelargoniums for the Million.

JAMES HOLDER can supply Show, French and Fancy Pelargoniums, in 50 or 100 varieties, strong healthy plants, at 25s. per 100, during September and October. Also strong cut-back plants for immediate forcing, early sorts, at 9s. per dozen, 60s. per 100, package included. Terms cash.
CATALOGUES on application.
Crown Nurseries, Reading.

EVERGREENS and AVENUE TREES.—Aucuba japonica, 1 to 3 feet; Laurustinus, 1 to 3 feet; Laurels, 3 to 8 feet; Yews, 2 to 6 feet; Hollies, 2 to 6 feet; Limes, Planes, Birch, Poplars, Chestnuts, 8 to 16 feet, of unsurpassed quality.
For prices per dozen or 100, see CATALOGUE, post free on application.
WM. RUMSEY, Joyning's Nurseries, Waltham Cross, N.

ROSE (H.P.) MARIE CONTET, awarded First Prize at Crystal Palace, 1875, for the best twelve blooms of any Rose, also for the best twelve blooms on any Rose introduced in 1872 (exhibited by H. Bennett); very strong bushy plants, Manettis, 1s., dwarf Seedling Briars, 1s. 6d. each.
CAPITAINE CHRISTY (Hybrid Tea), the finest autumn-blooming Rose yet produced, extra strong plants on Manetti, 1s. 6d.; on Seedling Briar, 2s. each.
50,000 H.P. ROSES, dwarf Manettis, very strong, all the best new and old varieties (La France particularly large and good, no such plants in the trade), from 9s. per dozen. Trade price on application.
HENRY BENNETT, Manor Farm Nursery, Stapleford, Salisbury.

Gladioli.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), has the honour to inform his numerous Friends and the Public that he will be prepared to supply them, on and after November 15 next, at the lowest possible price, with all they may require in Gladioli.

NEW VARIETIES for 1875-76 (Souchet's):—

Amaranth	Leandre
Camille	Miriam
Christophe Colomb	Niobe
Esther	Phœnix
Fiammetta	Rosita
Hecla	Titania.

The Twelve Varieties for £3 12s., carriage free to London.
CATALOGUES will be forwarded on application, about the end of October.

Gladioli.—New Roses.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), will place in commerce, in November next, the following magnificent ROSES, obtained by him from seed, and which gained a Silver-gilt Medal at the Paris Exposition in June:—

HYBRID PERPETUALS.

Abel Carrière	Guillaume Kolle
Dingee Conard	L'Etincelante
Duchesse de Chartres	Mme. Grandin-Monville
Edmund Wood	Mme. Prosper Langier
Général de Cissey	Mdlle. Berthe-Sacavin
Général Duc d'Aumâle	Mdlle. Emilie Verdier.

The Twelve Varieties for £10 16s., carriage free to London.
IMMENSE STOCK of GLADIOLI.
CATALOGUES of Gladioli and of all the New Roses may be had on application, about the end of October.

TREE FERNS.

THE LARGEST AND BEST STOCK IN EUROPE.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above; also of his

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

HORTICULTURE IN ALL ITS BRANCHES.

THE PINE-APPLE NURSERY COMPANY,

MAIDA VALE, EDGWARE ROAD, LONDON, W.,

NURSERYMEN AND SEEDSMEN,

ARCHITECTS AND ENGINEERS.

This Company possess inexhaustible resources for the supply of ORNAMENTAL TREES and SHRUBS, FRUIT TREES, GRAPE VINES, HERBACEOUS and ALPINE PLANTS, ROSES, STOVE and GREENHOUSE PLANTS, &c., in every size and variety.

The SEED and BULB DEPARTMENT, which is an important and extensive branch, is conducted by men of ability and experience. Every variety and class is warranted of the best quality, and true to name and description.

Great attention is paid to the make, form and quality of GARDEN IMPLEMENTS; the most improved kinds are supplied from the best manufacturers.

The GRAND WINTER GARDEN CONSERVATORY is one of the finest productions of modern Horticultural Building.

The *Morning Post* thus refers to it:—"The Pine-Apple Nursery at Maida Vale has a history and reputation of its own. It is now a place of pleasure as well as of utility, and is in such a state of perfection probably not surpassed throughout the world. The Exhibiting Department is a superb conservatory, of colossal dimensions, enriched with a profusion of the most beautiful plants."

The HOT-WATER APPARATUS at this Establishment is the most extensive of any Nursery in the world. The water circulates freely through 12,700 feet of cast-iron pipe, effectually heating on the one-boiler system the great Winter Garden Conservatory and thirty other large hothouses, all or either of which can be regulated at pleasure.

ILLUSTRATED and DESCRIPTIVE CATALOGUES are published in frequent succession, and contain a mass of practical information, also lists of all the leading novelties worthy of introduction, Free by Post, on application to

THE PINE-APPLE NURSERY COMPANY,
Maida Vale, Edgware Road, London, W.

NEW PLANTS.

Mr. WILLIAM BULL'S Houses being overcrowded with NEW PLANTS and NOVELTIES continually arriving from his Collectors abroad, he has instructed

MR. J. C. STEVENS to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 21, at half-past 12 o'Clock precisely, a portion of some of the best of his recent introductions. The Sale will be one of the most remarkable that has ever taken place of

NEW AND BEAUTIFUL PLANTS.

Most of them have only lately been offered to the public for the first time, and all are well known to be extremely handsome and of the highest merit. It will comprise a quantity, in large and small plants, of such magnificent plants as the following:—

CROTON MAJESTICUM,	MACROZAMIA PLUMOSA,
DIPLADENIA BREARLEYANA,	CROTON SPIRALE,
PLEOCNEMIA LEUZEANA,	ARTOCARPUS CANNONI,
CROTON VOLUTUM,	ANTHURIUM CANDIDUM,
SPATHIPHYLLUM PICTUM,	DIOSCOREA ILLUSTRATA;

with many other New and Rare Plants, and some of the most handsome specimens of New and other DRACÆNAS that have ever been seen. Also some fine specimens of well-known New and beautiful Ornamental Plants, an inspection of which alone will amply repay a visit to the Auction Rooms.

There will also be included in the Sale some hundreds of choice PALMS, and among them a large quantity of the elegant and handsome varieties of DÆMONOROPS.

If desired, and on intimation being made to Mr. STEVENS, Purchasers can have their plants packed with the usual care taken by Mr. William Bull's packers.

A CATALOGUE, containing illustrations of many of the New Plants, can be had on application to Mr. J. C. STEVENS.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

NOTICE.

WANTED, LARGE FOLIAGE PLANTS, TREE FERNS, &c.,

FOR THE

ROYAL AQUARIUM SUMMER AND WINTER GARDEN.

Send Size, Price, &c., to

JOHN WILLS,

ROYAL EXOTIC NURSERY, ONSLOW CRESCENT, SOUTH KENSINGTON, LONDON, W.

Sutton & Sons

HAVE NOW RECEIVED THEIR ANNUAL SUPPLY OF CHOICE

HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.,

In splendid condition, and which, having been selected with the greatest care from the principal Growers in Holland, cannot fail to give complete satisfaction. Early Orders are recommended, to ensure the best Bulbs.

SUTTON'S CHOICE COLLECTIONS of FLOWER ROOTS,

Arranged for various sized Gardens, and for Winter and Spring Blooming.

No. 1.	A Complete Collection for Spring Flowering in the Open Ground	..	..	..	..	..	..	£2	0	0
No. 2.	,, ,, ,, ,,	in quantities proportionately reduced					..	1	1	0
No. 3.	,, ,, ,, ,,	,,				,,	..	0	10	6
No. 4.	,, ,, ,, ,,	,,				,,	..	0	5	0
No. 5.	,, for Winter and Spring Flowering, in Pots and Glasses	..	..	..	..	..	..	2	2	0
No. 6.	,, ,, ,, ,,	in quantities proportionately reduced					..	1	1	0
No. 7.	A Complete Collection, in quantities proportionately reduced	..	..	..	..	..	..	0	10	6
No. 8.	,, for Window Decoration	..	..	..	..	..	..	1	1	0
No. 9.	,, ,, ,, ,,	..	..	..	..	..	..	0	10	6
No. 10.	,, for Summer and Autumn Flowering, in the Open Ground	..	..	..	..	..	..	1	1	0
No. 11.	,, ,, ,, ,,	in quantities proportionately reduced					..	0	10	6

All Collections, value 21s. and upwards, Carriage Free to any Railway Station in England.

SUTTON'S CHOICE NAMED HYACINTHS, for Pots and Glasses.—100, in 100 very Choice Sorts, £4 4s.; 100, in 50 do., £3 10s.; 50, in 50 do., £2 2s.; 50, in 25 do., £1 15s.; 25, in 25 do., £1 1s.; 12, in 12 do., 12s.; 12, in 12 Choice Sorts, 9s.; 12, in 12 Good Sorts, 6s.

SUTTON'S CHOICE BEDDING HYACINTHS, 4s. 6d. per dozen; 32s. per 100. Mixed Hyacinths, 3s. 6d. per dozen; 25s. per 100.

CROCUSES, Named Varieties, 6d. per dozen; 4s. per 100. Mixed, 1s. 6d. per 100.

SUTTON'S CHOICE POLYANTHUS NARCISSUS.—100, in 20 Choice Sorts, 25s.; 50, in 12 do., 14s.; 25, in 12 do., 7s. 6d.; 12, in 12 do, 4s.; 100 Fine Mixed, 15s.; 12 do., 2s.

SUTTON'S CHOICE TULIPS, Early Single Varieties, 100, in 20 Named Sorts, 18s.; 100, in 10 do., 15s.; 50, in 10 do., 8s.; 25 in 5 do., 4s.; 12, in 4 do., 2s. Mixed, 1s. per dozen; 7s. 6d. per 100.

How to Grow Beautiful Flowers for Winter and Spring, see

SUTTON'S AUTUMN CATALOGUE FOR 1875,

Beautifully Illustrated, and containing complete Cultural Instructions, Gratis and Post Free.

SUTTON & SONS, Royal Berkshire Seed Establishment, READING.

HUGH LOW & CO.

HAVE PLEASURE IN INFORMING THEIR FRIENDS AND THE PUBLIC THAT

THEIR STOCK OF ORCHIDS

Is very large and healthy, contained in Ten Houses, each of considerable size.

Dendrobiums, Cattleyas, Odontoglossums, Cypripediums, Lælias, Saccolabiums, Oncidiums, &c., can be seen in large quantities, very extensive importations having been made during the season.

Phalænopsis Schilleriana, amabilis, Luddemanniana, very fine Established Plants, of Flowering Size, by the dozen or hundred.

CLAPTON NURSERY, LONDON, E.

NOTICE.—LYCOPODIUM DENTICULATUM.

WANTED, FOR THE ROYAL AQUARIUM AND WINTER GARDEN,

8000 LYCOPODIUMS, in 48-sized Pots.

Send Lowest Price, per hundred or thousand, with full particulars, to

JOHN WILLS,

ROYAL EXOTIC NURSERY, ONSLOW CRESCENT, SOUTH KENSINGTON, W.

FOREST TREES (Seedling and Transplanted) of sorts. Samples and Prices on application.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

Cabbage Plants for Spring and Summer Feeding.
SUTTON AND SONS can supply fine strong plants of SUTTONS' IMPROVED LARGE DRUMHEAD, SUTTONS' IMPERIAL, NONPAREIL, ENFIELD MARKET, and others, for immediate planting, at low prices. Price per 1000 on application.
Royal Berks Seed Establishment, Reading.

Cabbage Plants—Cabbage Plants.
MESSRS. W. VIRGO AND SON can now supply in any quantities the following sorts, viz.:—Early Battersea, Pullen's Nonpareil and Enfield Market, at 3*s.* 6*d.* per 1000; Robinson's Drumhead, at 3*s.* per 1000. All good strong healthy plants, and delivered on rail. Post-office Order must accompany all orders from unknown correspondents.
Wonersh Nursery, Guildford, Surrey.

GRAPE VINES.—A fine stock of Black Hamburgh and other popular sorts, including the new varieties—Venn's Black Muscat, Waltham Cross, and Duke of Buccleuch—in strong, well ripened Fruiting and Planting Canes. Prices on application to
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

Now Ready.
CABBAGE PLANTS, excellent—Early Enfield Market and Robinson's Champion Drumhead, at 3*s.* 6*d.* per 1000; and Red Dutch Pickling, at 5*s.* per 1000, for cash with orders. Contracts made to supply or to plant any quantity by the acre, on the most reasonable terms. References given if required.
FREDK. GEE, Seed Grower, &c., Biggleswade, Beds.

New Rose, H.P. Triomphe de France.
J. MARGOTTIN, FILS, NURSERYMAN, Bourg la Reine, near Paris, begs to inform his Customers, and the Trade in general, that he will sell in November next a magnificent New Rose, under the name of TRIOMPHE DE FRANCE. The flower is of beautiful bright carmine, of extra large size, very full, perfect form, and a free bloomer, moderate or vigorous habit; a most distinct and grand Rose. Price £1 each.
The CATALOGUE of ROSES will be sent on application.

THE NEW PLANT AND BULB COMPANY beg to call attention to their unrivalled collection of LILIUMS, the present being a most suitable time for planting. Their Bulbs are this season remarkably fine.
For further particulars see CATALOGUE, sent free on application, which also contains Bulbs of all kinds, rare Terrestrial Orchids, and other plants from North America; Tropical Orchids, Tree and other Ferns, all at very low prices.
Lion Walk, Colchester.

BUDDENBORG BROS., FLORISTS, Hillegom, by Haarlem, Holland, have on hand a very large stock of extra strong clumps of LILY of the VALLEY, strong crowns of do., strong clumps of HOTEIA (SPIRÆA) JAPONICA, GLADIOLUS, &c.
Special offers made for quantities on application either to BUDDENBORG BROTHERS, as above; or, to Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

The Judges of the International Exhibition at Cologne have awarded TWO LARGE SILVER MEDALS to
MR. JOHN LAING, Stanstead Park and Rutland Park Nurseries, Forest Hill, S.E., for his Two Magnificent Collections of GOLDEN BRONZE PELARGONIUMS, which contained all his best new varieties of last season.

Potato Prizes at the Royal Berks Root Show.
Saturday, November 20.
NOTICE OF ALTERATION.
MESSRS. SUTTONS' CUP.—In consequence of the comparative failure of the early Potato crop the restrictions as to sorts to be included by Competitors for the above Cup will be modified, and stands thus:—The Best Collection of Potatos, twelve dishes, distinct sorts, twelve tubers to comprise a dish, to include SUTTONS' REDSKIN FLOURBALL and HUNDREDFOLD FLUKE: 1st Prize, a Silver Cup, value £5 5*s.*; 2d Prize, value £1 1*s.*

JEAN VERSCHAFFELT, Ghent, Belgium, having a most splendid stock of the under-mentioned plants, begs to offer them at the following very low prices, viz.:
CAMELLIAS, well set with buds, 1 to 1½ foot high, all named sorts, £7 per 100.
" stronger, £10 to £20 per 100, and upwards.
" ALBA PLENA (the old double white), without buds, extra fine, strong, bushy plants, 2 to 2½ feet high, £20 per 100.—Note. Of this, the old double white Camellia, J. V. holds the largest stock in the trade. The plants are exceedingly fine and healthy.
AZALEA INDICA, fine plants (only the best varieties grown), well set with buds, £6 to £12 per 100.
" " stronger, 4*s.* to 12*s.* each, and upwards.
" " fine specimen plants, 20*s.* to 80*s.* each, and upwards.
OTAHEITE ORANGES, in fruit, 28*s.* per dozen.
JASMINUM GRANDIFLORUM (true), fine grafted plants, flowering throughout the winter months, 28*s.* per dozen.
DRACÆNA LINEATA, extra fine and large plants, 3 feet high, 80*s.* per dozen, £20 per 100.
Early orders are solicited by JEAN VERSCHAFFELT, The Nurseries, Ledeberg, Ghent, Belgium.
Agents in London: Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, E.C.

TH. MULIÉ, NURSERYMAN, Neuville-en-Ferrain (Nord), France, offers the following:—
FRUIT TREES, of all sizes.
FOREST and ORNAMENTAL TREES, all varieties.
Young PLANTS for HEDGES and PLANTATIONS.
Collections of all varieties for the garden, very strong.
CHESTNUTS, from 1-yr. to 2-yr., for plantations.
AILANTUS GLANDULOSA, 1-yr., do.
BEECH, Common, 1-yr. to 2-yr., do.
ELM, 1-yr. to 4-yr., do.
ACER NEGUNDO, for Stocks, 1-yr. to 3-yr.
THORNS, transplanted, of all sizes, by the 100,000.
OAKS, 1-yr. | ACACIAS, 1-yr.
Prices very moderate, according to quantity.

ORCHIDS
AT UNPRECEDENTEDLY LOW PRICES.

As Mr. WILLIAM BULL is constantly receiving Importations from his Collectors and Correspondents abroad, he offers the following at the low prices annexed:—

	Each.	3 Plants.
ACINETA Humboldtii	£0 3 6	£0 9 0
ADA aurantiaca	0 12 6	1 13 0
ANÆCTOCHILUS Dawsonianus	0 3 6	0 9 0
ANGRÆCUM eburneum	1 1 0	2 15 0
ANGULOA Clowesii	0 7 6	1 0 0
BLETIA Sherrattiana	0 5 0	0 13 0
" florida	0 5 0	0 13 0
CALANTHE vestita luteo-oculata	0 5 0	0 13 0
" vestita rubro-oculata	0 5 0	0 13 0
CATASETUM Skinneri	0 10 6	1 8 0
CATTLEYA bogotensis	0 15 0	2 0 0
" citrina	0 5 0	0 13 0
" Trianæ	0 7 6	1 0 0
" Warscewiczii	0 15 0	2 0 0
CYPRIPEDIUM barbatum grandiflorum	0 15 0	2 0 0
" barbatum purpureum	0 7 6	1 0 0
" caudatum	1 11 6	4 4 0
" concolor	0 15 0	2 0 0
" Harrisianum	2 2 0	5 10 0
" hirsutissimum	0 15 0	2 0 0
" longifolium	0 15 0	2 0 0
" niveum	0 3 6	0 9 0
" Roezlii	2 2 0	5 10 0
" Schlimii	1 1 0	2 15 0
" villosum	0 15 0	2 0 0
CYRTOPODIUM Andersoni	1 1 0	2 15 0
DENDROBIUM chrysanthum	0 10 6	1 8 0
" crassinode	1 11 6	4 4 0
" cretaceum	0 10 6	1 8 0
" crystallinum	0 15 0	2 0 0
" Devonianum	0 3 6	0 9 0
" Falconeri	1 11 6	4 4 0
" Farmeri	0 10 6	1 8 0
" formosum giganteum	1 1 0	2 15 0
" Hookerianum	1 1 0	2 15 0
" japonicum	0 7 6	1 0 0
" lituiflorum	1 11 6	4 4 0
" macrophyllum	0 10 6	1 8 0
" macrophyllum giganteum	1 1 0	2 15 0
" nodatum	0 10 6	1 8 0
" Parishii	0 10 6	1 8 0
" Pierardii	0 3 6	0 9 0
" senile	0 7 6	1 0 0
" speciosum	0 5 0	0 13 0
" thyrsiflorum	0 7 6	1 0 0
" Wardianum	2 2 0	5 10 0
EPIDENDRUM dichromum	0 10 6	1 8 0
" macrochilum	0 7 6	1 0 0
" tigrinum	0 7 6	1 0 0
ERIA odorata	0 3 6	0 9 0
ERIOPSIS biloba	1 1 0	2 15 0
HELCIA sanguinolenta	0 15 0	2 0 0
LÆLIA acuminata	0 10 6	1 8 0
" autumnalis	0 7 6	1 0 0
LÆLIA furfuracea	£0 15 0	£2 0 0
" majalis	0 7 6	1 0 0
" purpurata	0 15 0	2 0 0
LIMATODES rosea	0 3 6	0 9 0
LYCASTE aromatica	0 7 6	1 0 0
" Skinneri	0 10 6	1 8 0
MASDEVALLIA Harryana	1 1 0	2 15 0
" ignea	1 11 6	4 4 0
" melanopoda	1 1 0	2 15 0
" polysticta	1 11 6	4 4 0
MAXILLARIA grandiflora	0 10 6	1 8 0
" luteo-alba	0 5 0	0 13 0
" luteo-purpurea	0 5 0	0 13 0
" venusta	0 12 6	1 13 0
MESOSPINIDIUM sanguineum	0 15 0	2 0 0
MILTONIA Clowesii	1 1 0	2 15 0
ODONTOGLOSSUM Bictoniense	0 7 6	1 0 0
" citrosmum roseum	0 10 6	1 8 0
" crispum (Alexandræ)	0 12 6	1 13 0
" cristatum	0 15 0	2 0 0
" Dawsonianum	0 10 6	1 8 0
" Ehrenbergii	0 15 0	2 0 0
" Hallii	1 11 6	4 4 0
" hastatum	0 7 6	1 0 0
" hastilabium	0 7 6	1 0 0
" Insleayi leopardinum	0 7 6	1 0 0
" luteo-purpureum	0 15 0	2 0 0
" maculatum	0 10 6	1 8 0
" pulchellum grandiflorum	0 15 0	2 0 0
" ramulosum	0 10 6	1 8 0
" Rossii	0 10 6	1 8 0
" Uroskinneri	0 10 6	1 8 0
ONCIDIUM barbatum	0 10 6	1 8 0
" crispum	0 15 0	2 0 0
" cucullatum superbum	0 10 6	1 8 0
" Kramerianum	0 15 0	2 0 0
" leucochilum	0 12 6	1 13 0
" nubigenum macrochilum	0 15 0	2 0 0
" Reichenbachii	0 15 0	2 0 0
" rostrans	0 15 0	2 0 0
" sarcodes	1 11 6	4 4 0
" stelligerum	0 7 6	1 0 0
" tigrinum	0 7 6	1 0 0
" trilingue	1 1 0	2 15 0
" triquetrum	0 7 6	1 0 0
PESCATOREA cerina	1 11 6	4 4 0
PHALÆNOPSIS amabilis	2 2 0	5 10 0
" grandiflora	1 11 6	4 4 0
" Schilleriana	2 2 0	5 10 0
PLEIONE maculata	0 15 0	2 0 0
" Wallichiana	0 15 0	2 0 0
SACCOLABIUM ampullaceum	0 10 6	1 8 0
SOPHRONITES grandiflora	0 15 0	2 0 0
WARSCEWICZELLA velata	1 1 0	2 15 0

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4 feet high, 3 to 4 feet do., 42*s.* to 60*s.* per doz.
5 feet high, 4, 5 and 6 ft. do., 10*s.* 6*d.*, 15*s.* to 21*s.* each.
6 and 7 feet high, 6 to 7 and 8 ft. do., 21*s.* to 31*s.* 6*d.* each.

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CAPTAIN WEBB.—Rich deep lake, black blotch on the upper petals; truss large and good; a really fine distinct variety, and one of the best and darkest yet offered.

LADY WINIFRED HERBERT.—Bright rosy crimson, lighter centre, finely marked with chocolate spots on the upper petal; well-shaped flowers, with fimbriated edges; compact truss; good habit and foliage; an attractive and distinct variety.

MRS. GEORGE BROWN.—Bright rosy pink, bordered, centre nearly white, with chocolate blotch on upper petal, surmounted by a white spot; stamens white; foliage and habit good; a very pleasing and distinct variety.

SALVINI.—Purplish rose, shaded, well marked with chocolate spots on upper petal, spots of same colour regularly disposed over the other part of the flower, which is large and well formed; a fine free blooming variety, with handsome foliage and dwarf compact habit.

WILLIAM MILTON.—Fine dark crimson, shaded with distinct black blotch on upper petal; truss large and good; a fine free-growing variety, with dark green lanceolate foliage.

☞ The above Rhododendrons having been thoroughly tested several seasons can be confidently recommended to purchasers as really distinct and hardy late-blooming varieties, combining all those qualities most desirable in this attractive class of plants, viz., vigour of constitution, good habit and foliage, and prolific blooming. They are now offered in good plants :—

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2d size, bushy, about 1½ foot .. £6 6*s.* the set.
3d size, bushy, 1½ to 2 feet .. £8 8*s.* the set.

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SATURDAY, OCTOBER 16, 1875.

THE TRAVELS OF PLANTS.

PLANTS are among the blessings that were formerly distributed by the red hands of soldiers. Hercules—that classic warrior—used to fill his pockets with seeds during his expeditions. Lucullus brought a Cherry tree to Rome as a trophy of the conquest of Pontus. Alexander escorted Rice from Persia to the Mediterranean, the Arabs conducted it to Egypt, the Moors carried it to Spain, and the Spaniards bestowed it on their new possessions in America. Cæsar's enterprises gave Barley to Germany, and forced it upon Britain, when the national beverage received its name from *ber*, the Saxon word for Barley. Tartary is said to be the native country of Barley, and according to that ancient geographical authority, Strabo, Wheat was born—if one may say so—on the banks of the Indus. Both had reached the Mediterranean in pre-historic times, and both entered America with its conquerors and colonists, who found an equivalent in Maize.

The bread grain of the New World arrived in English gardens within fifty years of the discovery of America; it entered the more congenial countries of the Mediterranean, by way of Spain, at the end of the sixteenth century, and was carried by the Venetians to the Levant, where it soon became an important item in their trade. It passed afterwards up the Danube to Hungary, and gradually spread eastwards to China. While Maize was thus invading the regions formerly devoted to Rice, the latter grain was "locating" itself in Carolina, being one of the products for which America is indebted to her conquest and colonisation by Europe. Rice and Maize are too accommodating in their habits to admit of our drawing a hard line of separation between their respective districts, but although they ripen side by side, the former is a native of the tropics and the latter of a temperate zone, and their mutual companionship has its limits. North of the Alps, for example, the climate is unsuited to Rice in consequence of the insufficient summer heat, and, on the other hand, Alabama and the Gulf States are unsuited to Maize on account of their excessive warmth. In the Cotton and Sugar districts, therefore, Maize does not yield the great return common in Ohio, Illinois, and Northern Kentucky, so far as grain is concerned, though its foliage is magnificent in the warm districts, and the production of stem and leaf twice as great as in the true Maize countries further north.

Having mentioned Sugar, which was carried to America with Cotton by the Spaniards, we shall notice Tea and Coffee before touching upon the Potato, which Europe obtained from America in return for those more numerous food plants which the western world derived from the eastern. The first Tea was brought to England in 1666, having been purchased of the Dutch East India Company at 60*s.* per pound. This plant seems incapable of very extensive travels, but in the present century it has been successfully transported in Wardian cases from China to Assam, and the result of the enterprise is that a very superior Tea is now grown within the British possessions. We may remark that green Tea ought to be produced—like green hay—by means of rapid drying, but it is too often treated with indigo, gypsum, and Prussian blue, and poisoned sufficiently to murder the sleep of some drinkers though not so virulently as to destroy them outright.

It is curious that the use of the Coffee berry was unknown in Arabia—its indigenous country—until a mufti of Aden introduced the famous beverage after acquiring a taste for it in Persia. It was sold at Constantinople in 1554, forbidden afterwards, then tolerated, then taxed. In 1615 the Venetians brought this berry westward, and the *cafés* of Paris were established in the same century, as well as the corresponding establishments in London.

If we now return in these notes to America, taking the Cocoa-nut with us from the Indian Ocean, we shall be able to bring back the Potato. It was found in common use among the natives of Peru and Chili by the first explorers of those countries, who soon carried it to Spain. We may report it as having reached Burgundy in 1560, and Italy about the same time.

Sir Walter Raleigh's first importation of a few tubers of Potatos from Virginia to Youghal in Ireland in 1584 proved abortive through an accidental circumstance: his subsequent attempt succeeded. Meanwhile, Francis Drake had presented Gerard, the herbalist, with a few Potatos, which he planted in his garden in Holborn. The crop gained favour, and in 1663 the Royal Society published rules for its cultivation, and during the next 100 years it was widely distributed. The Dutch carried it to the Cape in 1800, and it passed thence to India, and has since spread over the whole world, within the limits of cool climates, and of hills in hot countries.

South of the Potato, and in very different soils and aspects, we find the Date an indispensable food plant of subtropical deserts. Its aboriginal site is said to be on the banks of the Eup rates, and its travels have been limited to a comparatively narrow region, extending from the confines of Persia through Syria, and through the northern part of Africa. The "land of Dates" is a district on the confines of the Sahara; but Dates and Bedouins are everywhere inseparable. As the Cocoa-nut is life to the Polynesian, so is the Date to the Arab, who reckons his wealth in Date Palms, and lives on the fruit nine months in the year. The Date is a slow-growing Palm, which fruits and flowers at twelve years old, when about 50 feet in height. The blossom, in the case of the cultivated variety, requires fertilising by human aid, and, therefore, in the most arid districts the tree and man are mutually dependent. In consequence of neglect in this respect during the invasion of Egypt by the French in 1800, the Date fields around Cairo proved quite sterile in that year.

The Cocoa-nut, another Palm which we have noticed as having travelled originally from the East (from South Africa, Ceylon, Sumatra, Java, &c.) to the West Indies, is a tree of society, growing always in clumps and in islands where the climate is moist and marine. Its travels are limited by its peculiar requirements, and it is unable to quit the shores of tropical seas.

Still more important as food-producing plants are the Plantain and Banana, which were both aboriginal, according to Asiatic tradition, in the plains of India; but the latter of which was found on the discovery of America, feeding its millions on the banks of the Orinoco. The Banana grows from a sucker to a fruit-bearing plant in ten months, and yields another crop within three months of the removal of the clustered spikes of fruit. The patches of Bananas therefore growing round the cabins of so many tropical districts in the Atlantic, the Pacific, and the Indian oceans, are sources of idleness, instead of the centres of industry they would be in temperate countries, where the cultivation of cereals requires seed, labour, skill, and care.

Another prominent food plant is the Cacao tree of South America, a Mallow resembling a Cherry tree in shape, and justly named by botanists Theobroma—"food for gods." There is little to be said of its travels, however, as it requires a moist, still, tropical atmosphere, and has failed in some districts on the removal of the sheltering forests.

The last food plant we have to mention is the Breadfruit, which became notorious in connection with the mutiny of the *Bounty*. On Dampier's return from the South Sea Islands he brought accounts of this tree which astonished the civilised world, and the botanists of Captain Cook's expedition to the Society Islands afterwards described it as "the most wonderful vegetable in the world," and represented the excellence of its yellow, sweet fruit in such glowing terms that the British public became excited, many persons being bitten with the idea of unadulterated bread and penny loaves growing ready baked on a tree! Petitions on this subject were sent to George III., and at length the *Bounty* was fitted up for the purpose of conveying the tree from the Pacific to our colonies in the West Indies. She arrived at Tahiti in 1788, and shipped 1500 young trees, with which her commander, Bligh, set off, intending to round the Cape of Good Hope, when the mutiny broke out, and the trees were lost. But the proposed migration was afterwards accomplished by the same navigator, and the Cape was passed without exposing the bread-bearing plants to a temperature below 61° Fahr. Some of the trees were left at New Holland, others at St. Helena, and the rest were landed at Jamaica and St. Vincent, and the vessel freighted from the botanical garden there with plants for Kew. Unfortunately the Breadfruit proved inferior in the West Indies to either the Banana or the Plantain.

A great traveller which must be mentioned is the Orange, which thrives in all warm climates, and even submits to be baked in a tub in metropolitan gardens. We may observe of this and a host of less important plants, that war has long ceased to be useful in opening up the world to their travels, and that, instead of disseminating the products of the earth, it destroys them. In modern times, useful plants have been carried on free-trade principles to all new countries and colonies where the soil and climate suit them. Australia, for example, was singularly bare of native fruits; possessing originally only a few poor species of Currants, Plums, Cloudberries, and Jibbongs, she has become a land of fruits and flowers too numerous to mention. Peaches, Nectarines, Pine-apples, Plums, Pears, Apples, Oranges, Lemons, Citrons, Strawberries, Bananas, and Mangos, with many other fruits, including the Grape, all grow in perfection in Australia, as does the corn of Europe generally, and Wheat especially. Plants are frequently improved by change of air and soil, and grow in their new homes better than in their original countries. That useful salad, the Watercress, becomes a gigantic water-weed when transported to New Zealand, and in Oregon some of our varieties of Apples and Pears approach the size of Pumpkins.

Nature left the world bare in many places, or at least barren of the best productions of the vegetable kingdom, and it seems to have been man's appointed work to fill up vacancies with fruits appropriate to the soil. The names of many of the plants we have mentioned will remind the reader of the part played by England in distributing useful plants during the last two hundred years. There is a suggestive proverb in certain desolated countries, "Where the Turk sets his foot grass ceases to grow." In tropical America Indians named the Plantain "the Englishman's foot," a name not inappropriately bestowed, since it accompanied him to all suitable districts. *H. Evershed.*

New Garden Plants.

AGAVE VICTORIÆ REGINÆ, *sp. n.**

This remarkably distinct species of Agave was first seen in public at the International Exhibition held at Cologne in September last, and was alluded to by us (p. 294) in our report of that meeting as "a most charming new Agave," shown by M. L. de Smet, of Ghent, and having more the aspect of a Leuchtenbergia than of an Agave. The entire stock of the plant, which was very limited, has been secured for his unique collection by J. T. Peacock, Esq., of Sudbury House, Hammersmith, by whom the largest plant, represented at fig. 101, and which measures about 16 inches across, was exhibited at the October meeting of the Floral Committee. On this occasion it received the unanimous award of a First-class Certificate, and was recommended to be especially marked by the decoration of a gold medal. Probably the specimen exhibited was not fully grown, but still the plant does not appear to be one of large size. Its deep green sombre leaves are somewhat dorsally compressed, the surface being canaliculate, about 6—8 inches long, and 1½ wide near the gibbose base, from which they narrow upwards towards the acutely carinate point, and terminate in a stiff stout blackish-brown spine. The leaves are margined by a narrow band four lines wide, of white, consisting of a pulverulent matter, which marks the surface of the adjoining leaves when they lie in contact in the undeveloped state. It is certainly one of the most distinct Agaves in cultivation, and as regards the peculiar type of beauty exhibited by this tribe of plants, it must be regarded as a gem of the first water. The plant belongs to the group with spicate inflorescence, its affinity being with A. filifera.

We have already mentioned that the name adopted by Mr. Peacock has been given by the express permission of Her Majesty the Queen. *T. Moore.*

ASPLENIUM (DIPLAZIUM) PULLINGERI, *Baker.**

This is a new species of the Diplazium section of Aspleniuum, allied to pallidum and porrectum. It was sent to the Kew collection from Hong Kong in a very fine series of living specimens of the Ferns of the island, made by Mr. Pullinger some three or four years ago; and having now watched it for a couple of years at Kew, I think it quite safe to name and characterise it. From all the species which come near it in cutting and veining, it differs by its very short stipes and densely pilose surfaces and rachis. Perhaps on the whole of known species it comes nearest Diplazium Seemanni, gathered in Central America by Dr. Seemann.

Caudex erect; scales none, or very small and obscure; stipes densely tufted, under an inch long, black, clothed like the whole of the main rachis, with spreading, rather stiff conspicuous hairs. Fronds 6 to 9 inches long, 3 inches broad at the middle, lanceolate, narrowed very gradually to both ends, simply pinnate. Rachis densely pilose, black at the bottom, growing green upwards. Pinnæ 20—25 jugate, crowded or even imbricated, linear, crenate, acute, quite sessile, but not adnate to the rachis, those of the upper half of the lamina patent, the largest 1—1½ long, ⅜ inch broad, the lower eight or ten gradually diminishing in size, and becoming more and more deflexed, the upper side at the base distinctly auricled, the lower rounded or slightly cut away. Veins distinct, translucent, pinnate only in the basal auricle, in the rest of the pinnæ forked once or twice, sori reaching along the veins regularly from the midrib, more than half way to the edge, rarely diplazioid; involucre moderately broad, persistent, not ciliated. Texture of the frond moderately firm, both surfaces bright green, and densely pilose. Position in *Synopsis Filicum*, 209*. *J. G. Baker.*

STANDARD PEACH TREES.

THE line which marks the limit between districts and localities where standard Peach trees will and will not ripen fruit, is so uncertain and undefined, that it is worth trying them wherever there appears a chance of success. In not many places is this recommendation better exemplified than in the north of France. A few miles further inland, or the shelter of a village and its fruit trees, or of the Elms planted about a mansion or farm—for France is not a country of hedges and hedgerow timber, like England—makes all the difference. Here, Peaches from standard trees are gathered with satisfactory frequency; there, within a short drive or a walk, they are rarities, few and far between. And yet, now and then, even on the wrong side of the frontier, standard Peach trees in snug nooks and genial summers will surprise their owners with a fairly good crop. For summer climate is not all that is wanted. To bear fruit, a tree must first have set it, and passed through the ordeal of the spring.

Now what happens, there may happen elsewhere under equally favourable circumstances. As far as latitude is concerned, the map shows us that parts of England lie further south than the portion of France here referred to, and at the same time enjoy greater advantages of shelter, aspect, and milder winters. Dr. Henry Bennet, in his exhaustive comparison of Mediterranean localities, has shown that latitude is not everthing, but that, within a certain range, situation is all-important. If standard Peach trees not unfrequently ripen fruit at short distances from the northern portion of the coast of the French department, Pas-de-Calais, there seems no reason why they should not be expected to do so in many spots along the south coast of England, and even further north in a midland direction. In the environs of London, standard Apricot trees have been so judiciously planted as to succeed, and they labour under the great disadvantage of flowering earlier than Peach trees. It is true they have also the advantage of ripening their fruit somewhat earlier; but that may be to a certain degree compensated for by selecting the earliest varieties of Peaches to plant as standards. Our summers, if warm enough, are hardly long enough to mature late Peaches without the help of a wall. This is the less to be regretted, as it may be questioned whether the latest Peaches are (in England) the best. In Central France, Burgundy especially, all the late Peaches come from standard trees which are allowed to grow here and there in the vineyards wherever they can find standing-room—intruders, in short—without any order in their places and position, or any apparent intention on the part of their owners of their being present. They are little cared for, cultivated, or pruned, if at all. The fruit, nevertheless, through complete exposure on all sides to sun and air, is well coloured and highly flavoured, handsome to look at, delicious to eat. And as to its abundance, the first indoor detail that I remember in Burgundy was a carter's collation or afternoon refreshment—a large slice of bread and a tumbler glass filled with Peaches, peeled, halved, and covered with wine.

Not one in a hundred, I should say, of these standard Peach trees have ever been budded or grafted. The probability is that they are seedlings from kernels heedlessly dropped on or tossed to the spot where they stand. The Peach, as is well known, reproduces its varieties from seed more surely perhaps than any other cultivated perennial fruit except the alpine Strawberry. Eat a good Peach, plant the stone, and you are almost certain to obtain a tree producing excellent fruit, possessing similar qualities to those of its parent. Seedling trees are also more vigorous and less liable to disease than budded plants, and such I would venture to recommend, in preference, to any intending experimenter with standard Peach trees. They are not long in coming into bearing. Sown on the spot where they are to remain and allowed to grow freely without any pruning (or the least possible application of the knife), they will flower in five or six years at most from the stone. On the other hand, they are not long-lived, which will satisfy those who get tired of them. Those whose likings are more permanently fixed, can keep up a succession by sowing stones of approved fruit. Their growth, too, is of moderate height, adapting them to gardens or orchards of moderate extent.

But apart from all expectation of fruit, a standard Peach tree is so lovely an object in spring (sometimes in winter, astronomically) as to merit adoption for its beauty only. Its glowing mass of ruddy bloom heaving and swaying under the gusts of March gladden the heart like a glass of good old wine (or a strong cup of tea, if the reader be a teetotaller). It is the very thing for a villa garden or shrubbery, taking care to select large-blossomed varieties—quite as deserving of popular favour as Lilacs, Laburnums, Ribes, and many others, against which, however, I would not breathe a syllable. It may be assumed as certain that standard Peaches are not more grown with us, as ornamental shrubs, simply because they are not more seen. For amateurs who search after choicer and less usual kinds, the semi-double Peach puts in its claim to notice. This also bears fruit, such as it is, sometimes. Quite recently, the standard Peach tree has set up pretensions to be a foliage plant. There is a purple-leaved variety as telling in its way as the purple Hazel and the purple Berberry. It is said to bear Peaches which are good—that is, eatable—but the grower will be less liable to disappointment if he be content with gratifying the sense of sight alone.

But even the blossoms may serve for the indulgence of taste. The late Léo Lespès, the Timothy Trim of the *Petit Journal*, during the height of his pop

* *Agave Victoriæ Reginæ, sp. n.*—Stemless; leaves thick, very rigid, deep green, about 50 in a roqulate tuft, straight, short (6 inches long), triquetrous, gibbose at the base, tapered to an acutely carinate point, which, as well as the spineless margin, is white and pulverulent, so that when pressed together in the undeveloped condition the edges leave white lines or ridges on the surface of the adjoining leaves; surface canaliculate; from the apex of the leaf is produced a curved, terminal, dark-coloured spine, three-fourths of an inch long, and a few small subsidiary ones on either side. Inflorescence unknown.—Mexico. *T. Moore.*

* *Asplenium Pullingeri*, Baker.—Stipitibus perbrevibus cæspitosis; frondibus lanceolatis simpliciter pinnatis e medio ad basin et apicem angustatis utrinque viridibus pilosis, rachibus dense pilosis; pinnis 20—25 jugis confertis sessilibus linearibus crenatis acutis basi superne auriculatis inferne rotundato vel leviter cuneato-truncatis, venis præter auriculam 2—3 furcatis; soris e costa præter medium pinnarum egredientibus raro diplazioideis, involucro glabro persistente.—Hong Kong. *J. G. Baker.*

larity and the influx of cash, covered his person with rings and jewellery, and took his meals at an expensive restaurant. One dish indispensable for his breakfast, as long as the season lasted, was a Peach-blossom omelette, and he required that the branch in bloom should be laid on his table every day before making the omelette, to prove that the blossoms were really fresh. But the wheel of fortune turned, and before the poor man died he had to sell his rings, and breakfast off an omelette (when he had one) ungarnished and unflavoured by Peach blossoms. *E. S. D.*

THE FORESTS OF BAVARIA.

In Bavaria the whole surface occupied by the forests amounts to 2,603,264 hectares. These may, in round numbers, be divided into 36 per cent. held by the State, 13 per cent. by the communes, 2 per cent. by the foundations, and 49 per cent. by private persons. The State endeavours gradually to consolidate its woods and also to enlarge them, but certain small portions of them which require a disproportionate outlay for management and inspection, and which are rather suited for agriculture, are sold: whilst, on the other hand, enclosed spaces near the woods of the State and the adjacent grounds are bought. Upon the whole there has been a decrease of late years in the area of such woods, and the same process is in operation with private owners. The reason must be sought for in this, that owing to the rising of the price of wood, the capital at hand can be more advantageously used, and the site of the woods when turned into fields and meadows yields a larger yearly rent than it did as forest; to which must also be added that in many parts the increase of the population necessitates more agricultural land.

At present the annual produce of all the forests may be reckoned at 9,168,600 "steres." In those of the State 36 per cent. of the yearly produce is reckoned as timber and building wood; in those of private persons, however, this percentage is somewhat smaller. There are, it appears, no means of making a correct calculation. Still it may be computed with tolerable exactitude that in all the forests together 30 per cent. of the whole produce is timber, and therefore the yield of the private forests may be reckoned at 2,750,600 "steres."

Fluctuations in the amount of the yearly felling occur only to a small extent—in the woods of the State, communes, and foundations, in so far only as an unavoidable excess caused by exceptional circumstances, such as damage done by storms, snow, or insects is balanced in the following years by a diminished amount of felling, or, on the other hand, when a deficit in one year's estimates is made up for by subsequent extra cuttings. But in the woods of private owners the yearly produce will probably become less and less, because, on account of the high price of wood, they fell beyond what the next year's growth would justify, and the whole extent of forests is thus diminishing.

Mr. Morier, the British Chargé d'Affaires at Munich, enumerates the following principal uses to which the timber is put:—

Oak (Quercus Robur and Q. pedunculata), is used for building purposes, staves, and is largely exported for shipbuilding.

Red Beech (Fagus sylvatica).—Its branches are used by carriage builders, and the larger ones in planks by joiners, also for wooden shoes.

Maple (Acer Pseudo-Platanus and A. platanoides), by carriage builders, joiners, and especially by instrument makers.

Ash (Fraxinus excelsior) is used by carriage builders, joiners, as is also the Elm (Ulmus campestris and U. effusa).

Birch (Betula alba).—Its weak branches for switches and hoops, and its stronger ones for carriage building.

Alder (Alnus glutinosa) is used in many places in thin boards for cigar boxes.

The timber of the "leaf trees," which grow singly, but not of the larger sorts in the enclosed forests, is used in smaller quantities for certain technical purposes.

Chestnut (Castanea vesca) is used for small pliant staves.

Poplar (Populus), for paper-making.

Willow (Salix), for basket-making.

Pine trees yield timber in large quantities.

Fir (Abies excelsa) yields long timber for building purposes of all sorts, also for shipbuilding and planks, as also the Silver Fir (Abies pectinata), and the Scotch Fir (Pinus sylvestris), the finest of the latter for masts.

Larch (Pinus Larix) is in great request, but hitherto it has only grown wildly, and to a limited extent.

Fir (Pinus Cembra) grows but little in the Alps. It yields the best material for artistic carvings, for which also Maple, Pine, and other different sorts of timber are used.

The increase or decrease of the export of timber depends principally on the state of the market and on the competition of other countries, but, inasmuch as in many of the forests belonging to private owners in Bavaria, the heavier and more valuable building timber is almost entirely used up, so it is to be assumed that the export of this kind of wood, both as regards value and quantity, gradually decreases. For the study of the physical influences of forests on the air and soil, their influence on the climate and hygienic importance, several observatories have been erected. The results of their observations have been collected in a work compiled by the Royal Professor Ebermayr, and published in 1873 by Krebs, of Aschaffenburg, which Mr. Morier recommends as a book of reference on this subject. *B.*

Fig. 101.—Agave victoriæ reginæ.

THE CLOUDBERRY AND ITS ALLIES.

"Chamæmorus, called in the north part of England (where they especially do growe) Knotberries and Knoughtberries, is likewise one of the Brambles, though without prickles: it bringeth foorth small weake branches of tender stems, of a foote high;

whereon do grow at certain distances rough leaves, in shape like those of the Mallow, not unlike to the leaves of the Gooseberie bush: on the top of each branch standeth one flower and no more, consisting of five small leaves, of a darke purple colour, which being fallen, the fruit succeedeth, like unto that of the Mulberie (whereof it was called Chamæmorus, dwarfe Mulberie), at the first white and bitter, after red, and somewhat pleasant: the roote is long, something knottie; from which knots or joints thrust foorth a fewe threadie strings." Such is Gerard's description of our Cloudberry, the Rubus Chamæmorus of botanists—or rather one of his descriptions, for by some oversight he again describes the plant further on in his *Herbal* under the name "Vaccinia nubis, Cloudberries," accompanied with a totally different figure. In his time the plant appears to have been known only as growing "upon the tops of two high mountains (among the mossie places), one in Yorkshire, called Ingleborough, the other in Lancashire, called Pendle, two of the highest mountains in all England, where the clouds are lower than the tops of the same all winter long, whereupon the people of the countrie have called them Cloudberries." The introduction of the plant to Gerard's notice was, as he tells us, due to "a curions gentleman in the knowledge of plants," a Master Heskett, to whom our author was indebted for a good deal of information about British plants. The description above cited applies in some respects to the Stone Bramble (R. saxatilis) better than to the present species, notably as regards the flowers, which in the Cloudberry are white, large, and handsome.

The name Cloudberry is sufficiently explained above; as to Knotberry, Dr. Prior thinks it originated in "the knotty joints of the stem," but it seems at least as probable that it refers to the habitat of the plant, knot being sometimes employed in the North as signifying a hill, as in the case of Arnside Knot. Mr. Halliwell spells the name Cnoutberry, and says that there is a tradition in Lancashire to the effect that King Canute—or Cnut, as more recent authors write the name—was preserved from starvation by eating of its fruit. Knoops, or Knoopberry, another of its names, may likely enough be connected with the Anglo-Saxon cnœp, a button; in some parts of Scotland it is called Queensberry, and Queensberry Hill, near Fife, is said to owe its name to this circumstance.

The Cloudberry is entitled to some consideration as being perhaps the most important indigenous fruit of the northern parts of Europe; and an amusing "address to Mr. Neill, by the Rubus Chamæmorus, in a communication from Mr. Gorrie," which was read before the Caledonian Horticultural Society in 1814, had for its object the advocacy of the cultivation of the plant, with a view to the introduction of a new fruit into the market. Nothing came of this communication, nor could it have been reasonably expected to produce any results; the chance of producing a many-flowered variety, by crossing the species with the "Antwerp Raspberry" having apparently been thought too problematical to be worth attempting. It is in Sweden and Norway that the Cloudberry is held in especial esteem. The fruits are preserved in sugar in various ways; beaten up with cream and sugar they form a sufficiently tempting dish, and one which is spoken of by travellers in Norway with considerable approval. Mr. J. S. Shepard, in his pleasing little work upon this country which appeared two or three years since, says, "So important an article of diet are [the Cloudberries], as to have had a special act of the Storthing devoted to them, which, amongst other restrictions, forbids any one other than the proprietor to gather more than he can eat on the spot" where they grow.

In some parts of Lapland the Cloudberry is very abundant, and is eaten by the natives with fish or reindeer milk. Dr. E. D. Clarke, in his *Northern Wanderings*, speaks of passing through "whole acres covered with its blushing fruits," and pays a high tribute to their sanitary powers. He was seized with a fever, and was for a long time dangerously ill, but partook freely of Cloudberries blended with cream and sugar; "the symptoms of amendment were," he says, "almost instantaneous after eating these berries." "In the northern parts of the Gulf of Bothnia, especially about Tornea, the fruits are commonly collected and sent in the form of a conserve to Stockholm, where they are used as a sauce for meat, and mingled with soup. Casks are also sent to that city filled with the roots of this Bramble, from which vinegar is made." Linnæus mentions that the fruit bruised and eaten with the milk of the reindeer is a very palatable Lapland dish.

Our other northern Bramble—Rubus saxatilis—the "Roebuckberries" of some districts of Scotland, is a less ornamental as well as less useful species than the foregoing. The Russians ferment the berries with honey, and extract a potent spirit from them; but it is of no very great importance. More noteworthy is the elegant Rubus arcticus, with its bright red fragrant fruits and rose-coloured flowers. This species was at one time reckoned among British plants, but upon evidence which is now considered insufficient. It was an especial favourite with Linnæus, who tells us that he had often been refreshed with the nectar of its berries, and describes it in full as a token of his gratitude to it; and it appears to have been in equal esteem among the "magnates" of Norlandia, who were accustomed, according to the same author, to obtain from the berries syrup, wine, and jelly, partly for their own use, and partly as a choice present for especial friends. He figures a pretty variety with laciniated petals in his *Flora Japonica*. The scent of the berries is so strong, that a few brought into a room in a saucer will fill it with their perfume in a very short time; their flavour is said to partake of both that of the Raspberry and Strawberry; and having had the privilege of tasting some jam made from them which had been sent to this country, we have no hesitation in saying that it is highly to be commended. *B. M.*

PLANTING CEMETERIES AND CHURCHYARDS.

THE fall of the leaf at this time naturally reminds us that all the trees of field and forest have added another ring of wood to their stems, and that another fleece of leaves has to be shorn from their twigs; for the baldness of winter is approaching, and the summer foliage will soon be scattered to the winds. Most other changes in plants are gradual, but the fall of the leaf is a swift process, and frequently with little warning. The fall of the leaf is the beginning of the planting season, and, therefore, this is giving timely warning. There is a class of trees that not only cast their leaves at the approach of winter, but when they have done so disclose to view a truly weeping character, a veritable hanging down of the head, as if something had weighed heavily on them and given them a look of sorrow. The Weeping Willows, Weeping Elms, and Weeping Ash trees are of this character, and when planted by themselves are all too sad-looking, as if they sorrowed without hope; but when weeping trees have tall stems and fine heads, it is easy enough to plant a Rose tree with a tall stem, and use the Weeping Ash, &c., for a prop, the whole of the character being changed to look like beauty weeping, or nearly as the poet has it—

"Love watching sadness with unalterable mien."

We see by the nursery catalogues about eighteen species and varieties of weeping trees advertised, all of them deciduous, duly dropping their leaves in autumn, as becometh dwellers among the tombs; but there is an evergreen group of aromatic shrubs and small flame-shaped trees that belong to the place of the dead, as if by birthright: these are the upright Junipers and the Cypress trees, and the Yew in all its forms.

The Savins, too, must "have their claims allowed" as weeping plants with heads reclined; and so, too, the Cotoneasters, creeping low, and laden with their scarlet fruit, which is far more conspicuous than the tiny flowers. Plants with large leaves, especially evergreens, seem not at home in cemeteries. The Cotoneasters are sometimes worked on tall stocks of the same natural order as themselves, and make pretty little playthings, requiring small space; and, being of slow growth when thus grown, they require many years to get to anything like a bush. The Laburnum, used as a stock for plants of the same natural order as itself, gives us a lot of toy trees that never require much room and are generally short-lived; these are useful among weeping trees to vary their character and add to their number, which is but very limited. I need scarcely remark that the Rose in every shape—dwarf, standard, and climbing—is always welcome, and is never in excess; and its opening buds, full blossoms, and final fall, are all that could be wished for in a place of sepulture, where it is an emblem of the budding babe, the rosy manhood, and the pale decline of old age, all interred and mourned for among the dead.

The ancient practice of clipping Yew trees into fanciful shapes, however quaint and objectionable in pleasure gardening, is perfectly at home in the cemetery—for a majestic avenue of Yew trees leading to the chapel, &c., is at once solemn and grand; but, once entered, what more effective than a Yew tree clipped to the form of a cross, or that of a globe, or a triangle—for I have seen in Cheshire the figure of a peacock cut in Yew; splendid cones, plain and notched, forming the triple crown; and Loudon tells of a churchyard Yew clipped to represent "the bird that warned St. Peter of his fall," and having an inscription duly cut in stone to the following effect:—

"This is a cock who gapes to crow it:
This world is mine and all below it."

I mention this to show that I am not obtruding a novelty. The Savins singly are of little importance, but a clump of Savins, especially on a rising bank, is a sight not to be forgotten. I have seen good examples of this in gardens in two or three instances only, and the effect was grand, lasting not for a day or for a year, but for half a century.

My reason for calling attention to the planting of such trees and shrubs at present is, as I have said, to give "timely warning," for the time for planting is limited. The railway officials fix the time for every train to occupy the permanent way, for each has to be off the ground to make way for its successor: the time, whether long or short, is allotted, and it is "Now or never." Procrastination is entirely out of the question. A very old planter remarked to me once, that if you planted a tree before Christmas, you might tell it to grow, but if you waited till after that feast you would have to ask it to grow. These, then, are the days, although they may be short and uncomfortable, in which to plant. Well may gardeners be paid high wages for the short days, for it is in them that the great improvements can be done. The town artisan has been a laughing-stock to his neighbours for buying his Daisies and Primroses in bloom to plant in his front garden, with a tuft of wet grass by way of roots; he produces immediate effect, but it is not lasting, for the flowers, when he bought them, were seen, but the roots were wisely hid then, as they formed no part of the bargain, and it would be gross incredulity to believe that they were there: such blunders should act as beacons to be shunned.

Daisies and King Cups are never awanting, and the poet has wisely praised them, for they fleck the green grass with their flowers upon the meanest grave; and the Pansy—better termed Heartsease in this case—frequently puts in an appearance; but of all the flowers that grow to adorn the beds and borders of a cemetery commend me to, or, as the North countryman would say, "Leese me on," the white Lily (Lilium candidum), such as we see in Bucks and Berks in the cottage gardens undisturbed for ten or a dozen years. The Lily, associated with the Rose, would be enough to adorn a place if every other plant were absent. I am not speaking of the plants on graves, but of the groups of ornamental trees, shrubs, and flowers, that make or mar the features of the "field of the blessed." One is glad to see small improvements in our Salford Cemetery; there is evidently the will, if the managers only knew the way, and there is no lack of means, for no business could pay better. Land for farming may be high priced, for gardening higher still, and for building purposes large premiums are always paid; but there is no such investment going as for earth in which to lay the dead—£700 to £1000 per acre for barren clay, rock, or sand, away from all good building sites; so it is not without reason that I complain of the shabby adornments of the place.

There are several kinds of weeping trees that are so called in nursery catalogues, but they have not the character needful for such a place: thus weeping Oaks, stiff and unbending, are not akin to anything tender. Again, there are the Rock Roses, belonging to the Cistus tribe: who could deny these such a place where rock and sand is to be covered with flowering plants?—for they would live even on a gravestone if they could be planted in good seasonable time, and get a small pittance of rich earth to start in; and although their beauties are literally but for a day, yet they flower so freely that we do not feel their loss, for their flowers only open once. I have seen cemeteries, where little else could live, that would have done wonders with Rock Roses. The Birch tree, with its silvery bark and its slender twigs and finely cut leaves, is the very perfection of a tree for clumps in such a place, for in age it often weeps so gracefully that it looks as if its long arms were saluting the earth from which it rose.

I have named certain plants here in order to be clearly understood, but let no one imagine that I would confine the planting of a cemetery to these only, when we see the rich array of evergreens in our principal nurseries. Only let our cemeteries rival our parks and public gardens, and I am content; and let a good practical gardener be employed and well paid to superintend the ground work and the keeping of the place. All that can be done for our heroes and great men is to give them a place in our affections, and a grave in St. Paul's cathedral or in Westminster Abbey, where anything like neglect would be sadly out of keeping with the grandeur and the sacred character of the place. *Alex. Forsyth.*

ON THE WAY TO HOLLAND: GHENT.

MY readers were left, on January 30, in the Comte de Kerchove's winter garden. Before resuming our onward journey we will linger a few hours, in July, in Ghent, to skim the last-risen cream a foreign town has to offer. The tramways, for instance, afford a pleasant means of taking an evening glide about the place. And some such assistance is sorely needed where a monotonous succession of smooth-faced white houses becomes so wearisome that the sight of a dingy grey building, like the Palais de Justice or the Hôtel de Ville, is quite a relief. By following a tramway, even

on foot, the rails are sure to guide you to somewhere, and thereby to save your straying into the numerous nowheres with which this largely-diluted city abounds. Standing on the front gallery of a tramway carriage (which costs a sou less than the interior), you enjoy, with the increasing twilight, a soft panorama of cut gable-ends shooting up against an iridescent sky of white-painted streets, made soft and pearly by the glancing rays of retreating day, of smooth-surfaced streams too lazy to flow, but reflecting the brightest lights and the deepest shades, of trees with foliage fast turning black, of fantastic belfries and stiff statues (the latter rare), showing their outlines in a way they never do in the broad glare of noon, while a bright planet is gleaming in the heavens, church bells are tinkling here and there, and sunset gleams are lingering late, while all is darkening fast. Snatches of Moore's melodies haunt you to the rhythm of the tramway horses' feet. But man, as at present constituted, requires other sustenance besides the picturesque. Dinner is at least as needful out on a journey as it is at home. From Mr. Charles Van Eeckhaute (one of Van Houtte's chiefs, to whose supervision is due, amongst other things, the admirable packing done by that establishment, and whose name is adopted by a new bulbous Begonia) I learnt two secrets. One secret, respecting the propagation of Bertolonias, may not be divulged as yet. Nevertheless, I may state that those charming plants, which prefer moist air and shade, are not likely to render the same services as the Coleuses, which thrive best in dry air and sunshine. The other secret was that, for three francs, an excellent dinner (not including wine) could be eaten at the restaurant "Au Paysan" in the Rue des Vanniers. This is a convenient piece of knowledge for strangers who do not care to be tied to a *table d'hôte* dinner at all, still less to a dinner at 1 o'clock. We tried the Paysan, and got for our half-crowns—the house must have been seized with a prodigal fit that day—vegetable soup, boiled salmon, Potatos, butter melted, fillet of beefsteak, green Peas, calf's head *à la tortue*, roast thrushes, and lobster salad, all exceedingly well prepared, besides Cherries, cheese, and two sorts of cakes. The wine was of exceedingly good quality, and not dear for Belgium. Next day the generous fit had not abated in intensity.

Another piece of information not foreign to our purpose is, that the Hôtel de la Grande Cour Royale, in the Rue de la Station, No. 3, near the Government railway terminus—a clean, unpretending, moderate-priced house, kept by M. and Mme. F. de Guchteneëre, who are most obliging to their visitors—is also the evening resort and rendezvous of many of the Ghent horticulturists. In the coffee-room (where beer is the liquid most in request) they exchange friendly greetings and discuss (amidst peaceful smoke from clay or meerschaum, and the clash of antagonistic dominos) the fortunes of recent floral novelties, and the prospects of the next-coming exhibition. Here you may be presented to Mr. A., who "does" a million Rhododendrons; to Mr. B., whose trained Bay trees reach Central Russia; to Mr. C., whose standard Heliotropes and Geraniums, five years old and more, help him to imitate Guido's Aurora in sprinkling bouquets round the world. Of whatever speciality you may be in search—Palms, Gloxinias, Tree Ferns, Camellias, Azaleas, Begonias—some worthy representative is sure to be found enjoying his evening leisure at the Cour Royale.

It would have been hard to leave Ghent without saying "*bon jour*" to our old friend, M. Louis Van Houtte. In such an establishment something suggestive is always to be met with, even if no more than the opportunities of realising the weighty burden (however lightly and willingly borne) of a nurseryman's complicated business. Forty hectares (nearly 100 acres) under the most varied culture, in the open ground and under glass, by 185 pairs of hands, of one sort or another, are no trifle to direct and govern. And the care needful to keep things alive and thriving increases the responsibility of the occupation. The merchandise is not merely precarious in its nature, but is sure either to be deteriorated or destroyed should even temporary neglect or mistakes occur. It is no warehouse of dead goods, things of iron and wood, to be bought, sold, and delivered at any hour or season, but an assemblage of living organisms, whose daily wants must be studied and supplied with strict punctuality, and which can be removed only when it suits their pleasure and convenience, not ours. Inattention to a severe night's frost, to a spell of drought, or to a sudden sunstroke, may cause losses that would end in ruin. Not every one who delights to decorate his home with choice plants guesses the sleepless nights and the painstaking days they have cost the nurseryman who supplied them. True, there are other horticultural establishments as large as, or larger than, Van Houtte's, but that fact does not diminish the merit and interest of the one we have now the privilege of visiting.

V. H.'s houses combine, as usual, a goodly display of things old and new; of Gloxinias, more admirably punctuated than the best-corrected leading article; of the recently obtained Tydæa, named by its raiser (under an attack, not of the blues, but of the blacks) Belzebuth. These and their congeners—the showy tribe of Achimenes, Gesneras, and Nægelias—are extremely useful to adorn the cool-house (which in summer readily becomes a hothouse) during the absence of the plants for whose hybernation the said cool-house was erected. In winter they, the Gesneraceæ, undress themselves and drop their foliage, to take their rest. Their tubercles remain torpid, in boxes filled with any sort of dry earth, no matter what. In spring they are started in gentle warmth under a frame, in such a way that when the occupants of the cool-house are called upon to do duty as bedders out, their places are filled by a showy collection of plants, which, says V. H., are at least as pleasant to look at as the bare shelves of an empty greenhouse. In short, they enable the under-glass gardener to complete the circle of his year.

Interspersed amongst these novelties are specimens of the old Firework plant, Pilea callitrichoides, which have to take a bath four or five times a day, for the amusement of non-botanical visitors. Some gardeners call it "Sebastopol," although it was cultivated before Sebastopol was thought of as a point of attack. Those who do not know it, should, as it is of easy growth and very amusing. During the hot months of summer it is covered with flower-buds, like large pins' heads, produced in succession. Plunge the head of the plant in a pail of water, shake it, to get rid of the superabundant moisture, and a minute or two afterwards the buds explode with a noise which, if audible to insect ears, is not so to ours, scattering little whiffs of smoke-like pollen, and darting forth four stamens, which then form a tiny white Maltese cross. It is pyrotechny which sets fire to nothing and can hardly frighten anybody.

Outdoors, Musa Ensete and Jacaranda mimosæfolia are remarkable; the latter is extremely handsome in the South of Europe, where it flowers admirably. A hardy plant, which has a future before it, through the merits of its mass of orange-red bloom, is Asclepias tuberosa; it forms a blaze of light, not to be hidden under a bushel. Carpet-bedders will find a use for the purpureum variety of Sedum Telephium. Polemonium variegatum deserves attention. Amongst the outdoor things, when I called, were Camellias; of which somebody said that V. H. "did" or "made" very few, buying all he sold. A certain number are bought, undoubtedly, but some 70,000 or 80,000 were "done" this season—quite enough to make the reproach fall harmless. Few horticultural establishments in Ghent could find room for V. H.'s Camellias only. At the close of July they were fully exposed to the breezes which circulated under the shade of slim Lombardy Poplars expressly planted to serve as a screen. During the period of their vegetation the Camellias remain in their place in the glasshouse, receiving very little sun, plenty of water, and plenty of moisture in their atmosphere; there they stay until their buds are well formed. Then only they enter upon the opposite *régime*, getting a scant supply of water and a free exposure to air. The object is to prevent a second growth of wood by a limited allowance of liquid food, at the same time that they gather strength and solidity by what they can extract from the atmosphere during daylight. A second growth of leaves is apt to cause the buds to drop, and then further precautions, that season, are unavailing. They would be what is called in Ghent "filling up the well after the calf is drowned."

Examples occur here of the skill which may be attained by long-continued attention to the same specialities, and long service in the same establishment. One gentleman, the chief of the heath-mould plants, knows all the varieties of Camellias, Azaleas, and Rhododendrons by the leaves alone. If the labels of those plants fall to the ground, get out of place, or become confused, they have only to call in his assistance and he will restore each label to its proper owner. The same wonderful power of recognition is practised with regard to unnamed seeds. The present writer received the statement with unhesitating belief, because he himself could, at one time, name more than a hundred varieties of Roses, only from an inspection of the leafless twig. Another of V. H.'s *aides-de-camp* can graft one thousand Camellias in the course of a day.

It is amusing in Ghent to observe the bold strokes that horticulturists venture to make. Decapitation, we find, may have its uses. We see variegated Yuccas with their heads cut off, to make them sprout from below for multiplication by cuttings. But Ghent is a horticultural centre, which, like some planets, is surrounded by satellites. There are horticultural villages close at hand. If you can speak French, and want to do a stroke of business, take the train from Ghent to Wetteren, on the Brussels line (Station de l'Etat)—a return ticket costs only a few pence, inquire for the *pépinière* of M. Kerkvoode (he has, in fact, several *pépinières*), which you will reach across fields by a dirty road. It is surprising to find so much produce in such an out-of-the-way place. He sends to Brussels from 1000 to 1500 cut Roses per day, as long as outdoor Roses are to be had. He finds it answer better to propagate good known sorts than novelties which still are doubtful. Varieties in great request are Belle Lyonnaise, Prince Camille de Rohan, Baronne de Rothschild, Paul Neron, Louise d'Arcin, Alfred Colomb. But there are heaps of other things besides Roses. Thus, a purple-leaved Peach has effective foliage for sites where Peach trees may be grown as standards. *E. S. D.*

CLAYS AND MANURES FOR OLD GARDENS.

Having experienced the good effects arising from a free use of clay in gardens containing light soil, and that have been long under cultivation, I thought a few words in its favour may induce some of your readers to give it a trial; should they do so, I venture to say that they will be greatly pleased at the result. Those who have light soils to deal with, and can gain access to a good clay pit, will soon find themselves comparatively independent of the manure heap, as the clay is often preferable for certain crops, and the beneficial effects far more durable; in fact, they are everlasting, for, once the clay is added, it is not consumed or lost in the same way as manure, but remains always present in the soil, and permanently improves its staple and texture. From the great quantity of light, strawy stable manure, containing large admixtures of leaves, that is used annually in most gardens for the purpose of forming hotbeds, linings, &c., the vegetable quarters and fruit borders often get more of that kind of dressing than is good for them; and, where the soil is naturally light and dry, such annual dressings are only adding fuel to the fire.

Gardeners sometimes have not much choice, and are often obliged to use whatever they can get by way of manure; and, let the soil of the garden be what it may, they are generally confined to the loose, strawy rubbish in the stableyard that may be apportioned to their use. This should not be, as such dry, hot manures, for some soils, are of little benefit, and in certain cases positively injurious. Shallow soils resting on sandy or gravelly bottoms require something to cool them and give them weight and cohesion, while a too free use of the above has the reverse effect.

In all light soils hot manures, as they are termed, should be avoided as much as possible, and such as night-soil, mixed with clay or cow or pig manure, used in preference. Either of these is very beneficial to light land, and, when not used in too green a state, the roots of plants are soon attracted to the rich feeding ground, and revel in it. Cow-dung is, perhaps, the coolest of all manures, on account of the small quantity of undigested vegetable matter it contains, and where it can be got it is preferable to any other manure for general purposes. The dung of the pig has a very stimulating effect on all garden crops, and Vines, Apples, and Pears, treated to a good top-dressing of this rich fertilising manure, soon show their appreciation of it by the vigorous growth they make, and the additional weight of fruit they show themselves capable of carrying.

Where the soil of gardens has become old and effete, from long cropping and a too free use of hot manures and other vegetable matter, a better tilth and fertility may be quickly restored by using plenty of stiff clay, marl, or heavy loam. There are few places where one or the other cannot be obtained, and the labour of carting is but a small matter when compared with the immense benefits to be derived from their use. The best kinds of clay for restoring fertility, or adding it where it has not previously existed, are such as are of a fat, soapy nature; these, when exposed to the air, soon absorb sufficient moisture to cause them to swell and shiver to pieces, in which state they readily incorporate with the soil. The small particles of buried clay have a sponge-like attraction for water, and once charged they do not readily part with it by evaporation, but only yield it up on the urgent demands of the thousands of roots that soon find it out in their active search for food. All soils require a certain degree of friability or looseness of texture, in order that heat and moisture may be readily conveyed to the roots, but, to be really fertile, they must have weight and sufficient adhesiveness to retain water for the plants to feed on. As clay has all the properties of adhesiveness in an eminent degree and loose cultivated garden soils those of friability, it is obvious that by mixing the two a soil almost perfect for the purposes of cultivation may thus be formed. The loss of moisture from light lands during bright, sunny weather is enormous, but, where clay is used as advised, this loss is in a great measure made up, as its attraction for moisture is so great that it absorbs a large amount of aqueous vapour during the night.

It is a well known fact that the greater the absorbent power of the soil so in proportion is its fertility, and it is on this account that land possessing a fair amount of adhesiveness, from the particles of clay it contains, will always carry far better crops than such as have not that quality. The effect of adding clay to

light land for fruit trees is very striking. Pears here on the Quince stock, that used to refuse to swell their fruit, and to flag after a week or two of dry weather, are now, after trenching in a quantity of clay, and well mixing the same in the soil they were growing in to the depth of 3 feet, all that can be desired. *J. Sheppard.*

REPRODUCTION IN THE MUSHROOM TRIBE.*

(COPRINUS RADIATUS, FR.)

FOR the purposes of minute research into the vital phenomena of the Mushroom tribe, Coprinus radiatus, Fr., possesses many advantages over the other species of the large order to which it belongs. The first great advantage peculiar to C. radiatus is that it grows readily and abundantly on dungheaps from April to December, and it comes up equally well in town and country. The second point in its favour is that it is so small and transparent that every part can be quickly examined, and an entire plant kept under the covering glass of the microscope. The third advantage found in C. radiatus rests in the fact of its whole life being so exceedingly short, that its entire vital functions are performed in a few days. Having these points in view I have, during the whole of the present summer and autumn, kept up a large bed of fresh horse-dung in my garden, and from this bed I have narrowly watched the growth of many generations of the plant I am about to describe.

A complaint is often made by persons unused to the microscope, and to the appearances of objects as seen by its aid, that it is impossible to see the real objects as they are represented in drawings. To a certain extent this is borne out by facts, for a drawing is never meant to represent what may be accidentally seen at one sitting, but is designed as a summing-up of all that has been seen during many hundreds of sittings. Any one looking for the first time through a good telescope at Jupiter's moons, Saturn's ring, or the planet Mars, might be a little disappointed in the apparent smallness and lack of strongly marked outlines in the objects seen; but this does not detract from the correctness of astronomical diagrams, which are only matured after many patient observations. No one expects to see the solar system as shown in a model, or the country as seen on a map.

It may reasonably be premised that the facts observed in connection with the life history of Coprinus radiatus will more or less apply to all the other species belonging to the Mushroom tribe; but it would be impossible to make the observations here recorded on the more fleshy species, because, instead of days, these latter plants take months to mature. In C. radiatus generation after generation keeps springing up in almost daily succession, but in the more fleshy species, exclusive of Coprinus and Bolbitius, I am convinced there is, as a rule, but one generation in the year. The common Agarics of the autumn spring up from the mycelium formed during the fall of the previous year, and this mycelium has rested in the ground for twelve months. In digging up old pasture ground, or the dead leaves of an autumn which has passed, mycelium in a resting state is invariably found. There is no such long rest with the mycelium of Coprinus radiatus, for so long as the weather is not too dry, too wet, or too cold, the fungus goes on perfecting itself day after day without ceasing. During hot, very wet, or frosty weather the spawn lies buried, and it rests in the warm, moist dung for short periods of time only.

Coprinus radiatus, Fr., is one of the dung-borne Agarics with a cap which measures from an eighth to one quarter of an inch in diameter, and this filmy pileus is supported on a stem, which on an average measures from a quarter to three-eighths of an inch or more in height (figs. 102 and 103, A). The whole cap is a mere transparent film, and the fragile stem is like an atom of gossamer thread. A breath will totally break down and collapse every part of the plant, whilst a heavy dew or slight shower of rain will destroy a whole colony. These minute Agarics can only be gathered with the aid of small forceps, for if they are taken in the fingers they at once collapse, become liquid and vanish. So little moisture does a single specimen contain that it is lost in the moment or two consumed in taking it for examination from the garden to the house. The young plants may generally be seen dotted over the dung, like in size to so many pins' heads (fig. 102, B), and from this, the infant state, to maturity, the growth of the fungus is very rapid. At seven or eight in the evening nothing but immature plants can be seen (fig. 102, C, D, enlarged 20 diameters); about eleven or twelve a rapid growth commences, and by two or three o'clock in the morning perfect maturity is reached. If the morning is moist the plants will remain in perfection till nine or ten o'clock, but if it is dry they will not last after five or six. On shady roadsides or in dark places the time required for growth may probably be a little more or less, but the present observations apply to the plants as found growing on dung in a light and open place.

To get a good view of C. radiatus it is necessary to magnify it at least from 50 to 100 diameters; the nature of the stem and gills can then be made out, and all the individual component cells be clearly seen.

Mature plants are figured at E, F (fig. 102), enlarged 10 and 20 diameters, the first showing the nature of the outer surface of pileus, with its furrows, and the other the lower or fruiting surface, with the nature of the gills, and the collar formed by them near the insertion of the stem. At G is shown the relative number of the basidia or privileged cells, which carry the naked spores, and at H the relative number and position of other privileged cells, termed cystidia. To these latter bodies I shall presently refer more fully, and they are merely adverted to here that some idea may be formed of their great number. At I is shown a transverse section through the cap of the fungus, a short time before expansion (when the umbrella-like top is down), to show that the hair-like stem is hollow,

FIG. 102.—COPRINUS RADIATUS, FR.
A, Natural size; B, Enlarged 10 diam.; other figures, 20 diam.

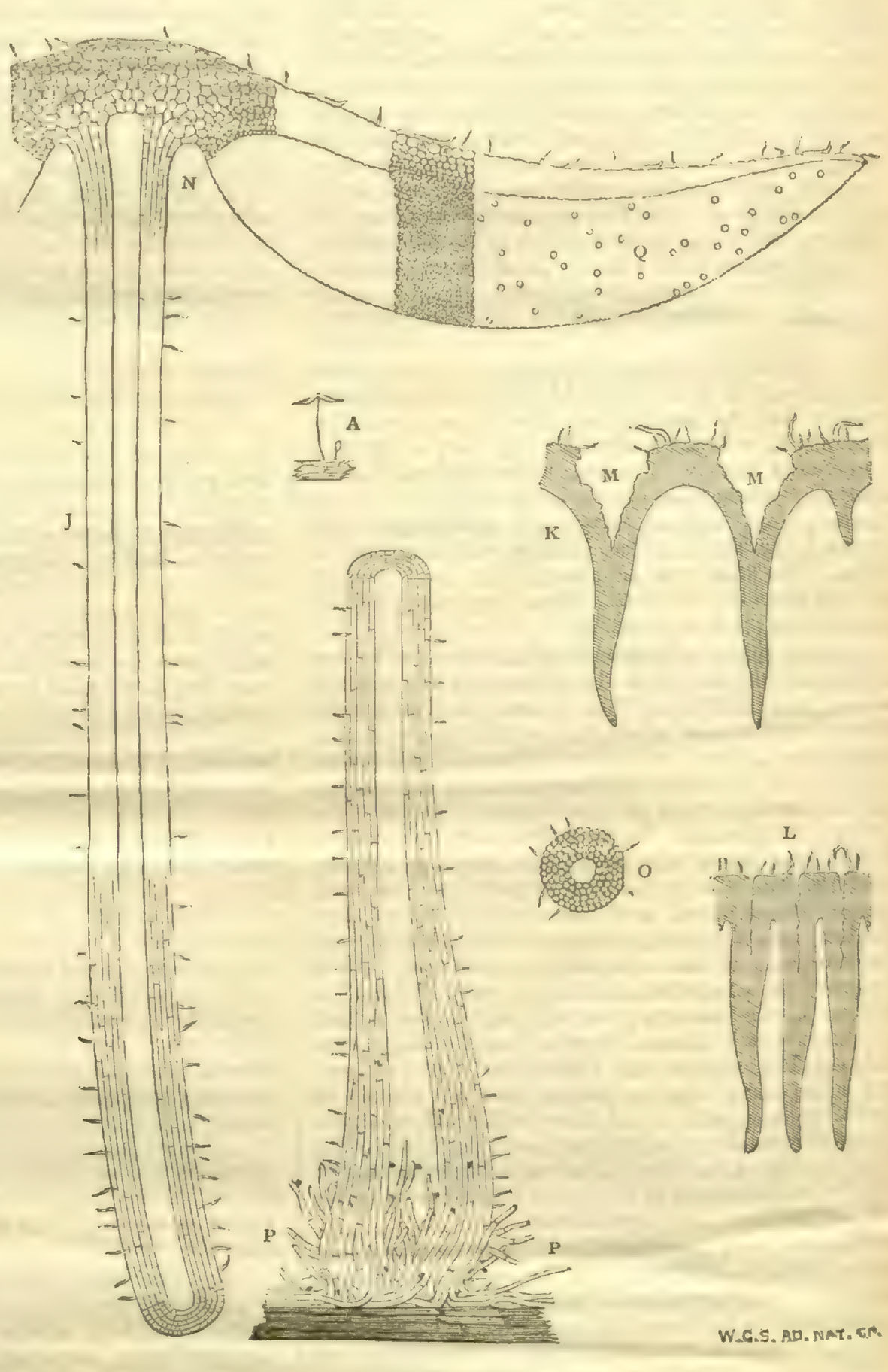

FIG. 103.—COPRINUS RADIATUS, FR.
Enlarged 50 diam.

* Read by Mr. Worthington G. Smith, F.L.S., at the meeting of the Woolhope Club, Hereford, October 14, 1875.

and that the plant in infancy is enveloped in a complete veil or bag, the presence of which is shown by the ring of cells and hairs which forms the circumference of the diagram.

For a proper comprehension, however, of this minute fungus much more than a superficial examination is necessary, and the first thing to be done in the way of dissection is to secure a good longitudinal section of the fungus from top to bottom, as shown in fig. 103 (J)—this enlarged 35 diameters, at once shows the immense number of cells which go to make up one of the fugitive little plants belonging to Coprinus radiatus. By reference to the figure it will be seen that the stratum of flesh which forms the pileus is only six or seven cells in thickness, and the external surface is covered with a few hairs of different sizes (the remnants of the universal veil or wrapper) some of the smaller hairs being tipped with a gland. Another good vertical segmental section across the cap and gills will show the appearance of the plicato-radiate outer

W.G.S. AD. NAT. SC.

Fig. 104.—COPRINUS RADIATUS, FR.

Vertical section and surface of gill enlarged 150 diam. V, Basidia with spores; W, Cystidia.

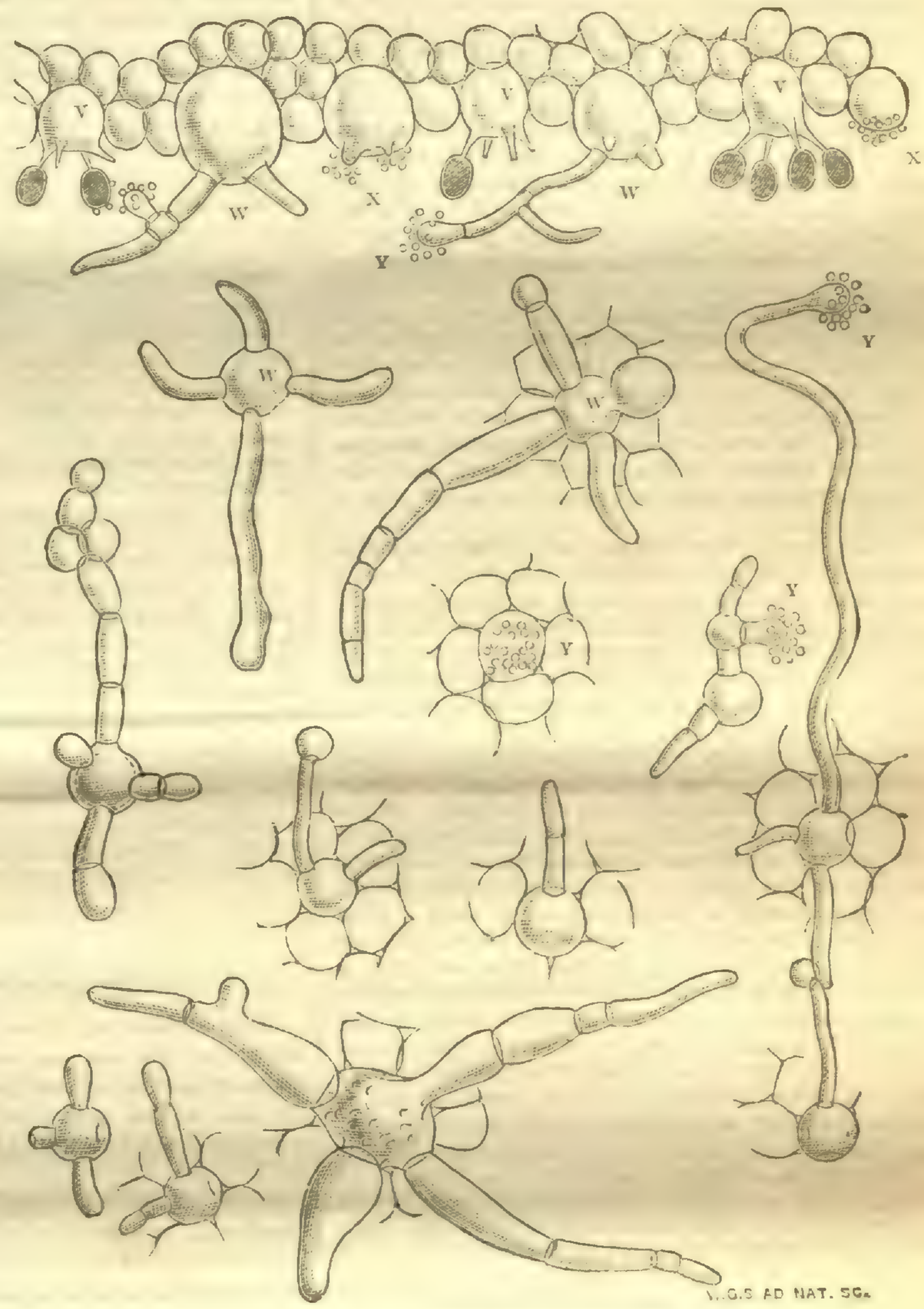

Fig. 105.—COPRINUS RADIATUS, FR.

V, Basidia bearing spores; W, Cystidia; X, Y, Spermatozoids.

surface of the pileus to be caused by a series of cracks which are brought about by the necessarily sudden expansion of the cap, which act of expansion tears (in these positions) the component cells of the pileus apart, fig. 102, E, and fig. 103, K. A transverse section through the fungus when in an infant state shows the commencement of these fissures, as at fig. 102, I, and fig. 103, L. The gills have no trace of a trama—the so-called trama being the cells which form the substance beween the hymenium in the gills; if present this substance would be at M M, fig. 103, but one of the characters of the genus Coprinus is that the gills have no distinct intermediate substance in the gills. In the plant under examination the lamellæ or gills are free from, and form a collar round the stem (fig. 103, N), and are only about seven cells in thickness.

Good sections down and across this stem when young will show it (gossamer like as it is) to be piped or hollow from top to bottom (fig. 103, O), and the hairs seen at the base (P P) are the torn remains of the veil or wrapper which once held the edge of the pileus (Q) down to the base of the stem. In this figure several spores may be seen at the base, carried up amongst the cells of the stem. On looking at an entire plant of C. radiatus in this way under a low power of the microscope it appears to be formed of a few thousands of cells only, but if these cells are now measured and counted, which is by no means a difficult matter, it will be found that instead of thousands it really requires millions of individual cells to build up one of these minute plants which a breath destroys. The smallness and lightness of one fungus is such that it requires 150 specimens to weigh a grain, or 72,000 to weigh an ounce troy. In the type specimen of C. radiatus now figured there were 22,560,000 cells in its structure irrespective of the spores, which numbered about 3,200,000 more. If all these cells and spores are only equivalent to the hundred-and-fiftieth part of a grain, it follows that in an ounce of fungus cells there must be no less than one billion six hundred and twenty four thousand millions of these bodies, exclusive of the spores. In a large Mushroom the cells would number hundreds of billions. Still more wonderful is the fact that each individual cell is furnished with a spark of life, contains water, protoplasm, and other material, and is capable of growth and assimilation.

The purpose of this essay is to demonstrate something of the life history of the minute but truly wonderful fungus now before us; and with this object in view it is not only necessary to use the higher powers of the microscope, but to patiently watch the fungus and its changes at every hour (almost minute) of the night and day and for several days in succession.

In the vertical section of one of the minute gills, as shown in fig. 104, magnified 150 diameters, the whole fruiting and reproductive surface of the fungus is seen at a glance. The nature of the furrows in the pileus (R) is now perfectly clear, every cell being seen in position, and the remnants of the universal veil or wrapper are seen on the surface of pileus at S. Studded amongst the cells of the upper stratum of cap may be seen various brilliant crystals which belong to the ammonio-phosphate of magnesia, and which crystals are taken up by the fungus from the manure on which it grows. Many dung-borne Agarics are covered with so-called micaceous particles, which, in many instances, doubtlessly arise from the manure which supports the fungus. It is a matter of considerable difficulty to get a section like this, for if attempted clumsily no result will follow beyond a slight discoloration of the edge of the lancet; it is necessary to take the slice at the exact moment of maturity, and even then it requires the perfection of dexterity to cut the fungus properly, as the plant is sticky in all its parts. A fragment of the fruiting surface of a gill is shown at T.

To understand the vital phenomena of C. radiatus it is necessary to comprehend the meaning of the bodies seen in figs. 104 and 105. The whole fungus is built up of cells, which run parallel with each other (and at maturity are very long) in the stem (fig. 103), and which spread laterally, and then become more or less spherical in the pileus. When these cells reach the gills or fruit-bearing surface (hymenium, U U), a certain differentiation takes place in their functions. The majority of the cells remain simple, but certain other cells which are spread over the gills with the greatest regularity assume a different nature, and produce spores. These cells are called basidia (meaning small pedestals, V V, figs. 104 and 105), and the spores, or analogues of ovules or seeds, basidio-spores, because they are carried on these little pedestals. The minute threads between the spores and their pedestals are termed spicules or sterigmata (literally props). Certain other privileged cells (W W, fig. 104) are termed cystidia (bladders), and around these latter organs and their meaning the principal interest of the subject in hand will now centre. But let it be borne in mind as a preliminary fact of the utmost importance that at first the fungus is composed wholly of simple cells which show no differentiation; no differentiation in the cells is seen in infancy when the gills are first formed, but the privileged cells, known as basidia and cystidia, come only into existence and that simultaneously as the plants reach maturity. This differentiation I consider to be sexual, the basidia being female, and the cystidia the male organs. When the contents of the basidia and cystidia are interchanged, the result is a return to another series of cells, which go to form a new plant. I am perfectly aware of the opinions which have been expressed by other botanists (and to which I shall

return), but it is not so much my aim to make my observations accord with what others have said, as to record what I have seen myself, and to give my own interpretations of the phenomena seen, irrespective of what has been said or done before.

The first sign of differentiation in the simple cells of the gills, when the basidia and cystidia are about to be produced, is in the privileged cells becoming glossy, crystalline, and translucent: they both appear to secrete a material which makes them conspicuously brilliant. Each basidium then throws out four slender branches, the tips of which gradually swell and form spores. The cystidia (W) are more sparingly produced (for their number in this species see fig. 102, H, and fig. 103, Q), and at first cannot be distinguished from the basidia, though they are frequently larger in size; they are commonly granular within, and are in many species, as in the one before us, crowned with granules, W (fig. 105, X), but sometimes they bear four spicules, and this latter condition has led some botanists to consider the cystidia to be barren basidia, but that they are really cystidia with spicules is proved by the following fact, which I believe to be somewhat new. In moisture, as supplied by the expressed juice of horse-dung (or even distilled water) these spicule-bearing cystidia germinate at the four points of the spicules, and produce long threads, which bear at their tips the granules so frequent in typical cystidia (fig. 105, Y). The cystidia are moreover furnished with spicules in the sub-genus Pluteus. The germinating cystidia are seen in several places at W, figs. 104 and 105, and the granules at X, Y. On the top of fig. 105 is seen a section of a gill with all the bodies in position enlarged 350 diameters, whilst on the lower part of the cut may be seen various germinating cystidia to the same scale as seen on the surface of a gill. The granules at Y, which are at first not capable of movement, are really spermatozoids possessed of a fecundative power, but to see this power brought into operation considerable care and patience and the higher powers of the microscope are requisite. In certain other of the Agaricini, the protoplasmic contents of the cystidia are at times discharged from one mouth only and that at the apex of the cystidium.

Before quitting figs. 104 and 105, I may say that when a slice, as represented in fig. 104, is placed under a covering glass in a drop of water, all the cells totally collapse and perish, so that in three or four hours not a vestage remains, but the same drop of water which destroys the old cells instils life into the granules or spermatozoids, which after the lapse of a couple of hours begin to revolve, and ultimately swim about with great rapidity. These spermatozoids attach themselves to the spores, pierce the coat, and discharge their contents into the substance of the spore. From twenty-four to forty-eight hours after this the spore discharges a cell which soon becomes free, and this is the first cell of the pileus of a new plant which rapidly produces others of a like nature (Z, fig. 104). Now the same water which had the effect of immediately collapsing and destroying the old cells, has quite a different effect on the new cells as discharged from the fecundated spore, for the whole development of the new plant depends upon the constant presence of moisture, expressed juice of horse-dung being perhaps best. A spore unpierced by the spermatozoids is shown producing a mycelium peculiar to itself, at A, fig. 104.

A spore is commonly considered to have some analogy with a seed, but according to my views its analogy is rather with an unfecundated naked ovule without an embryo, unless the nucleus within the spore may in some way represent the rudimentary fungus; when the spores are formed within sacs or asci, the ascus bears some analogy with the ovary. The cystidium, on the other hand, represents with its granules the anther and its pollen.

CULINARY NOTES.

THE following recipes are seasonable, as well as of practical utility. *Coquinus.*

QUINCE JELLY. A.—Wipe the Quinces carefully, then cut them in slices lengthwise, without removing the skin. Take out the pips (I should say leave them, but so it is written in the original document, which has led to excellent results). Throw these slices, as you cut them, into cold water in a stewpan which is not tinned, because tin blackens fruit preserves, jams, and jellies. There should only be just enough water to cover the sliced fruit. Set the stewpan over a brisk fire. When they are boiled quite tender pour out the contents of the stewpan into a sieve set over a broad pan, and let the juice drain completely away. Add to the juice an equal quantity, by weight, of lump sugar, and set it again over a brisk fire. Let it boil until a teaspoonful of the juice poured on a plate, and set in a cool place, will turn to a firm jelly; then put it into pots.

The fruit which remains in the sieve after being drained makes excellent Quince-paste cakes.

QUINCE-PASTE CAKES.—Pound the cooked and drained fruits with a pestle and mortar. Squeeze them through a coarse sieve or an ordinary cullender, the holes of which are not too big. Incorporate with this marmalade its own weight of powdered lump sugar, and roll it out thin with a rolling-pin, as you would pie-crust. When a convenient thinness is attained, cut it out into cakes with the top of a wine-glass, or with the fancy-shaped tinned iron stamps you would use for biscuits, or simply cut it into squares or lozenges with a knife. Lay a sheet of white paper on a sheet-iron plate; on this lay the cakes, not touching each other, and put them to dry into a cooking stove after the fire is out, or a very slow oven. When the cakes are dry and cold keep them in a tin box, with a sheet of paper between each layer of cakes.

APPLE JELLY.—Peel and cut your Apples into thin slices lengthways, rejecting the cores. As fast as you do this throw them into cold water, to prevent their turning brown. Set them on the fire in a stewpan, with just enough of this same water to cover them well. If you like, add the juice of two or three Lemons for every fifty Apples. The whole of this operation should be done as rapidly as possible. When they are quite soft and yielding to the pressure of the finger take them off the fire, and put them into a very clean sieve or a new flannel jelly-bag, to drain into an earthen pan, but without squeezing them. Pass the juice through the bag till it is perfectly clear, and add to it an equal quantity of sugar broken into small lumps. Let it boil until the juice hangs about and clings to the skimmer with which you stir it. Pass it once more through the sieve or a small-holed cullender. Throw in exceedingly thin slices of candied Citron peel, and put into pots.

Pippins are usually employed for this purpose, but many other kinds make very good jelly; even in winter keeping Apples can be used, provided they are not woolly and dry. Apple marmalade may be made with the residue. The jelly is firmer when only three-quarters the quantity of sugar is used, but is darker in colour.

Pear jelly may be made in the same way.

QUINCE JELLY. B.—Let the Quinces be fully ripe, which is known by their yellow hue and their strong smell. Make the jelly in the same way as directed for Apples, but leaving out the Lemon juice. When finished boiling, pass it through the jelly-bag without squeezing it, which would prevent its being clear. The Quinces are not peeled, because the skin both increases the aroma of the jelly and gives it a more attractive tint. The pulp left, mixed with powdered sugar, makes good marmalade, which will be still more delicate in flavour if a few Apples or Pears be added. But the Quince cakes above described are by far the most elegant preparation.

The Villa Garden.

THE DESERTED VILLA GARDEN.—The Villa gardener receives the best of advice each week in the pages of the *Gardeners' Chronicle* as to the conduct of his affairs, and doubtless many a perplexed amateur looks forward to Saturday as a day when he will be set straight again as to necessary operations; but the advice and the difficulties both suppose a garden in existence—a piece of ground with plants then growing in it, to be well or ill-treated—and there is sometimes a state of affairs very different to this, where the amateur finds himself possessed of what is called a garden, but in a condition that none of the rules laid down for sequence of established work quite apply to, and where some guiding ideas as to the best method of getting his wilderness into order, would be a great relief from perplexity.

Those who have gone through the labour of getting a new home into order may have still before them the remembrance of the "garden" when they took possession. The neighbours probably with one voice declared how fond the late occupier was of his plants, and so he seems to have been, for he has carried them off with him, and the horticultural remains (besides the trees, which the lease has fortunately preserved) are, as likely as not, merely some old Roses, Chrysanthemums, Wallflowers, and other matters worthless to move, with a sprinkling in all directions of some "garden flower grown wild," varying with the soil of the district—Foxgloves, perhaps, or Eschscholtzias, Snapdragons, Red Valerian, or appropriately named Forget-me-Nots.

The amateur longing to get his garden into some degree of comfortable appearance for winter, and of promise for spring, finds himself in face possibly of both a soil and climate new to him; and though for those to whom the mere turning over of the fresh, sweet-scented earth is a pleasure the bringing of order out of such chaos is a real enjoyment, those, on the other hand, who have not confidence in their own powers have a task before them in reforming what is present, and choosing and grouping the additions, which a few suggestions might sometimes lighten.

Where all has to be got into order, it is well to begin by saving every plant that is not absolutely in the wrong place. The assistants called in to help to get things into order appear usually to think differently, and seem bent on having all up that will come with a good pull, but if all the straggling plants are pruned, staked, fixed upright, and made to present as respectable an appearance as possible, there is at least a beginning. Their roots are presumably in fair order, and it is possible they may turn out valuable plants, but if they do nothing else they keep the garden from looking an absolute desert to begin with, and they give points to group from. Before refilling the beds it is prudent to cast a glance round the neighbouring gardens, to see what kind of a climate is to be expected. If the Magnolia grandiflora flowers as a standard it is a sure sign of a fairly temperate position, further south and west the Coronilla flourishing out-of-doors through the winter would tell of a still warmer climate, and in a hilly neighbourhood a note of the comparative dates of the giving way of the Dahlias before the frost would probably give much insight into comparative dampness in different localities. A few walks with the express object of seeing which plants of the kinds commonly cultivated throve or were absent, might save much after-disappointment.

Where the thing is possible it also saves both time in growth and expense to get the required plants from a garden close at hand. In country neighbourhoods this is very likely impracticable, but there, where roots may remain in a deserted garden untouched for years the need of refilling is not so urgent as in suburban localities, where (even if the out-going tenant had not wished to carry off his favourite flowers, or give them where they would be valued) the roots would not the less have vanished from the uncared-for ground before the arrival of the new occupier. If the new plants are taken from a garden close at hand, with the barrow waiting for their conveyance, a good clump may be dug up with the runners and soft shoots unbroken, and the fibrous roots uninjured in their ball of earth, and at once replanted before any material check has been given, and from the large size of the plants, which may thus be moved in safety compared to what may reasonably be sent by railway carriage, the amateur may as surely reckon on a good display of flowers from his newly-planted specimens in the following season, as if they were the old tenants of the grounds. In the case of the smaller perennials the point is of less importance, but with many of the larger sorts, which depend for their full effect on being in good-sized masses, a neighbouring garden as a source of supply is a valuable assistance.

At the present time of year little can be done towards making the garden gay with flowers for the remainder of the season, but Chrysanthemums may be put in, and Russian Violets transplanted in good masses would give a cheerful green colouring to bare earth, and also some sweet blossoms, and the hardy Cyclamens, Christmas Rose (Hellebore) moved in large clumps, yellow Winter Aconite, and small Laurustinus bushes which have been thrown into early autumn flowering, would all help; but the chief point is preparation for the future.

The usual hardy bulbs suggest themselves, but a good proportion of hardy perennials and small flowering shrubs is very desirable, so as to extend the interest of the garden over the whole year, instead of merely concentrating the floral display on the warm months; in spring and summer they give much more variety than can be found in the unmixed adoption of bedding-out plants, and in winter the different tints of foliage, or the mere existence of foliage at all, gives a cheerful and cared-for look to the garden very different from the aspect of empty winter-sodden beds.

A few of the plants of hardy habit and good effect are well put in at once. Where a whole garden is to be filled it is best to wait a little till climate and soil has been tried before putting in the more expensive and doubtful growers, but something is needed to make a show with directly, and for this known favourites are best. Double Daisies are good for bordering or separate clumps; Hepaticas, red, blue, and white, the white Arabis, yellow Alyssum, and and pink Silene, are all good for early flowering. The Erica carnea is well worth having good plants of for its bright rosy blossoms and neat foliage, and it bears carriage well if treated with moderate care afterwards. The white Rocket is a plant not as often seen as it deserves to be for its permanence in bloom in the early summer, and its delicious sweetness of scent. The scarlet Lychnis, the great Oriental Poppy in summer, and the Tritoma in autumn, are useful; so are the double perennial Sunflowers, and most particularly the yellow Leopard's Bane, which flowers for weeks in the late autumn. Pinks and Carnations, Sweet Williams, Bergamot Mint, Wallflowers, Antirrhinums, Phloxes, Larkspurs, and hosts of others, all move well now; and all that is requisite is a glance down any catalogue of perennials to settle what will best suit the circumstances. With care and taste the permanent plants may be made to set off the bedding

plants or annuals put in for temporary display far more picturesquely than when these are simply massed together. Of course in some cases the broad bands or groups of one kind of plant or one tint are requisite, but where the kinds of plants can be mixed the different heights, methods of growth, and power of contrasting the colours, enable the grower to show the points of each individual plant thoroughly, whilst the bed if properly arranged is not, as often supposed, a mass of confusion, but a picture—a single idea, so to say, like a tastefully grouped bouquet.

In a good sized bed a permanent evergeen centre always looks well, something ornamental and graceful if possible, but even an Irish Yew is not amiss if nothing better is procurable; the green contrasts with the bright blossoms round, and gives a reliable point to group from. White leaved plants such as Pinks and Carnations have a good effect with any bright spring flower or annual that may be a favourite, enlivening the bed till their own blossoms expand, to be replaced by a centre of scarlet Lobelias, or any showy autumn flower afterwards.

Some of the common perennials (Rockets or Daisies, for example) are better for being moved after flowering, and may conveniently be made to give up their places to some summer plant which will be passing out of bloom when they are ready to return in good foliage in the autumn; and by a little consideration in arrangement as to what may be moved temporarily, what may be allowed to overrun spots where tops have withered down, and also as to the permanence and variety of foliage for winter effect, the beds of perennials or mixed growths may be made, if not as gorgeous in summer as those filled from the greenhouse and the frames, at least bright and pleasing, with the advantage of never being wholly bare even in the depth of winter.

The amateur in a new neighbourhood would do well to choose his plants himself if they can be procured near; if he goes himself from bed to bed with the seller he is at least likely to have what he orders, but without personal care the next season may present him with Rhododendrons or Carnations, or whatever it may be, all of one kind and colour, to his no small disappointment.

Another important matter, which should be investigated and got into order first of all, is the condition of the soil in the beds or borders. Possibly it may be found to consist of a heavy clay, showing that bulbs should not be specially looked to for effect; peat or marl would equally show their appropriateness or inappropriateness for various sorts of growths, and would speak for themselves, but there is a sort of soil very deceptive to a newly arrived amateur which needs a special inquiry. It seems to exist in some gardens as an artificial layer, invitingly dark and rich in colour, firm after rain yet not too heavy, and raises great expectations at first sight, but if thorough examination is not made spade in hand, when summer comes round it will be found nothing but a mass of whitish powdery earth, so loose and dry that nothing of moderate height can be induced to stand upright in it without staking, or perpetual pressing down with the foot, and having close beneath a layer of clay apparently never stirred. In this case good trenching (surface digging is not enough) and a junction of the two soils, with or without manure, answers excellently, and a little consideration would usually at once put all similar difficulties (of which this is only one example) to rights.

The mere turning-up of the fresh soil, and mixing it with that on the surface, will very likely be quite enough for the flowering plants without the addition of manure, but sometimes a thorough search will bring to light a treasure-heap of leaves and vegetable rubbish which has been left to decay in some neglected corner, or even a border which has been well dug and richly manured a few years before, and then hidden and preserved by boughs trailing over from neighbouring bushes. Such a spot cannot be made too much of; when it has been once turned over with the fork everything put into it seems to thrive, and it is particularly useful as a kind of hospital-border for restoring dwarf invalid Roses, or coaxing every pet or ailing plant back into health.

The advice proffered by new assistants as to the quantity of protection requisite in winter is also to be received with caution. If the plants do not require it they are much better without, both for their own health and also for economic considerations—mats or whatever materials may be used being expensive in themselves, and causing much additional labour. The Pampas-grass, now such a universal favourite, is sometimes an especial sufferer from over-protection.

The neglected garden is not without some charms to the true lover of plants, some of the climbers which flower well in unchecked luxuriance are thus seen in their fullest beauty, the shrubs too often closely trimmed back are seen in their natural growths, and the general disorder may suggest some good idea of grouping in its unusual combinations. Heaps of soil carelessly thrown beneath a row of trees may have a few Rhododendrons, or any ornamental shrub that will bear moderate shade planted in proper soil for about a third of the length; and if the other part is sown with grass, and Ivy trained up the wall which is so frequently found at the end of a Villa Garden, the whole will give a picturesque grouping more pleasing than a bare wall with a straight walk, bordered by trees at regular intervals in front. The various combinations suggested, however, are endless, and far more lifelike from being the following up of natural grouping than when laid out from preconceived plans possibly not adapted to the special circumstances.

Where a new occupier has a skilled gardener and his staff at hand no suggestions of course are needed, but the term of Villa Garden seems more especially appropriated to the moderate-sized "pleasaunce" where the superintendence is usually given by some of the family, and the pervading beauty and order show the truth of Ray's statement that the master's affection is the animating power in his garden; once started well, all thrives, but with everything new about him the most ardent plant lover has many perplexities, and even a few simple suggestions may occasionally be of service. *O.*

Natural History.

Celery Fly.—The Celery fly (Tephritis onopardinis) requires a little attention directed to it at present. I have no opportunity of ascertaining accurately whether it is more prevalent than usual throughout the country, but here (about 9 miles west of London) the larvæ have been far more numerous than I have ever seen them elsewhere, and are very mischievous.

In one garden, about a fortnight ago, the whole of the Celery crop was on the point of being cleared away in consequence of their injuries; and in my own, where I have opportunity for more minute observation, a large proportion of the old leaves are totally destroyed, the leaflets hanging down with the upper and under surface gnawed completely apart, pale whity-brown and flaccid—the rows, somewhat more than 30 feet in length, showing the attack (where they have not been especially attended to) throughout their whole extent.

It would be well now to cut away all the decaying leaves, that the decay may not spread downwards into the plant; and in the separate leaflets where the attack of the insects is as bad as in the present case, not to be content with merely pinching the grub, but to get rid of the injured part of the leaflet entirely, by pressing the thumbnail firmly down on the mid-rib against the first finger, immediately below the edge of the infested blister, and tearing it, as neatly as can be managed, but also completely away. In ordinary cases the pinching is quite enough, and saves part of the leaf, but where the attack is as general as at present it is impossible, if only employing this remedy, to detect the new injuries without careful examination, whilst, if the piece is nipped off, any new blisters are detected, and can be attended to at once, reverting to the less destructive method of removal as the cause diminishes. The blisters may contain more than one larva, and should be gathered together and destroyed at once before the larva has time to transfer itself into the earth. It is indeed highly desirable, where the plants are much infested, that some attention should at once be paid both to diminishing the numbers of the larvæ, and by careful removal of the decayed leaves diminishing also the effects of their injuries on the crop. *O.*

Law Notes.

A Railway Company sued for Loss of Market.—*Forsyth* v. *the Great Northern Railway Company.*—This was an action brought by a fruiterer carrying on business in Huddersfield, to recover from the Great Northern Railway Company the sum of 30*s.* for loss sustained by the non-sale of goods sent from Covent Garden Market, in consequence of delay in the arrival of the company's train. The plaintiff's solicitor said that his client brought this case solely upon principle, as he had on several occasions suffered materially from the frequent delay of goods arriving by the company's trains. The plaintiff said he carried on business as a fruiterer in Huddersfield, and was a customer of Messrs. Jacobs, of Russell Street, Covent Garden, from whom he ordered on July 31 five boxes of Nectarines, one case of Peaches, three cases of Pears, 16½ lb. of English Grapes, with other articles which were delivered to the defendant's carman, Sennet (who was in the habit of collecting goods in the market twice daily), before 1 o'clock in the day, and they ought to have been delivered in Huddersfield in time for market on the following day, instead of which they did not arrive till evening. The goods being of a perishable nature, and there being only two market days at Huddersfield, he lost the sale of many of the goods. The witness, in cross-examination by Mr. Harmsworth, the standing counsel to the company, said he knew there were two deliveries in the market to the company's carmen at 1 and 2 o'clock, and a second at 6 o'clock, and there was a greater pressure of traffic in the evening. The fruit was packed in baskets and boxes, and the length of time the fruit, especially Pears, would keep, depended entirely upon their degree of ripeness; as to Nectarines and Peaches, they might be spoiled, especially in transit, by bad packing. The plaintiff in re-examination said he ordered fruit daily from Covent Garden in order to have it fresh, and had made frequent complaints to Mr. Jeffries, the Huddersfield agent of the company, about their want of punctuality in delivering the goods, and was told the company was not bound to deliver goods at any stated time. He had made frequent applications to the company for compensation, but not receiving any redress, considered he would bring the present action. His Honour asked if the plaintiff's solicitor intended to rely on a special contract, or upon the usual practice of the company as carriers. The solicitor replied that he would rely on the simple liability of the company as common carriers. Mr. Harmsworth addressed the Court at considerable length, urging that the company were not liable by their bye-laws to deliver goods at any particular time, unless they were marked as perishable, and called the goods manager from Huddersfield, who corroborated Mr. Harmsworth's statements, but stated that all goods were delivered on their arrival at the station with all reasonable dispatch. The learned Judge, having gone over the whole of the evidence, considered the company liable for the loss the plaintiff had sustained. Judgment was therefore entered for the plaintiff—£2 12*s.* 6*d*, which included his travelling expenses from Huddersfield.

Law as to the Return of Empties.—At the Southwark County Court on October 7 the case of Neville *v.* Clark was heard before the presiding Judge, F. Whitmore, Esq., in which the plaintiff, a wholesale salesman, sued the defendant, a retail dealer, to recover the sum of £1 18*s.*, being the value of sundry empty Potato sacks retained by the defendant. The plaintiff said he had recently retired from business, and as he had several hundred empty sacks out he brought the present action to try the question of liability. From the plaintiff's statement it appeared that the defendant had been supplied with goods at various times from January to July last, and though written to only returned the sacks in September, when the plaintiff refused to receive them. The defendant said he had dealt with the plaintiff for ten years, and during that period no arrangement as to time was made for the return of the empties. The plaintiff denied this, and said he never allowed for sacks when retained three months, as they become deteriorated; and as he had retired from business they were actually useless to him. The learned Judge thought that three months was a very liberal time allowed for the return of empties; but as in this case there was much conflicting evidence he should rule that the defendant should pay half the amount claimed and retain the sacks; and that as to the question of costs each party was ordered to pay his own, which virtually amounted to a verdict for the plaintiff—the defendant retaining the empty sacks.

Notices of Books.

Publications Received.—Food Manufacture *versus* River Pollution: a letter addressed to the Newspaper Press of England. By W. Hope, V.C. (Stanford).—Pollution of Rivers: what Means can be Adopted to Prevent It? By W. Hope, V.C.—Part I. of the new edition of Cassell's History of England.—The Indian Forester; a Quarterly Magazine of Forestry, edited by W. Schlich, Ph.D., Conservator of Forests, Bengal (Calcutta Central Press Co.).—Elementary Lessons in Botanical Geography. By J. G. Baker, F.L.S. (Lovell Reeve).—Nebraska; its Advantages, Resources, and Drawbacks. By Edwin E. Curley (Sampson, Low & Co.)—An Old Story. By S. C. Hall, F.S.A. (Virtue & Co.)—The Botanical Locality Record Club: Report of the Recorder for 1874.—Sewage Turned to Profitable Account. By Robert Pulling (E. W. Allen).—A Letter to the Right Hon. Lord Calthorpe on our Horse Supply. By S. Sidney.—Report of the Fruit Growers' Association of the Province of Ontario for the Year 1874.—Agricultural Returns of Great Britain (County Summary), 1875.

The "Gardeners' Chronicle" in America.

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HORTICULTURAL EXHIBITIONS, 1875.

NOVEMBER.

10.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
10 and 11.—Bristol Chrysanthemum Show.
15 and 16.—Loughborough Chrysanthemum and Fruit Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.
16 and 17.—Borough of Hackney (late Stoke Newington) Chrysanthemum Society's Show, in the Town Hall, Hackney. Sec., J. Rainbow jun., London Road, Clapton, E.
25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Cheetham Hill Horticultural Society's annual exhibition of Chrysanthemums, Miscellaneous Plants, and Fruit.

THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 16, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Oct. 18	Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Oct. 19	Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Oct. 20	Sale of Dutch Bulbs, at Stevens' Rooms.
THURSDAY,	Oct. 21	Sale of New Plants from Mr. Bull's, at Stevens' Rooms.
FRIDAY,	Oct. 22	Sale of Books and Natural History Specimens, at Stevens' Rooms.
SATURDAY,	Oct. 23	Sale of Dutch Bulbs, at Stevens' Rooms.

INCORRECT terms are a great hindrance to the progress of natural science, because they not only convey false ideas but imply their acceptance as acknowledged truths. Now, if ever a word was unluckily chosen to express a fact or process, actual, possible, or only wished-for, it is the word ACCLIMATISATION. And the worst of it is, that it is now too late to make a change. The term having been adopted, people are obliged to use it, even although they see that it begs the question at issue, and although, after many unsuccessful trials, they may entertain grave doubts whether Nature admits of such an operation as acclimatisation, at least through the agency of Man—whether the constitution of living organisms can be modified to such an extent that, although thriving best under certain favourable circumstances, they may be made to bear, with uninjured health, the conditions of a different, often a less genial, climate.

The French are in great measure answerable for the propagation of these flattering hopes; and really it would be delightful as well as profitable to carry out in practice the acclimatisation theory to the extent to which its advocates have led us to hope for. To some extent, and given a long duration of time with careful selection, the thing seems feasible, but we must not delude ourselves into the idea that any great results can be obtained suddenly. What a pleasant day-dream it is to fancy our pleasure-grounds made vocal with acclimatised canaries—which, we were once assured, was shortly to happen; our orchards yielding Hesperian fruit on branches clothed with epiphytal Orchids; humming-birds hovering over clumps of open-ground Gardenias; our elephant stock independent of noble savages tamed by the wiles of old-entrapped females; and our labourers enjoying really happy strikes, thanks to the Yams, Bananas, and Bread-fruits growing in their garden plots! Acclimatisation ought only to have to wave her wand, to call forth all this, and a great deal more besides.

Twenty or thirty years ago the world's expectations in this matter were probably more sanguine than they are at present; for endeavours made have not been crowned with the success anticipated. So lately as 1861 the fourth edition of M. ISIDORE GEOFFROY SAINT HILAIRE'S book, *Acclimatation et Domestication des Animaux Utiles*, brought the water into our mouths by a copious and interesting account of creatures which not only were desiderata but were held out as possible acquisitions; by which is meant, not the possession of a few individuals, but the easy propagation of the species or the race, to the extent of increasing the productive resources of a people. But up to the date of the siege of Paris, the gardens of the Société Zoologique d'Acclimatation had proved themselves to be ornamental and agreeable rather than useful or effectual to promote the object proposed.

All gardeners know that, for many individual species of plants, there is a limiting degree of temperature below which, although they may continue to live, they cease to do well. Instances may be cited in two well-known plants, almost all the members of whose genera thrive in greenhouses (cool and temperate glass structures) and in sunlit living rooms. The Begonias are not generally hothouse plants, nor are the Cactuses; nevertheless, B. fuchsioides and Epiphyllum truncatum, to flower and flourish well, must be indulged with a degree of heat superior to that required by the rest of their respective families. Nor has horticultural art been able to effect the slightest change in their constitutions in that respect—they remain exactly what they were from the first. True, it may be said that they are both of them mostly propagated by extension, and that the acclimatator thereby loses the chance of obtaining robuster constitutions in seedling plants. Again, by crossing with hardier species, an offspring more hardy than the one parent at least may be expected, but this change can hardly be said to be a change in the original species.

Other plants will live and thrive, and even ripen seed, in climates cooler than those needed to mature the special products in which their value consists. Familiar examples are the Vine and Tobacco—one generally multiplied by cuttings, the other always by seed, one inscrutably ancient, the other not new. It would be most desirable to make them yield those special products wherever they will live and grow. Yet neither the efforts of man, nor the plastic force of Nature, nor any unknown influence which we designate as "chance," has produced a variety of Vine or Tobacco which will supply, in high latitudes or under cloudy skies, wine or cigars of equal flavour and perfume to those of Cuba or the Côte d'Or of Burgundy. The plants grow well enough, and seem tolerably resigned to their situation; but still they are exiles, not yet sufficiently acclimatised to those foreign lands to express their joy and contentment by the same aromatised manifestations as they would at home.

The temperature at which water becomes ice (32° Fahrenheit and 0° Centigrade) draws a marked line between the plants which can support it and those which cannot. Below that temperature plants differ greatly in their powers of resistance to frost. Verbenas, Heliotropes, and Potatos, are singed by cold which does not immediately or visibly affect Zonal Pelargoniums and the common Tropæolums. With a slight further drop, they also succumb. But the acclimatator, although he has this small degree of positive hardiness to help him to begin with, has not hitherto changed either the Ricinus or the old garden Nasturtium from annuals into hardy perennials, as they are at home, and as they ought to be here if his pretensions are founded on fact.

Amongst the plants absolutely confined to the warmer side of the freezing frontier there are many which, long before they reach or even approach it, languish and die of cold; they have no need of frost to give them their finishing stroke; they are chilblained, and perish quietly, through flagging circulation and enfeebled vitality. Heat is motion, says Dr. TYNDALL; growth and life are also motion; and if the heat be insufficient to keep those motions (special to each species) properly going, a stoppage is the necessary result. No cure for this demand, by plants, for particular doses of heat, has yet been found by propagators. Nurserymen receiving new plants from undetermined warm localities are sometimes perplexed at first whether to call them hothouse or greenhouse plants, hothouse being often preferred for safety's sake. New plants, in catalogues, are occasionally announced as greenhouse, which the purchaser, on trial, finds to his great disappointment to be hothouse, sometimes very hothouse. Were acclimatisation a reality, the remedy ought not to be far to seek; losses would be fewer and remediable. At present they are numerous and certain, whenever the mistake of misjudging a plant's native conditions has been made. No power can compel the plant to change them, any more than any number of men can force an unwilling horse to drink.

In every case, the truth of a theory or a system must be tested by the results obtained. Have the fruits corresponded with the promises? One may, therefore, be permitted to ask, "What have the acclimatators acclimatised?" May we not venture to reply, "Nothing whatever:" because, as we believe, the hardiness found to exist in plants and animals after their introduction to this and other countries, was already innate and inherent in them before they left their native shores. Their change of home has simply tested their robustness, but has not altered their constitution. The cockroach, arriving yesterday from India in a passenger's luggage, resists our climate just as well as the cockroach whose ancestors have been domiciled in Great Britain for generations and generations. The Pampas-grass is neither more nor less hardy than when it first left South America; it resists our ordinary winters in ordinarily favourable sites, but perishes with a certain excess of inclemency in either. The same with the Veronicas of the southern hemisphere, which are still more easily killed by cold. On the other hand, Dielytra, Aucuba, Weigelia, Forsythia, and other welcome strangers, proved perfectly hardy with us from the very outset; there was no gradual increase of their resisting powers—no true acclimatisation in the plain and correct meaning of the word. The plants showed at once of what they were capable, and have not since deviated from what they then showed by a single degree of the thermometer.

This, and the like, is what Nature, or the natural inborn energies of organisms, have done. Let us now note a few things which acclimatisation has failed to do. It has not given us an addition to our poultry yards, in curassows and guans, although the latter at least are as tame and domestic as birds can be; it has not increased our supply of silk through the agency of Eastern-Asiatic moths, which may be reared as curiosities, but are ineffectual as commercial helps; it has not made COBBETT'S corn the staff of life; it has not given us eland flesh as butcher's meat, nor filled the market with tapir sausages; it has not supplanted the shepherd's dog by a most clever bird—the agami, nor superseded the tame rabbit by the mara and the cabiai or capybara, although the latter is a promising aquatic rodent, fattening on water-weeds to the weight of 100 lb. Acclimatisation has not made New Zealand Flax grow as luxuriantly outdoors here as in New Zealand; it has not even acclimatised the Potato. With this experience of facts, may we not be permitted to doubt whether the process which we understand by

Fig. 106.—Lilium Packmanni. (see p. 494.)

acclimatisation really and practically exists at all?

Attempts at acclimatisation, or the adapting and altering living organisms to suit altered circumstances, compared with the retaining of organisms in the circumstances to which they are naturally accustomed, call to mind what has been said of the respective climates of Rome and Madrid. Rome is a "winter paradise;" Madrid glories in its nine months of winter and three of *inferno*, which can only be whispered to ears polite. The Roman air is soft and moist; that of Madrid is exceedingly dry, and, beyond comparison, healthier, The Italian city is a refuge for invalids; the Spanish capital is a test for sound lungs—it braces up and strengthens those it does not kill, but it does kill the feeble instead of acclimatising them.

Strange plants and animals introduced into countries new to them, whether by design or accident, have often immediately shown their fitness for the soil and climate, and have thenceforth multiplied, increased, and spread, to such an extent as to become naturalised. The very recentness of many of these instances (which are too well known to need recounting) precludes the possibility of the slow and gradual change denoted by the expression "acclimatisation." The creatures suited their new home, and their new home suited them. Man was sometimes the instrument of bringing one to the other, and that is all the merit he can claim in the matter. If, therefore, acclimatisation societies had adopted the more modest title of naturalisation societies, or introduction societies—societies for testing the capabilities of untried organisms would be too long—there would be no harm done, no erroneous belief would be conveyed. Such a title would express the truth and nothing more, leaving the grand question open for future experiment and determination. But for a clear understanding of cause and effect, it is most desirable not to confound naturalisation with acclimatisation. Too often the terms are used indiscriminately, in spite of their completely different import.

It would be presumptuous to assert that important changes in the constitution of a race may not be wrought during a long succession of generations in animals, and seedlings in plants, by patient, long-continued selection or hybridisation; but it would also be wrong to allow experimenters to reckon much upon them for available purposes. It is an important point to prevent a waste of time and money on things that have been repeatedly tried before and have as often been found wanting. What may be effected by natural causes, in the course of millions of years, we cannot tell; what is done in the way of acclimatisation by human agency during one or several human lifetimes, appears often to be infinitesimal and quite inappreciable.

A writer in this journal has most truly remarked—"The original nature of plants is little changed by art. Much that has been written, and more of what is believed concerning acclimatisation, is sheer fallacy. But little of actual fact can be sifted out of the masses of chaff to prove that any plant is one whit hardier than it was when first imported, although the possiblity of such a change, or even of its occasional existence, is not denied (by the writer quoted). Take the Peach, Nectarine, and Apricot, for instance. They are as warm-blooded and excitable as when first grown in England. Though they have been cut by spring frosts, to the utter ruin of their crops and the crippling of their energies, throughout centuries, they are just as ready to open their flowers on the first bright day, and to offer them up to the mercy of the first sharp night, as when originally introduced; and so with other plants." From all which the writer wisely concludes that safety must be looked for, not in endowing plants with greater powers than Nature has given them, but in surrounding them with the same conditions that Nature provided for their safety in that particular climatal niche that she intended them to fill.

As some consolation, we may congratulate ourselves that the limits set by Nature on acclimatisation have their advantages as well as their disappointments. In this cool temperate zone we escape the infliction of having the deadly tribe of cobras, rattlesnakes, and their many congeners, familiar in our mouths as household words. If we have no naturalised Sugar-canes or Pine-apples, we are at least untormented by scorpions, jungle leeches, white ants, and other indigenous pests of a tropical climate.

AMONGST the Yucca-like plants which adorn our greenhouses, there is a Mexican generic group to which the name of BEAUCARNEA is now applied, but which—through, as is supposed, the accidental mis-spelling or mis-reading of some garden label, not in itself very exact—once bore the unmeaning title of Pincenectitia. The name, barbarous as it was, clung to the plants for many years, before that of Beaucarnea was substituted for it by M. CH. LEMAIRE in *L'Illustration Horticole* (viii. misc. 57.)

The general opinion of cultivators has been that these Beaucarneas, which are specially remarkable for the great swollen or napiform base of their stems, are extremely slow-growing plants, and so doubtless they are under the restrictive treatment they usually receive, which is almost that of succulent plants, fears being apparently entertained that the cellular swollen mass from which the roots issue, is liable to rot.

We are indebted to Mr. W. B. KELLOCK, of Stamford Hill, for exploding this false notion. With his choice collection of Agaves and other succulent plants he cultivates most of the Beaucarneas, and observation and experiment have induced him to reverse the usual treatment given to these plants. The result is a much more vigorous as well as much more rapid growth. The plants are deluged with water, often twice a day, during summer, and in the dull season when comparatively at rest they are never allowed to become dry. The beneficial effect of this treatment is abundantly shown in a fine example, which a year or two since came almost leafless into Mr. KELLOCK'S hands, but which is now freely clothed with vigorous healthy foliage. It is also apparent in the rapid growth made by young plants.

The same principle of treatment applies to many other Liliaceous plants, besides the Beaucarnea, as well as to sundry Amaryllidaceæ, especially to those having what are erroneously called bulbous roots. In the case of some of these bulbs, *e.g.*, Hyacinths and Tulips, the roots are fibrous, and perish annually. These naturally ripen off, and are no doubt the better for being kept tolerably dry at the same time, but there are many others, as the Vallota and Eucharis, which have fleshy roots which do not perish naturally, and which it is distressing to the plants to force them to give up. Like the Beaucarneas, such plants take rather freely to water whilst they are growing, and can only be efficiently cultivated if their roots, during what may be termed their dormant period, that in which active growth is not going on, are kept plump and fresh and ready for action when the time for active growth arrives, or the circumstances which excite to renewed growth are made to surround them. Very great caution should, moreover, be exercised in "drying off" many other bulbous plants, such as Hippeastrums, Liliums, &c., the roots of which should be preserved to them in a plump, healthy, and vigorous condition as long as possible, and not taken away by the unnatural process of desiccation.

—— IN addition to the EXHIBITIONS OF THE ROYAL HORTICULTURAL SOCIETY in 1876, already advertised, it has been decided to hold another important show on May 3, which will afford a good opportunity for the appearance of pot Roses and greenhouse Azaleas, together with many exceedingly ornamental early-blooming subjects which will serve to lighten up the groups of plants, which we understand are to be invited on this, as well as on some other occasions. The other days fixed for exhibitions are March 15, spring show; June 7 and 8, great summer show; July 19 and 20, second summer show for Pelargoniums, &c.; and November 8, autumn show for fruits, Chrysanthemums, &c. The meeting days for the committees are as already announced:—

January 19	May 3	August 2
February 16	May 17	August 16
March 1	June 7	September 6
March 15	June 21	October 4
April 5	July 5	November 8
April 19	July 19	December 6

—— We have now the pleasure of introducing to our readers a woodcut illustration (fig. 106) of the gorgeous LILIUM PACKMANNI,* of which a brief notice was printed at p. 237, and some further particulars, embracing its history, at p. 366. We understand that a coloured figure will shortly be published in the *Florist and Pomologist*, and it is from the drawing made for this purpose that Mr. FITCH has produced the sketch we now publish. We add a few further particulars respecting the plant flowered at Knap Hill by Mr. WATERER, and which had been sent to him by the raiser, Mr. PACKMAN, who was, we are told, the first person to flower Lilium auratum in America. In the Knap Hill plant the stems were slender, about 2 feet high, each bearing one erect flower. The leaves were of a dark green colour, numerous, alternate, ovate acuminate in outline, and with five principal nerves. The flowers were very large, 8 inches across as reflexed; perianth segments 13¾ inches long, spreading at the base, recurved towards the apex, the petaline ones 4 inches broad, the sepaline narrower, all white, with the basal half suffused with rosy crimson, most deeply towards the centre, most of the tinted surface being marked with deep crimson spots and papillæ of the same colour, the latter a quarter of an inch long. The stamens were somewhat spreading at the top, the anthers nearly an inch long, with deep chocolate-coloured pollen. The green style was about an inch longer than the stamens, and terminated by a purple stigma. This is without doubt one of the grandest flowering plants which has ever been introduced to our gardens, and appears to be quite as hardy and as easily grown as its parents, auratum and speciosum.

—— A good example of what appears to be a fine variety of the woolly-scaled Silver Fir of North California, PICEA LASIOCARPA, is in the possession of Messrs. BUNYARD & SON, nurserymen, Ashford, and is shortly to be transplanted to Eastwell Park, the residence of H.R.H. the Duke of EDINBURGH, with other choice coniferous plants. It is some 7 feet in height by as many in diameter, is well furnished from top to bottom, and is a fine ornamental tree. Coniferous plants do well at the Ashford Nurseries, and the proprietors have planted out a good assortment of the newer and rarer hardy trees for comparison, which have peculiar interest for visitors. One of the claret-leaved Japanese Maples has stood out for five years unharmed, and was maturing a vigorous summer growth.

—— Messrs. JAMES CARTER & Co.'s ROYAL METROPOLITAN ROOT SHOW will be held at the Agricultural Hall, Islington, on November 18 and 19.

—— EPIPHYLLUM TRUNCATUM succeeds well as a window plant with a little ordinary care. We recently saw an example growing in a pot on the sill of a large old-fashioned window of a Kentish farmhouse, that had been there for nearly two years, and was as healthy as a plant in an intermediate house, only that it had not made the same extent of growth. The plant is in a 48-sized pot, thoroughly pot-bound, and forming buds at the point of almost every joint. The warmth within—for a good fire is always kept burning in the spacious hearth during winter—is sufficient to bring the buds into bloom soon after Christmas, and the fine old window, which is open to the east, catches the morning sun and admits plenty of light. Such a collection of window plants as one seldom sees could be found here, all in excellent condition, and comprising Nerium Oleander, Thyrsacanthus rutilans, Rochea falcata, Echeveria retusa, the two latter in fine bloom; various Cacti, Fuchsias, Pelargoniums, Primula sinensis, &c. During the winter the plants are kept fairly dry, the foliage is occasionally cleansed, and a little more than ordinary attention is richly rewarded with fine healthy plants.

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* *Lilium* × *Packmanni*, n. hyb.—Stem slender, one-flowered [? always]; leaves ovate acuminate, alternate, five-nerved; flowers very large, the perianth segments spreading out nearly flat from the base, and becoming recurved towards the apex, the petaline ones broader, white, suffused towards the greenish base with rosy crimson, and thickly studded with deep crimson spots and papillæ; stamens somewhat spreading, the anthers nearly an inch long and the pollen deep chocolate-coloured; style green, about an inch longer than the stamens, with a purple stigma. Hybrid between L. auratum and L. speciosum. *T. Moore.*

—— The following is a literal transcript of a portion of a handbill put forth a short time since by an auctioneer at Acton, announcing the sale of a crop of fruit:—"Apples, Blenheim Orange, Keswick Codlings, Jenertens, &c., a large quantity of Pears, including some fine Williams, Burgundy, Hazel and winter sorts." Orthographic corruptions in pomology appear to be somewhat plentiful in this district; or it may be that the phonetic system of spelling is being applied to fruits in the market gardens in West Middlesex.

—— The Hull, Yorkshire, and Lincolnshire Pomological Society's first great show of fruits, flowers, plants, &c., will take place on Tuesday and Wednesday, October 26 and 27, 1875, in the Artillery Barracks, Park Street, Hull.

—— The white Abutilon Boule de Neige makes a capital plant for bedding out during the summer, mingled with fine-foliage plants in large beds. It serves as an excellent fringe to groups of Erythrina, finished off with an outer ring of Veronica Andersoni, and an edging of Euonymus radicans variegatus. When this bed was in perfection, flowers of late planted Lilium auratum mingled with Erythrina, and of Lilium eximium with the blue Veronica.

—— Mr. Alfred Newton, of the New Corn Exchange, writes:—"As I ventured to anticipate at the close of last year's harvest, the past twelvemonth has witnessed a steady advance in the value of white Mustard Seed, the rise being fully 2*s.* per bushel on fine qualities, and stocks of old seed are now exceedingly small. Brown seed having been in good supply throughout the year, values have been steady. The new crop of white Mustard seed I believe to be, in Essex, a good average in breadth and yield, and mainly of fine quality, but in the Cambridgeshire district it is decidedly a short crop. The bulk of the Essex crop has now been disposed of at 12*s.* 6*d.* to 14*s.* per bushel, and, taking quality into account, it is, at this price, the cheapest seed in the market. Supplies from other districts are more likely to be below our requirements than otherwise, and as there is no reason to expect supplies of foreign seed from any quarter, I quite anticipate that the present comparatively high values will hold until next harvest. There is a large acreage of brown Mustard seed in the Wisbeach district, but it is not expected to yield well owing to the damage done by the heavy rains of last July, and the new crop in Holland is reported to be somewhat under the average; but stocks of old seed are fair, and I see no sufficient reason, as yet, for a high range of prices for brown seed."

—— Among dwarf golden-leaved coniferous plants Biota orientalis semperaurescens must hold the highest place, because of its perennial golden colour and compactness of habit, and the remarkable contrast it presents to the variety aurea at this season of the year, the latter being green while the former is quite golden. Rollisson's variety of B. orientalis, elegantissima, is of a like perennial golden character, and is now assuming an attractive form, which comports well with its compact upright growth. A very handsome intermediate form is found in Siebold's type of orientalis. This is said to have resulted from a cross made between aurea and elegantissima, and while of a tall growth like the latter it yet has the broader balloon-shaped character. Like aurea, it takes on the golden character in early spring.

—— At a meeting of the committee of the Horticultural Club, held at the Club-house, 3, Adelphi Terrace, on Wednesday last, the following gentlemen were admitted as members:—Edward J. Beale, Stonydeep House, Teddington; Joseph Stevens, Grasmere, Byfleet; F. G. Dougal, Clydesdale Bank, Glasgow; Hugh Austen, Glasgow; and George T. Rollisson, Tooting.

—— Among the newer bedding plants Ageratum Duchess of Edinburgh well deserves a place. It is as low in growth as Imperial Dwarf, but it is of more robust growth, with larger leaves, flowers, and trusses of bloom. The hue of colour is the same, but a comparison shows the superiority of the new type over the old one. It has been mentioned with marked approval by several leading flower gardeners, who intend using it largely next season.

—— The Wimbledon Gardeners' Improvement Society was re-organised on Monday evening last. Twenty-two gardeners of the neighbourhood were present, and Sir Henry Peek, M.P., with his usual liberality, provided refreshments. Subsequently the gardener at Wimbledon House—Mr. Ollerhead—took the chair, and after the rules and regulations had been agreed to, read a portion of an essay on Vine borders and the planting of Vines, the concluding portion, and the discussion which is expected to follow, being held over till the next meeting.

—— At this season of the year, when the raisers of Seedling Dahlias are turning their attention to the harvesting of seed, it is well to recall a caution given by Mr. John Keynes some years ago, that "so surely as the grower leaves many blooms on a plant, so surely will those blooms fail to produce seed." The invariable rule is to cut the plants pretty much to pieces about the middle of September by freely thinning them out, for by this date the Dahlia shows are over. Only the buds that are coming into flower are left, and as an invariable rule these yield seed in abundance. It would appear that the earlier blooms of the Dahlia do not as a rule produce seed, and the moment (so states Mr. Keynes) a plant begins to seed, its flowers cease to be so perfect. Fine blooms and the production of seed cannot go together. The stoppage of growth in the plants by keeping them thinned out is said to largely determine the production of seed. At the middle of October, or when the season is so far advanced as to risk any danger from the frost, the seed-pods are cut away with a stem some 6 or 8 inches long, and the practice is to tie them up in bundles, a half-a-dozen or so together, and hang them up in a dry loft, greenhouse, &c., and using fire to finally dry the pods should the weather be continuously damp and wet. As soon as dry enough the seeds are rubbed roughly out of the pod, put into paper bags, and hung up in a dry place, and cleaned at leisure for sowing in early spring.

—— The *New York Tribune* of September 22 states that Mr. R. H. Loomis, of New York, has patented a process for Preserving Eggs, Fruits, and Vegetables by encasing them in Paraffin. As a test of the value of his process, he prepared, on September 15, three crates of Peaches of the Crawford's Late variety, from the orchard of Mr. H. N. Willits, near Middletown, which the patentee intended to take to Liverpool by the White Star Line of steamships leaving New York on September 25. The fruit was carefully picked, and at once coated with paraffin and carefully packed with hay in crates. Mr. J. T. Budd, Secretary of the Peninsula Agricultural and Pomological Association, assisted in the preparation and packing of this experimental shipment; and he expresses the opinion that there can be no doubt of its success. We shall be pleased to learn the results of the experiment.

—— How rarely the gorgeous Tigridia pavonia is met with growing as a border plant, and yet when planted in a moist, sandy loam it quickly establishes itself, and flowers with great freedom all through the summer. We recently saw in Kent some large patches of it, which had been planted out in an open border in the spring, and had made a vigorous growth, and flowered with great freedom and continuously all through the summer. It does well in pots also, if carefully attended to. In order to have the beauty of the richly-tinted flowers as long as possible it is well to plant in the shade.

—— One of the plant-houses at the Chiswick gardens of the Royal Horticultural Society is now gay with lines of flowering plants of the old Diplacus glutinosus, with its orange blossoms; Browallia cœrulea grandiflora, clear pale violet-blue, very free and effective; and the free-blooming Trachelium cœruleum. The Browallia is especially charming, and it is a valuable plant for flowering in late summer and autumn.

—— Mr. Stevens announces for sale on Thursday next a quantity of the New Plants of the past year or two, consisting of Crotons, Spathiphyllums, Pleocnemias, Dipladenias, Macrozamias, Artocarpus Cannoni, &c., from the collection of Mr. W. Bull, whose houses, he tells us, are becoming overcrowded by the constant arrivals from his collectors abroad. Many of the plants offered are described as being of specimen size. An illustrated catalogue has been issued.

HAWKSTONE:

THE SEAT OF VISCOUNT HILL.

This fine place is situated about a dozen miles from Shrewsbury. The family is of considerable antiquity in the county of Shropshire, some of its members having resided here in the time of Henry VI. The principal entrance is at Weston-under-Red Castle, distant about a mile and a half from the Hall. The lodge is a very handsome structure, in keeping with the mansion and grounds to which it leads. There is some consolation to see that, with few exceptions in the case of entrance lodges that are built at the present day, reasonable consideration is evinced towards the comfort of those who are to occupy them. Yet there are hundreds of lodges to be met with throughout the country that, so far as the health of those who are doomed to live in them is concerned, are not fit for human abodes: they realise the description given in a very old ballad of a "neat little cottage with ground for its floor," for they are all ground floor together—damp, dismal places, with insufficient light and ventilation, often under the shade of trees and not a room in them that you can do little more than stand fairly upright in. Why should this be so? Without incongruity a lodge may always be designed to harmonise with the style and character of the mansion to which it is an approach, without making it little better than a shed for deer or cattle, which many of them resemble much more than they do habitations for human beings. The lodge here is not only very handsome and substantial, but contains plenty of room, and gives a most favourable first impression of the place.

When fairly inside the park, which is 1600 acres in extent, the visitor cannot fail to be struck with its beauty. So unlike the surrounding parts of the country, which is proverbially flat, a great portion of the grounds afford a complete contrast; open level spaces, gradual swelling undulations in some directions, and abrupt precipitous rocks, divided by deep gorges, stand out in bold relief; in others the highest parts densely clad with timber and undergrowth, amongst which are seen, almost equalling the trees in height, huge masses of perpendicular rock, 8 or 10 yards through, looking, at a distance, as if they were columns that had been hewn out of the solid rock. Judiciously exposed, flanked and backed up with dense green foliage, these enormous natural masses of stone have a peculiarly grand appearance. Right and left of the carriage drive here, on the lower grounds all through the place, are numbers of magnificent trees, the planting of which and after-management as to timely thining has resulted in this being one of the most beautifully timbered parks to be met with. Not that the trees individually are extremely large, but each exhibits the full development of its natural habit, which is never to be found except where, soil and climate being suitable, all have had sufficient room from their first commencing growth. To the left of the drive are quantities of grand Beeches—the spread of the branches of one I measured was 27 yards in diameter, as dense as a bush of Furze: numbers of others there were near it but little inferior—the ground they cover the present season being considerably encumbered by the weight of the extraordinary quantity of mast they are bearing, of which, without being seen, no idea could be formed, the branches being borne down like Weeping Willows, the Nuts literally touching each other, and half covering the leaves. Elm and Oak are associated with them, and quantities of old Thorns with large heads and thick trunks—an evidence of the quality of the land, as these seldom attain much size except in good soil sufficiently dry.

Midway betwixt the entrance and the Hall some years ago the carriage-drive was diverted to the right from its then course, and now leads through a high tunnel that has been pierced through the ridge of solid rock. At the extremity of the park, on the opposite or Whitchurch and Market Drayton side, is an entrance in part used for the admission of vehicles which bring the public parties who are admitted by tickets obtainable at the hotel, to ramble about the park at their discretion, a privilege of which very large numbers avail themselves, even from places as far away as Manchester, which is 50 miles distant. They have ample space to roam about, for the roads alone inside the park are some 7 miles in extent. This road leads on to the lower ground not far from the lake, which is of considerable size, and at some distance below the Hall joins the carriage drive from the main entrance, already described, and by which is the principal approach. It proceeds for a considerable distance eastward, almost on a level with a large extent of slightly undulating ground northwards, to the left, and bounded to the right, or south side, by a gradually ascending high ridge. There is an approach from the east by an entrance at Leaper's Hill, on the Hodnet Road, by a long drive through the park in this direction, similar in character to that previously mentioned, open to the right or northern side, with a high wooded ridge to the south, running east and west. At this entrance commences a broad grass drive of a terrace-like character, following the before-named ridge. From this terrace the ground descends gradually to the park, or north side. On the south the descent is for a great portion of its length almost perpendicular. The drive is one of the finest imaginable, some 3 miles in length, the greater part leading through a mixed plantation of Deodars, Cryptomerias, Spruce, Pinus excelsa, and other similar coniferous and taxaceous trees, in splendid growing condition, and which may be counted by thousands. Winding up a gentle rise to the right are quantities of Wellingtonias, Picea Pinsapo, and P. cephalonica—many of these are nearly 50 feet in height; some beautiful young trees of Cedrus atlantica and Araucaria imbricata and Abies Douglasii—of this beautiful examples. All coniferous and taxaceous trees that have been tried here appear to grow splendidly, except Pinus insignis, which will not do at all, assuming from the first a stunted condition, such that at a distance it could not be recognised.

At about a mile distant from the commencement of

the terrace are some splendid views, to the south over South Shropshire and Staffordshire, and still further on to the north over the neighbouring county of Cheshire—the old-fashioned town of Chester, 25 miles away, being visible from the highest point. I noticed here that some of the Beeches were affected with the white, coccus-like insects that have of late made their appearance in different parts of the country; they usually attack one side of the tree, in time destroying the bark and ultimately causing death. It seems to do the most harm in districts where there is a light rainfall, and the soil is of a nature subject to drought. In this direction we come to a defile with a precipitous descent to the south, on the slopes of which is the site of what at one time was a vineyard. There are still some traces of the purpose for which it was used. A more suitable spot it would be difficult to find—hemmed in with perpendicular rocks from the northern and eastern winds, in a position to catch the full sun, the heat of which would be reflected from these natural walls, on which the Vines were trained, they would be in a situation to do all that the climate would admit of. A little further on is the Glade, a beautiful walk on a hot day, shaded over by an avenue of Limes; it leads down to the pleasure-grounds. Near the top of this are some large Scotch Firs and Larch; the latter from their size must have stood long here—some of them are 10 feet in girth, without the slightest trace of the heart disease that so often attacks this valuable tree when it has attained considerable size. This brings us to the highest point in the park, 700 feet above the sea level; here is a monument erected to the memory of Sir Rowland Hill, the first Protestant Lord Mayor of London. It is in the shape of a tall shaft, with an inside spiral stair, supporting a statue; its height from the ground is 112 feet; on the top of the shaft is an observatory, from which, as might be supposed from its height and the elevation on which it stands, a splendid uninterrupted view of the surrounding country may be had. On an especially clear day, it is said, over a dozen counties may be seen. As far as the eye can penetrate in every direction there is nothing to intercept the view, the whole country being seen as from the car of a balloon. The bird's-eye view of the park and its immediate surroundings alone well repay the labour of ascending the shaft.

Westwards from this point are some fine Spanish Chestnuts. This tree grows at Hawkstone proportionately larger than most others; numbers of fine examples are to be met with in different parts of the grounds. Hereabouts are many acres of Rhododendrons, that must in the blooming season produce a fine effect, coming up from seed as freely as weeds. At a short distance is cut a winding passage through one of those immense masses of isolated rock standing perpendicularly, as if it had been dropped from the clouds. This leads to a narrow defile, at the head of which is the "Hermit's Cave," historically connected with an ancestor of the family, who was an adherent of Charles I., and is said to have been concealed here, but afterwards confined in the adjacent fortress of Red Castle. At present the hermit is represented by an automaton, so life-like in every way as to have led to some laughable deceptions. The views from this part of the grounds, where the descent for several hundred feet is almost perpendicular, are such that few places with a cultivated landscape can command. On the rising ground, at the opposite side of this valley, stands the remains of the old fortress of Red Castle already alluded to. It is an interesting ruin of bygone times. The high ground as it exists here is evidently the result of one of Nature's convulsive upheavings, the traces of which are much more apparent than often met with. In one direction there is a rugged pathway some hundreds of yards in length right through a rent in the rocks, nearly 20 feet in depth, the sides almost as upright as a wall; the stone is of a very soft nature, and has been cut out and widened at the bottom so as to form a narrow footpath, in the centre of which for nearly the whole length is seen the bottom of this natural rent, here reduced to an inch or two in width. This leads to a cavern of considerable extent, cut in the rock, the work of many winters for the unemployed labour of the district; it extends in several directions, but ultimately terminates in a spacious grotto of several roomy apartments at the opposite side of the hill: it is a fitting termination to an interesting natural curiosity. The roof and walls are studded with beautiful specimens of stalactite, seen to advantage through the dim light admitted by small openings filled with coloured glass. At the extreme western point of the ridge some fine views are obtained of the Welsh mountains. This brings us to the opposite end of the lake before alluded to—a fine piece of ornamental water about 2½ miles in length.

The mansion is a large building, with an imposing appearance, and commands a good view over the park and surrounding country. It consists of a massive block facing westwards, with wings right and left, forming three sides of a square; these latter I am given to understand were built, and other additions made, some fifty years ago. The ceiling of the dining-room is a splendid work. From the east front there is a considerable rise. Immediately facing the windows is a fountain and basin, beyond which the ground is laid out in two raised terraces, at the commencement of which are a number of moderate-sized vases filled with Pelargoniums and similar plants: these are clad with Ivy. Up the centre of these terraces a broad gravel walk leads to a stone temple, around which are several large vases filled with plants, and covered wtth Ivy similarly to those below. This walk extends further, some 400 yards in all, to a second temple like the preceding. On either side of these grass terraces right and left are good examples of coniferous trees; Hollies and Rhododendrons are also in fine condition. Interspersed with these are some Irish Yews that contrast well with the broad-headed trees and shrubs to which they form a foreground. Here, too, are some good specimens of Abies Morinda, about 30 feet in height. To the right on the higher ground is a piece of ornamental water pumped up by a couple of rams from the lower grounds near Weston: this supplies the garden—a most essential provision for any establishment, large or small. I noticed here some fine examples of Weeping Willow, the pendent branches of which are effective amongst the surrounding forms. Turning to the left we follow a walk that leads to the Rose garden; this was re-modelled last spring by Mr. Judd. It was formerly in grass. The beds have now been enlarged so as to occupy the whole space; walks, all in gravel with Box edging, the principal of which intersect the garden, running east and west, north and south, are covered with high and substantial iron arches, to the uprights of which are planted climbing Roses, which will shortly cover the whole. All the Roses in this garden are on their own roots, those in the beds will be each year pegged down. Below this is the flower garden, which is in a well chosen position, nicely secluded, well sheltered by surrounding shrubs and trees, without being unduly shaded. It is laid out in the irregular geometrical style in grass, with a few intersecting walks, gravelled. By this arrangement there exists all the charm which a sufficient breadth of green turf imparts to the colours of the flowers, with an ability to see the whole from these gravelled paths at times when the grass is damp and not in a condition to walk upon with any degree of comfort. It is well arranged, and at the time of my visit in August was in excellent bloom. *T. Baines.*

(To be continued.)

Home Correspondence.

Preserving Laurel Berries.—I think some time last autumn I noticed a paragraph in the *Gardeners' Chronicle* respecting the utilisation of English fruits, viz., Blackberries. Now I ask if you ever tried the fruit of the common Laurel? I had, until coming here, supposed it to be poisonous, but I find children hereabouts eat them as freely as Blackberries, and some of the "wandering tribe" (gipsies), if this way during the season, are glad of them (the fruit) for making tarts. I wonder what kind of preserve they would make? I am thinking of trying some. Have any of your readers any experience of them? The Laurels which form the archway by the lodge entrance here have this last five weeks been, and are yet, a sight to behold, and several who have called here during the season have expressed their astonishment to see the fruit hanging in bunches like small clusters of Lady Downe's Grape. I have seen Laurels in several counties and of different sizes, but never to fruit as those above mentioned, the individual berries being from 2 to 2½ inches in circumference, and bushels might have been gathered from the above old veterans. The Bird Cherry, or Prunus Padus, is growing here by the acre, and has made the plantation all aglow with its pretty bunches of fruit in its different stages of ripening. Birds are now at them with a vengeance, the starlings coming in by flocks. Of the fruit, if you would like, I would send you a sample. *J. Batters, The Gardens, Chilworth Manor, Romsey.* [Has any reader any experience to record as to the use of these berries? EDS.]

Camellias at Glen Eyre.—I think it may be interesting to some of your readers to hear that a plant of the very large-flowered scarlet single Camellia with a large golden tassel in the centre, which has been growing for some years in the open ground here, is now covered with seed pods as fine and perfect as they are in Italy. *Thomas Stewart, Glen Eyre, near Southampton.*

The Autumn Show at Aberdeen.—On reading your report of the Autumn Show of the Royal Horticultural Society, Aberdeen, I observed an omission which I have no doubt you will willingly rectify. In drawing special attention to some of the more important articles exhibited at the show no reference is made to one of, if not the, leading features of the exhibition, viz., the thirty-six stove and greenhouse plants shown by Messrs. J. Cocker & Sons, nurserymen, Aberdeen, which were awarded the 1st prize. We have seldom seen, at least in the Granite City, a finer collection of rare and beautiful plants; and the fine specimens of Phormium tenax variegatum and of P. Colensoi; with the excellent specimen of the rare Palm, Cocos Weddelliana, which was never shown in Aberdeen before, deserve special notice. *Gardener.*

Stealing Cuttings at South Kensington.—With indignation and disgust I beg to gibbet in your columns a person, at present unknown. On the 6th inst. I exhibited at South Kensington a basket of the new Golden Thujopsis borealis taken up from the open ground; the basket was placed in the Council-room early in the morning, and, never dreaming that such a contemptible creature could find place in our Council-chamber, I did not have it specially watched; however, between the early morning and 4 o'clock P.M. some thief cut, and, I suppose, carried away, two branches of my Golden Thujopsis! Such conduct makes one feel ashamed of one's connection with horticulture. We pride ourselves upon our calling, profession, or what you will, having the power of elevating our nature; and in the face of all our high-sounding praise, we find one of our craft [?] stooping to a crime so paltry, that the meanest costermonger might well feel himself disgraced by it. Such things are, unfortunately, not infrequent. Can we do nothing to rectify them? Is it possible that such a thing could take place, and no honest eye detect it? or must we conclude that such things are winked at? I must respectfully refer the pilfering gentleman to your advertising columns, in which he will find a reward offered for his detection; and he may depend that, if found, he shall be "made a note of." *Charles Noble, Bagshot.*

Orobanche Picridis.—At p. 460 of the *Gardeners' Chronicle*, under "Dorset Natural History Club" it is stated that Mr. Buckman finds O. Picridis very common in Dorset. The plant is not named in the recently published *Flora of Dorset*, and I suspect a slip of the pen has taken place. It is well to be accurate in these matters: I do not know of more than two localities for this plant, and neither of them is in Dorsetshire. *C. C. B.*

The Resting-spores of the Potato Fungus.—The discovery recently made by Mr. Smith, supported as it is by the drawing just published of a similar discovery made by Mr. Stevens thirty years since, leaves no room for doubt as to the existence of the resting-spores of the Peronospora in diseased Potato tubers. Unfortunately, however, it throws no light upon the subject as to the existence of the resting-spores in or on healthy tubers, for upon the clearing up of this matter rests entirely the value or otherwise of much that has been lately written as to the possible stamping out of the disease. Writers who are more clever than practical have at once jumped to the conclusion that because these spores have been found in diseased tubers they of course exist in all tubers, and that as a consequence the healthy sound clean seed that all careful cultivators plant contains the germs of the disease in or upon them. What ground is there for this supposition?—and if there is no ground for it, what becomes of all the theories built up upon it? I believe that on or in a perfectly sound seed tuber it would be impossible for any one even with the aid of a most powerful microscope to discover any resting-spores, and if this be true all suggestions as to the treatment of the seed tuber for preventive purposes are valueless. [Resting-spores may be lying dormant in the ground.] I have just now a quantity of Tomato plants growing in a frame. A month since these showed evidences of the disease—without doubt identical with the Potato disease—in a mild way. The lights were kept off until after rain, and then the fungus spread with great rapidity; so that now, although the lights were put on directly after the rain, there is yet hardly a green leaf left. Close by some plants of the same, growing on a wall, are perfectly healthy, thus showing that the plants growing prostrate on the soil, and most subject to the rain, were the most accessible to the disease. Now will any one be hardy enough to assert that this disease was propagated by means of resting-spores in the seed? Certainly such an assumption would be altogether absurd. I have never had this disease in the Tomato before, and the seed was of my own saving, but I had not previously grown Tomatos in a frame, and no doubt had I put on the lights earlier I should have saved most of the crop. From whence came the germs of the disease? Without doubt they were floating about in the air, and were lodged on the plants either through the instrumentality of the heavy night dews or of falling rain; but if the fungus is not perpetuated by the Tomato plant, what proof have we that it is perpetuated by the Potato plant? Now as a rule we don't plant diseased seed tubers. I grant that a few may be slightly diseased, as was the case with some of the American kinds last spring, and yet not be noticeable; but that was altogether an exceptional circumstance, and was en-

tirely due to the exceptional form the "rot" assumed last year. We take it for granted, and I think rightly, that tubers that remain sound eight months after lifting, and then germinate and produce a robust haulm, are quite healthy and free from disease, and, as a rule, moreover, all tubers that are partially diseased are ere then so far rotten as to be perfectly distinguishable and rejected. Mr. Radclyffe tells us that he plants his seed in November, and yet gets few failures, and little disease, and yet it must be conceded that, if there were any resting-spores in or about the tubers, they would in the moist soil make themselves apparent much earlier than when the tubers are kept in a dry state. It is a fact that there is no data for supposing that the resting-spores inhabit healthy tubers, or that the disease is in any way promoted through the instrumentality of the seed. We must look elsewhere than in diseased tubers, or in diseased haulm, for the resting place of the resting-spore—supposing, however, that it has a period of rest—although it is a curious fact that the very weather which prevails so largely during our winters—that is, cold rains—seems to be the very means of its life and activity in the summer. Could such minute bodies rest in the soil? Is it consistent with the known nature of minute fungoids to assume that they could rest in the soil through rain, frost and heat for ten months of the year, or are these bodies eternally reproductive, and their spores eternally floating about in the air, but only being made manifest when in the summer months falling rains or heavy dews cause them to alight upon the only vegetables to the growth of which they are antagonistic, namely, certain of the Solanum species? Mr. Smith told us that by soaking the diseased tuber in water he ultimately developed the resting-spore; if this be the case is it likely that in a soil that is moist for months the spore could remain quiescent? It is a delicate and a difficult point for inquiry, and I fear that "recent discoveries" have simply served to throw us out of the right track of observation for some time. *Alex. Dean.*

The Belle de Septembre Plum.—One of the finest of late Plums is Belle de Septembre, or Autumn Beauty (fig. 107), which comes into bearing the end of September or beginning of October, and is a prodigious bearer. The fruit is large, roundish-oval in shape, very handsome, and of a bright claret colour, taking on a deep shading as it becomes fully ripe. The flesh and flavour much resembles that of the Victoria, and it is a fine culinary variety, and a clingstone. Its great value lies in its lateness, as it comes in after the glut of summer Plums is over. Its handsome appearance and firm flesh make it an excellent market variety, and so much is this aspect of its usefulness appreciated by Mr. Francis Dancer, of Little Sutton, that by exemplary forethought, he, a few years ago, planted a large number of bush trees of this variety, which are now in full bearing condition, and are commanding a high price in the market. It is such an enormous bearer that the long slender branches of the trees would bend to the ground with the weight of fruit they carry, were it not for the props by which they are sustained. Another great advantage is that this variety will grow well when planted among other trees, for there are long lines of them in Mr. Dancer's ground literally hemmed in on all sides with large trees, and yet doing as well as trees can do. Perhaps there is a decided advantage in this after all, as it may serve to protect the blossom from the frosty influences of early spring, sometimes so destructive to the promise of a full crop of fruit. Other varieties, especially the Victoria, do well when planted among other trees; and indeed it is difficult to walk through Mr. Dancer's ground and not realise the impression that crowded trees and a remarkable productiveness are not irreconcilable.

Cinerarias Damping Off.—"Subscriber" (see p. 468) inquires the cause of Cinerarias damping off. My experience tells me that a frequent one is burying the collar of the plant too deep when potting or repotting; in fact, the collar should never be covered at all. If the plants become water-logged through bad drainage, or are over-watered, they will sometimes damp off, but this is not so frequent or likely a cause as too deep potting. They should be potted rather firmly in a dryish compost of such a texture that the water will drain freely through; and the less artificial heat they are subjected to at any time the better, provided frost does not touch them. *J. E.*

Cottage Porches.—How constantly do we see in cottages meant to benefit the labourers, one porch made to do duty for two cottages, or, where that is not the case, both entrance doors placed close together. Nothing can be more offensive to an Englishman: all his household arrangements are open to his neighbour, too often his bitterest enemy. A little, a very little forethought would make the one porch do for both by simply making the doors open sideways instead of in front, and this would make the entrance more secure from draughts. Also the same where there are no porches. *East Somerset.*

Lasiandra macrantha.—Will Mr. Bishop have the kindness to state the date, and quote exactly what he alleges I have said respecting the culture of this Lasiandra? *T. Baines.*

Garibaldi Strawberry.—I have grown a Strawberry here this year under this name, and it is quite distinct from the Vicomtesse Héricart de Thury. The plants were received from the Lawson Company of Edinburgh, along with a variety named the Duke of Edinburgh. The Garibaldi received from Lawson is a strong grower, with large, dark-coloured Cockscomb-shaped fruit, of good flavour, but it did not bear well, like President and other free-bearing sorts. The Duke of Edinburgh is a dwarf grower, making few runners, and bearing very large conical fruit of a pale red colour at the tip, bnt only of second-rate flavour. Some varieties of Strawberries soon get mixed after being sent out—Sir Harry, to wit—which sort is seldom now to be got true to name. *William Tillery.*

Dr. Maclean Pea.—A veteran in the cultivation of vegetables has, through the medium of your columns, brought to the notice of readers this new variety of Pea, which I hear is to be distributed in the ensuing season by Mr. C. Turner, Slough. I can fully endorse all that Mr. Bailey has stated concerning it, as I have grown and exhibited it during the present season. It will prove to be an excellent sort for exhibition purposes, apart from its merits for general cultivation. *George Thomas Miles, Wycombe Abbey.*

Bougainvillea glabra Flowering Out-of-Doors.—A very similar case to the one described by Mr. John Fraser in your columns (p. 462) may at present be seen in this neighbourhood in the gardens of Sir C. Bunbury, Barton Hall, Bury St. Edmunds. On the back wall of one of a range of old lean-to houses, now doomed to come down, being replaced by three large and magnificent span-roofed houses, a plant of Bougainvillea glabra has been growing for several years, producing little or no flower at all; it has this year, however, made its escape out through the roof, and made shoots from 2 to 3 feet long, which are a complete sheet of blossom. The individual flowers are larger and much more intense in colour than I ever saw them under stove treatment. *W. Nichol, Drinkstone Park.*

Fig. 107.—Belle de Septembre Plum.

Mr. Dancer's Garden at Chiswick supplies so many objects of interest to the hardy fruit grower that excuse is scarcely needed for so frequently alluding to it in these pages. Mr. Dancer is a philosophical cultivator who does nothing by rule of thumb, but who rather keeps his eyes open for whatever is new and improved. Perhaps some of this garden philosophy is due to the near proximity of the Royal Horticultural Garden at Chiswick, where even an ordinary observer, if an occasional visitor, may learn much, but a great deal in relation to the culture of hardy fruits especially can be learnt by one who goes there for special study. Without doubt from this cause Mr. Dancer has been induced so largely to plant Apples and Pears on the Doucin, Paradise, and Quince stocks. The Chiswick soil is deep and holding and highly manured, and where young trees on the common Crab or Pear stocks are planted, the result is seen in a coarse, barren growth that it is difficult to keep in check. On the other hand, trees on the foreign stocks give only a moderate growth and fruit in great abundance, the fruit being second to none for size and quality. A most remarkable example of this divergence of character, as produced by stocks, we saw there a few days since. A number of small bush trees of the Dutch Mignonne Apple, worked on the Paradise

stock, have most marvellous crops of fruit, large and finely coloured. Some of these small trees had quite a bushel of fruit on them, and were literally borne to the ground with the weight. Yet close by were trees of the same variety worked on the Crab stock that had hardly a dozen fruit on them but were at least of three times the size. The crop of Small's Admirable, on bush trees, is an enormous one, amounting to from 700 to 800 bushels. Cox's Orange Pippin also is very fine, the crop being very heavy and the sample one of the best in the kingdom. The French stocks would hardly be suitable for poor gravelly soils, but in deep, rich loams, and where manure is abundantly used as top-dressing, nothing can excel them in producing early and regular fruitfulness. *D.*

Violet Victoria Regina.—I have fine crowns of this Violet, from late struck cuttings of last year, just now throwing up large flowers in abundance. If lifted carefully into pots, I have no doubt these will carry bloom all through the winter. An acre of such plants would be equal to a small fortune to a market grower at this time of the year, when Violets are scarce and the flowers fetch a good price. A dozen blooms of the Victoria Regina are equal as a bunch to three times the number of the single Russian, and are not less sweet-scented. I consider this grand Violet to be the best of all sweet-scented single Violets. *A.*

Tulipa Greigii.—To the cultivators of true species of Tulip this is a great acquisition, as well as the latest introduction. It is a native of Central Asia, very early, and I think the largest flowered of its class. The flowers are a fine orange-scarlet, largely spotted with black, the base of the cup being yellow, the foliage being a fine green, covered with spots and blotches similar to Orchis maculata; it is the most distinct of the genus. It was exhibited by the Colchester Bulb Company last spring, but in bad condition. I believe when more plentiful it will prove a great acquisition for bedding when planted in masses. At present its rarity prevents its use—it should be in every collection, however select. *Ebor.*

Rheum nobile.—Can any of your correspondents who have succeeded in cultivating this extraordinary plant give any information on its management, as it refuses to grow with me? My plants get beautifully less, and I fear will shortly disappear altogether. Any information will greatly oblige *Rheum.*

Birds and Marigolds.—Can any of your readers explain why it is that small birds have such a *penchant* for the partially ripened flowers of the French and African Marigolds. Here they attack them in the most reckless fashion, and if not kept in check will scatter the seeds all over the ground. I have had flowers of the African Marigold as large as a cricket-ball, even whilst yet fresh and in full beauty, literally torn all to pieces, a lot of mischief being done. I find it difficult to agree as to what it is in the flowers that the birds seek. I cannot think it is the seed, as this appears to be simply wasted, and I am unable to find any traces of insects in the nearly or quite ripened heads to induce them to seek in these for such food. Is there any kind of syrup or honey, or other sweet extract in the flowers that renders them so acceptable, or, if not, what can the birds find as good? I do not believe that this is done as wanton mischief. I think, as a rule, the birds have some object to serve in whatever they do. *A. Dean.*

Aralia Sieboldii Flowering.—Is it unusual for this plant to flower annually? I have a small specimen in a pot in my greenhouse here three years old from seed, that flowered at this time last year, and is now throwing up a large branching spike of flowers. It blooms at a most unfortunate season for me, as my house is destitute of any means of artificial heating, and the flowers are at their best at mid-winter. *Richard Dean, Ealing.*

Strawberry Leaves Dying (p. 453).—I, like your correspondent "H.," could never detect the pleasant smell of dying Strawberry leaves, but that does not arise from any difference between Elizabethan and Victorian Strawberries. I have often met with people who could detect the smell, and rejoiced in it; and in Mrs. Gaskell's pretty novel of *My Lady Ludlow* the charming portrait of the old lady is thus finished off:—"But the great hereditary faculty on which my lady piqued herself, and with reason, for I never met with any other person that possessed it, was the power she had of perceiving the delicious odour arising from a bed of Strawberries in the late autumn, when the leaves were all faded and dying,"—and the old lady made this a sign of gentle birth, with the remark that "the old families have gifts and powers of a different and higher class to what the other orders have." *H. N. Ellacombe, Bitton Vicarage.*

Limekiln Heating.—"Jonathan" (see p. 463) is certainly in advance of the times if he can drain the water from the Rabley stokeholes. Draining here is next to impossible. Rabley is quite in a hole, and any man to take the job in hand to prevent water (to the extent we have it at Rabley in the winter season) from getting into a 12 feet stokehole by puddling must be mad. But in order to encourage talent I will enter into a contract, and give "Jonathan" a chance of displaying his skill in the art of puddling, but on these terms: five years' guarantee, and, no cure no pay. I know something of puddling stokeholes, and need not ask any one about it, and if I did they would know no more about it than the man in the moon, unless they saw the spot and difficulties to overcome. In ordinary kinds of stokehole puddling to keep back water, 90 per cent. do not stand any length of time with puddle alone. Even with walls built with cement, concrete, and puddle, they are seldom waterproof long together if springs are near. With the exception of draining, which is often impracticable, the only really effectual method to adopt is to sink a large iron tank, and build in it, but the expense is the barrier to this method, although often the cheapest in the end; but to sink a large tank sufficiently large for a limekiln would be more than the pocket would stand. Some of my stokeholes are now standing with 2 feet of water in them, and instead of sinking deeper into the ground for a limekiln I am contemplating doing away with the tubular boilers and putting in their stead boilers that will stand clear of the water, made expressly for this place; but, as I have before stated, I would prefer a limekiln if the difficulties could be got over at no great expense. "Jonathan" must have been dreaming when he states that I have on more than one occasion stated the kiln entirely defrays the cost of the fuel; this, like his puddling, is a mere fallacy—like the statement that it must have cost a small fortune for the cutting (termed a railway cutting) at Hatfield, which "fortune" for the groundwork of the spot alluded to, was under £30; this included the ground excavation of kiln sheds, &c. Mr. Garnier stated at the dinner at Garston that by heating on the limekiln system the saving was £300 per year to his employer, and Mr. Gordon stated they heated all their houses free of cost and had a profit; and I believe Messrs. Thynne, of Glasgow, get their heat entirely free of cost: which speaks volumes in favour of the limekiln system of heating. *Edward Bennett, Landscape Gardener, Rabley, Herts.*

Limekiln Heating at Niddrie House.—It is now fully two years since I adopted the Cowan patent heating apparataus at Niddrie. When I first commenced this plan of heating, I used our own limestone, taken from the grounds, within 300 yards of the limekiln, but finding that the quality of the stone was very inferior, and consequently, not to be readily disposed of, I thought it would be more profitable to use stone of a better quality, which I procured at a distance of two miles, so as to give the system a fair and impartial trial. I did so for three months with the following results:—The kiln is a very small one, about 6 feet in depth (yet it heats over 2000 feet of 4-inch piping in a thoroughly efficient manner), so that there is only required about 2 tons of limestone weekly—say, 2 tons at 4*s.* 6*d.* = 9*s.*; carriage of do., 5*s.*; 15 cwt. dross coal, 4*s.* 3*d.*; carriage, 8*d.*; man's time stoking, 12 hours, 4*s.* 10*d.*: total, £1 3*s.* 9*d.* Sold, 35 cwt. of lime, at 15*s.* per ton, £1 6*s.* 3*d.*; nett profit, 2*s.* 6*d.* This statement I can vouch for as being correct, having been checked by myself. I therefore think a few words on the subject would not be out of place in reply to that clever article in your issue of last Saturday signed "S. E.," from one who has had two years' experience of the system. "S. E.," as usual, gives us a lot of chemical information, but sound, practical, and useful information is conspicuous by its absence. This theory has been quoted so frequently against the system, that I will merely remark that the facts I mention above are very stubborn things. I have already shown we get abundance of heat from a much smaller quantity of coal and limestone combined than could possibly have been got from four times the quantity of coal alone. That the heat is produced there is not the shadow of a doubt, let it come as it may: perhaps "S. E." will enlighten us on the subject. He says the three new boilers supplanting the sixteen taken out at Garston in a great measure accounts for the saving in fuel; most certainly they will reduce the expenditure considerably, but I have never yet heard of any one boiler that can be worked at anything like the above quotations in the kiln. As for the gas apparatus I have tried it fully during twelve months, and can show that if a combination of the hot-water apparatus along with the gas retort is fixed in the same kiln it will pay every farthing of the cost, and supply a much better quality of gas with higher illuminating power. Anonymous correspondents of the class of "S. E." and "Jonathan," in my opinion, do more good than harm to the system, as it causes others to give their unbiassed opinion, such as I have done. I would, however, suggest the straightforward way of signing their names in full. I understand there are a great many of these apparatus erected in different parts of the country, and I should be very pleased to see the gardeners in charge giving their candid opinion as to how the system is working for them. *James Gordon, Niddrie Gardens, Edinburgh.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, OCT. 13, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Oct.	In.	In.	°	°	°	°	°	°			In.
7	30.18	+0.49	65.3	44.9	20.4	54.3	+ 1.7	51.7	91	W.	0.00
8	29.84	+0.16	64.8	50.2	14.6	55.6	+ 3.4	47.2	74	S.S.W.: S.	0.00
9	29.49	−0.20	62.4	43.8	18.6	52.4	+ 0.5	47.6	84	S.: S.S.W.	0.01
10	29.63	−0.06	56.5	41.0	15.5	46.7	− 4.9	43.1	88	S.S.W.	0.20
11	29.10	−0.60	59.7	42.1	17.6	49.8	− 1.5	42.0	74	S.W.: WSW	0.12
12	29.19	−0.51	55.7	35.4	20.3	44.0	− 7.0	38.6	81	WSW: W.	0.00
13	29.03	−0.67	53.5	35.4	18.1	44.0	−6.7	38.3	80	W.	0.05
Mean	29.49	−0.20	59.7	41.8	17.9	49.5	− 2.1	44.1	82	S.W.: W.	sum 0.38

Oct. 7.—Very fine day, rather cloudy.
— 8.—A fine, but dull and cloudy day.
— 9.—A cloudy, changeable day.
— 10.—Very fine till 3 P.M. Overcast, dull, and rain afterwards.
— 11.—A fine day, rain fell in early morning, and hail fell at 11.30 A.M.
— 12.—A fine bright day. Cold.
— 13.—Overcast, dull, and shower of rain at 10.30 A.M. Fine and bright after.

—— During the week ending Saturday, October 9, in the neighbourhood of London the reading of the barometer at the level of the sea increased from 29.91 inches at the beginning of the week to 29.94 inches by the morning of the 3d, decreased to 29.69 inches by the evening of the same day, rapidly increased to 30.48 inches by the evening of the 6th, decreased to 29.57 inches by the afternoon of the 9th, and increased to 29.82 inches by the end of the week. The mean reading for the week was 30.03 inches, being 0.19 inch above that of the preceding week, and 0.16 inch above the average for the present week.

The highest temperatures of the air at the height of 4 feet above the ground varied from 59¾° on the 3d to 70¾° on the 5th; the mean value for the week was 65°. The lowest temperatures of the air ranged between 52° on the 5th and 43½° on the 3d, the mean value being 47°. The mean daily range of temperature in the week was 18°, the greatest range in the day being 20½° on the 7th, and the least 14½° on the 8th. The mean daily temperatures of the air, and the departures from their respective averages, were as follows: —3d, 50°.9, —3°; 4th, 58°.1, + 4°.6; 5th, 60°.6, + 7°.4; 6th, 52°, 0°; 7th, 54°.3, + 1°.7; 8th, 55°.6, + 3°.4; 9th, 52°.4, + 0°.5. The mean temperature of the week was 55°, being 2°.1 above the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo placed on grass in sun's rays were 115¾° on the 6th, and 111¾° on the 9th; the mean for the week was 94½°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 39¾° on the 3d, and 38½° on the 7th; the mean for the seven low readings was 43¾°.

The direction of the wind was W.S.W. and S.W., and its strength brisk. The weather during the week was fine, and the sky generally cloudy except Sunday the 3d, which was overcast, dull, and wet throughout.

Rain fell on three days, the amount collected was 0.40 inch.

In England, the highest temperature of the air observed by day, at the height of 4 feet above the ground, was 75°, at Sunderland. At Bradford and Newcastle-on-Tyne the highest temperature was 62°; the mean from all stations was 66¼°. The lowest temperatures of the air observed at night were 40° both at Bristol and Birmingham. At Truro the lowest temperature in the week was 48°; the mean value for the week was 43°. The greatest mean range of temperature in the week was 31°, at Sunderland, and the least 18°, both at Truro and Bradford. The mean range of temperature from all stations was 23¼°. The mean of the seven high day temperatures was the largest at Sunderland, 67°, and the smallest at Liverpool, 58¼°; the general mean value from all stations was 61¼°. The mean of the seven low night temperatures was the smallest at Newcastle-on-Tyne, 43½°, and the largest at Truro, 53°. The general average from all stations was 48¼°.

The mean daily range of temperature in the week from all stations was 13°; it was the largest at London and Sunderland, both 8¼°; and the smallest at Liverpool, 8½°.

The mean temperature of the air for the week from all stations was 53¾°, at Sunderland it was 57½°, and at Bristol 51¼°.

For the corresponding week in 1874 the mean temperature was 48¼°, being 5¼° lower than that of the present week.

Rain fell to the amount of one-tenth of an inch only at Sunderland and Newcastle-on-Tyne; at Leicester 2½ inches was measured, 2¼ inches of which fell on Saturday, causing the town to be flooded, and rendered the streets of the eastern and western portion of the town impassable on foot. The average fall over the country was seven-tenths of an inch.

The continuous and heavy rains on Saturday, the 9th inst., caused the River Avon to swell, and flood the adjoining land until it had the appearance of a vast sea; four persons were drowned in attempting to rescue some cattle at Clifton, near Rugby. At Leamington a new foot-bridge over the Leam was swept away, and carried bodily down the stream. Other serious damages were thus caused in the midlands.

In Scotland the highest temperatures of the air varied from 62⅓° at Aberdeen to 60° at Dundee and Greenock. The lowest temperature of the air ranged between 43⅓° at Leith and 38½° at Aberdeen; their respective averages being 61¼° and 42¼°. The mean range of temperature in the week was 19°. The mean temperature of the week at Dundee was 53°, and at Greenock it was 51¼°; the mean value from all stations was 52¼°, being 4¼° higher than the value for the corresponding week in 1874.

The amount of rain measured at Greenock was 3 inches; at Aberdeen a quarter of an inch only was recorded; the average fall over the country was 1 inch.

At Dublin the highest temperature was 68°, the lowest was 32°, the mean was 53°, and the rainfall 0.35 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Greenhouse Hard-wooded Plants.—There are some times in the year when the absence of sufficient variety in flowering plants causes an objectionable sameness in the things available for conservatory decoration. At no season is this felt to a greater extent than through this and the following month. The majority of summer-flowering plants are over, others from the stove that have been used here during the warm season can no longer be allowed to remain out of a higher temperature, and there is often comparatively little for some time to take their place; yet, if sufficient forethought is exercised in growing some of the hard-wooded subjects, whose natural time for flowering is during the autumn, much may be done to fill up the void. The different varieties of *Crowea—C. stricta*, *C. latifolia*, *C. elliptica*, and *C. saligna*—that all bloom continuously for six or eight weeks at this season, will be found very useful; true, they cannot vie with some of the summer flowering things in the size or brilliancy of their individual blooms; nevertheless, their star-shaped pink flowers are very pretty, and contrast well with anything else. They also possess the merit of not being difficult to grow; and if the conservatory is kept a few degrees above ordinary greenhouse temperature, their flowering will be much improved. The same may be said of several varieties of *Correa*, more especially *C. Brilliant*, *C. cardinalis* and *C. bicolor*; these, with little attention, can be had in flower from this to the end of the year. *Cassia corymbosa*, with its bright yellow flowers, if kept cool through the summer, will go on blooming for some time yet. The small but beautiful blue-flowered *Witsenia corymbosa* will now be coming in, and furnish a colour always comparatively scarce, but especially so at this season. The continuous flowering *Habrothamnus elegans*, grown as a trained pot specimen, does equally as well as when planted out. If a sufficient number of the above plants are well-managed, they give variety, mixed with other things more generally grown, but not better deserving of a place. *Heliotropes* are especially useful at the present season, but to have them in the best condition they should be especially prepared by being well grown and fully exposed during the summer with the flowers constantly pinched off and supplied with manure-water at times so as to get them strong. Plants so treated, and moved where they will have a temperature of 45° or a little over in the night, will bloom profusely for some time.

Camellias that have been stood out-of-doors, or still better, under temporary shelter, should at once be got into their winter quarters. There is no time in the year more suitable for giving them a thorough cleaning by hand from insects, and any accumulation of dirt with which the leaves may be coated. Where scale exists, especially the brown species, the leaves are sure to become foul with the glutinous excrement of the insect—a condition still further aggravated by any dust that comes near the plants sticking to the leaves thus affected. A thoroughly clean surface, with the pores open, and in a condition capable of performing their wonted functions, is absolutely essential to the health of the plants; when these, their breathing organs, are not free to act the leaves turn yellow and drop off before their allotted time, often leaving the plants not furnished with more than a fourth of the foliage they ought to carry to keep them in health, the result of which soon becomes apparent through the sickly condition they get into, and from which it takes a considerable time and careful management to recruit them. When Camellias are planted out in suitable soil, with a house fairly adapted to their requirements, their naturally vigorous constitution and free habit of growth so far enables them, except in cases of extreme neglect, to outgrow the effects of insects; but with plants that exist under the adverse influences of restricted root-space, if they are not kept clean, the condition above described, and which they are too commonly seen in, is sure to follow. As they are taken in they should undergo a thorough cleansing; if affected with white scale this will be found most plentiful about the base of the flower-buds, and should be removed with a toothbrush, as also from the wood, and afterwards the whole surface, including the upper and under sides of the leaves, should be well sponged with soapy water. Camellias that are planted out should be all gone over in this way, even if little affected with scale. The labour of sponging the leaves will not be lost upon them. If the *Camellia* was a difficult plant to grow it would be much seldomer found in bad condition; its ability to bear up for a time under indifferent treatment frequently causes neglect. *T. Baines.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—The beauty of the flower garden has become nearly extinguished by the late tempestuous weather, and yet one naturally clings to the remnants as long as possible. There is always a feeling of reluctance to sweep away the last vestige that remains to us of summer, but the clear chilly nights forcibly remind us that frost, cold and pitiless in its destruction, will soon be upon us. It therefore behoves us to look closely round to see if there is anything still out that is unprotected, and which it may be desirable to save, and, if so, no time should be lost in preparing the necessary protection or getting the same safely under cover. Many of the things now in use for outdoor decoration are of great value for furnishing large conservatories, halls, corridors, or such-like places, provided they are lifted in time, and before they get damaged by the weather. Among such may be enumerated some of the choicest *Cannas*, *Solanums*, *Aralias*, *Wigandias*, *Melianthus*, *Abutilons*, *Chilian Beet*, &c. These, if lifted carefully with good balls and placed in a close moist house, where they can be kept well syringed, will not be long in becoming thoroughly established; and potting up a supply of such things as the above often saves running the risk of placing choice plants in cold, draughty positions, when many of those named may be used just as effectively. As soon as a general clearance of the beds has taken place attention should at once be turned to refilling them, either with dwarf bright shrubs or spring flowers, or both combined, so as to impart a cheerful aspect during the dreary months of winter, and thus the three seasons may be linked together, each affording something fresh and attractive. There are so many suitable plants for both purposes that at no season need the beds wear a bare, cheerless aspect, for with the first dawn of spring come the *Aubrietias*, *Forget-me-Nots*, *Primroses*, *Snowdrops*, *Daisies*, *Pansies*, *Nemophilas*, and hosts of other gay flowers; while for winter we have plenty of decorative material in the bright foliage of variegated plants, such as *Gold and Silver Hollies* and *Yews*, *Retinosporas*, *Euonymus*, *Euryas*, *Vincas*, &c. For edging plants there is likewise plenty of choice, among which the popular *Golden Feather Pyrethrum*, *Cineraria maritima*, *Stachys lanata*, *Cerastium tomentosum*, *Golden Thyme*, and *Echeveria secunda glauca* may be named as the most effective. The many-coloured variegated *Kales* may likewise be used with good effect. These, for richness and delicacy of leaf colouring, are perhaps unsurpassed, varying as they do from the richest reds and pinks down to the purest white. Where these are not objected to as partaking too much of the Cabbage garden, they will be found to afford a brightness of leaf-colouring during the winter and early spring that is quite unattainable by the employment of any other plant.

The mixed or herbaceous border should now be looked closely over, and if any of the strong varieties have outgrown the spaces allotted them they should at once be reduced to proper dimensions. Most of the herbaceous plants require good soil and liberal cultivation, and where any of these stood long in the same situation an entire removal and replanting will be found of great benefit, as by their gross feeding habit they soon exhaust the soil immediately surrounding them; by doing this thus early in the season the plants have plenty of time to become re-established before winter sets in. Before replanting, the borders intended for them should be trenched deeply, and at the same time plenty of sweet, thoroughly decomposed manure should be worked in.

The herbaceous or mixed border is the most suitable place in which to grow many of the bulbous-rooted plants as they do not get disturbed there and can ripen off their growth without becoming an eyesore or objectionable. There is certainly no place where the gorgeous beauties of the different varieties of *Lilies* show off to such advantage, backed up as they generally are in the mixed border by dwarf evergreen shrubs that show them off effectively, and afford the necessary shelter from the winds. These, with many others, such as *Hyacinths*, *Anemones*, *Narcissas*, and the beautiful bulbous *Irises* should now be planted. In doing so the whole of the *Lilies* should be planted from 3 to 6 inches deep, and be covered with a handful of sharp sand before the soil is placed over them. From 2 to 3 inches will be sufficiently deep for the *Anemones* and other small bulbs, but all should have a covering of sharp sand to keep them from rotting. *Gladioli* that have ripened their growth sufficiently will now be best out of the ground. These bulbs should not be wintered in too dry an atmosphere, or they will be found to shrivel considerably and lose strength. No time should be lost in making up the beds of *Carnations*, *Picotees*, and *Pinks*, but, before doing so, see that the soil is free from their great enemy, the wireworm, and if not give a good dressing of soot and fresh slaked lime before digging. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

The Orchard House.—As soon as the last of the late *Peaches* have been gathered, the trees should be once or twice well washed with the garden engine, in order to remove all accumulations of dust, &c., from the foliage. Most of the other kinds of fruits grown in this structure will now have been gathered, with possibly the exception of some of the late varieties of the *Plum*, which may possibly have been placed in the open air with the view of retarding their ripening, and by this means prolonging their season. It will now, however, be advisable to place such trees inside the structure, in order that the somewhat drier atmosphere of the house may assist in the ripening process. Place any trees which it may be necessary to leave for a time in the open air in a favourable position to ripen their young wood thoroughly; and to prevent the soil in the pots from becoming saturated with the autumnal rains let the surface of the pots be well covered up with dry littery manure of some sort—straw or any similar material—which will tend to throw it off. A portion of the soil which will soon be required for the purpose of re-potting and surface-dressing the pots should now be placed under cover, in order that it may become somewhat dry, and in proper order to be used. This compost should have been duly prepared some months since by being frequently turned, and ought to be composed principally of good turfy loam, enriched with a third or fourth of its bulk of well rotted manure, and to which, if the soil is in any degree deficient in calcareous matter, might be added a portion of lime scraps from some old buildings, road-scrapings, sand, or similar material. The ventilators of the house may now for a time be allowed to remain open by night as well as by day, unless it be during the prevalence of high and boisterous winds. Any *Fig trees* in pots which may show a good second crop of fruit might, if possible, be placed for a time in some other structure where they could have the benefit of a slightly increased temperature and an abundant supply of water to assist in the swelling off and ripening of the fruit. *P. Grieve, Culford, Bury St. Edmunds.*

Cucumbers.—The conditions laid down in the last Cucumber Calendar may still be observed. The market growers in and around Chelmsford are now busy as bees in their separate hives of industry, getting in their fermenting material. Tanner's bark is the principal agent employed here; first, because it is obtained at a minimum cost, and second, because it retains and generates heat for a long time. Good stable dung and Oak leaves, however, well incorporated, are to be preferred where procurable. Let it be got together at once in a dry shed, and be turned over every three or four days for the next fortnight. In the case of tan, it should be got together in a heap, in the dry if possible, and allowed to remain till it is fairly warm through, when it may be turned over, and conveyed to its final quarters. It is important that it be fresh, or nearly so, from the vats. Whichever material be employed, a good and lasting bottom-heat must be secured, without which it is impossible to grow Cucumbers in winter successfully. Plant out at once those intended to yield a supply at Christmas. Keep young plants near to the glass, and pinch out the growing point above the first or second rough leaf. Continue to reduce the supply of moisture

as the days shorten, and the power of the sun declines. Attend well to the autumn fruiters, by way of earthing up the roots from time to time with good compost, previously warmed; fumigate whenever necessary, keep the evaporating troughs regularly charged, but be chary in the use of the syringe from henceforth. Clear out dung-heated pits and frames, to make room for winter salads and the like. *Thomas Simpson, Chelmsford, Oct.* 12.—P.S. We registered 3° of frost this morning.

HARDY FRUIT GARDEN.

The gathering in of fruit generally may now be followed up as fast as possible, except in the case of some of the late-ripening and long-keeping kinds. These, should the present favourable weather continue, will be much improved in quality by remaining on the trees for a week or two longer. Fruit, though fine as to size, will be found deficient in flavour, and this will be found especially to apply to very late varieties both of Apples and Pears. Of the latter those grown as pyramids or bushes have generally done well, the fruit of many kinds being equal to those on the walls, and, owing to the advantage of air and light on all sides, are superior in flavour. In gardens of moderate extent this system of growing Apples, Pears, and Plums should be adopted instead of, as in too many instances, covering the ground with overgrown trees, which only produce fruit of inferior quality, to the serious detriment of the undergrowing crops of vegetables, &c. A fine collection of pyramidal trees here has supplied an immense quantity of fruit, many of the trees producing from 1 to 2½ bushels each; these, planted eight years, are now 10 to 12 feet in height, averaging 4 feet diameter at the base. I propose shortly to give a brief list of the kinds I have found best adapted for this style of growth. Where necessary preparations may now be made to commence root-pruning, as this operation is best performed before the leaf falls, so as to induce the formation of fresh rootlets before radiation of heat from the earth has ceased; and where trees on walls require this treatment, or are intended to be removed to other situations, no time should be lost in commencing. In lifting established trees, which have filled their allotted space on walls, a trench should be taken out as deep as the roots are found, and not nearer than 6 to 8 feet from the bole of the tree, afterwards carefully forking out the soil, so as to lift the roots as they are laid bare, without bruising. If root-pruning only is intended, and no indications of tap-roots exist it is sufficient to uncover the roots for 3 or 4 feet inwards, and relay them nearer the surface; if the soil is poor or crude a little of a lighter texture should be placed about their points, to induce the formation of fresh rootlets. *W. Cox.*

Variorum.

Gilbert White of Selborne.—At the meeting of the Norfolk and Norwich Naturalists' Society, held on the 28th ult., the secretary read an interesting series of ten unpublished letters, written by Gilbert White, of Selborne, to Robert Marsham, F.R.S., of Stratton Strawless, Norfolk, and communicated by the Rev. H. P. Marsham, great-grandson of the latter. The letters, which are dated between August 13, 1790, and June 15, 1793, are excellent examples of Gilbert White's delightfully discursive style, their contents being of a very varied nature. Mr. Marsham, to whom they were addressed, was a great planter, and communicated his experiments on growing trees to the Royal Society; the beauty and great size of the timber at Stratton bear testimony at the present day to his judgment and successful treatment. As might be expected under these circumstances, a large portion of the correspondence is devoted to forest trees, the love for which was shared in an almost equal degree by both correspondents. The "Indications of Spring," of which Mr. Marsham left such a remarkable register, and which have been continued by his family, with one slight interruption, from the year 1736 to the present time (see *Philosophical Transactions* for 1789, and the *Transactions* of this Society for 1874-5), of course form an annual topic, as well as the rainfall; but perhaps the most valuable part of the correspondence is the gossip about birds, some of which is of very great interest. On October 30, 1792, Marsham writes to White: "My man has just shot me a bird which was flying about my house; I am confident I have never seen its likeness before." On reference to his Willoughby, he declares it to be "the Wall-creeper, or Spider-catcher," and a description, endorsed by him on one of White's letters, as well as a manuscript note in his copy of Willoughby's *Ornithology*, still in the possession of the Marsham family, places it beyond doubt that the bird was a veritable Tichodroma muraria. White, after saying he is persuaded that the bird is the "very Certhia muraria," continues, "You will have the satisfaction of introducing a new bird, of which future ornithologists will say, 'Found at Stratton in Norfolk, by that painful and accurate naturalist, Robert Marsham, Esq.,'"—a prophecy which, after an interval of 82 years, will at length be fulfilled. Nearly a whole letter is devoted to an extract from an unpublished *Natural History of Gibraltar*, by Gilbert White's brother, the Rev. John White, who resided many years on the "Rock." By this it is shown that John White, who went to reside there in 1756, soon discovered the crag swallow (Cotyle rupestris) to be distinct from the sand martin, for which it was then mistaken. He gives an interesting account of its habits, and names it Hirundo hyemalis, from its great abundance at Gibraltar in the winter months. The last letter of the series, dated June 15, 1793, has a special interest attached to it from the fact that it was written only eleven days before the death of this estimable man and ardent naturalist. The whole of this interesting series will be published in the *Transactions* of the Society, and it is hoped, through the kindness of Professor Bell, in whose hands they now are, that Marsham's letters to White may be added. *Nature.*

Wheeler's Russet Apple.—This Apple is said to have been raised by James Wheeler, the founder of the Gloucester nursery, now in the occupation of his great-grandson. He was an intelligent and assiduous man in his profession, and published, in 1763, "The Botanists' and Gardeners' New Dictionary." He died about the beginning of the present century, having attained over ninety years of age. I am doubtful, however, if this Apple was raised by him, for I have discovered in an old day-book, dated 1717, and which belonged to Smith & Carpenter, of the Brompton Park Nursery, that it was cultivated there at that period, when James Wheeler must have been a mere child. *Fruit Manual.*

A New Use for Seaweeds.—Another attempt on the part of ladies to be self-helpers demands a brief record. A Miss James has conceived the idea of converting seaweeds into the semblance of graceful flowers, by certain aids from colours, and by an ingenious moulding of natural forms. Seaweeds, dried, have long been favourites in albums, and few who spend an autumn month at marine localities neglect opportunities to gather and preserve them; but to wear them in hats or caps, or as hair ornaments, is, we believe, a novelty—at least, until now, we have never seen an effort of the kind. It is not easy to describe the effect Miss James produces. At a distance the seaweeds seem artificial flowers made from muslin or wax; examined nearer they are very striking. Sometimes there is added to them the sparkle of small shells. If some lady-leader of fashion would wear a group or two she might introduce a new and very graceful mode of employing ladies, doing a large good and no harm, and aiding to abolish an atrocious custom—that of destroying beautiful birds in order to obtain means of decoration. A lady who adopts and supports that evil practice should find it difficult to be selected as a wife. *Art Journal.*

Answers to Correspondents.

Walks: (Qy. 70, p. 468): *W.* Break up stone (not too small), or, if gravel, save only the large or coarser part—lay this down on the path, and ram it hard to the required shape or form. Then take some good hot ground lime and sift it well over (completely hiding the stone); with a fine rose waterpot gently sprinkle over until the lime has become of the substance of cream; then brush well into every crack and crevice, and again give a good ramming; then add a sprinkling of fine gravel (or the sandy part), and roll all well together. When dry no rain will wash this away, and it is far cheaper than asphalte. *W. W.*

Alocasias: *Mrs. Steains, West Hill, Putney*, does not state what variety of Alocasia she alludes to. There are very few families of plants that require soil so different in its nature to grow them in as do Alocasias. A. Veitchii will not succeed well unless in the most open, light material—the fibrous portion out of good peat, with all the earthy matter shaken or sifted out, used in lumps as large as hens' eggs, with one-third chopped sphagnum, a sixth part charcoal or crocks broken in half-inch bits, with a good sprinkling of sand; in a mixture of this kind this species will thrive well, but the plant must be shaken out, and new material used every spring just before growth commences. A. Lowii requires similar soil. A. metallica does well in fibrous peat such as the above, with one-fourth rotten dung, such as has lain on the surface mulching a Vine border or Asparagus bed, and has become dry, to which add small crocks or charcoal and sand. Others of the Marshallii and Jenningsii section do well in the same mixture. A. zebrina is a strong-rooted species, and will do in ordinary fibrous peat. A. macrorhiza variegata does the best in a mixture of three parts good fibrous loam and one part well-rotted dung, with a moderate quantity of sand added. The night temperature during the winter should be from 60° to 65°, not lower, with a rise of 8° or 10° in the day; during the growing season the heat may rise in the night from 70° to 75°, and 10° higher in the day with sun-heat. They all require shading from the sun, but are much benefited by being grown in a good light house, as in such the leaves are stouter, and not so susceptible to injury from any cause. They require a constant use of the syringe to keep them clear from insects, especially red-spider. Water remaining on the leaves after syringing will do no harm. The brown spots complained of on the leaves might be produced by several causes, not determinable without inspection. The most likely are a bad condition of the roots through being grown in unsuitable soil, omission of shading when the sun shone strongly upon the plant, or the effects of insects, such as thrips or red-spider. *T. Baines.*

Books: *H. K.* Porter's *Tropical Cultivator* is the only work we can think of that is likely to be useful.—*W. G. H.* The following would be a good selection:—

Oliver's Elementary Lessons in Botany (Macmillan).
Thompson's Gardener's Assistant (Blackie).
McIntosh's Book of the Garden, 2 vols. (Blackwood).
Hogg's Fruit Manual (171, Fleet Street).
Paxton's Botanical Dictionary (Bradbury, Agnew & Co.).
Lindley's Theory and Practice of Horticulture (Longmans).
Treasury of Botany, 2 vols. (Longmans).
Loudon's Encyclopædia of Plants (Longmans).
Loudon's Encyclopædia of Trees and Shrubs (Longmans).
Hooker's Student's Flora (Macmillan).
Brown's Forester (Blackwood).
Thomson's The Grape Vine (Blackwood).
Thomson's The Pine-apple (Blackwood).
Thomson's Handy Book of the Flower Garden (Blackwood).
Kemp's How to Lay out a Garden (Bradbury & Co.).
How Crops Grow (Macmillan).
Sutherland's Hardy Herbaceous and Alpine Plants (Blackwood).
Williams' Choice Stove and Greenhouse Plants; Orchid-growers Manual; and Select Ferns (Williams).
Baltet's The Art of Grafting and Budding (Robinson).
W. Paul's Rose Garden (Kent & Co.)
Lindley's Vegetable Kingdom (Bradbury & Co.).
Robinson's Subtropical Garden (Murray).
Robinson's Alpine Flowers (Murray).
Du Breuil's Science and Practice of Pruning Fruit Trees (Kent & Co.).
And a good Dictionary.

Brockworth Park Pear: *J. S.* A tin box, which, we presume, contained the specimen of this Pear, &c., has been returned to the Post-office, in consequence of the postage not having been sufficiently prepaid.

Filberts: *F. R. G.* Pack them in the husks in a barrel, closed so as to exclude the air, and place the barrel in a cool fruit-room or cellar. Your other questions shall be answered in our next.

Gadsby's Petroleum Boiler: *R. B., Metheringham*, should have sent the information direct to Mr. Voice.

Green Gage Tomato: *J. C. & Co.* The fruit proved to be excellent, with a distinct, piquant and highly agreeable flavour. It is not only a handsome fruit, but one to be prized on account of its quality.

Lily of the Valley: *C. Z.* We know of no growers in Hamburg. The best roots are obtained from the neighbourhood of Berlin; and we have already given you the address of a large grower there.

Muscats: *A. B.* Without knowing what sort of a house you are going to plant, it is difficult to say which plan would be best in your case. If the conditions are favourable, plant inside by all means, but in that case you must make ample provision for the roots to extend into the outside border.

Names of Fruits.—*R. H. Plum:* Diaprée Rouge.—*J. T. S. Grapes:* 1, Black Prince; 2, Foster's White Seedling. *Pear:* 3, Marie Louise d'Uccle. *Apples:* 4 and 5, Martin's Custard; 6, Lamb Abbey Pearmain.—*B. Apple:* Calville Rouge d'Automne.—*W. Francis. Apples:* 1, Beauty of Kent; 2, Frogmore Prolific; 3, Reinette Verte; 4, Reinette du Canada; 6, Wellington. *Pear:* 5, Beurré Van Mons.—*John Hart.* The fruit is not yet ripe; when it is we will report upon it.—*J. Jones.* 1, Too much decayed to recognise; 2, Beurré Defais; 3, an inferior sort, not worth cultivating, sent out many years ago as Hacon's Incomparable, thereby causing much confusion; 4, Nonsuch; 5, Winter Greening. — *Far North.* 1, Northern Greening; 2, Nonsuch; 3, Hollow-eyed Pippin; 4, Greenup's Pippin; 5, Cambusnethan Pippin; 6, Costard.—*J. C. B.* 1, Beurré Vert d'Hiver; 2, Brown Beurré; 3, Gansel's Bergamot; 4, Beurré Bosc; 5, Crassane; 6, small Jersey Gratioli.

Names of Plants: *J. E. Lees.* We make an exception to our usual rule in this case, the specimens being ample, and carefully packed. 1, Microlepia hirta; 2, apparently abnormal; 3, Lastrea tenericaulis; 4, Davallia tenuifolia; 5, Acrophorus repens; 6, Diplazium polypodioides; 7, Trichomanes radicans, sessile var.; 8, Doodia Kunthiana; 9, Sadleria cyatheoides; 10, Sagenia cicutaria; 11, Sagenia latifolia; 12, Nephrolepis acuta; 13, ? Pœcilopteris (barren); 14, Microlepia polypodioides; 15, Davallia feejeensis.—*G. G.* Euonymus atropurpureus; a native of North America, where it bears the name of "Burning Bush."—*A. Boyle.* Genista anglica.—*W. L. S. P.* Cratægus coccinea, var.—*H. G. S.* 2, Higginsia refulgens; 3, Begonia Richardsiana; 4, B. argyrostigma. The specimen of No. 1 was insufficient.—*K. & S.* From the small scrap sent, it seems to be Solidago canadensis.—*A Subscriber.* 1 and 2, Rhamnus oleifolius; 3, indeterminable without flowers; 4, Erythrina vespertilio.—*G. L. R.* Hymenocallis rotata.—*W. D. F.* Valoradia plumbaginoides.—*H.* Solanum jasminoides.—*H. K.* Possibly a small leaf of Drimys Winteri, but without flowers it is impossible to be certain.—*Little & Ballantyne.* Viburnum Opulus fructu-luteo — the yellow Guelder Rose.—*L. L. D., Co. Down.* Euphorbia portlandica. — *Foggylone.* Lilybum marianum (the "Holly-Thistle"). — *A. B.* Luzula sylvatica. —*F. Jones.* Ptelia trifoliata. — *James Cocker & Sons.* Tupa Feuillei.—*J. W. M.* The Begonias sent are hybrid varieties, which we have no means of naming. *R. M.* 1 and 3 are species of Rhododendrons which we cannot name without flowers; 2 we cannot name without flowers or fruit; 4, Pernettya mucronata; 5 seems to be Gaultheria mucronata, but we cannot be sure without fruit; 6, Taxus baccata variegata.

Temple Gardens: *E. G.* The Chrysanthemums shown in the Temple Gardens are all grown by the

gardeners, Mr. Newton and Mr. Dale; consequently there is no schedule to be obtained.

TRIFOLIUM INCARNATUM: *J. W.* Sow as soon as possible (it ought to have been sown before this) 20 lb. broadcast on a clean stubble, and simply harrow it in. You will in all probability have a heavy crop of most useful stuff for both byre and stall next May, if you do not let it get too ripe before you begin to use it.

WINTER FLOWERING PLANTS: *H. S.* The following are all good winter flowering plants, and bloom in succession until late in the spring: — Euphorbia jacquiniæflora, Poinsettia pulcherrima, P. pulcherrima alba, Gardenia intermedia, G. citriodora, Centradenia floribunda, C. rosea, Eranthemum pulchellum, Eucharis amazonica, Jasminum Duchesse d'Orleans, Plumbago rosea, Thyrsacanthus rutilans, Ipomœa Horsfalliæ, Bouvardia Vreelandi, B. Humboldti corymbiflora, B. Hogarth, B. jasminoides. The above all require stove heat to flower them. Amongst greenhouse subjects Camellias, Azaleas, forced—such kinds as A. Borsig, A. Flag of Truce, A. Fielder's white, and A. vittata; the latter will flower through the winter in succession for months without heat more than an ordinary greenhouse. Cyclamens, Primulas, and early-sown Cinerarias, with forced Hyacinths, Narcissus, Lily of the Valley, Deutzia gracilis, and Violets grown in frames.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

CATALOGUES RECEIVED:—Paul de Mortillet (a la Tronche, près Grenoble, Isère), General Descriptive Catalogue of Fruit and Forest Trees, &c.—Cuthberts (Southgate, Middlesex), Autumn Catalogue of Dutch Flower Roots, Fruit Trees, Roses, Garden Requisites, &c.—C. Turner (Royal Nurseries, Slough), Catalogue of Roses, Fruit Trees, Coniferæ, Shrubs, Climbing Plants, &c.—P. Sebire (Ussy, près Falaise, Calvados, France), Catalogue of Plants and Trees.—Messrs. Baltet Frères (Troyes, Aube, France), Catalogue of Plants, Trees, Seeds, &c.—Thomas S. Ware (Hale Farm Nurseries, Tottenham, London), Autumn Catalogue of Carnations, Delphiniums, Hollyhocks, Roses, &c.—Eug. Verdier & Son (Gare d'Ivry, Paris, France), Price List of New Roses.—J. C. Schmidt (Erfurt, Germany), Wholesale Priced List of Dried Flowers, Grasses, Mosses, &c.; and of Palms, Cycads, and Garden Tools, &c.

COMMUNICATIONS RECEIVED.—J. T. S.—J. C. L.—W. Clarson (thanks).—A. M.—J. Batters.—H. M.—J. E. H.—S. Allaway.—L. H.—Clover.—F. Ram.—C. D. S.—P. F. (next week).—J. R. J.—J. F. R.—W. P., Edinburgh.—W. F.—G. M.—H. M.—W. B.—J. D—A Subscriber from the First.—Market Gardener.—Clover (use pitch, not tar, and you will be quite safe).

DIED, on the 13th inst., aged 20, at 29, Sutherland Square, Walworth, FRANCIS GEORGE, for some time on the staff of this paper.

Markets.

COVENT GARDEN, October 14.

Large quantities of Apples, principally windfalls, have been forced upon the market during the past week, causing the prices of common sorts to reach a very low figure; while a good demand has been experienced for all sorts of best table Apples of good colour. Imported Pears are still arriving, and samples are more than ordinarily good, consisting of Duchesse d'Angoulême, Glou Morçeau, and Beurré Diel. Kent Cobs still maintain their price, and effect a ready sale. *James Webber, Wholesale Apple Market.*

CUT FLOWERS.

	s. d.	s. d.
Camellias	4 0	12 0
Carnations, 12 blooms	1 6	4 0
Cornflower, p.doz.bun.	3 0	6 0
Eucharis, per doz. ..	4 0	9 0
Gardenia, per doz. ..	2 0	6 0
Heliotropes, 12 spr.	0 6	1 0
Mignonette, 12 bun.	3 0	6 0
Myosotis, per bunch	0 4	0 9
Pelargoniums, 12 spr.	1 0	2 0
— Zonal, do. ..	0 4	1 0
Primula, dbl., p. bun.	0 9	1 6
Roses, indoor, p. doz.	2 0	6 0
— outdoor, 12 bun.	6 0	9 0
Spiræa, 12 sprays ..	1 0	3 0
Stephanotis, 12 sprays	4 0	9 0
Sweet Peas, 12 bunch.	4 0	6 0
Tuberoses, per doz...	1 0	4 0

PLANTS IN POTS.

	s. d.	s. d.
Begonias, per doz. ..	6 0	12 0
Bouvardias, do. ..	12 0	18 0
Chrysanthemum, do.	4 0	9 0
Coleus, do.	4 0	6 0
Cyclamen, do. ..	12 0	24 0
Cyperus, do... ..	6 0	12 0
Dracæna terminalis	30 0	60 0
— viridis, per doz.	12 0	24 0
Ficus elastica ..	1 6	7 6
Fuchsia, per doz. ..	3 0	18 0
Heaths, in var., doz.	12 0	30 0
Heliotrope, per doz.	3 0	12 0
Lilium auratum ..	12 0	36 0
Mignonette, do. ..	3 0	6 0
Myrtles .. do.	3 0	9 0
Pelargoniums, dble., per doz.	4 0	12 0
— Scarlet, do. ..	3 0	9 0
Primula sinensis, do.	4 0	12 0
Solanums, do. ..	6 0	24 0
Veronica, do. ..	4 0	12 0

FRUIT.

	s. d.	s. d.
Apples, per ½-sieve	1 0	2 6
Cobbs and Filbts., lb.	0 6	0 9
Damsons, per bushel	2 0	4 0
Figs, per doz. ..	0 9	3 0
Grapes, per lb. ..	0 9	5 0
Lemons, per 100 ..	8 0	12 0
Melons, each ..	2 0	5 0
Oranges, p. 100 ..	20 0	..
Peaches, per doz. ..	2 6	12 0
Pears, per doz. ..	1 0	4 0
Pine-apples, p. lb. ..	4 0	7 0
Plums, per bushel ..	2 0	6 0
— per punnet ..	0 6	1 6
Walnuts, p. bush. ..	8 0	12 0

VEGETABLES.

	s. d.	s. d.
Artichokes, per doz.	4 0	..
— Jerusalem, p. lb.	0 3	..
Beans, French, per bushel ..	6 0	..
— Scarlet Run., do.	5 0	..
Beet, per doz. ..	1 0	2 0
Brussels Sprouts, lb.	0 4	..
Cabbages, per doz. ..	1 0	2 0
Carrots, do.	0 6	..
Cauliflowers, p. doz.	4 0	..
Celery, per bundle ..	1 6	2 0
Cucumbers, each ..	0 3	0 9
Endive, per doz. ..	1 0	2 0
— Batavian, p. doz.	2 0	3 0
Herbs, per bunch ..	0 2	0 4
Horse Radish, p. bun.	3 0	5 0
Leeks, per bunch ..	0 2	0 4
Lettuces, per score..	2 0	..
Mint, per bundle ..	0 4	..
Mushrooms, per pott.	1 0	2 0
Onions, young, bun.	0 4	0 6
Parsley, per bunch..	0 4	..
Radishes, per bunch.	0 2	0 4
— Spanish, doz. ..	1 0	..
Salsafy, per bundle..	0 9	..
Shallots, per lb. ..	0 3	..
Tomatos, per doz. ..	1 0	2 0
Turnips, per bundle.	0 4	..
Veg. Marrows, doz.	1 0	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

SEEDS.

LONDON: *Oct.* 14.—Our seed trade continues in pretty much the state described last week. In Clover seeds there is as yet scarcely any business doing. New samples of home-grown red seed are not yet forthcoming. Offers of French seed come to hand rather freely, but not many transactions have yet resulted. Trefoils are quiet but firm. Winter Tares continue in good demand, and the supply being short full rates are easily obtained. The trade for Trifolium incarnatum is not yet over. Winter Barley, Oats, and Rye meet a fair sale at last week's currencies. Still another advance has taken place in Canary seed; Millet and Hemp seed keep steady. There is no change in the value of white Mustard: the greater part of the Essex crop has now been bought up by the manufacturers. In Cambridgeshire the quantity saved will, it is said, be below the average. Rape seed is 2*s.* per quarter dearer. The colder weather has increased the demand for boiling Peas, and quotations are consequently on the rise. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday trade was destitute of life. The rates of that day se'nnight were asked for Wheat, but they were not in all instances given. Barley was in fair supply, and no change occurred in the value of either grinding, malting, or distilling qualities. Malt was dull but not quotably cheaper. Sound English Oats were well held. Maize was steady on former terms. Beans and Peas were dealt in to a small extent at recent currencies. Flour was quoted as before, but the tendency was rather downward.—There was no improvement in the trade on Wednesday. Millers evinced little disposition to operate in Wheat, and the heavy supplies from abroad had some influence on prices. though no actual reduction can be noted. Barley was steady, and no change occurred in the value of malt. Sound Oats were well held, other kinds dull. Maize was without alteration, and very few transactions occurred in either Beans or Peas. Flour was hardly so firm in value.—Average prices of corn for the week ending Oct. 9:—Wheat, 45*s.* 10*d.*; Barley, 36*s.* 2*d.*; Oats, 24*s.* 11*d.* For the corresponding week last year:—Wheat, 44*s.* 8*d.*; Barley, 42*s.* 7*d.*; Oats, 27*s.* 11*d.*

CATTLE.

At the Metropolitan Cattle Market on Monday the trade in beasts was very dull, and prices scarcely any higher. Trade in sheep was also very dull, and prices on the average were lower. There were but few calves on offer, and very few choice ones: prices remained unaltered. Quotations:—Beasts, 4*s.* to 5*s.*, and 5*s.* 8*d.* to 6*s.* 2*d.*; calves, 4*s.* 4*d.* to 6*s.*; sheep, 5*s.* 4*d.* to 6*s.*, and 6*s.* 6*d.* to 6*s.* 10*d.*; pigs, 4*s.* to 5*s.* 4*d.*—On Thursday there was a large supply of beasts and a smaller demand; prices gave way for all kinds. For sheep trade was worse, and quotations were lower on the average. Choice calves were scarce, and maintained late quotations. Trade is returned as "better" for milch cows.

HAY.

From Whitechapel we learn that the market has been fairly supplied with fodder. There was a steady trade, and the quotations were as follows:—Prime Clover, 100*s.* to 157*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 137*s.*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 50*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 130*s.* to 140*s.*; inferior, 88*s.* to 110*s.*; superior Clover, 147*s.* to 160*s.*; inferior, 100*s.* to 120*s.*; and straw, 46*s.* to 50*s.* per load.

POTATOS.

The Borough and Spitalfields market report states that moderate supplies of home-grown come to hand, and there are also some further arrivals from abroad. In prices French are rather dearer. Quotations: Regents, 90*s.* to 110*s.*; Kidneys, 100*s.* to 120*s.*; Victorias, 90*s.* to 120*s.*; Shaws, 80*s.* to 90*s.*; Middlings, 50*s.*; Chats, 30*s.*; French, 75*s.* to 80*s.* per ton.—The imports of Foreign Potatos into London last week consisted of 2526 bags from Antwerp, 361 bags and 3593 sacks from Dunkirk, 4662 bags from Harlingen, 576 bags from Rotterdam, 212 bags from Brussels, 242 sacks from Boulogne, and 191 bags from Bremen.

COALS.

The market was firm on Monday, and previous prices were fully maintained. On Wednesday there was an active demand for house coals, at an advance of 1*s.* per ton. Quotations:—Bebside West Hartley, 20*s.* 9*d.*; Walls Ends—Harton, 21*s.* 3*d.*; Hetton, 25*s.*; Hetton Lyons, 21*s.* 3*d.*; Lambton, 24*s.* 6*d.*; Newbottle, 20*s.* 6*d.*; Tunstall, 21*s.* 3*d.*; Kelloe, 22*s.*; East Hartlepool, 24*s.* 9*d.*

LAURUSTINUS FOR SALE.

Apply to

WM. TRESEDER, Nurseryman, Cardiff.

Well-grown and recently transplanted, in large quantities.

Good Plants, 9 in. to 1¼ foot, 8*s.* per 100, sample doz. 1*s.* 3*d.*

Bushy Plants, 1 to 1½ foot, 12*s.* 6*d.* per 100, sample doz. 2*s.*

Very good, 1-yr. old, 20*s.* per 100, sample doz. 2*s.* 9*d.*

Large and good bushes, two and three times transplanted, 40*s.* per 100, sample doz. 6*s.*

Extra large, well-furnished plants, 2 to 3 feet, 50*s.* per 100, sample doz. 7*s.*

Post Office Order or Stamps must accompany order for sample dozen. Sample dozen will be carefully packed gratis.

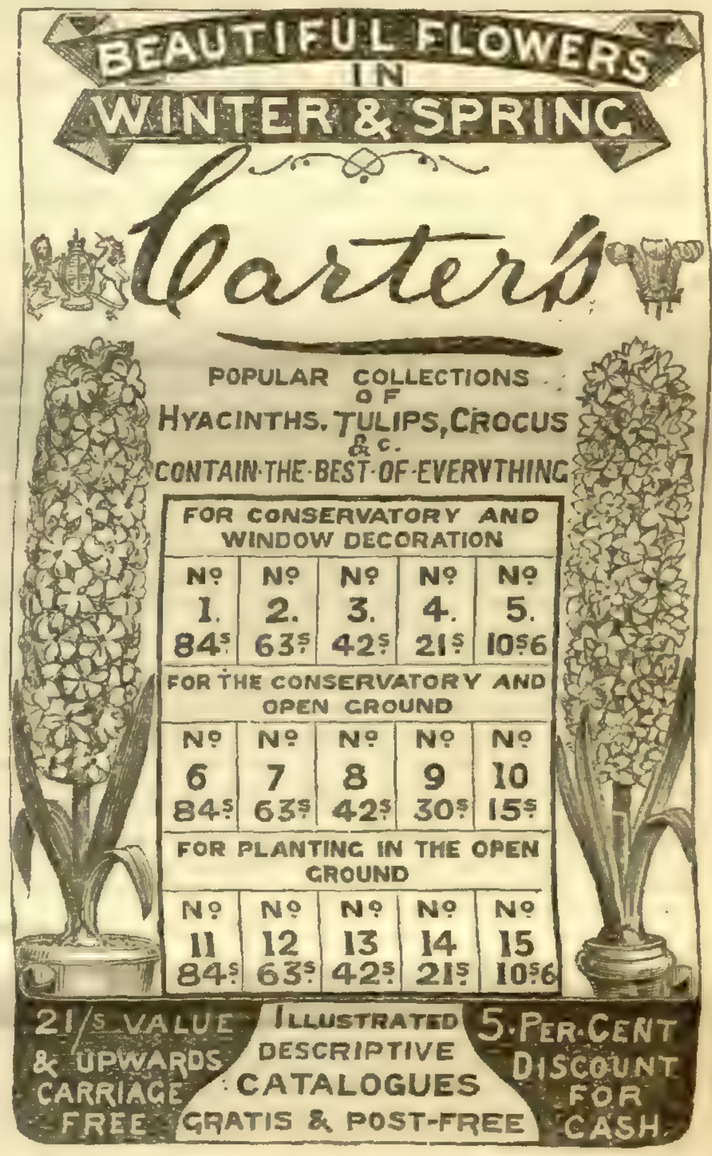
HOLLIES.

Twenty Thousand of the Finest Varieties of GREEN AND VARIEGATED HOLLIES, 4, 5, 6, 7, 8, and 10 feet.

The Plants are all handsomely Grown and properly Rooted

ANTHONY WATERER,

KNAP HILL NURSERY, WOKING, SURREY.



From FRED. WALTON, Esq.

"*October* 15, 1874.

"The Collection of Bulbs is truly a wonderful one for money."

Early Orders ensure the Best Roots.

Carter's

The Queen's Seedsmen,

237 & 238, HIGH HOLBORN, LONDON, W.C.

THE LAWSON NURSERIES,

EDINBURGH.

Evergreen Shrubs for Present Planting.

Rhododendrons, Ivies in Pots, &c., &c.

Hothouse, Greenhouse, and Bedding-out Plants in great variety.

TODEA SUPERBA — several hundreds, among which some magnificent specimens, perhaps the finest ever imported.

CLEMATISES in POTS—a large Collection of all the leading varieties, including the splendid flowers raised by I. Anderson-Henry, Esq., viz.: Henryi, Lawsoniana, and Symeiana; 10*s.* 6*d.* the set of 3 plants.

CATALOGUES ON APPLICATION.

The Lawson Seed and Nursery Company (LIMITED),

106, SOUTHWARK STREET, LONDON, AND EDINBURGH.

New Roses.

WM. PAUL AND SON beg to offer the the following NEW ROSES :—

STAR of WALTHAM, 7*s.* 6*d.* to 10*s.* 6*d.* each.
QUEEN of WALTHAM, 5*s.* to 7*s.* 6*d.* each.

These have been acknowledged by many of our first Rose amateurs, who had seen them blooming in the Nurseries here, to be two of the best novelties of the season.

Coloured Plates, free by post, 1*s.* each.

250,000 ROSES, new and old, now on Sale, of superior qualities, at very reasonable prices. Priced Descriptive CATALOGUE free by post.

PAUL'S Nurseries, Waltham Cross, Herts.

Winter Flowers.

RUSSIAN VIOLETS, the hardiest and best of all for winter blooming; good plants, 3*s.* per dozen, package included.

CHRISTMAS ROSE (Helleborus niger), strong blooming plants, 20*s.* per dozen, package free.

DIELYTRA SPECTABILIS, strong plants for forcing, 6*s.* per dozen, package free.

The money must accompany all orders.

THOMAS KITLEY, Oldfield Nursery, Bath.

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other DUTCH ROOTS, in fine condition. Early orders are requested. CATALOGUES free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

From Paris—New Roses for 1875-1876.

LÉVÊQUE AND SON, NURSERYMEN, 26, Rue du Liegat, Ivry-sur-Seine, near Paris, beg to announce that their LIST of NEW ROSES is now ready, and and will be sent immediately on application. They recommend particularly the following four sorts of their production :—H.P. Duc de Montpensier, H.P. Avocat Duvivier, H.P. Monseigneur Fournier, and a seedling of Cloth of Gold, Madame Miolan Carvalho, a deep yellow. Fifty other sorts of different growers are described in their List. On application they give confidential information. They give, as Discount, one plant or one sort over in each dozen ordered.

ROSES, 30,000 Dwarf, on the Manetti stock, at 40*s.* per 100, £16 10*s.* per 1000. The above consists of all the finest kinds, in splendid plants, such as La France, Baroness Rothschild, Alfred Colomb, Francois Lacharme, Mons. Etienne Levet, Countess of Oxford, &c. Also some thousands of Specimen Roses, in 8-inch pots, such plants as H. M. was awarded all the First Prizes for at the Great Yorkshire *Gala* at York and the Leeds Horticultural Society for years past—the only places he has exhibited them at. Price 3*s.* 6*d.* each, 36*s.* per dozen, or cheaper in quantity. The above are well adapted to force, and would make a great display, or for exhibiting; also Tea-scented Roses, in 6-inch pots, very fine, at 24*s.* per dozen. The Roses in pots can be supplied any time, the Dwarf Roses in the open ground as soon as they will remove.

Also 30,000 GOOSEBERRIES, in all the most useful kinds. Price 10*s.* per 100, or 80*s.* per 1000.

Trade price of the above and CATALOGUES on application to HENRY MAY, The Hope Nurseries, Bedale, Yorks.

Special Rose Cultivation by

JOSEPH SCHWARTZ (successor to J. B. GUILLOT, Sen.), 43, Rue du Repos, Guillotiére, Lyons, France.

NEW ROSES,

Obtained from seedlings of the Establishment, and which will appear in Trade for the first time on November 1, 1875. These new Roses carried the 1st Prizes at the Lyons, Geneva, and Bourg Exhibitions.

HYBRID PERPETUAL ROSES.

DUCHESS of VALLOMBROSA. — Very vigorous plant; full; soft rosy hue, with vivid centre, shading into rosy white. Seedling of Jules Margottin, extra variety. A Coloured Plate of this splendid flower will be sent free to every purchaser. Price, 25 francs (£1) each.

GUSTAVE REVILLIOD. — Very vigorous plant; flower large, full; beautiful Paeony Rose. First-rate plant. Price, 25 francs (£1) each.

OSCAR LAMARCHE.—Vigorous plant; flower large, crimson, darkening slightly. Price, 25 francs (£1) each.

BOURBON ROSE.

MADELEINE CHOMER.—Vigorous plant; flower, middle-sized or small, full, well made, carnation-white; splendid variety.

N.B.—All who take four plants of the same variety will receive a fifth gratuitously.

The GENERAL CATALOGUE has just been published, and will be sent Post Free to all who ask for it. Please pay full postage.

JOSEPH SCHWARTZ, Horticulturist, 43, Rue du Repos, a la Guillotiére, Lyons, France.

SPRING-FLOWERING PERENNIALS, &c., for Spring Gardening, Carpet Bedding, and Herbaceous Borders :—

Ajuga reptans fol. var., Aubrietia purpurea fol. var., Campanula persicifolia, and C. persicifolia alba, C. carpatica and C. carpatica alba, Cheiranthus Marshallii, C. alpina, Dianthus barbatus fl.-pl., D. barbatus nanus compactus, Seedling Delphinium, Helianthemums in named sorts, Lithospermum prostratum, Lychnis of sorts, Œnotheras in variety, Saxifrages in twelve kinds, Sedums in twelve sorts, Spiræa filipendula fl.-pl., Schizostylis coccinea, Violet Victoria Regina. All the above at 2*s.* 6*d.* per dozen.

Alyssum saxatile, Antennaria tomentosa, Aubrietia purpurea, Barbara præcox fol. var., Canterbury Bells, double and single, Iberis coriifolia, I. Tenoreana; Violas, alba, Enchantress, Magnificent, lutea, and grandiflora; Arabis albida, Phlox frondosa, P. verna, Silene pendula compacta, S. pendula compacta alba, Armeria rosea, and Veronica incana. Any of the above at 1*s.* 6*d.* per dozen; 50 for 5*s.*; 100 for 9*s.*

Daisies, red, white, or rose; Wallflowers, double or single; Dactylis elegantissima, Golden Pyrethrum, Myosotis dissitiflora, M. sylvatica, M. sylvatica alba or rosea, Polyanthus, Sedum acre elegans, S. glaucum, S. lividum, Sempervivum tectorum, S. californicum, Stellaria graminea aurea, and Sweet Williams. Any at 1*s.* per dozen; 50 for 3*s.*; 100 for 5*s.*

For descriptions, &c., of above, and for Spring-flowering Bulbs to plant with above see CATALOGUE, post free on application.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

ANDRÉ LEROY'S Nurseries, at Angers, France, the largest in Europe.—NEW CATALOGUE of Fruit and Ornamental Trees, Shrubs, Camellias, Roses, Stocks, Seedlings, &c., sent on application.

Freight from Angers to London, *vid* Steamers from St. Nazaire, about 2*s.* per 100 lb., except for packages below 500 lb.

Office in London: Messrs. DIECHE AND SON, 150, Fenchurch Street, E.C.

Cranston's Nurseries.—Established 1785.

THE FOLLOWING CATALOGUES are now Published :—

Descriptive CATALOGUE of ROSES, 1875—1876.
Descriptive CATALOGUE of FRUIT TREES.
Descriptive CATALOGUE of CONIFER TREES and SHRUBS.
Descriptive CATALOGUE of BULBS.
Descriptive CATALOGUE of GREENHOUSE and HERBACEOUS PLANTS.
Descriptive CATALOGUE of SEEDS. Address,
CRANSTON AND MAYOS, King's Acre, near Hereford.

Planting Season 1875.

MESSRS. JOHN STANDISH AND CO. beg to inform the Public that their stock of CONIFERS, EVERGREENS, RHODODENDRONS, FRUIT TREES, ROSES, &c., is unusually fine this season, and the plants, having been very recently removed, are well worthy of the attention of buyers.

They have also a large quantity of STOVE and GREENHOUSE PLANTS, such as Camellias, Azaleas, Bouvardias, Ferns, Decorative Plants, &c., to offer, all strong and healthy, at very reasonable prices.

The business at Ascot and at Knightsbridge is being carried on as usual under the same name.

CATALOGUES free on application.
Royal Nurseries, Ascot, Berks.

Richmond Nurseries, Richmond, Surrey.

To GENTLEMEN, NURSERYMEN, LARGE CONTRACTORS, LANDSCAPE GARDENERS, and OTHERS.

G. AND W. STEELL beg to call the attention of all Planters to their very extensive and fine grown NURSERY STOCK, consisting of an excellent selection of Ornamental Evergreen and Deciduous Shrubs and Trees, Standard and Dwarf Rose Trees, Standard and Dwarf Variegated and Green Hollies of the newest and best varieties, Standard and Dwarf Fruit Trees, &c., which they can highly recommend for their fine growth and moving qualities.

N.B.—Where large quantities are required they can be supplied at very low prices.

Roses, Camellias, Gladioli, and Pæonies, from Paris.

LÉVÊQUE AND SON, NURSERYMEN, 26, Rue du Liegat, Ivry-sur-Seine, Paris, beg to offer :—

ROSES, at per thousand, in beautiful and very strong Standards and Dwarfs of Perpetuals and Tea-scented varieties, and also on their own roots. Prices (low) sent on application.
CAMELLIAS, best sorts, splendid pyramids, from 12*s.* to 30*s.* each; small plants, 2*s.* 6*d.* to 6*s.* each.
GLADIOLI (named), very numerous, healthy and cheap.
,, seedlings, splendid and large stock; large flowering bulbs, 8*s.* per 100, and £3 per 1000.
PÆONIES, arborea and sinensis, low price, choice of the best sorts.

LISTS and prices on application.

Camellias and Azaleas with Bud.

A. VAN GEERT, Ghent, Belgium, begs to offer :—

CAMELLIAS, with bud, at £6, £8, £10, and £12 per 100.
INDIAN AZALEAS, with bud, at £5, £6, to £8 per 100.
GHENT AZALEAS, at £4 to £6 per 100.

Early orders respectfully solicited. Reference from unknown correspondents required.

M. A. VAN GEERT'S New GENERAL CATALOGUE, the most complete in the trade, is now ready, and may be had, free, either from himself or his Agents, Messrs. R. SILBERRAD AND SON, London, E.C.

AVENUE TREES.

	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 ,,
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 ,,
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 ,,
,, Scarlet, 10 to 14 feet high	8 to 10 ,,
,, Double, 10 to 14 feet high	8 to 10 ,,
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 ,,
ELMS, 15 to 18 feet	7 to 9 ,,

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots.

They are without doubt the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.

Knap Hill Nursery, Woking, Surrey.

VINES, VINES, EPIPHYLLUMS, TREE CARNATIONS, and CYCLAMENS.

VINES.—Strong, well-ripened, and short-jointed fruiting and planting Canes of the following varieties, 2*s.* 6*d.* to 5*s.* each:—Buckland's Sweetwater, Black Hamburgh, Black Alicante, Foster's Seedling, Gros Colman, Lady Downe's, Muscat Hamburgh, Madresfield Court, Dr. Hogg, Mrs. Pince, Muscat of Alexandria, Seacliffe Black, Trentham Black, White Lady Downe's, West St. Peter's; a few of Waltham Cross, 7*s.* 6*d.* to 15*s.* each; Duke of Buccleuch, 7*s.* 6*d.* to 10*s.* 6*d.*

EPIPHYLLUMS. — Strong grafted plants, 6 to 15 inch stems, heads 6 to 9 inches in diameter, 9*s.* per dozen, 60*s.* per 100; larger plants, 12*s.* per dozen, 90*s.* per 100.

TREE CARNATIONS and CYCLAMENS, fine for this season's blooming, 9*s.* and 12*s.* per dozen, 70*s.* and 90*s.* per 100.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

To Noblemen, Gentlemen, and Others Engaged in PLANTING.

JOHN PERKINS AND SON beg to call particular attention to their large Stock of the following, the whole of which are stout and well rooted :—

ASH, 2 to 3 feet.
BEECH, 2 to 3 feet.
BIRCH, 2 to 3 feet.
FIR, Balm of Gilead, 2 to 3 and 3 to 4 feet.
PINE, Austrian, 1½ to 2, 2 to 3, and 3 to 4 feet.
CHESTNUT, Spanish, 2 to 3, 3 to 4, and 4 to 5 feet.
ELM, Wych, 2 to 3, and 3 to 4 feet.
,, English, grafted, 3 to 4, and 6 to 8 feet.
,, stricta, grafted, 3 to 4, and 6 to 8 feet.
HAZEL, 2 to 3 feet.
HORNBEAM, 1½ to 2, and 3 to 4 feet.
LARCH FIR, 1½ to 2, and 2 to 3 feet.
OAKS, English, 3 to 4, and 4 to 5 feet.
SCOTCH FIR, 1½ to 2, and 2½ to 3 feet.
SPRUCE FIR, 1½ to 2, and 2 to 3 feet.
PINE, Weymouth, 2 to 3, 3 to 4, and 4 to 5 feet.

PLANTS SUITABLE FOR GAME COVERTS, &c.

BERBERIS AQUIFOLIA, 1 to 1½, and 1½ to 2 feet.
BLACKTHORNS, fine, 1½ to 2, and 2 to 3 feet.
BOX, Tree, 1½ to 2, and 2 to 3 feet.
GORSE, 1-yr.
HOLLY, Green, 1½ to 2, 2 to 3, and 3 to 4 feet.
LAURELS, common, 2 to 3, and 3 to 4 feet.
,, Portugal, 1½ to 2, 2 to 3, and 3 to 4 feet.
PRIVETS, Evergreen, 1½ to 2, 2 to 3, and 3 to 4 feet.
SNOWBERRY, 2 to 3 feet.
WHITETHORN or QUICKS, strong, 1½ to 2, and 2 to 3 feet.
YEWS, English, 1½ to 2, 2 to 3, and 3 to 4 feet.

Descriptive CATALOGUES of General Nursery Stock on application to

52, Market Square, Northampton.

To Landscape Gardeners and Others.

EXTENSION of TIME for SENDING in PLANS.

THE DIRECTORS of the CRYSTAL PALACE DISTRICT CEMETERY hereby notify that they have extended the time for receiving Competitive Plans (as per advertisement last week) from October 21 to 28.

The Ground Plan may be seen at the Office, 107A, Fenchurch Street, E.C., from 10 till 2 o'Clock daily.

JONATHAN TAYLOR, Sec.

The Gardeners' Royal Benevolent Institution.

NOTICE IS HEREBY GIVEN that an ADDITION will be made to the LIST of PENSIONERS in JANUARY NEXT. All Persons desirous of becoming Candidates are required to send in their applications to the Committee on or before NOVEMBER 13 NEXT, after which date they will not be received. Preference will be given to those applicants who may have been Subscribers for fifteen years and upwards. Should there not be a sufficient number of applicants of that class then the claims of those who have not subscribed so long, or not at all, will be considered.

By Order, EDW. W. CUTLER, Sec.

14, Tavistock Row, W.C.—October 6.

P.S.—Printed Forms of Application can be had upon writing to the Secretary.

COCOA-NUT FIBRE REFUSE for Plunging (newly made), 20 bushels, 6*s.* 8*d.*; 20*s.* per 100 bushels, 45*s.* per 300 bushels. Larger quantities contracted for.—J. STEVENS, Fibre Works, High Street, Battersea, S.E.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.

BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.

FRESH SPHAGNUM, 10*s.* 6*d.* per sack.

WALKER AND CO., Farnborough Station, Hants.

PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17*s.* per ton. A small sample will be sent by Post, free.

W. TARRY, "Golden Farmer," Bagshot, Surrey.

PAUL & SON,

THE OLD NURSERIES, CHESHUNT, N.,

HAVE NOW READY

PAUL & SON'S DESCRIPTIVE CATALOGUE OF ROSES,

CONTAINING

DESCRIPTIONS of NEW CHESHUNT RAISED ROSES for 1876, NEW ROSES of 1875, and usual information on the past Rose Season. Also,

Paul & Son's Descriptive List of Fruit and Hardy Growths,

Edited to present date, and containing Novelties of the several classes of Plants it describes.

POST FREE ON APPLICATION TO

PAUL & SON, THE OLD NURSERIES, CHESHUNT, N.

WORCESTER PEARMAIN APPLE.

Awarded a First-class Certificate by the Royal Horticultural Society, October 6, 1875.

Fruit 2¾ inches wide, and same in height, conical; skin smooth, brilliant red, with minute fawn-coloured dots; flesh very tender, crisp, juicy, and sweet, with a very pleasant flavour, perhaps the most valuable of all for market. The tree is as productive as Lord Suffield Apple, and one of the handsomest fruits in cultivation. Ripe end of August, and will keep till Christmas.

Maiden Trees, 10s. 6d. each; Pyramid or Trained Trees, 21s. each. Coloured Plates, 6d. each.

RED HAWTHORNDEN APPLE.—Dr. Hogg describes this as large, oblate, and angular; skin smooth, greenish yellow, with a red blush next the sun; flesh white, tender and juicy, with a sprightly and agreeable placidity. A very early and valuable culinary Apple; ripe August and September. Maiden trees, *7s. 6d.* each; Pyramid or trained trees, *10s. 6d.*

YORKSHIRE BEAUTY APPLE.—Dr. Hogg, in his *Manual*, says this fruit is 3½ inches wide and 3 inches high, roundish, flattened, and angular; skin bright yellow, with a bright red blush on the sunny side; flesh tender and juicy, with an agreeable acidity. A first-rate culinary Apple for August and September, the great size and excellent quality ought to commend it as a good orchard fruit for the market. Maiden trees, *5s.* each; Pyramid or trained trees, *7s. 6d.*

NEW GOLDEN LABURNUM.—Unquestionably the finest hardy golden-leaved tree known, of immense value for park and garden scenery; it will take a foremost position among pictorial and garden trees; the foliage is a brighter golden-yellow than the flower of the ordinary Laburnum. First-class Certificate awarded by the Royal Horticultural Society, August 4, 1875. Price 10*s.* 6*d.* each; Standard and extra strong trees, 21*s.* Coloured plates, 6*d.* each.

OTHERA JAPONICA.—A new and beautiful evergreen shrub. One of the most distinguished Japanese travellers says this is perhaps the prettiest evergreen they have in Japan; it grows about 20 feet high, has dark green leaves and a profusion of bright red fruit; it is very effective and perfectly hardy. Price 10*s.* 6*d.* each; extra strong, 21*s.*

CLIMBING ROSE, COUNTESS of OXFORD.—The old variety in all respects, except in being a free climber. *7s. 6d.* each.

FIFTY ACRES OF FRUIT TREES.

Standard and Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, very fine trees for walls.

Standard, Pyramid, Dwarf, Bush, and Cordon APPLES, PEARS, PLUMS, and CHERRIES.

ORCHARD HOUSE TREES, Established in Pots, for Immediate Fruiting.

PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, APPLES, FIGS, ORANGES, and MULBERRIES.

VINES, Planting Canes, 3*s.* 6d. to 5*s.* each; Extra Strong Fruiting Canes, *7s. 6d.* to 10*s. 6d.* each.

All the above of superior quality, perfect in form, roots, and health, and true to name.
See Descriptive Price List.

TWELVE ACRES OF ROSES,

Standards and Dwarfs, all the popular sorts; 80,000 choicest Tea-scented and Noisette Roses, in pots. Extra strong Hybrid Perpetual Roses, in pots for immediate forcing. Climbing Roses in great variety. *See Descriptive Price List.*

FOR SHRUBBERIES.

	Per 100.
LAUREL, Colchic, the best hardy variety	3 to 4 feet, 35*s.*
,, Portugal, very fine	1½ to 2 feet, 35*s.*
,, Portugal, very fine	2 to 2½ feet, 50*s.*
,, Caucasian, very fine	2 to 3 feet, 50*s.*
,, Round-leaved, extra fine ..	2 to 3 feet, 70*s.*
,, Six distinct and beautiful vars.	2 to 3 feet, 50*s.*
COTONEASTER SIMONSII, fine	3 to 4 feet, 35*s.*
PYRUS JAPONICA	2 to 3 feet, 50*s.*
EUONYMUS RADICANS VARIEGATA	1 foot, 40*s.*

	Per 100.
CISTUS LAURIFOLIA, in pots .	1½ to 2 feet, 50*s.*
ARBUTUS (Strawberry tree) ..	1½ to 2 feet, 60*s.*
,, (Strawberry tree)	2 to 2½ feet, 75*s.*
CEPHALOTAXUS DRUPACEA	1½ foot, 60*s.*
TREE IVIES, full of flower ..	1 to 1½ foot, 75*s.*
LAURUSTINUS	1 to 1½ foot, 40*s.*
BROOMS, White and Yellow ..	2 to 3 feet, 30*s.*
YEW, English, bushy	1½ to 2 feet, 40*s.*
,, English, bushy	2 to 2½ feet, 60*s.*
,, English, bushy	2½ to 3 feet, 80*s.*
,, Golden, bushy	1 to 1½ foot, 90*s.*

	Per doz.
JUNIPER, Chinese	4 to 5 feet, 36*s.*
,, Chinese	5 to 6 feet, 42*s.*
OAK, Austrian Evergreen	2½ to 3 feet, 30*s.*
,, Austrian Evergreen	3 to 4 feet, 42*s.*
,, Ford's Evergreen	3 to 4 feet, 36*s.*

	Per doz.
CRYTOMERIA ELEGANS ..	2 to 2½ feet, 21*s.*
PICEA PINSAPO	2 to 2½ feet, 36*s.*
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	Per 100.
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DECIDUOUS FLOWERING SHRUBS in 50 beautiful varieties, 30*s.* per 100.
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Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
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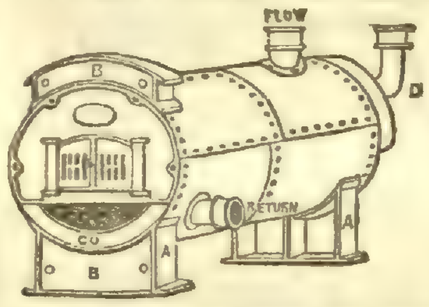

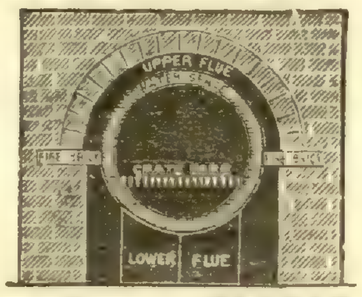

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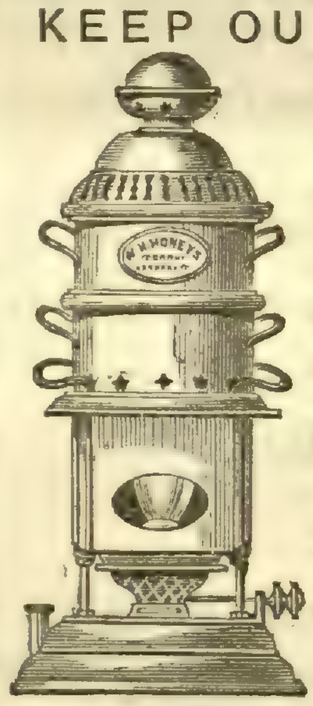

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They require no attention beyond replenishing the oil.

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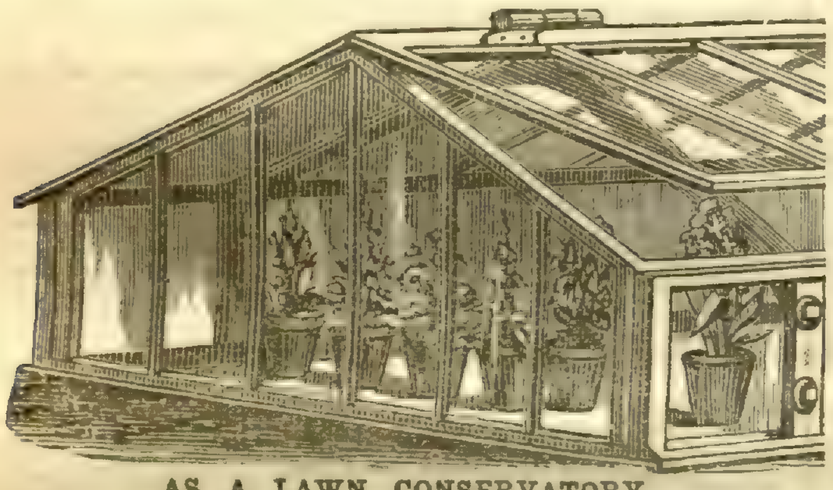

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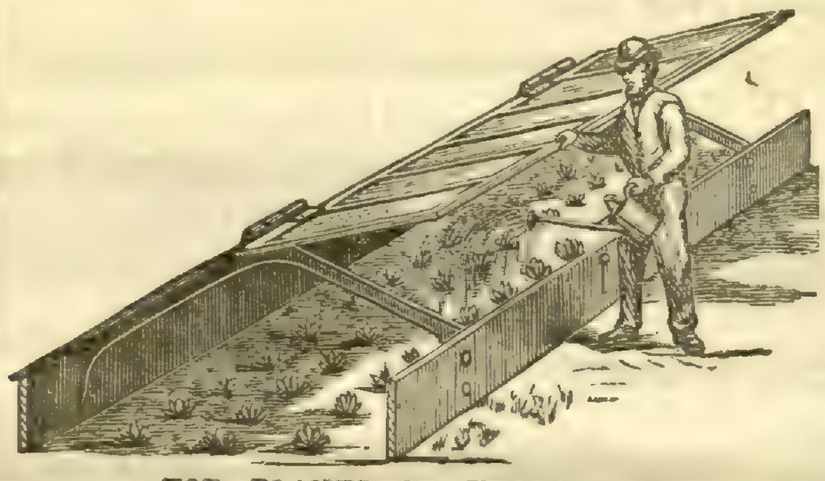

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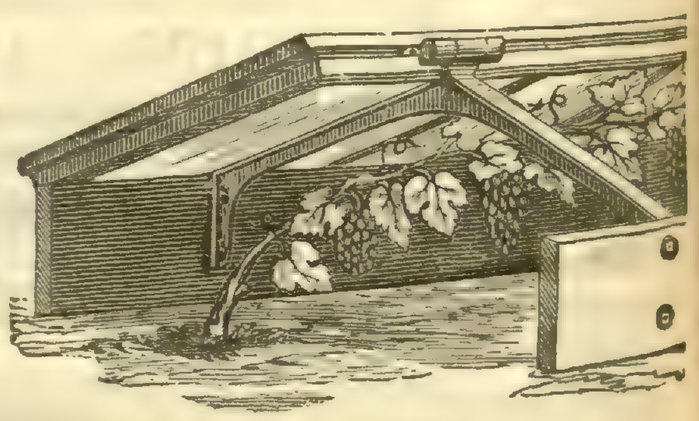

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Instead of having to remove or slide loose glass every time it is necessary to attend to the plants, we attach the glazed lights (21-oz.) with hinges to the frame of each light, thereby doing away with continual breakage of glass and loss of time. Two men can instantly remove a complete length, 12 ft. by 4 ft. wide; thus proving them to be really portable. They are made in the following sizes. One pair of ends is sufficient for any number of lengths, if set in a continuous row.

Cash Prices carriage paid to any Station in England on Orders amounting to 60s. and upwards.

	Price.	Ends per pair extra.
6 feet long by 2 feet wide	£1 5 0	5*s.* 0*d.*
12 feet long by 2 feet wide	2 10 0	5*s.* 0*d.*
6 feet long by 3 feet wide	1 15 0	7*s.* 0*d.*
12 feet long by 3 feet wide	3 5 0	7*s.* 0*d.*

	Price.	Ends per pair extra.
6 feet long by 4 feet wide	£2 6 0	8*s.* 6*d.*
12 feet long by 4 feet wide	4 4 0	8*s.* 6*d.*
12 feet long by 5 feet wide	5 10 0	10*s.* 6*d.*
12 feet long by 6 feet wide	7 0 0	12*s.* 0*d.*

Lawn Conservatories, with Glass sides and ends, 12 feet long by 4 feet wide, £7 5*s.*; 12 feet long by 5 feet wide, £8 15*s.*; 12 feet long by 6 feet wide, £10.

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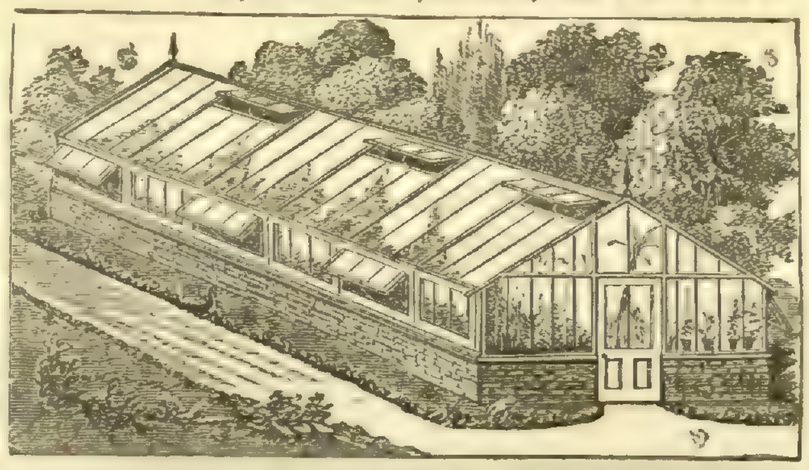

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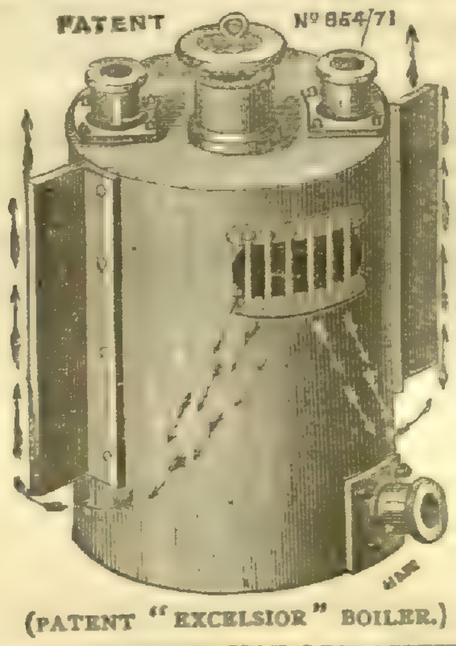

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Spring Flowers.

THOMAS S. WARE'S new A. B. C. BULB GUIDE (now ready, free on application) contains a selection of all the best Spring-flowering Perennials and Bulbs in cultivation.
Hale Farm Nursery, Tottenham, London.
N.B.—See Cheap Collections of the above.

W. LIGHTBODY, of Falkirk, N.B., has a lot of BLOOMING TULIP ROOTS remaining from his late father's stock, which he would like to Dispose of as Mixtures. Particulars on application to him at Falkirk.

Bulbs, Tubers, and Perennials.

THOMAS S. WARE'S A. B. C. Descriptive BULB CATALOGUE is now ready, free on application, containing one of the largest collections of Bulbs and Tubers in cultivation, to which is added a selection of Spring Flowering and other Perennials for Autumn Planting.
Hale Farm Nurseries, Tottenham, London.

CROCUS, large Dutch, yellow, blue, white, striped, or mixed, 1s. 6d. per 100, 15s. per 1000. Good named HYACINTHS, twelve distinct varieties, selected roots, for 6s. CATALOGUES free.
W. HOOPER, 88, Oxford Street, London, W.

HERBACEOUS PLANTS. A Large and interesting Collection.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.
Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

A. STANSFIELD AND SON beg to say that their NEW CATALOGUE of FERNS, No. 10, for 1875-6, is now ready, and may be had for 3 stamps. It contains more than 1000 species and varieties, many of them new and rare, with Descriptive and Cultural Remarks.
Vale Nurseries, Todmorden.

ROSE SHOWS, 1875.—50 First Prizes, 25 Guinea Silver Challenge Cup, and other Premier Prizes. See Cranston & Mayos' DESCRIPTIVE ROSE CATALOGUE for 1875. Address,
CRANSTON'S Nurseries, King's Acre, Hereford.

Roses, Roses.

DOWNIE AND LAIRD, Royal Winter Gardens, West Coates, Edinburgh, will be prepared on and after the 15th November to supply the finest Roses in cultivation at 9s. per dozen, their own selection.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

General Jacqueminot (H.P.).

GEORGE GRAY AND SON beg to offer 4000 extra fine plants of this excellent forcing ROSE, worked very low on Manetti, price 35s. per 100.
Nurseries, Brox, Chertsey, Surrey.

The Oxford Roses, on Cultivated Seedling Briar.

GEORGE PRINCE'S Priced and Descriptive CATALOGUE now ready. All Roses are grown exclusively on the above stock at this establishment.
14, Market Street, Oxford.

Roses.

CHARLES TURNER'S carefully prepared CATALOGUE is now ready, and may be had on application. The stock, of all heights, is very large and most healthy.
The Royal Nurseries, Slough.

ROSES, ROSES, ROSES. 60,000 extra fine Dwarfs and Standards. Fine Plants and choicest sorts.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

Special Culture of Fruit Trees and Roses.

THE DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS (by THOMAS RIVERS) is now ready; also CATALOGUE of Select ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
The Ottershaw Nursery, Chertsey.

Fruits.—Roses.

A. M. C. JONGKINDT CONINCK'S Wholesale TRADE LIST of FRUITS and ROSES is now ready, free on application.
Large quantity of home-grown, very sound bulbs of LILIUM AURATUM.
Tottenham Nursuries, Dedemsvaart, near Zwolle, Netherlands.

LATANIA BORBONICA, two large Plants, a pair, for Sale. Apply to
J. ARNOLD, Drakelowe Hall, Burton-on-Trent.

JULIUS HOFFMANN, NURSERYMAN, 131, Koepnicknerstrasse, Berlin S. O., Germany.
LILY of the VALLEY, every one strong flowering, 40s. per 1000 pieces. Stock 200,000.

Lilies of the Valley.

E. H. KRELAGE AND SON, Haarlem, Holland, have a splendid Stock of 3-yr. old Clumps of the best variety of LILY of the VALLEY at the disposal of the Trade. The plants are extra fine this year. Prices per 100 and 1000 on application.

Pansies and Violas.

THOMAS S. WARE'S AUTUMN CATALOGUE of the above, including Carnations, Picotees, Pæonies, Phloxes, Pyrethrums, and other Hardy Florist's Flowers, is now ready, free on application.
Hale Farm Nurseries, Tottenham, London.

BOX EDGING—10,000 yards, at 2½d.; 100,000 SNOWDROPS, 10s. per 1000; CABBAGE PLANTS, 2s. 6d. per 1000, for cash.
B. YOUNG, Landscape Gardener, Bridge of Allan.

WM. POTTEN can still supply select GERANIUMS, COLEUS, and FUCHSIAS, as advertised in *Gardeners' Chronicle*, September 11.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

To the Trade.

EPIPHYLLUMS, grafted, stout, strong stuff, clean and healthy, the best varieties only, 84s. per 100.
Pot ROSES, Tea-scented varieties, extra strong, 105s. per 100.
W. G. CALDWELL AND SONS, The Nurseries, Knutsford.

Carnations and Picotees.

THOMAS S. WARE'S AUTUMN CATALOGUE of the above, including Pæonies, Phloxes, Pyrethrums, Pansies, Violas, and other Hardy Florists' Flowers, is now ready, free on application.
Hale Farm Nurseries, Tottenham, London.

Wanted in the Trade.

LARCH and SCOTCH FIR.—Please quote quantity, size, quality, and lowest prices per 1000, free on rail, to
PLANTER, Mr. J. Billett, Monkton, Taunton.

HOLLIES.—To Gentlemen wishing to plant with immediate effect, a quantity of magnificent Hollies of variegated and other kinds for Sale, from 10s. 6d. to £5 5s.
Apply at Bache Hall, Chester.

For Sale, Hollies and Yews for Hedges.

HOLLIES, green, 12 inches to 4 feet; variegated do., 1 to 4 feet; English YEWS, 1 to 5 feet; LAURUSTINUS, 1 to 2½ feet; and LAWSONIANAS, 2-yr. removed, 5 to 8 feet, well furnished plants. Samples and cash prices on application to
W. TRIGG, Hook Hill, Woking Station, Surrey.

LARCH, One Year's Seedling.—Probably the finest ever offered. Samples and Prices on application.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

LAURELS—One Hundred Thousand, 2 to 2½ feet, good stuff, 40s. per 1000. Trade price on application. General Nursery Stock second to none in England. CATALOGUES now ready.
H. BLANDFORD, The Dorset Nurseries, Blandford.

Yews.

YEWS.—For Sale, from 3000 to 4000, all well grown and rooted, and recently moved, from 3½ to 4½ feet high, at 90s. per 100.
Well adapted for hedges or ornamental trees; of first-rate quality as any one would wish to see.
JOSEPH SPOONER, Goldworth, Woking, Surrey.

Hardy Evergreens.

JAMES DICKSON & SONS solicit attention to their very extensive and excellent hardy and well-rooted EVERGREENS, as well as to all other Nursery Stock, which for quality, variety and extent, is unsurpassed.
"Newton" Nurseries, Chester.

Important to Planters.

KENTISH COB NUTS.—One Hundred very fine Specimen Trees, in safe condition for moving, 8 ft. high by 6 ft. diameter. Particulars and price on application to WM. BASKETT, Princes Street, Reading, Berks.

GRAPE VINES, GRAPE VINES. Strong well ripened Canes of all the best varieties.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

Vines, Vines, Vines.

W. G. CALDWELL AND SONS have a splendid stock of GRAPE VINES to offer—fine, well-ripened, short-jointed canes—consisting of Black Hamburgh and all other popular sorts. Prices (low) on application.
The Nurseries, Knutsford, Cheshire.

VINES, VINES, VINES.—2000 strong Canes of all the leading sorts. Planting Canes, from 2s. to 3s. 6d.; Fruiting Canes, from 5s. to 7s. 6d. each.
F. AND A. SMITH, The Nurseries, West Dulwich, near London, S.E.

GRAPES THE FIRST YEAR.—Canes from 6 to 7 feet, 5s. each; ditto from 8 to 9 feet, 7s. 6d. each. 10 per cent. discount for cash.
Mr. R. TANTON, The Old Nurseries, Epsom.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c. Free by post for one stamp.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Fruit Trees.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE for the present season is now ready, and may be had on application. The Trees are extra fine this season. The Royal Nurseries, Slough.

APPLE TREES, strong fruiting, 9s. to 12s. per dozen, £3 to £4 per 100; strong PEARS, PLUMS, and CHERRIES, 12s. per dozen, £4 per 100; strong Black and Red CURRANTS, 10s. per 100; GOOSEBERRIES, 16s.
R. THORNHILL, Bowdon Nurseries, Hale Road, Bowdon.

Splendid New Apple,

LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, 3s. 6d. each, 21s. for seven; 2-yr. plants, 5s. to 7s. 6d. each.

To Nurserymen and the Trade.

SEAKALE and ASPARAGUS for forcing, extra fine, 80s. per 1000; second size, 50s. per 1000.
HENRY PAGE, Walham Green, Fulham, S.W.

CABBAGE PLANTS for SALE.—Good strong Plants of Early Battersea, Enfield Market, Improved Nonpareil, and Robinson's Champion Cattle Cabbage, can be supplied at 3s. per 1000. Package free for cash with order.
The above are all well-rooted stuff, growing on red sand, and cannot fail to give satisfaction.
S. BIDE, Alma Nursery, Farnham, Surrey.

Cabbage Plants, Cabbage Plants.

EARLY RAINHAM, EARLY BATTERSEA, EAST HAM, LITTLE PIXIES, at 3s. 6d. per 1000, including package, and free to rail.
WILLIAM MEADMORE, Nurseries, Romford, Essex.

SALES BY AUCTION.

Spring Flowering Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, Importations of first-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, GLADIOLI, and other BULBS, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

Established and Semi-established Orchids.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, October 26, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED and SEMI-ESTABLISHED ORCHIDS from Belgium, comprising many Rare and Valuable sorts; also, several other small Collections of Established Orchids, and a few Imported.

On view the morning of Sale, and Catalogues had.

Greenhouse Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 27, a consignment of CAMELLIAS, AZALEAS, PALMS, and other PLANTS from Ghent; and an importation of BULBS from Holland. On view the morning of Sale, and Catalogues had.

Choice Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 28, at half-past 12 o'Clock precisely, a quantity of CHOICE ORCHIDS, Established and Semi-established, including several good plants IN FLOWER of PHALÆNOPSIS AMABILIS,

Odontoglossum Roezlii	Cypripedium lævigatum
Vanda Cathcarti	Pescatorea Dayana
Cattleya Dowiana	Odontoglossum sceptrum
Masdevallia Veitchii	Cattleya Mendelii,

and some plants of PHALÆNOPSIS SCHILLERIANA, and three beautiful NEW ONCIDIUMS—O. plagianthum, O. tetracopis, and O. Balderramæ; a quantity of plants of the new ODONTOGLOSSUM CIRRHOSUM: this superb Odontoglossum is a much handsomer species than the still rare O. nævium, somewhat resembling it in colour and character, but infinitely superior; also several plants of the rare ODONTOGLOSSUM HALLII, one of the most magnificent of the family; ODONTOGLOSSUM HYSTRIX and O. CRISPUM.

On view the morning of Sale, and Catalogues had.

Lilium auratum, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, October 29, at half-past 12 o'Clock precisely, a valuable Collection of New and Rare LILIES, of very fine English growth, including 2000 Lilium auratum, in superb condition; Liliums—Wilsoni, longiflorum Wilsoni, Szovitzianum, dalmaticum, Brownii, canadense (true) in its three forms, giganteum, pulchellum, the rare Catesbæi, which has not been in commerce for years; callosum, pulchellum, tigrinum splendens, tigrinum flore-pleno, &c.; the choice Tulipa Greigii, Freesia Leichtliniana, &c. Also a small collection of extra fine BULBS of HYACINTHS, TULIPS, and CROCUS; fine plants of CYPRIPEDIUMS, viz., arietinum, acaule, pubescens, parviflorum, and spectabile; fine masses of North American FERNS, viz., Osmundas and Struthiopteris; extra fine AMARYLLIS, &c. The whole in lots to suit Private Buyers and the Trade, and will be sold without reserve.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 4, at half-past 12 o'Clock precisely, a quantity of IMPORTED ORCHIDS, just arrived from Brazil ex Elbe, all in splendid condition, consisting of Oncidium sarcodes (true), some of the finest pieces ever imported, in full bloom when collected, and considered by the collector (Mr. Henry Blunt) to be the finest varieties; Oncidium crispum, magnificent specimens, and said to be quite distinct from the ordinary varieties; Oncidium Marshallianum, splendid masses, in best possible condition; Oncidium concolor, very rare and lovely species; Miltonia candida, Lælia cinnabarina (true), the long-bulbed variety, very rare; Scuticaria Hadweni, also Lælia Perrinii, L. purpurata, and Cattleya Leopoldii, &c.

On view the morning of Sale, and Catalogues had.

Rare and Choice Lilies.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 9, at half-past 12 o'Clock precisely, many thousands of the best and choicest known Lilies in good flowering bulbs, including some hundreds of the handsomest Californian LILIES, just received by express overland. Also a quantity of other CALIFORNIAN BULBS, such as Cyclobothras, Bloomerias, and Brodiæas, and a quantity of good Bulbs of the rare and beautiful Lilium Krameri, L. callosum, and some good Bulbs of the rare L. Wallichianum. Also a great quantity of Amaryllis, and some magnificent extra-sized bulbs of Lilium auratum, with good bulbs of the new and extremely handsome Crinum ornatum rubro-vittatum—flowers white, striped with crimson, one of the most beautiful Crinums ever introduced.

In this Sale will be comprised a large quantity of a Lily collected and sent from California as the new Lilium Bloomerianum oscellatum, but the bulbs are very unlike those imported last year of that variety. They are also unlike the bulbs of any of the other Californian Lilies with which we are acquainted, and, therefore, may prove a totally new kind.

On view the morning of Sale, and Catalogues had.

Champion Hill, S.E.

IMPORTANT SALE of GREENHOUSE PLANTS.

MR. J. C. STEVENS has received instructions from J. C. Im Thurn, Esq., to SELL by AUCTION (in conjunction with Messrs. Ellis & Son), on the Premises, Champion Hill, S.E., on FRIDAY, November 12, at 12 o'Clock precisely, his entire Collection of STOVE and GREENHOUSE PLANTS, consisting of magnificent specimen Palms, in tubs, and mostly in pairs; Camellias and Azaleas of the finest varieties, a beautiful assortment of plants for table decoration, such as Cocos Weddelliana, Aralia Veitchii, Croton Weismanni, &c.; a choice collection of Ferns, Heaths, Epacris, Amaryllis, &c.; a few good Orchids, a quantity of the best sorts of Standard and Dwarf Roses, also some fine ORNAMENTAL VASES, the LAWN MOWER, HANDLIGHTS, GARDEN IMPLEMENTS, &c.

May be viewed by Catalogues the day before and morning of Sale, and Catalogues had of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.; and of Messrs. ELLIS AND SON, 49, Fenchurch Street, E.C.

Dutch Bulbs.—Extensive Consignment of the finest named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, GLADIOLUS, &c., for absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY next, at half-past 11 o'Clock precisely, 850 lots of the above, the whole being of a very superior quality.

On view morning of Sale. Catalogues had at the Mart, and of the Auctioneers, 98, Gracechurch Street, E.C.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms, as above, on TUESDAY, October 26, at half-past 12 o'Clock precisely, a First-class COLLECTION of DUTCH BULBS, 500 fine Standard and Dwarf ROSES, Selected FRUIT TREES, Hardy AMERICAN PLANTS, CONIFERÆ, and EVERGREEN SHRUBS, &c.

May be viewed the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Sunningdale.

HIGHLY IMPORTANT EXTENSIVE UNRESERVED SALE of NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Noble to SELL by AUCTION, without reserve (the lease of a portion of the Nursery having expired necessitating an immediate clearance), on the Premises, the Sunningdale Nursery, close to the Station near Bagshot, Surrey, on MONDAY, October 25 and five following days, at 11 for 12 o'Clock precisely each day, an immense quantity of beautifully grown NURSERY STOCK, including a great number of magnificent specimen Coniferæ and other Evergreens, also many thousands of young and thriving stock in splendid condition for removal, particularly worthy of the attention of large consumers, comprising 5000 Cupressus Lawsoniana, 2 to 7 feet; 5000 Thujas of sorts; 5000 Portugal Laurels, 1 to 2 feet; 6000 Common Hollies, 1 to 2 feet; 5000 Aucubas of sorts; 20,000 Privet; 1000 English Yews, ½ to 2½ feet; 8000 Mahonias, Piceas, Hollies, Thujas, Junipers, Araucarias, &c.; 50,000 choice named Hybrid and Pontica Rhododendrons, Kalmias, Andromedas, and other American plants, 4000 Deciduous Flowering Shrubs, 50,000 Ornamental Trees in great variety, 10,000 Standard and Dwarf Roses, Fruit Trees, Manetti and Plum Stocks, Hardy Climbers in pots, and thousands of other stock too numerous to specify.

The stock may at any time be viewed. Catalogues may be had on the Premises, and of the Auctioneers.

Tooting, S.W.

IMPORTANT SALE of EXTRA THRIVING NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. R. Parker to SELL by AUCTION on the Premises, the Exotic Nursery, Tooting, Surrey, on WEDNESDAY and THURSDAY, October 27 and 28, at 11 for 12 o'Clock precisely each day, a large quantity of valuable Extra NURSERY STOCK, remarkably well-grown and in excellent condition for removal, comprising several thousands of choice Evergreen and Coniferæ Shrubs in borders, admirably adapted for effective planting; also a large quantity of handsome specimen Coniferæ, beautifully grown and symmetrically formed; a fine assortment of Ornamental and Forest Trees, including Standard Acacia inermis and variegated Acers; 500 Standard and Dwarf Roses, clean grown, Fruit Trees in bearing condition, Herbaceous Plants, Clematis, Ivies, and Hardy Climbers in pots, &c.

May be viewed prior to Sale. Catalogues may be had on the Premises and of the Auctioneers.

CONSIGNMENT of 700 choice Double CAMELLIAS and AZALEA INDICA from Ghent, well set with bloom-buds; several handsome TREE FERNS from New Zealand, in growing condition, for unreserved sale.

MESSRS. PROTHEROE AND MORRIS will include the above stock in their SALE of DUTCH FLOWER ROOTS, to take place at the Auction Mart, Tokenhouse Yard, E.C., on MONDAY, November 1, to commence at half-past 11 o'Clock to the minute.

Kingston-on-Thames.

FIVE DAYS' CLEARANCE SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Jackson & Son to SELL by AUCTION, on the Premises, Park Road and Elm Vale Nurseries, Kingston-on-Thames, seven minutes' walk from the Norbiton and Kingston Stations, on TUESDAY, November 2, and Four following days, at 11 for 12 o'Clock precisely each day, without reserve, the Land occupied by these two Branch Nurseries being required for building purposes, the whole of the valuable NURSERY STOCK, consisting of a beautiful assortment of thriving Evergreens and Coniferæ, in fine condition for removal, including 15,000 green Hollies, 2 to 6 feet, 1300 variegated Hollies, 12,000 common and Portugal Laurels, 700 Araucarias, 3 to 5 feet, 1500 Cupressus Lawsoniana of sorts, 1800 Aucubas, 1 to 3 feet, 3500 Arbor-vitæ, 3 to 8 feet, 7500 oval-leafed Privet, 3 to 5 feet; 3500 Euonymus, 1000 Rhododendrons, thousands of Thujas, Piceas, Pinuses, &c.; Scotch and Spruce Firs, Austrian Pines, &c., and large quantities of similar stock too numerous to mention in detail; also thousands of Ornamental Trees, 600 Standard and Dwarf Roses, 13,000 extra strong Quick; also a nicely varied assortment of 3000 clean grown Fruit Trees, consisting of standard, pyramid and trained Apples, Pears, Plums and Cherries, dwarf-trained Peaches, Nectarines, and Apricots, &c.

May be viewed, and Catalogues may be had.

Chichester.

TWO DAYS' SALE of SURPLUS NURSERY STOCK.

Important to Gentlemen, the Trade, and Others largely Engaged in Planting.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. D. Scott to SELL by AUCTION, without reserve, on the Premises, The Northgate Nurseries, Chichester, on TUESDAY and WEDNESDAY, November 2 and 3, at 11 for 12 o'Clock precisely each day, a great quantity of well-grown SURPLUS NURSERY STOCK, including a great number of handsome Specimen Coniferæ; also many thousands of beautifully grown Evergreens, including 3000 Laurustinus, 1¼ to 5 feet; 4500 Golden and other Euonymus, 4000 bushy Laurels, 2 to 8 feet; Portugal Laurels, 2 to 7 feet; 4000 Aucubas, 1 to 4 feet; 1000 English Yews, 2 to 7 feet; Evergreen Oaks and Phillyreas, thousands of Thujas, Pinus, Thujopsis, Juniperus, and other Coniferæ, and a great variety of other useful Stock.

The Stock may be viewed any time prior to the Sale.

Groombridge, Tunbridge Wells.

GOLDSMITH'S PARK NURSERIES.

EXTENSIVE and UNRESERVED SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Edwin Hollamby to SELL by PUBLIC AUCTION, on NOVEMBER 4, 5, and 6, many thousands of beautifully-grown specimens of WELLINGTONIA GIGANTEA, CEDRUS DEODARA, THUJA AUREA, THUJA LOBBII, CUPRESSUS LAWSONIANA, LAURELS, PORTUGAL LAURELS, LAURUSTINUS, PINUS STROBUS, LARCH, SCOTCH and SPRUCE FIRS, DECIDUOUS TREES, and flowering SHRUBS of all sizes; 1000 splendid RHODODENDRONS, 4 to 5 feet high, well set with bloom-buds; 1000 choice-named Standard ROSES; the whole of which has been recently transplanted, and well worthy the attention of intending planters.

Catalogues may be had of Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, London, E.C.; and at Mr. HOLLAMBY'S Office, Parade, Tunbridge Wells.

Clarke's Branch Nursery, Wallington, Surrey.

Important Notice.

COMPULSORY CLEARANCE SALE of VALUABLE NURSERY STOCK, consisting of thousands of Evergreen and Coniferous Shrubs, a considerable number of Transplanted Fruit Trees in great variety; also a large quantity of Forest and Ornamental Trees.

MESSRS. PROTHEROE AND MORRIS beg to announce that in consequence of the inclement weather this AUCTION SALE is POSTPONED to MONDAY, November 1, and will commence punctually at 12 o'Clock. No reserve whatever, land must be cleared by Christmas.

Catalogues may be had on the Premises, and at 98, Gracechurch Street, E.C.

Expiration of Lease—Streatham, Surrey.

IMPORTANT CLEARANCE SALE of about 30 ACRES of NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. George Clarke to SELL by AUCTION at the Streatham Place Nursery, Brixton Hill, Surrey, S.W., on MONDAY, November 8, and Five following days, at 11 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, including 4000 Rhododendrons, Aucubas, green and variegated Hollies, also many well-grown and handsome specimen Coniferæ and Evergreen Shrubs, Standard and Dwarf Roses, Fruit Trees, &c.

More detailed particulars will appear next week.

Preliminary Notice of

FORTHCOMING SALES of NURSERY STOCK, &c., by PROTHEROE AND MORRIS.

OCTOBER 29.—The NURSERY, Epsom. By order of Mr. Tanton. A quantity of useful Nursery Stock.

NOVEMBER 9.—The HOME NURSERY, Atherstone. By order of Mr. H. Baker. A fine assortment of thriving Nursery Stock, adapted for immediate effect.

NOVEMBER 11.—The NURSERY, Beddington, Surrey. By order of Messrs. Rollisson & Sons. A quantity of choice American Plants and other Nursery Stock.

NOVEMBER 13.—LOAM PIT VALE NURSERY, near the Railway Station, Lewisham. By order of Mr. W. Epps. A fine stock of Ornamental Trees, Shrubs, and Greenhouse Plants.

NOVEMBER 16, 17 and 18.—The BRANCH NURSERY, Teddington. By order of Mr. Laing. A beautiful assortment of well-grown Nursery Stock.

NOVEMBER 16.—The NURSERY, Caterham, Surrey. By order of Mr. G. Woollett. A quantity of fine Nursery Stock, growing on land adjoining the Home Nursery, the term for which is about to expire.

NOVEMBER 17.—HOLLAND NURSERY, Holland Street, Brixton Road, S.W. By order of Mr. J. Fowle. General Stock.

NOVEMBER 19 and 20.—The NURSERY, High Road, Lewisham, S.E. By order of Mr. Biggs. A fine assortment of Nursery Stock.

NOVEMBER 23 and following days.—ASCOT. By order of the surviving Partner of the late Mr. John Standish, deceased. A very large quantity of Nursery Stock, Plants in pots, &c.

NOVEMBER 23 and following days.—The EXETER NURSERIES, Exeter. By order of Messrs. Lucombe, Pince & Co., in consequence of a Branch Nursery being required for Farming purposes. An immense quantity of remarkably handsome specimen Coniferæ and other stock.

Catalogues, when ready, of any of the above Sales may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, Essex.

Goldsworth, near Woking, Surrey.

MESSRS. WATERER AND SONS have received instructions from Mr. Newey to SELL by AUCTION, on FRIDAY, October 29, at 12 o'Clock, the land being required for building purposes, a quantity of very choice well-grown and thriving NURSERY STOCK, comprising 500 Gold and Silver Hollies, from 2 to 4 feet, fine grown plants; 7000 Portugal Laurels, from 2 to 3 feet; 1000 Common Laurels, from 3 to 6 feet; 1500 Rhododendrons, 2 to 3 feet; 100 specimen Yews, well furnished plants, from 5 to 8 feet; quantity of Arbor-vitæ, 8 feet: ditto Cupressus Lawsoniana, from 5 to 8 feet; 55 yards of Arbor-vitæ Hedge, 8 feet; 500 Aucubas, Thuja Lobbii, Lilac, and other plants, the whole in excellent condition for removal.

The Nursery is situate near the Woking Station, on the South-Western Railway, affording great facility for carriage to all parts of the Kingdom.

May be viewed six days previous to the Sale, and Catalogues had upon the Premises, and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey.

To Nurserymen and Seedsmen.

MESSRS. RODWELL AND SON have been instructed to SELL by AUCTION, on WEDNESDAY, November 3, at 2 o'Clock punctually, the UNEXPIRED TERM of the VALUABLE LEASE of the extensive Premises, 41, High Street, Watford, Herts, together with the GOODWILL of that well-established Business of a Nurseryman and Seedsman.

The above affords an excellent opportunity for a Business Man, there being no other Business of the kind in the neighbourhood.

May be viewed and further particulars had of the Actioneers, High Street, Watford, Herts.

Hook Heath Nursery, Woking, Surrey.
Within 1½ Mile from the Woking Station, on the South-Western Railway.

MESSRS. WATERER AND SONS have been instructed by the Executors of the late Mr. J. Chapman to SELL by AUCTION, upon the Premises, on WEDNESDAY, October 27, and following day, at 12 o'Clock, the very valuable NURSERY STOCK, comprising 5000 Variegated Holly, from 1 to 4 feet; 20,000 Common Holly, from 1 to 5 feet; 2000 English Yews, from 1½ to 4 feet; 14,000 Portugal and Common Laurel, from 1 to 4 feet; 3000 Spruce Firs, from 1 to 3 feet; 1000 Horse Chestnuts, 5000 Tree Box, from 2 to 4 feet; 5000 American Arbor-vitæ, from 2 to 5 feet; 6000 Rhododendron ponticum, 1 to 3 feet; 3000 Standard and Dwarf Roses of the most choice sorts, which will be sold in lots suitable for private buyers and the Trade; 1000 Aucuba japonica, 2 feet; 200 Arbutus, 200 Thujopsis borealis, 1000 Berberis Darwinii, Thuja Lobbii, 2 to 7 feet; 500 Cupressus Lawsoniana; 2 to 7 feet; 10,000 Privet of sorts, 1000 Lilacs, Yuccas, &c.; Standard and Pyramidal Fruit Trees, Dwarf-trained Peaches, Nectarines, Apricots, and a variety of other Shrubs.

The Auctioneers beg to call the special attention of Gentlemen, Nurserymen, and others to this Stock, the whole being in excellent condition for removal. May be viewed one week previous to the Sale, and Catalogues had at the Albion Hotel, Woking; the White Hart Hotel, Guildford; upon the Premises; and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, who will forward them on application by Post.

There is Railway communication from Woking to all parts of the Kingdom.

Tan House Nursery, Halton Holgate, near Spilsby.
To NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others engaged in Planting.

MR. EDWARD RAINEY, favoured with instructions from Mr. J. W. Cole, will offer by PUBLIC AUCTION, on the Tan House Nursery Grounds, in Halton Holgate, on TUESDAY, November 2, the whole of the valuable Stock of FOREST, PARK, and HEDGE-ROW TREES, including Roses, Border Shrubs, &c., comprising 25,000 Ash, 3 to 6 feet; 50,000 Larch, 1 to 2 feet; 125,000 Larch, 3 to 5 feet; 20,000 Oak, 2 to 3 feet; 10,000 Oak, 4 to 6 feet; 50,000 Quick, 3 to 4 yr.; 100,000 Quick, 2 to 3 yr.; 30,000 Spruce Firs, 18 inches to 3 feet; 30,000 Scotch Firs, 18 inches to 3 feet; 5000 Austrian Pine, 18 inches to 2 feet; 3000 Laurels, 3000 Privet, 5000 Berberry, 1 to 2 feet; 3000 Holly, 1 to 2 feet; 500 Variegated Hollies, Gold, Silver, Hedgehog, &c.; 250 Portugal Laurels; 160 large bearing Apple and Plum Trees; 1000 Plums, Cherries, Apples, &c.; 2000 Park and Hedgerow Trees, 6 to 8 feet stems, and 10 to 14 feet high, all transplanted within the last two years, comprising Ash, Beech, Birch, Mountain Ash, Oak, Elm, Sycamore, Cherry, Crab, Laburnum, Horse Chestnut, Walnut, Thorn, Poplar, &c.

May be viewed three days prior to the Sale. Sale to commence at 9 o'Clock with the General Stock, and the Forest Trees at 1 o'Clock.

The Auctioneer invites attention to this very important Sale, the valuable stock being sold in consequence of the property being offered for building purposes.

Catalogues may be had of Mr. COLE, and of the Auctioneer, Spilsby.

The Nursery is situated within half-a-mile of Halton Holgate and Spilsby stations on the Great Northern Railway.

Auction and Estate Offices, Spilsby.—October 1.

Enfield Town.
IMPORTANT to GENTLEMEN, BUILDERS, FLORISTS, and others who are planting largely.

MR. F. W. SEARLE has been instructed by Mr. J. B. Butterfield, to SELL by AUCTION (Third Sale—in 600 Lots), on the Premises, Baker Street Nursery, Enfield, Middlesex, half-a-mile from Enfield Station, Great Northern and Great Eastern Lines, on WEDNESDAY, November 3, at 11 for half-past 11 o'Clock punctually, in consequence of the number of the Lots, which include an immense quantity of very First-class NURSERY STOCK, in excellent condition for removal, having been kept constantly transplanted, including fine Evergreen and Coniferæ Shrubs, viz.:—10,000 Common Laurels, 4 to 5 feet; 1000 Gold and Silver Variegated Hollies, 2 to 4 feet; 1500 Chinese and American Arbor-vitæ, 3 to 8 feet; 500 Laurustinus, bushy, for pots, 2 feet; 1000 Rhododendrons, set with bloom, for pots; 1000 Tree Box, for pots, 1½ to 2 feet; quantities of Cupressus Lawsoniana, Thujopsis borealis, Cedrus Deodara and atlantica, Junipers, fine Pyramid Portugal Laurels, Red Cedars, 1500 Scotch, Weymouth and other Pines, 6 to 10 feet; Ligustrum ovalifolium, 100 Standard Portugal Laurels, Arbutus, Berberries of sorts, double Deutzia, Euonymus of sorts, also 1000 Specimen Evergreen and Coniferæ Shrubs, comprising Wellingtonias, 4 to 8 feet; Thuja aurea, Cryptomerias, Pinus insignis, Thuja Lobbii and gigantea. The Ornamental and Forest Trees comprise 2000 fine Limes and Planes, 8 to 14 feet; Ailantus, Balsam Poplars, Weeping Willows, 5000 Fruit Trees, consisting of fine Standard Apples, Pears and Plums, Cherries, Walnuts, Gooseberries, Currants; 1000 Standard and Dwarf Roses, together with some fine double Camellias and Azaleas, &c.

May be viewed one week prior to Sale. Catalogues on the Premises, and of the Auctioneer, Tottenham and Enfield.

Hare Hill, Chertsey, Surrey.
NOTICE of CLEARANCE SALE.

MESSRS. WATERER AND SONS beg to inform the Nobility, Gentry, Nurserymen and others that they have been favoured with instructions from Mr. G. Chapman to SELL by AUCTION, upon the Premises, Hare Hill, Chertsey, EARLY in NOVEMBER, the whole of the very choice young and thriving NURSERY STOCK.

Further particulars will appear in future Advertisements, and Catalogues had of Messrs. WATERER AND SONS, Chertsey, Surrey.

To Nurserymen, Market Gardeners and Others.

TO BE LET, by Tender, for a Term not exceeding fourteen years, upwards of 14 Acres of excellent LAND, situate adjoining St. Mary's Churchyard, in the Parish of Ealing, Middlesex, at present laid down in old Pasture, but especially suitable for Nursery or Market Garden purposes, with possession at Lady-day next. Mr. ATLEE, the Parish Clerk, will point out the land, and receive Tenders under cover.

N.B.—The Trustees do not pledge themselves to accept the highest or any Tender.

SMALL FARM TO LET.—Tithe free, with the right of Sporting: 116 Acres of heavy Land with Homestead, in the Parish of Everton, near Sandy, Beds. For particulars apply to SMITH AND ROBINSON, Estate Agents, Hemel Hempstead.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 28, at half-past 12 o'Clock precisely, a quantity of

CHOICE ORCHIDS,

established and semi-established, including several good plants in flower of PHALÆNOPSIS AMABILIS; good plants of many of the choicest ORCHIDS extant; some plants of PHALÆNOPSIS SCHILLERIANA; and three beautiful NEW ONCIDIUMS—O. plagianthum, O. tetracopis, and O. Balderramæ; a quantity of plants of the new ODONTOGLOSSUM CIRRHOSUM: this superb Odontoglossum is a much handsomer species than the still rare O. nævium, somewhat resembling it in colour and character, but infinitely superior, and produces fine, strong, branched spikes of blossom, each flower 3 to 4 inches across, white, marked and spotted in the way of O. nævium, exceedingly chaste and beautiful. Also, several plants of the rare ODONTOGLOSSUM HALLII—one of the most magnificent of the family; ODONTOGLOSSUM HYSTRIX, and O. CRISPUM.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

LILIUM AURATUM, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, October 29, at half-past 12 o'Clock precisely, a valuable Collection of

ENGLISH-GROWN LILIES, including 2000 LILIUM AURATUM,

LILIUMS WILSONI, CANADENSE (true) in its three forms, LONGIFLORUM WILSONI, BROWNI DALMATICUM, the rare CATESBÆI, GIGANTEUM, TIGRINUM SPLENDENS, TIGRINUM FLORE-PLENA, SZOVITZIANUM, CALLOSUM, &c., all in most superb condition. Also fine plants of Hardy CYPRIPEDIUMS and North American FERNS, the choice TULIPA GREIGII, FREESIA LEICHTLINIANA, &c.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

Burton, Westmorland, Lake District, and within a mile of the Station on the London and North-Western Railway. An excellent opportunity for a Market Gardener or Fruit Grower.

TO BE LET, in consequence of the decease of the late Proprietor, about THREE ACRES of GARDENS, with Grape, Peach, Nectarine, Pine, and other Glasshouses, comprising nearly 5000 superficial feet, and all heated on the most approved principle. The Houses and Gardens are furnished with the choicest collection of Fruit Trees and Vines. There is a good Residence, besides a Gardener's Cottage, but the gardens could be let off exclusive of the residence at a moderate rent.

For further particulars apply to Mr. H. RAUTHMELL, Holme, Burton, Westmorland; or Mr. MORRIS, on the Premises.

Cattle Show, Agricultural Hall, December 6.

SPACE to LET, for the Exhibition and Sale of Goods, in ST. MARY'S HALL, communicating with the Great Hall. By a recent decision of the Council of the Smithfield Club the following articles have been excluded from the Great Hall:—Horticultural Implements, Building Machinery, Engineering Tools, Poultry and Game Utensils, Domestic Machines, Steam Engines not Agricultural, Stable Fittings, Horse Cloths.

For Terms for Exhibiting these and other Goods, apply to S. SIDNEY, Secretary, Agricultural Hall Company, Barford Street, Islington, N.

THE LOCAL BOARD of WEST DERBY are prepared to receive TENDERS from any person willing to become TENANT of their SEWAGE FARM at Fazakerley.

The Farm, which is within about 5 miles of the borough of Liverpool (which contains important Markets for Farm and Market Garden produce), covers an area of about 207 acres, and has been laid out for the Disposal thereon of the Sewage from the greater part of the district of West Derby.

Any Person taking the Farm would be required to take the Sewage as delivered by the Local Board, and to dispose of the same on the Farm by Irrigation.

Tenders are to be made in Accordance with and subject to the Terms and Conditions of the Specification, which can be seen on application to us, the undersigned, at our Office, 12, Hackins Hey, Liverpool.

Copies of such Specification, with map of the Farm annexed, can be had on application to us at our said Office, at the price of 5s. each.

Orders to view the Farm can also be had on application to us.

Sealed Tenders are to be sent in, addressed to us, to our said Office, endorsed "Tenders for Sewage Farm," on or before December 1, 1875.

The Board do not bind themselves to accept the highest or any Tender.—By order, RADCLIFFE AND LAYTON, Clerks to the Local Board of West Derby.

Public Offices, Green Lane, West Derby, near Liverpool.—October 11, 1875.

MARES for SALE, a Pair, Cream-coloured, with Black Points, full sisters, five and three years, 14 hands, dead match, extremely handsome, still untrained. Bred by Captain Macdonald, of Waternish, Skye, out of one of his celebrated Highland Mares, by the thorough-bred horse "Hartley Buck," bred and owned by the Duke of Richmond. Splendid Park Pair. Apply to GEO. MOFFAT AND CO., 6, Brown Street, Glasgow.

Rose Trees in Fine Condition.

F. W. COOPER is now prepared to receive Orders for the above on the following terms:—

Standards, 15s. to 18s. per dozen, £5 per 100; Half-standards, 12s. to 15s. per dozen, £4 per 100; Dwarfs on Manetti, 9s. to 12s. per dozen, £2 10s. per 100. All first-class sorts, with fine heads. List of names on application. Cash with order.

F. W. COOPER, Florist, Huntingdon.

Cinerarias—Champion Strain.

H. J. HARDY begs to offer strong, clean, healthy plants of his fine strain of CINERARIAS at 20s. per 100, less by the 1000, Package and Carriage Free to any railway station in England.

SEED of the above carefully saved this season by H. J. H. may be had in 1s. and 2s. 6d. packets, or 40s. per oz. Cash or reference. A liberal allowance to the Trade.

H. J. HARDY, Stour Valley Seed Grounds, Bures, Essex.

Larch, Limes, Mulberries, &c.

J. DYER has to offer to the Trade, for Cash, LARCH, 2 to 2½ and 2½ to 3 feet, very fine and clean grown; LIMES, 6 to 7 and 8 to 10 feet, with good heads; Standard MULBERRIES, all well rooted, with strong stems and well headed; also a quantity of GOOSEBERRIES and CURRANTS. Prices on application.

The Nurseries, Bridgwater.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, have to offer to the Trade the finest varieties of PANSIES and VIOLAS in cultivation, at the following moderate prices:—

100 Finest Show Pansies, in 40 sorts, 25s. per 100.
100 Finest Fancy Pansies, in 30 sorts, 30s. per 100.
100 Violas, in 20 sorts .. .. .. 20s. per 100.
Selection left to us.

New Roses.

WM. PAUL AND SON beg to offer the following NEW ROSES:—

STAR of WALTHAM, 7s. 6d. to 10s. 6d. each.
QUEEN of WALTHAM, 5s. to 7s. 6d. each.

These have been acknowledged by many of our first Rose amateurs, who had seen them blooming in the Nurseries here, to be two of the best novelties of the season.

Coloured Plates, free by post, 1s. each.

250,000 ROSES, new and old, now on Sale, of superior qualities, at very reasonable prices. Priced Descriptive CATALOGUE free by post.

PAUL'S Nurseries, Waltham Cross, Herts.

GRAPE VINES.—A fine stock of Black Hamburgh and other popular sorts, including the new varieties—Venn's Black Muscat, Waltham Cross, and Duke of Buccleuch—in strong, well ripened Fruiting and Planting Canes. Prices on application to
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

FIR (Scotch, Austrian and Corsican), Two Years' Seedling. Extra fine strong Plants. Samples and Prices on application.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

Phlox setacea.

W. MOFFAT, Botanic Nursery, Biggleswade, Beds, has an immense stock of this hardy and remarkably beautiful Spring Bedding Plant, *7s. 6d.* per 100. Also all the best Hybrid Perpetual ROSES, dwarfs, *6s.*; Standards, *10s. 6d.* per dozen. Package included for cash.

EVERGREENS and AVENUE TREES.—Aucuba japonica, 1 to 3 feet; Laurustinus, 1 to 3 feet; Laurels, 3 to 8 feet; Yews, 2 to 6 feet; Hollies, 2 to 6 feet; Limes, Planes, Birch, Poplars, Chestnuts, 8 to 16 feet, of unsurpassed quality.
For prices per dozen or 100, see CATALOGUE, post free on application.
WM. RUMSEY, Joyning's Nurseries, Waltham Cross, N.

Pelargoniums for the Million.

JAMES HOLDER can supply Show, French and Fancy Pelargoniums, in 50 or 100 varieties, strong healthy plants, at *25s.* per 100, during September and October. Also strong cut-back plants for immediate forcing, early sorts, at *9s.* per dozen, *60s.* per 100, package included. Terms cash.
CATALOGUES on application.
Crown Nurseries, Reading.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

BUDDENBORG BROS., FLORISTS, Hillegom, by Haarlem, Holland, have on hand a very large stock of extra strong clumps of LILY of the VALLEY, strong crowns of do., strong clumps of HOTEIA (SPIRÆA) JAPONICA, GLADIOLUS, &c.
Special offers made for quantities on application either to BUDDENBORG BROTHERS, as above; or, to Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

New Rose, H.P. Triomphe de France.

J. MARGOTTIN, FILS, NURSERYMAN, Bourg la Reine, near Paris, begs to inform his Customers, and the Trade in general, that he will sell in November next a magnificent New Rose, under the name of TRIOMPHE DE FRANCE. The flower is of beautiful bright carmine, of extra large size, very full, perfect form, and a free bloomer, moderate or vigorous habit; a most distinct and grand Rose. Price £1 each.
The CATALOGUE of ROSES will be sent on application.

Now Ready.

CABBAGE PLANTS, excellent—Early Enfield Market and Robinson's Champion Drumhead, at *3s. 6d.* per 1000; and Red Dutch Pickling, at *5s.* per 1000, for cash with orders. Contracts made to supply or to plant any quantity by the acre, on the most reasonable terms. References given if required.
FREDK. GEE, Seed Grower, &c., Biggleswade, Beds.

SPRING FLOWERS:—100,000 strong plants of Pansies, Violas, Primroses, Daisies, Aubrietias, Violets, and other Spring Bedding Plants, in best varieties; also a Select Importation of the very finest varieties of Hyacinths, Tulips, Narcissus, Crocus, Anemones, and other DUTCH BULBS, suitable for grouping or mixing with the above. Priced CATALOGUE free on application.
FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

To the Trade.

BILLING ROAD NURSERIES, NORTHAMPTON.
JOHN PERKINS AND SON beg to call particular attention to their large stock of Standard and Dwarf-trained FRUIT TREES, APPLES, PEARS, PLUMS, PEACHES, NECTARINES, and APRICOTS, strong GOOSEBERRIES and CURRANTS, EVERGREEN SHRUBS, CONIFERÆ, and FOREST TREES. Trade LIST upon application to
52, Market Square, Northampton.

VENN'S SEEDLING BLACK MUSCAT combines all good qualities of a Grape. First-class Certificate Royal Horticultural Society, Kensington; also wherever exhibited. Patronised by the principal Grape growers in the kingdom, also by Prince of Wales. Abundant bearer, delicious flavour, thrives equally in hot or cold houses. Hangs perfect until March. Fine planting Canes now on sale, reduced price 15s., delivered to order on receipt of Cheque or Post Office Order, payable to
THOMAS Y. VENN, Sneyd Park, near Bristol.

Roses, Roses.

SPECIAL OFFER to the Trade, &c.
ROSES, Standards, of the finest varieties in cultivation, strong stems and large heads, by the dozen, 100, or 1000.
" Dwarfs, on Manetti, suitable for potting; 2-yr. cut back.
CATALOGUES on application.
PELARGONIUMS—Queen Victoria, Captain Raikes, and Marie Lemoine—the three best Pelargoniums ever offered to the Trade; cheap by the dozen or 100.
PANSIES—Blue King and Cloth of Gold. Splendid for Spring or Summer Bedding.
VIOLET—Marie Louise. I have a large stock of this most beautiful Violet, suitable for potting, to offer by the dozen, 100, or 1000.
Also 100,000 SPRING BEDDING PLANTS, now ready. Special low prices to large Buyers.
CATALOGUE on application.
FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

ORCHIDS

AT UNPRECEDENTEDLY LOW PRICES.

As Mr. WILLIAM BULL is constantly receiving Importations from his Collectors and Correspondents abroad, he offers the following at the low prices annexed:—

	Each.	3 Plants.
ACINETA Humboldtii	£0 3 6	£0 9 0
ADA aurantiaca	0 12 6	1 13 0
ANÆCTOCHILUS Dawsonianus	0 3 6	0 9 0
ANGRÆCUM eburneum	1 1 0	2 15 0
ANGULOA Clowesii	0 7 6	1 0 0
BLETIA Sherrattiana	0 5 0	0 13 0
" florida	0 5 0	0 13 0
CALANTHE vestita luteo-oculata	0 5 0	0 13 0
" vestita rubro-oculata	0 5 0	0 13 0
CATASETUM Skinneri	0 10 6	1 8 0
CATTLEYA bogotensis	0 15 0	2 0 0
" citrina	0 5 0	0 13 0
" Trianæ	0 7 6	1 0 0
" Warscewiczii	0 15 0	2 0 0
CYPRIPEDIUM barbatum grandiflorum	0 15 0	2 0 0
" barbatum purpureum	0 7 6	1 0 0
" caudatum	1 11 6	4 4 0
" concolor	0 15 0	2 0 0
" Harrisianum	2 2 0	5 10 0
" hirsutissimum	0 15 0	2 0 0
" longifolium	0 15 0	2 0 0
" niveum	0 3 6	0 9 0
" Roezlii	2 2 0	5 10 0
" Schlimii	1 1 0	2 15 0
" villosum	0 15 0	2 0 0
CYRTOPODIUM Andersoni	1 1 0	2 15 0
DENDROBIUM chrysanthum	0 10 6	1 8 0
" crassinode	1 11 6	4 4 0
" cretaceum	0 10 6	1 8 0
" crystallinum	0 15 0	2 0 0
" Devonianum	0 3 6	0 9 0
" Falconeri	1 11 6	4 4 0
" Farmeri	0 10 6	1 8 0
" formosum giganteum	1 1 0	2 15 0
" Hookerianum	1 1 0	2 15 0
" japonicum	0 7 6	1 0 0
" lituiflorum	1 11 6	4 4 0
" macrophyllum	0 10 6	1 8 0
" macrophyllum giganteum	1 1 0	2 15 0
" nodatum	0 10 6	1 8 0
" Parishii	0 10 6	1 8 0
" Pierardii	0 3 6	0 9 0
" senile	0 7 6	1 0 0
" speciosum	0 5 0	0 13 0
" thyrsiflorum	0 7 6	1 0 0
" Wardianum	2 2 0	5 10 0
EPIDENDRUM dichromum	0 10 6	1 8 0
" macrochilum	0 7 6	1 0 0
" tigrinum	0 7 6	1 0 0
ERIA odorata	0 3 6	0 9 0
ERIOPSIS biloba	1 1 0	2 15 0
HELCIA sanguinolenta	0 15 0	2 0 0
LÆLIA acuminata	0 10 6	1 8 0
" autumnalis	0 7 6	1 0 0
LÆLIA furfuracea	£0 15 0	£2 0 0
" majalis	0 7 6	1 0 0
" purpurata	0 15 0	2 0 0
LIMATODES rosea	0 3 6	0 9 0
LYCASTE aromatica	0 7 6	1 0 0
" Skinneri	0 10 6	1 8 0
MASDEVALLIA Harryana	1 1 0	2 15 0
" ignea	1 11 6	4 4 0
" melanopoda	1 1 0	2 15 0
" polysticta	1 11 6	4 4 0
MAXILLARIA grandiflora	0 10 6	1 8 0
" luteo-alba	0 5 0	0 13 0
" luteo-purpurea	0 5 0	0 13 0
" venusta	0 12 6	1 13 0
MESOSPINIDIUM sanguineum	0 15 0	2 0 0
MILTONIA Clowesii	1 1 0	2 15 0
ODONTOGLOSSUM Bictoniense	0 7 6	1 0 0
" citrosmum roseum	0 10 6	1 8 0
" crispum (Alexandræ)	0 12 6	1 13 0
" cristatum	0 15 0	2 0 0
" Dawsonianum	0 10 6	1 8 0
" Ehrenbergii	0 15 0	2 0 0
" Hallii	1 11 6	4 4 0
" hastatum	0 7 6	1 0 0
" hastilabium	0 7 6	1 0 0
" Insleayi leopardinum	0 7 6	1 0 0
" luteo-purpureum	0 15 0	2 0 0
" maculatum	0 10 6	1 8 0
" pulchellum grandiflorum	0 15 0	2 0 0
" ramulosum	0 10 6	1 8 0
" Rossii	0 10 6	1 8 0
" Uroskinneri	0 10 6	1 8 0
ONCIDIUM barbatum	0 10 6	1 8 0
" crispum	0 15 0	2 0 0
" cucullatum superbum	0 10 6	1 8 0
" Kramerianum	0 15 0	2 0 0
" leucochilum	0 12 6	1 13 0
" nubigenum macrochilum	0 15 0	2 0 0
" Reichenbachii	0 15 0	2 0 0
" rostrans	0 15 0	2 0 0
" sarcodes	1 11 6	4 4 0
" stelligerum	0 7 6	1 0 0
" tigrinum	0 7 6	1 0 0
" trilingue	1 1 0	2 15 0
" triquetrum	0 7 6	1 0 0
PESCATOREA cerina	1 11 6	4 4 0
PHALÆNOPSIS amabilis	2 2 0	5 10 0
" grandiflora	1 11 6	4 4 0
" Schilleriana	2 2 0	5 10 0
PLEIONE maculata	0 15 0	2 0 0
" Wallichiana	0 15 0	2 0 0
SACCOLABIUM ampullaceum	0 10 6	1 8 0
SOPHRONITES grandiflora	0 15 0	2 0 0
WARSCEWICZELLA velata	1 1 0	2 15 0

Good Selections of Orchids made at 2, 3 and 4 Guineas per Dozen.

By sending names of those already possessed, different varieties can be given, and purchasers will have a good selection made for them.

ESTABLISHMENT for NEW and RARE PLANTS,
KING'S ROAD, CHELSEA, LONDON, S.W.

THE CORINIUM GUINEA COLLECTION OF BULBS

WILL PLEASE EVERYBODY.

THESE COLLECTIONS, which gave so much satisfaction last season, are suitable for Outdoor, also Conservatory and Greenhouse. They contain great variety, and are the best and cheapest ever offered.

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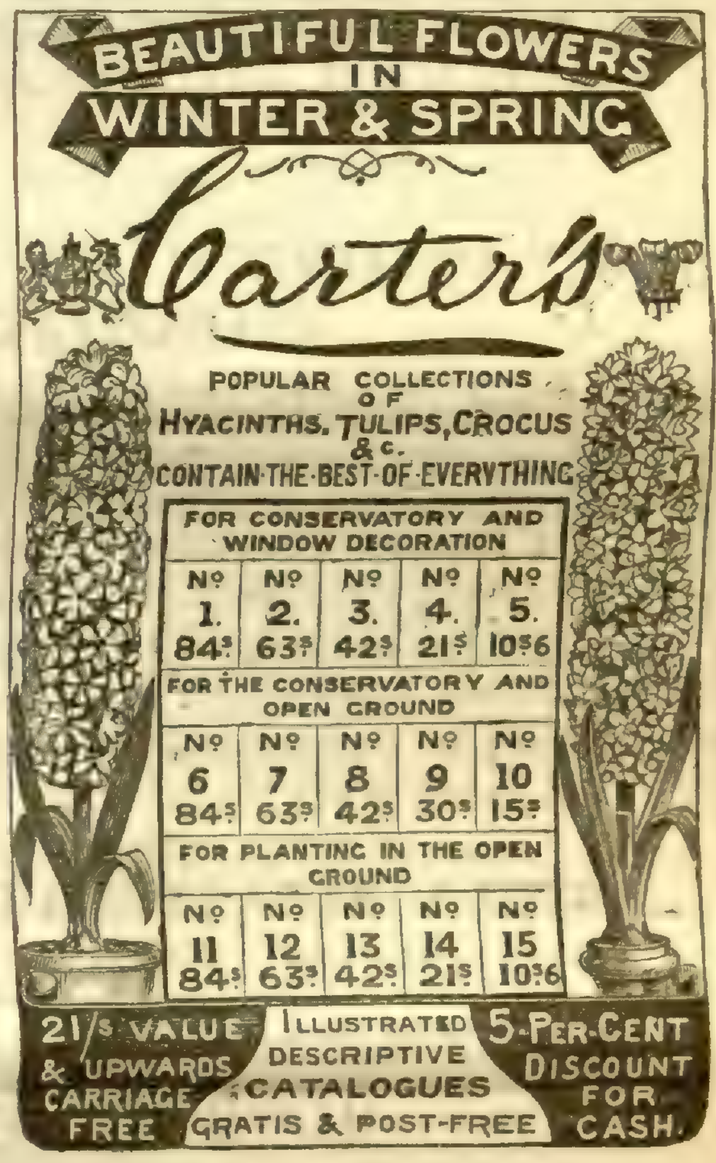

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SUTTON & SONS,
ROYAL BERKS SEED ESTABLISHMENT, READING.

SATURDAY, OCTOBER 23, 1875.

DANE'S-BLOOD.

THIS name, which is the commonly received English equivalent for the Sambucus Ebulus of botanists, is the representative of a numerous class of myths which find an echo in various parts of the world, and in pre-Christian as well as in Christian times. Indeed, a list of the plants which have been supposed to originate from the blood shed either in battle or otherwise, would embrace a much larger number of species than would at first be imagined. This notion may have unconsciously prompted that sentiment of an early Christian writer which may almost be said to have become proverbial, "The blood of the martyrs is the seed of the Church;" at any rate we find it in close connection with the very origin of Christianity itself. The red Rose is fabled by tradition to owe its crimson hue to the blood which fell upon it, while yet in its white condition, as it grew beneath the Cross on Calvary; our purple Orchis is called in some parts of Cheshire Gethsemane, and the dark spots on its leaves were attributed by the pious, if unreasoning, imagination of our ancestors to a similar sacred origin; while in a far different region we find a like belief among the members of a widely-different creed—the "Indian Shot" plant, Canna indica, having its origin, as the Buddhists believe, in the blood of Buddha, which was shed from his foot when he cut it upon a sharp rock.

Coming down to a somewhat later period in history we find the same strange superstition in full force—indeed, the most recent development of it is an event of our own time. A recent biographer of O'Connell has given us this illustration: speaking of one of the monster "Repeal" meetings held at Tara in 1843, he says, "There is a plant which the gods of botany call Rumex Acetosella, but which is known to the simple as Sheep's Sorrel; it is a dwarf Sorrel, the leaves of which become red, or rather russet, in autumn. It was to be found on the hills of Tara in plenty, the day of the monster meeting, more especially on and around the Croppie's grave. [This marks the spot where, in 1798, a body of Irish insurgents suffered defeat with great slaughter at the hands of the military.] The people took it into their heads that the red hue was given to it by the Croppie's blood, and they were most anxious to carry off plants of this Sorrel. A fine able young countryman installed himself as *cicerone* of the grave; I heard a poor woman ask him in her unsophisticated way, why those red plants were there? Disgusted at her ignorance, he answered indignantly, 'Isn't it on account of the boys that were murdered in '98, and buried in this grave?—and isn't it their blood that's making them red?'"

It is indeed especially in connection with battles and battlefields that this superstition has been developed. Of this we have a marked instance in the case of the Dane's-blood, the very name of which indicates its mystic origin; and in the case of this plant it is no local tradition, confined to one or two places, but is found in widely separated districts. Both name and tradition are of considerable antiquity. They were well known to Ray, who, speaking of Sambucus Ebulus, with which they are usually, although, as we shall see, not always connected, calls it Danewort—"*Quia e Danorum occisorum sanguine ortum fabulantur.*" "The so-called dwarf Elder, or Danewort," says Warsal, in his *Danes and Norwegians in England*, "is said to have germinated from the blood of the fallen Danes; it is therefore called Dane-blood or Danewort, and flourishes principally in the neighbourhood of Warwick, where it is said to have sprung from and been dyed with the blood shed there when Canute the Great took the town." In Wiltshire we have Aubrey's authority for saying that about Slaughtonford, where it is, or was then, plentiful, "there was heretofore a great fight with the Danes," which made the inhabitants give it that name. Camden in his *Britannia* has precisely the same story with regard to the occurrence of the plant on the Bartlow Hills, in Cambridgeshire. In Wales it is believed that the dwarf Elder will grow only on soil where blood has been spilt in murder or battle; and the Welsh name for it, Llysan gwaed gwyr—"plant of the blood of man"—conveys this idea. Near Lower Wick, in Worcestershire, there is a large patch of the plant, and the tradition there is that it commemorates the shedding of the "first blood" spilt in the contest between Charles I. and the Parliamentary army. The connection between the name and the popular tradition seems to establish the origin of the former in the latter; but it is worthy of note that Parkinson, in his *Theatrum Botanicum*, gives a very different explanation of it. He says, "It is supposed it tooke the name Danewort from the strong purging quality it hath, many times bringing them that use it into a fluxe, which then we say they are troubled with the Danes." The more generally received interpretation is, however, further supported by another name for the plant, Wallwort, or, more correctly, Walewort, which has come down to us from Anglo-Saxon times, and signifies Slaughter-wort, or Death-wort—*wal* being the Anglo-Saxon word for slaughter, or death.

Yet another proof that the name Dane's-blood is really connected with the Northern invaders of former days, and not with any disease, is furnished by one of its local applications, and affords an instance of the way in which the testimony of these vernacular names may prove of service. We have already referred to Camden's mention of the Sambucus Ebulus as occurring on the Bartlow Hills, and these hills are said to have been thrown up by the Danes in commemoration of the battle fought between Cnut and Edmund Ironsides, in 1016. Two other plants of these hills share in this locality, and, so far as we know, in this locality only, the name of Dane's-blood, which is in other places confined to the dwarf Elder. These are the Pasque-flower (Anemone Pulsatilla) and the clustered Bell-flower (Campanula glomerata), to both of which a similar name and tradition attaches. The rich purple hue of the former may possibly account for the title, but it is also called Dane-flower. Miss Pratt, in her *Flowering Plants of Great Britain*, says that some years ago, finding the Campanula largely scattered about these mounds, she asked some cottagers its name, and was told that it was the Dane's-blood, and that it was so-called because it sprang up from the blood of the Danes; and on subsequent enquiry she found this plant generally known by that name in the neighbourhood.

Other battles have left similar plant-memorials, either actually, by coincidence, or traditionally. Of the former class may be mentioned the covering of the field of Waterloo the year following the great battle with a dense growth of crimson Poppies, a natural result of the upturning of the arable land, but none the less striking on that account. To the latter belong the Roses of Towton Field, which commemorate a terrific combat between the Yorkists and Lancastrians in 1461; unless, indeed, it be really the case that these shrubs were planted there after the battle. Even if so,

however, tradition has added to the facts by the assertion, generally believed by the neighbouring villagers, that the Roses will not grow if transplanted from the field. In the case of the Lilies of the Valley of St. Leonard's Forest in Sussex, which are fabled to have sprung up from the blood spilt in a sanguinary conflict of three days' duration between the Saint and a mighty dragon which ravaged the neighbourhood, the very battle itself must be consigned to "the realms of infantile romance and ancient fairy tales." *B. M.*

New Garden Plants.

PLEUROTHALLIS FULGENS, *n. sp.**

This belongs to Dr. Lindley's "Apodæ cæspitosæ," and has no affinity whatever except to Pleurothallis uniflora, Lindl., and striata, Focke. Both are distinguished at first sight by their quite different leaves, not to speak of the details of the flowers. It has very short stems; spathulate, rather broad, shining, very strong leaves of light green colour, and basilar peduncles, with one to three flowers, rather more than half an inch long, very fleshy, of the most burning cinnabar-red. It is one of those species which rank very near Masdevallia, the majority of which are "Apodæ cæspitosæ" in their genus, inasmuch as they have such very short stems that "collectors" use to drill their victims, the really collecting peons, to look to that feature to understand the difference between coveted Masdevallias and despised Pleurothallids. After all, I like better to keep the plant a Pleurothallis, though it is not diplomatic. We have several patches, and if it was named "Masdevallia" we could make very lucrative exchanges. After all, science should stand on its own basis. Yet the plant is very ornamental, just as Pleurothallis leucopyramis, that is quite a gem. The masses of brilliant cinnabar flowers peeping out from the tufts of broad shining leaves, up to 3 inches high and nearly 1 broad, are very gay. The plant was discovered in Costa Rica by Endres, and has flowered several times at the Hamburgh Botanic Garden. I have a sheet covered with quite various sketches. If I had had to describe the first flowers (as is the case in some plants nurserymen have imported), ignorant observers would easily have believed my true description to be wrong, since they could have observed variations. *H. G. Rchb. f.*

HINTS ON ORNAMENTAL PLANTING.

[THE opening meeting of the fifth session of the Helensburgh Horticultural Association took place on the evening of October 8, when the following paper was read by Mr. James Niven, one of the Vice-Presidents of the Association.]

The following observations on ornamental planting will not be understood to embrace all that it necessary to be considered in relation to this important subject. To have done so would have necessitated a paper longer than either your patience or time will permit. I shall, therefore, confine myself chiefly to those points of arrangement which are essential to be carried out in the planting of extensive parks. Like the pigments put upon the canvas by a skilful painter, so are trees and shrubs in the hand of the planter the materials by which a beautiful or distorted scene is developed. Planting is the principal means of ornamenting ground, and I believe there is nothing which pertains to landscape-gardening which requires more skiil than this; therefore it should never be executed but under the directions of the artist. I have just remarked that trees and shrubs are the chief materials with which the designer has to operate. On the presence or absence of these, and on their wise arrangement and distribution, to a great extent depend the superiority and beauty of one piece of ground (of similar character) over those of another. The difference may not be so apparent at first, but the yearly growth of the trees and shrubs will gradually develope the perfect conception of the artist into a beautiful picture. A flat surface is the least propitious to the production of pictorial effect, still, by careful management, a great amount of this may be produced. The artist will, on such ground, have to depend on his own power of grouping together the masses of wood which he deems necessary for the purpose of decoration.

Having none of the advantages which undoubtedly arise from undulations, calculated to heighten the effect of a plantation or relieve the defects of an outline, he will have to create a piece of scenery which should be complete in itself, and should form a graceful and harmonious whole. The disposition of the woods should be so arranged as to make up a variety of connected, yet diversified, scenes of considerable breadth and length. It is generally admitted that less planting will suffice on a flat than on an undulating surface, but, whatever be the nature of the ground, all the open spaces should be light and roomy, the glades wide and sunny, and the scene should be light and airy. On undulating or hilly ground the woods ought rather to be planted on the rising ground or the sides of the hills, than in the hollows or valleys. In this way they are seen to greater advantage and tend to increase the height of the eminences on which they are placed, and proportionally to deepen the hollows below them. If the valleys were all planted up the result would be the concealment of the natural inequalities, and the production of a dull uniformity. In extensive parks there is often room for three or four main combinations all the outlines of which should be bold and sweeping, and be broken at intervals by ample bays or recesses, and in these individual trees or small irregular groups may be planted with good effect. In no case should the outlines be formed of straight lines, therefore belts should be avoided. In their heavy uniformity there is a total want of variety. On extreme boundaries something like a belt may be indispensable, but its margin next the chief points of view should be undulated and broken as much as possible. Whenever hedgerows remain as the relics of former husbandry, these should be destroyed. When the larger plantations have been laid out, the subordinate masses and groups should also be laid down in correlation and in due proportion. Single trees should be scattered here and there, in such a manner as to harmonise with the larger masses, these will take off any constrained appearance presented by the outlines of the denser plantations.

The grass lands should be thrown into spaces of great breadth, and the surrounding woods and groups of trees should exhibit entire scenes of themselves—connected, yet dissimilar; united, yet diversified—by the ever-varying interchange of grassy expanse, of glade and wood, and group, or single trees, exhibiting at one time the deep shade and dense colour of the mass, and again the light and airy graces of individual trees. There is a common fault to which the neglect of general grouping commonly tends; I mean what has been called the dotting system. This consists in placing objects in nearly equidistant positions without reference to their importance or proportions. In parks, where the plantations, groups, and trees are set down in complete isolation, without any perceptible relation to surrounding objects, these form examples of this mode of planting—trees are to be seen occupying the narrower glades, destroying their beauty. The effect of this unmeaning system, when exhibited on the sides of a green hill, is very infelicitious, and has been compared to a pattern of sprigged muslin. When it has found its way in pleasure grounds and gardens, the figures containing shrubs and flowers, as well as shrubs and trees, are sprinkled with the most undeviating regularity. The main object seems to have been to leave unoccupied no piece of grass or plot of ground above a certain and very moderate size. In many gardens this paltry and tasteless system has been carried out to the greatest perfection: a better taste is now, however, being diffused.

The results of the dotting system are a general monotony and an insipidity which no variety in the character of the trees or shrubs will ever overcome. There is the same breadth of light and shade on this tree and on that—a patchwork of sunbeam and shadow wherever the eye can turn. On the common or in the native forest, when the hand of man has not intermeddled, the trees and bushes are seen in masses or irregular clusters, with single plants scattered around them, and these are generally in closer proximity to some portion of the general group than to another. Hence the infinitely diversified beauties of our native Pine forests, and the inimitable grace of the Oaks and Birches on the sides of our Highland glens—there is a ceaseless interchange of light and shade, both on tree and turf, on which the eye never fails to dwell with pleasure. In short, grouping is everywhere productive of interest and beauty, dotting of insipidity, monotony, and languor.

Now, gentlemen, only a few words on the ornamental character of trees. They are the colours, as it were, with which the garden-artist paints, and with which he fills up the outlines selected by his own taste. The comparative value of trees as means of ornament is a subject which has not been sufficiently studied. Hence, no more can the inexperienced planter be successful than he who has been unacquanted with the use of colours on the canvas. I can conceive two parks as nearly as possible the same in other respects, still, if each is planted with trees of a distinct and peculiar kind, the difference of result will be so great as very much to diminish any resemblance between them. Firs, when planted by themselves, give a permanent evergreen character; on the contrary, deciduous trees alone give a mass of foliage in the summer and autumn, but bareness and meagreness in winter. It is, therefore, evident that much is to be gained by a skilful distribution and mixture of both classes. So, also, with groups and single trees. Much of the effect depends on the kind of trees employed.

To lay down rules to guide the planter, if he has not studied the art, would be fruitless, but, as a general rule, it is well to have a good admixture of both evergreen and deciduous trees. When a flat building or a bridge occurs over a passing stream the effect of woods behind it is always much enhanced by the introduction of a few Poplars among the round-headed trees, seeing it is admitted that horizontal lines require to be balanced by perpendicular ones. But Poplars should not be planted in front of a lowly cottage, as they tend to diminish the height of every building when placed in front, and, besides, they possess no relative beauty or grandeur in themselves. The dark green of the Yew and Scotch Fir, and occasionally of the Purple Beech, may be used, with good effect, to deepen the shadows in the glades of the wood. In like manner may the variegated Plane, the snowy Hawthorn, and the silvery-leaved Poplars be used most effectively to heighten the lights of some of the projecting promontories. Again, the Spruce, the Silver and the Douglas Pines, make, with the Larch, a good admixture among round-headed trees, breaking the decapitated look. They also add a freshness and clothing in winter which in all cases is desirable. Again, the Weeping Birch and Willows planted by the sides of a rivulet, interspersed with the glowing Hawthorn, are always beautiful, whether as seen from without or in the movements of the slender twigs as reflected in the water.

The Sycamore is a large, round-headed tree, with massive foliage. Its formal outline, and its close, broad attire of leaves are well suited to produce depth of shade. The Ash has a light foliage and a graceful and airy look, especially when its branches assume a pendent habit. It would be a good lawn tree did it not continue such a short time in leaf. Little need be said of the Oak. Its robust habit, its neat, angular, contorted, and often horizontal branches, and peculiar foliage, afford a more diversified expression than perhaps is to be found in any other hardy tree. The Elms are, perhaps, the best of all our hardy trees for parks connected with large towns, seeing they withstand the effects of smoke, as may be seen in the avenues of St. James' Park, London. The Beech, in sheltered situations, has a stately, graceful, and feathering appearance, but when it is exposed it yields to the prevailing winds, and becomes meagre and one-sided. The Lime is peculiarly a park or lawn tree, standing alone, and, when its branches droop to the turf it has a fine, stately appearance. It forms a noble avenue.

The Spanish Chestnut is almost as fine as the Oak, and exhibits a beautiful green foliage, varying with the advance of the season. The Horse Chestnut has striking large green foliage, and, when adorned with its numerous spikes of white and red flowers, is very beautiful in a lawn. The Yew is one of our native trees. The Cedar of Lebanon is celebrated and admirable: it harmonises well with level architectural lines and terraces, and would seem to repeat them in aërial perspective. Now, gentlemen, allow that these gleanings from our extensive catalogue of trees should suffice, for I must admit that I cannot in this short paper cope with Solomon, who wrote of trees from the Cedar tree to the Hysop that springeth out of the wall. I trust, however, that these few remarks will have a tendency to cause every gardener amongst us to take a lesson from every beautiful piece of planting with which he may come in contact, so as to imitate it, and also to excite to a study of this most neglected subject.

THE REDWOODS OF CALIFORNIA.

SPECULATIONS ON THE DURATION OF SUPPLY.—Government surveyors estimate the area of Redwood timber in California at 500,000 acres. Except a small supply south of San Francisco this is widely scattered along the line of coast, in river bottoms, on mountain sides, and in isolated gorges, from the Russian River

* *Pleurothallis fulgens*, Rchb. f., n. sp. (Apodæ cæspitosæ.)—Dense cæspitosa; caulibus brevissimis; foliis a petiolari basi angustissima, spatulato-obovatis, apice angustato minute tridentatis; pedunculis distanter vaginatis, folia subæquantibus, apice 1—3 floris; bractea ovarium pedicellatum non æquante; perigonio valde carnoso, mento brevi bene angulato; sepalo summo ligulato acuto dorso unicarinato; sepalis lateralibus subæqualibus coalitis apice bidentatis, per totam longitudinem bicarinatis, cum sepalo supremo basi ima connatis; tepalis ligulatis acutis, nunc antice angulo inferiori acutis ante apicem, nunc media inferne obtusangulis, inæqualibus, nunc simpliciter rhombeis, nunc ligulatis acuminatis; labello ligulato versus medium (vario loco) utrinque auricula falcata seu angulata; carina intus adjecta semiovata juxta auriculam; labello apice retusa apiculato; columna clavata elongata, tepalis subæqualis androclinio serrulato, nunc tridentato.—Flores carnosissimi, intense cinnabarini. Columna et tepala viridia purpureo lavata. Labellum pallidius cinnabarinum. Solæ species similes P. uniflora, Lindl., et striata, Focke, jam folio longe recedunt. —Costa Rica, Endres.

to Oregon. It is a material item in summing up the wealth of the State, a tangible resource ever at hand to supply the wants of civilised life. The time-hoarded riches of these forests are visible, and, unlike the pursuits of mining, do not need the use of immense capital for development.

At the increased rate of consumption how long will the Redwood last? In reply to this interesting question, statistics will enable us to form a reasonable conjecture, if not an exact answer. In the past year the port of San Francisco received 252,000,000 feet of lumber, mostly Redwood. This was an increase of 50,000,000 over the previous year. From information in our possession respecting the production of the mills, and, adding the amount worked up in pickets, shakes, railway ties, telegraph poles, bridge lumber and so on, for local and interior uses, the following estimate is strongly corroborated—for it is perfectly safe to assume that twice as much is consumed inland, and at other ports, as at San Francisco. This would make an annual consumption of say 600,000,000, after allowing 150,000,000 to be set down to the credit of supplies drawn from Puget Sound and other points. When it is considered that 75,000 feet of Redwood pickets are used in fencing a quarter section of land into four fields, and that at least another 75,000 feet will be required for the buildings, and that more than one-half the farms and cities and villages in the State rely solely upon this lumber for their improvements, the assumption of 600,000,000 is not unreasonable. Another element that has to do with this calculation is the increasing yearly rate of consumption. We will place that as low as the influx of population, say 10 per cent.

Five hundred thousand acres, 250 miles long, would form a strip of Redwoods 3⅛ miles wide along the coast. But they are not continuous. There are great gaps where none grow, while at such points as Russian River and Eel River the timber extends in patches many miles inland. A personal inspection shows great quantities behind the crests of mountain ranges, so far from the coast as to be inaccessible for transportation to any place, until time and necessity compel the building of railways, at vast expense, to open up this mountain region. A narrow-guage is pushing along from Tomales towards the Russian River, where its real difficulties will begin. Donahue is penetrating the same region with a branch from near Santa Rosa. But there is not enough timber there to supply a six months' demand, if required at once.

If we estimate 100,000 feet of boards to each acre the 500,000 acres will yield 50,000,000,000. But the estimate is too extravagantly large, as every lumberman knows from experience. True, there are acres and acres in bottom land that will yield more, but they bear an insignificent proportion to the whole. Then there is a large percentage of loss in felling this brash timber, unless millowners are as fortunate in their axemen as Murphy Brothers, of Russian River, are in John Davis (he has only lost one tree this season in cutting 3,000,000 of feet). If one of the huge trees takes a sheer in falling and strikes a stump or other inequality it is apt to shiver badly, and must be burned to rid the land of *débris*. Many trees grow on steep hillsides, rendering their handling uncertain and costly.

Taking the annual consumption of the past year as the basis, and adding 10 per cent. for the increased yearly demand, we find that over 20,000,000,000 of feet will have been worked up in fifteen years. This is more than two-fifths of all the standing Redwoods on the coast, on a basis where the estimates are dilated for the purpose of covering extremely liberal margins. In point of fact, there are not 20,000,000,000 of Redwood lumber in present reach, for the timber belt has been stripped so far inland in various places that mills are working on logs brought from five to fifteen miles, for which they pay from 10 to 15 dols. per 1000. Increase of population, with more facilities for handling, will create further demands, so that the question heading this paper will not long remain unanswered. Those of us who remember the destruction of the apparently inexhaustible forests of the Middle States, when backwoodsmen used to burn Black Walnut trees in the clearings, know that Black Walnut now costs as much as wood from Honduras. In the light of experience this lesson is made plain: not only will the demands of commerce strip our Redwoods within fifteen years, but, if an argument based on facts has any logical sequence, the conclusion is irresistible that with the diminishing supply prices will be largely advanced. *Sonoma Democrat, September* 15.

BRITISH GARDENERS.—XXVIII.

William Coleman.

Mr. Coleman is known to the gardening fraternity as a constant exhibitor of fruit, which is always of first-rate quality, his name being familiar to those who scan the prize lists, and being generally found well to the front. Those who have the privilege of his personal acquaintance know him, moreover, to be one of the most unassuming, kind-hearted, and genial of men, and a thorough master of his profession in every department.

"I was born," he writes, "in 1827, at Rolleston, a well-kept domain in the eastern part of the county of Leicester. For more than half a century my father had the general management of the place, including the gardens, and I am indebted to him for my first three years' experience. He was an excellent cultivator of fruits and vegetables, and prided himself on his fine collection of old herbaceous plants.

"Having attained the age of eighteen it was thought desirable that I should leave home for further experience. My first move was to Cole Orton, then, as now, under the able management of my kind friend Mr. Henderson. I went to him in 1848, but, unfortunately for me, the late Baronet died before I had completed my first year, and I had to leave. In 1846 I went to Lord Howden's, Grimston Park,

Tadcaster, where I first experienced the fearful ravages of the Potato disease. I left in 1847, spent another year with my father, and through the agency of Messrs. Knight & Perry engaged as foreman of the hothouses at Pont-y-Pool. At that time Mr. Knight considered Pont-y-Pool one of the finest forcing places in England. The gardens were under the management of the late Mr. Drummond, who adhered too closely to the old system of maintaining fixed temperatures, independently of climatal changes. Pine-apples, principally Queens, were extensively grown on the three years' system. Enormous plants turned out of 18-inch pots into the fruiting beds produced good fruits; but I have since seen finer Pines cut from plants twenty months old, grown in 12-inch pots. This was the hardest place I ever lived in. My assistants, a day stoker and one apprentice, left the premises with the labourers, and returned with them the following morning. During their absence, the night firing fell upon the foreman. My young friends must bear in mind that the one-boiler system was then in its infancy, and seventeen fires frequently kept me constantly employed until the clock struck two.

"Obliged by illness to give up my situation, I was advised to engage in outdoor employment. I accordingly gave up my favourite pursuit for a time to take charge of a large staff of men under Mr. Marnock, who was laying-out a beautiful place for a banker in Carmarthenshire. I left in January, 1851, and engaged as general foreman to Mr. Mackenzie, Crewe Hall, Cheshire, where I spent three years. Mr. Mackenzie was a good gardener; he always kept his place the perfection of neatness, and excelled in the cultivation of Pines and vegetables.

"From Crewe I passed on to the Royal Exotic Nursery in March, 1854. My first interview with Mr. Veitch was satisfactory, he received me with great kindness, and I am proud to say I won and retained a highly valued confidence and friendship, which lasted until the day of his lamented death. In May he sent me to Ireland to act as gardener to the late Lord Cloncurry, Lyons, Co. Kildare. Lyons is a fine old place, beautifully wooded and watered, with a large flower garden stretching from the mansion to the lake. A lingering consumption of two years' standing having prevented my predecessor from taking an active part in the management, I found the kitchen garden and houses had fallen into disorder, but meeting with fair encouragement I set to work with a determination to overcome all difficulties. The Vines, originally well planted, lightly cropped with Grapes, but heavily laden with bug, received early attention, but instead of destroying them I tried my hand at resuscitation, and succeeded beyond my expectations.

"Having established a good family character I returned to England in October, 1859, but before I reached London Mr. Veitch had given me the choice of two first-class situations. I engaged with my present noble employer, and entered on my duties on May 1, 1860. On my arrival at Eastnor I found a fine collection of choice Conifers and ornamental trees arranged with much taste and judgment by his lordship, who is a great lover of trees, and a complete master of the art of pictorial planting. The memorable winter of 1860-61 having destroyed many of his finest Californian and Mexican specimens, he at once set about replacing them with the rich treasures sent home from Japan by Messrs. Veitch and Fortune, which up to the present time have passed through our English winters uninjured. The kitchen garden, although high above the level of the sea, is surrounded by hills, consequently we suffer from spring frosts.

"The time for renovation having arrived, it was arranged that the alterations should extend over a series of years; and having told me he wished to have a useful fruit garden, his lordship generously allowed me to carry out my own ideas. All the glass structures have been rebuilt and efficiently heated, and new ones erected for various purposes. While giving my best attention to every department, I have paid special regard to the improvement of old Vines, lifting, extending, and assisting with new compost Vines of from twenty to fifty years of age. The satisfactory results which have followed convince me that only under exceptional circumstances should old Vines be destroyed.

"Having a great demand for Figs, I have tried many varieties under glass, but for a continuous supply of choice fruit I have found nothing to equal the Brown Turkey, which is the only kind I now grow.

"Since I have been at Eastnor I have received offers which might have induced some men to change, but so great has been the confidence reposed in me, and so uniform the kindness and liberality of my noble employer and his generous lady, that no monetary consideration could compensate for the loss of the pleasurable performance of duties which have long since merged into a labour of love."

AN EXHIBITION IN THE TRENTINO, OR ITALIAN TYROL.

We have received the following communication from our esteemed colleague and correspondent, Professor Karl Koch, and as it relates to the state of gardening and general cultivation in a district of which very little is known in this country, it will doubtless be read by many with great interest:—

From week to week the editors of the *Gardeners' Chronicle* keep us informed on the condition and progress of gardening, not only in Great Britain and other European countries where horticulture is practised, but also, with equal diligence, in the most distant parts of the world. Thus we are as well acquainted with the state of horticulture at our Antipodes as though we were living in Australia or New Zealand. Notwithstanding the wide range of country these reports cover, I very much doubt, however, whether, during the whole thirty-four years of its existence, the *Gardeners' Chronicle* has ever published anything respecting the Italian-speaking portion of the South Tyrol. I will, therefore, attempt a sketch of the present state of natural history, more particularly of horticulture, in this the most southerly part of the Tyrolese Alps.

The Tyrol is unjustly regarded, not only on your side of the Channel, but also pretty generally with us on the Continent, as an obscure country, where all progress is impeded. How very erroneous this view is I am now convinced, having visited this country almost every year for some time past. Unfortunately men's minds are far too much occupied with politics at the present time to render it possible to give a perfectly unprejudiced view of affairs. The

following lines will prove, nevertheless, that progress has its votaries in the Tyrol.

Trentino, as the southernmost part of the Tyrol is called, is chiefly inhabited by an Italian-speaking people, and possesses an administration distinct from the rest of the country, though it has formed a part of the Tyrol as long as the latter has existed as a separate country. Several times the inhabitants have risen against attacks from the Italian side, and also against Austrian rule. It is not a large country, having only about 400,000 inhabitants, and consists principally of a narrow valley, watered by the Adige, and several secondary valleys, and the upper part of Lake Garda. Trient, celebrated for the council of Catholic prelates in the sixteenth century, is the chief town, and the seat of Government.

Fruit and sllk culture are the most important industries of the inhabitants. Cattle rearing, as compared with the upper Tyrol, is inconsiderable; but recently endeavours have been made to increase it, and great weight is attached to dairy produce, especially the manufacture of cheese for exportation. But I doubt whether success will attend their efforts before they improve their breed of cattle by importing some better classes of animals. Indeed in this respect the Tyrol is far behind Switzerland, though the climatal conditions and soil are similar in the two countries. Now that the former intellectual isolation of the Tyrol has ceased to exist, it is to be hoped that a gradual improvement in this branch of industry will be one of the results. So far as the production of silk is concerned, this was of far greater importance before the markets of China and Japan were opened. It has very much decreased, and is now almost confined to Rovereto. On the other hand, as will be seen below, fruit growing, and, on a smaller scale, the culture of the Grape for wine, have been considerably extended. Fruit is sent in considerable quantities to Botzen, and thence to Germany, Munich especially being well supplied therewith from the Tyrol. A great deal goes farther north, chiefly to Berlin. Lately, too, successsul consignments have been made to St. Petersburg and other Russian towns; but the wines have found no market beyond the Tyrol, and consequently fetch only a very low price. Moreover in quality the wine of the country is, in comparison to what it might be, and ought to be, exceedingly bad. But the wines of the Œnological Company of Trient and those of Messrs. Pizzini, of Ala, prove that a superior quality can be obtained by a careful selection of the varieties of Grape employed. If it be objected that these wines, as well as those of the neighbouring parts of Italy, do not keep well, this only holds good so far as the ordinary sorts are concerned. Besides, I have drunk pure wines, which had not been fortified with spirit, and which might be pronounced excellent. There is not the slightest doubt that such wines, when produced in quantity, would be appreciated, and find a ready market in Germany. It is to be hoped that the exhibition, which I report further on, will give this industry the desired impulse.

Before entering upon the report itself, it is necessary that I should say a few words respecting the present state of cultivation of the land in the Trentino, in order to make the rest intelligible. Although some landowners have made most praiseworthy progress, the cultivation of the soil in general is still at a very low pitch; indeed it may with truth be affirmed not to have emerged fom the primitive stage. Until there is a radical and uncompromising change in this respect no improvement in agriculture can be expected. True, several of the old and well-known cereals have been gradually supplemented by most of the food-plants of later introduction into Europe; and probably there is not a second country where so great a variety of them will thrive and attain perfect development under cultivation. The common and universally known cereals I will pass by unnoticed. Indian Corn or Maize is certainly the most extensively cultivated, and will doubtless long continue to be the principal article of diet of the inhabitants of the Trentino. To them the univeral *polenta* is as necessary as it is to their neighbours the Italians. The next in favour is the Italian Millet (Panicum italicum), while our common Millet (Panicum miliaceum) does not appear to be cultivated at all. Buckwheat (Fagopyrum), too, is very much grown; but our ordinary Buckwheat (Fagopyrum esculentum), with a light-coloured husk and white meal, is much less commonly seen than a variety with a black husk and dirty white meal. Should not this variety be referred to F. tartaricum? I have by me no means of deciding this point, and it is unsafe to rely too implicitly upon one's memory. Finally, several varieties of the Egyptian Millet (Sorghum sp.—Sorgho of the Italians), have recently been introduced. The variety I saw most of has the grain enveloped in two black glumes. But the grain of the Sorgho, as in North Africa and Asia Minor, is only exceptionally used for making bread and *polenta*, and is chiefly consumed by fattening pigs.

What a splendid climate the Tyrolese enjoy will be realised from the fact that all the cultivated plants mentioned succeed admirably, wherever the soil is anything like practicable for culture, together with the Mulberry tree and Grape Vine. Unfortunately the Mulberry tree has been left undisturbed in districts where the production of silk has ceased, forming here and there—and on a much larger scale in upper Italy—long avenues, the separate trees being connected by festoons of the Grape Vine. When we consider what an enormous amount of different substances a single tree that is twice stripped of its foliage draws from the soil, yearly to furnish the greedy larvæ of the silkworm with food, we from the north, where the sun possesses far less power in the decomposition of substances in the soil required by plants, are surprised that such barbarously treated trees can continue to exist at all. Yet such is the case, and withal, in some places, other plants may be seen flourishing beneath their shade. If we dig under these rows of Mulberry trees we find a dense mat of roots, extending to a great distance on either side, which it would seem almost impossible to penetrate. Nevertheless, Wheat is grown between the rows in Upper Italy, yielding eight or nine fold; but what a heavy crop of Wheat might be obtained under proper cultivation!

The Grape Vine, however, is not cultivated after the same method as in Italy, but in bowers (*lauben*)*, as practised in some parts of the Bavarian Palatinate. The only difference is that the bowers are not one-sided, as in the Palatinate, for the Vines hang down in a sloping direction on either side, forming a covered leafy passage, through which there is ample room to walk and gather the Grapes. Doubtless this system has the advantage of producing very large crops; and, on the other hand, it is equally certain that the quality of the separate berries suffers not a little. The sun has no power to exercise his beneficent influence, inasmuch as most of the bunches hang beneath in the dense shade. It is, therefore, not to be wondered at that the often rather hard-skinned berries ripen very slowly inwards, and that frequently while the outer part is sugary the centre of the berry is still sour. That Grapes gathered in such a condition make bad wine is self-evident. Possibly this inequality in the ripening of the individual berries, which I have observed more particularly during my present stay here, is, as I have been told, limited to certain varieties. But if it be so, there is all the more reason why such varieties should be rejected, and a careful selection only cultivated.

For the purpose of gradually introducing improved methods of culture, and of instituting other reforms, a number of gentlemen joined together in 1869 to found an agricultural society. The Mayor of Trient, Count Consolati, was at the head of this movement, supported by M. Giongo and Count Thun. It is a matter for regret that Rovereto, after Trient the largest town of the Trentino, held aloof through jealousy, and did not even take part in the last exhibition. The same petty jealousy between different towns that wrought Italy so much harm in the middle ages, and since, and impeded all attempts at union in the beautiful peninsula, still exerts its baneful influence in the Trentino. As fruit growing and the production of wine were the two industries most likely to furnish a profitable export trade, steps were taken more especially to promote these branches of cultivation, without, however, losing sight of other important reforms in agriculture. A competent gardener was secured from Germany, and under his direction was placed a special pomological and œnological collection. An œnological society had already been some years in existence, but its sole object was cellarage, or the improvement of the preparation of wines. Three years ago the first exhibition in Trient was opened, with satisfactory results to its promoters. Encouraged by success, it was resolved to make preparations for a second and more extensive exhibition; this time a public affair. This exhibition took place from September 9—23, and surpassed the most sanguine expectations. The Austrian Government in Vienna officially recognised the exertions of the agricultural society by the presence of the Minister for Agriculture—Count Mannsfield, and his principal coadjutor, Baron Hohenbruck, at the opening of the exhibition; and these gentlement viewed the products with great satisfaction.

The exhibition was held in the Orphan House, a spacious pile with a large interior quadrangular courtyard. Overlooking the yard is a gallery of tolerable width, running round the second floor of the buildings forming the quadrangle. Well-ventilated rooms of various sizes communicate with the gallery and the yard, offering ample space for such a purpose. Another advantage is the possession of two gardens by the orphan institution, one of which is of considerable extent. The larger one was utilised for the exhibition of fruit trees, Conifers, and various ornamental plants; and sheds were erected at the sides for cattle, sheep, asses, &c. I mention this here, because, as not coming within the province of a horticultural report, I shall not again refer to this section. The same remark applies to the show of butter and cheese (held in connection with the strictly agricultural section), which were of excellent quality and fully represented. Advantage was taken of this opportunity to give the public a view of objects of art, antiquities, &c.; but these likewise I must pass by without further comment. I shall confine my report to the collections of fruits, vegetables, living plants, and other strictly horticultural and botanical objects, with perhaps a few words on cereals, if space permit.

Although fruits and their products formed the principal class in the horticultural section, I shall begin with the plants. Considering that the two countries immediately surrounding the Trentino are still in the infancy [of plant-growing, I did not expect much variety, and I was surprised at what I saw. Independently of good old plants, such, for instance, as the Oleander, which may be seen here in rare beauty laden with a profusion of blossoms; there were many of the newer and newest plants, some of them in such perfection as I have nowhere else seen. Thus, the beautiful Amaranthus salicifolius, introduced only a few years ago by Veitch, planted around a group of broad-leaved Ricinus, was exceedingly effective, especially viewed from a short distance. Specimens 4 and 5 feet high, and more than a foot in diameter at the top, and most richly coloured, presented a sight that must be seen to be realised. I never saw them so beautiful even at Veitch's. For the first time also I saw Agrostis minutiflora, and it is a grass that I cannot too highly recommend to amateurs. The delicate and elegant inflorescence is about a foot high, and the branches are given off in successive stages, possessing altogether a most attractive appearance. It was exhibited by M. Putzer, of Eppen, near Botzen. A fine large and varied collection of plants, exhibited by M. G. Smatelli, unfortunately scattered all over the place from want of sufficient space, cone tained, besides many well-known plants, a considera able number of novelties, all showing good cultures The same exhibitor had a very rich collection of variegated Ivies, and also a splendid lot of Caladiums. Furt her, the collection of stove and greenhouse plants exhibited by Count Consolati was remarkable, both for rich ness in variety and skilful culture. Finally, I mus t mention the new and rare plants exhibited by Francesc o Marchi, nurseryman, Mantua, more on account of the great variety than for their culture.

Fruit-tree culture in its higher development of trained trees does not seem to have taken any hold here yet; indeed, the glorious climate seems to render such care unnecessary, for better Peaches we do not get in the north on our wall trees than grow here on dwarf bushes. The only place I saw trained trees well represented was in M. Pizzini's garden at Ala. Some importance is also attached to this branch of culture in the gardens of the Society. There were, moreover, some good examples of cordons about 18 inches high in the gardens of the exhibition building; among them fine fruiting Canada Reinette Apples and Williams' Bon Chrétien Pears.

Respecting the fruit shown, it may be affimed that it surpassed in variety the exhibitions in the North, including even those in England and the North of France, for all the southern fruits were largely exhibited in such perfection as they attain only in Lower Italy. It cannot be denied that these southern fruits add much to the beauty of an exhibition, especially when the fruits are staged without any accessories, as they are in Germany, as well as in England and France, in plates, or even in saucers. Here this was not usually the case, and the general collection from Botzen was put up altogether differently. I have only seen the fruit show at Botzen two years, but on each occasion it was the most tastefully arranged I have had the good fortune to see. Every one of the fruit baskets might have served as a model to the artist. The same gardeners, Messrs. Pruche, of Meran, and Mader of Botzen, were among the principal contributors to the exhibition at Trient. The fruit, which filled several rooms, formed one of the chief attractions of the exhibition, although there were so many beautiful things in the highest degree of perfection. Unfortunately they were obliged to go very wide for their selection of fruit, the general crop being almost a total failure throughout the South Tyrol, though Grapes are abundant. Trees flowered very sparingly in the spring, and the month of July was so excessively hot that the little fruit there was nearly all fell off.

Apples are chiefly grown here and there for export: among them the Borsdorfer is a favourite. Although this variety is widely cultivated on the Continent on account of its free bearing qualities and handsome appearance, I cannot recommend it for England, because I think it will not thrive so well in your moist atmosphere. More recently, some few have turned their attention to Pear culture, and imported a large selection of foreign varieties. Whether they have acted wisely in this matter the future will unfold; but I have my doubts. The White Beurré appears to have been introduced long ago, and succeeds better than any other, being abundant in all the markets of the South Tyrol. Stone fruit cultivated here requires sun, which it gets in plenty, and a dry air. I was

* We suppose in the same manner as Hops are grown in this country—in hills, as they are termed, in Sussex, at least, with three or four poles to each hill to support the vine.

interested, too, with the fruit of a dwarf Cherry which grows everywhere in the mountains of the South Tyrol. It bears the name of Weichsel Cherry, a name applied in pomological science to a good acid Cherry, which is also known under the name of Ostheimer Cherry; but the latter has an acid taste, while the Weichsel of the South Tyrol is sweet, sometimes accompanied with a harsh flavour. Otherwise, if my memory does not deceive me, they are pretty much alike. I once by chance found the Weichsel in flower in the Puster Valley, on a bush which was flowering for the second time. It is desirable that the two should be raised from seed, to settle the question of their affinities. I intend on some future occasion sending you a more detailed communication on this subject. The rest of the stone fruits consisted largely of Peaches. In the valley of the Adige Peaches are grown as standards, but the trees are of short duration, having to be replaced in from ten to fifteen years at the outside. The older the trees, as a rule, the worse the flavour of the fruit. M. Mader, inspector of the experimental garden of the Agri-Horticultural Society at Botzen, grows, according to verbal report, excellent fruit by grafting on one-year-old stocks, which fruit the third year. These are only retained a few seasons, young trees constantly replacing the older ones.

It is possible that the climate of Botzen may be favourable to such a system of culture. There were some Apricots of a most delicious flavour. In Plums I saw a large collection, but I expected there would have been more competition in the classes for this fruit. Of dried Plums I saw only Quetsches. The Cherry season was long past, and, with the exception of the Weichsel, already mentioned, there were none exhibited.

(To be continued.)

HAWKSTONE:
THE SEAT OF VISCOUNT HILL.

(Concluded from p. 496.)

In the centre of the flower garden is a large crown-shaped bed, edged with green Ivy, that has a fresh appearance. This bed was filled with a mixture of flowering and sub-tropical plants, which prevented the too-often-met-with effect in flower gardens of an over-even surface; this irregularity was still further secured by specimens of Humea elegans being planted in several other of the surrounding beds. Some of the beds were filled carpet-fashion; these were especially well done, the ground being nicely covered—a condition not seen everywhere this season on account of the cold late spring. In the whole planting Mr. Judd has evinced good taste; for in the distribution of both colour and form there was a total absence of the objectionable eye-burning sensation produced by an assemblage of over-bright hues; the high and subdued colours were each used in the right place, and in well-balanced proportions. Near this garden is a piece of ornamental water, studded with small islands planted with Weeping Willows and Rhododendrons, intermixed with Pampas-grass. This is a beautiful spot. On the northern side, facing southwards, are three summer-houses, overlooking this piece of water and the flower garden; these are covered with a dense growth of Ivy, and connected by light iron archways, clothed with Roses and other climbing plants. Leading eastwards from this, for a considerable length, is a walk similarly covered with a Rose archway, hanging in festoons that in the flowering season cannot fail to have a fine effect, and is at all times during fine weather enjoyable. The wall to which this walk runs parallel is covered with Roses, and divides it from the kitchen garden; on the opposite side is a close bank of Rhododendrons, some 10 feet in height.

At some distance from the mansion stands the conservatory. It is a high, roomy, somewhat heavy structure, with iron frames and copper bars, the roof draped with numerous climbers planted out in a moderately confined space. They consist of Tacsonias, Rhynchospermum jasminoides, a couple of splendid Lapagerias, both the red and white varieties. The latter is one of the finest plants in the country. It has shoots almost as thick as a person's finger, and was just coming into flower. There is here also a most remarkable example of Bougainvillea spectabilis, producing a profusion of its intensely deep mauve-coloured flowers. At one time the blooming of this was looked upon as most difficult, only to be accomplished in exceptional places, where there existed the means of roasting the roots with bottom-heat, accompanied by a high internal temperature of the house in which it was grown. The plant here is subject to nothing more than ordinary greenhouse temperature in summer, and from 45° to 50° during the night in winter. It is planted out at the eastern end of the house, which it runs up to and on the roof, and it was blooming almost down to the bottom. The roots receive little or no water during the winter: so treated it succeeds beautifully with Mr. Judd. The house is filled with Camellias, Lilies, fine specimens of Eurya latifolia variegata, one of the best of conservatory shrubs, as handsomely variegated as a Croton, and capable of bearing anything short of severe frost. There are here, also, two very large Orange trees, some 14 feet in height, brought from Malmaison in 1814. The back wall is principally covered with Camellias.

Further away is situated the kitchen-garden, with the numerous fruit and plant houses, the first of which is filled with Azaleas, that are here largely grown for winter forcing. The second house also contains a number of Azaleas, and some Mandarin Oranges. On the roofs of these houses are grown Maréchal Niel Rose. The plants are strong, and produce thousands of flowers during the spring and early summer.

Adjoining is a lofty stove, in which is grown a mixed selection of Orchids, Palms, and other fine-leaved and flowering plants, amongst which were several nice young specimens of Cocos Weddelliana and a remarkably fine example of Geonoma Seemanni, one of the best dwarf Palms in existence; and several well-grown Nepenthes, such as N. Rafflesiana and N. Hookeri. There was also a grand plant of the largest form of Anthurium Scherzerianum, 4½ feet in diameter, and several smaller plants of the same variety, all bearing a number of beautiful flowers.

Near this is a lean-to Fern stove, noticeable in which were two fine specimens of Davallia Mooreana, the best of the genus, and one of the handsomest dwarf Ferns in cultivation; and quantities of Adiantums and Gymnogrammas, mixed with Dracænas and Crotons, producing a nice effect amongst the fresh green fronds of the Ferns. On the roof is grown Stephanotis floribunda and Clerodendron Balfourianum, the back wall furnished with Bougainvillea glabra, which in this situation produces through the summer almost a continuous supply of flowers.

In the fruit department the first is a hip-roofed Peach-house, the trees covering a low trellis. The sorts grown in this house are mostly well proved kinds, such as Grosse Mignonne and Violette Hâtive Peaches, end Elruge Nectarine. Rivers' Victoria Peach is here well liked.

Adjoining this is a Fig-house. These are grown in large boxes, the trees trained as pyramids. The kinds are Bourjassotte Grise, White Marseilles, Royal Vineyard, and Castle Kennedy, all appearing to bear freely. A few young Vines for pot work are grown on the rafters.

Next is a vinery carrying a splendid crop of fruit—Black Hamburghs and Madresfield Court; the latter one of the finest Grapes in existence, although with some growers the berries are liable to crack, especially if it is ripened late in the season, when both soil and atmosphere are charged with moisture. Here it did not appear to be in the least affected; it was superior in bunch, berry, and general condition to any I have before seen, and was well worth going a considerable distance to see. It, as are all the others, is planted outside.

Next are the earliest Vines, all Hamburghs, three years planted.

We then come to the late house, also bearing a splendid crop, and when I saw them just beginning to colour, of Lady Downe's, Black Alicante, and Madresfield Court; the latter is to be removed, and its place supplied by a sort that will keep longer.

Leaving this, we enter a Muscat-house, carrying an equally fine crop. These houses are some 45 feet each in length, the Vines collectively bearing evidence of skilful management.

In a continuation is a Peach-house recently planted, and intended for the earliest forced. Princess Dagmar is here on trial for early work. In this house were a number of standard Solanums that are used for winter decoration, than which nothing is more useful.

Next is the fruiting Pine stove, 60 feet by 14 feet, and in which is grown probably as fine a lot of fruit as any produced in the kingdom; 12-inch pots are used for Queens, and 10-inch Mr. Judd considers large enough for Cayenne. The plants were in such a condition as to convince any one acquainted with Pine growing what sort of fruit they were capable of producing, short-leaved, and as stout as possible.

Near at hand is another similar house, in which are both successions and fruiters: some Smooth Cayenne and Black Prince were swelling off splendid fruit; a portion of these were in 9-inch pots, the fruit quite as large as those in a larger size. Any one seeing these Pines, who is an advocate for large pots, if at all open to conviction, could not fail to be convinced that he had something either to learn or unlearn.

We now come to the succession-house, containing just the sort of young stock that might be expected to make such plants as the preceding. This house is the same size as the others. Adjoining is another pit for succession Pines.

Near is a 60-foot house, principally filled with Azaleas, and also a long pit occupied by Bouvardias, Poinsettias, and similar winter flowering things. There are likewise long ranges for Melons, Cucumbers, and bedding plants.

In the kitchen garden the fruit trees on the walls as elsewhere bear evidence of skilful and attentive treatment, Plums, Pears, Cherries, Apricots, are alike in good bearing condition, carrying abundant crops. On the sides of the walks are quantities of bush Apples and pyramid Pears, laden with fine fruit; the roots of these are kept pruned close in—an essential operation to maintain the trees in a fruitful state when grown in a kitchen garden, where heavy and continuous dressings of manure are indispensable for the production of culinary vegetables. Standard Gooseberries and Currants are planted at intervals between the Apples and Pears; so managed they have a nice appearance, the fruit gets more sun and air, with the advantage of being more easily protected by nets from birds, which in such places exist by thousands, requiring an amount of incessant watchfulness to guard against their depredations, such as none but those who have had to contend with them can form any idea of. The not less important culinary or vegetable department is equally cared for, as is apparent in the clean and regular crops of all kinds. The whole place collectively bears ample evidence of Mr. Judd's practical abilities and assiduity. *T. Baines.*

REPRODUCTION IN THE MUSHROOM TRIBE.*

(Coprinus radiatus, Fr.)

(Concluded from p. 490.)

The six spores represented on the top of fig. 109 are magnified 1000 diameters, and each viscid spore, which is furnished with a nucleus lighter in colour, but with a dark outline, has been pierced and fertilised by one or more spermatozoids, whilst the unfertilised spore at A has burst at both ends, and produced a mycelium of its own. At B may be seen three spermatozoids which have burst after twelve hours in expressed juice of horse-dung, and which have also produced branching threads peculiar to themselves, reminding one of a pollen tube. It is quite possible that these latter threads may help to produce a new plant if they come in contact with the spores. The large figure at C is similar in nature to the group at Z, fig. 104, p. 489, and represents three fertilised spores which have burst and produced the first minute knot or groups of cells of the cap of a new fungus. These eighteen cells took four days for their production, and the crystals belong to the expressed juice of the horse-dung in which they grew. The spermatozoids as here shown begin gradually to revolve after being kept in liquid for two hours, and the movements last for at least four days. At first these bodies are perfectly spherical, as at D, when they merely oscillate, then they revolve slowly, and as time goes on, a single turn of a spiral makes itself visible, and the bodies whirl round with great rapidity. At intervals the motion entirely ceases, and then, after a short lapse of time, the gyration is again continued.

Judging from the presence of the eddy round these bodies whilst whirling (E E, fig. 109) they are possibly provided with cilia, but from the extreme minuteness of the bodies themselves I have not been able to satisfactorily demonstrate their presence. The whirling of the spermatozoids is sometimes so strong that when they attach themselves to the spores they twist them round after the manner of the revolving oosphere in Fucus.

When the cells of the old parent fungus collapse and disappear in the water, their place is in less than two hours occupied by innumerable quantities of bacteria, vibriones and monads, which belong to the infusoria. In these two hours every cell of the pileus has generally vanished. Where these infusoria come from, or how they so speedily come into being, is difficult to say. They may possibly be present in a latent state in the juices of the fungus, but I have invariably found, when a single specimen of C. radiatus has been placed on a slide under a covering glass with a drop of water, and this, again, under a propagating glass, that as the millions of fungus cells quickly disappear, so millions of simple infusoria just as quickly come into being. It seems almost reasonable to believe that the fungus cells themselves become suddenly transformed, and reappear as simple infusoria; the change would not be quicker or more remarkable than the rapid production of the purple-black spores from the crystalline and colourless basidia.

Be this as it may I have here engraved the abundant infusoria to the same scale as the cells. The tailless monads at F have a rocking Brownian movement, whilst those with tails, G, propel themselves rapidly about after the manner of minute tadpoles. These monads are liable (without care) to be mistaken for

* Read by Mr. Worthington G. Smith, F.L.S., at the meeting of the Woolhope Club, Hereford, October 14, 1875.

the bodies I refer to spermatozoids, from which they are, however, very different. The bacteria are represented at H H, with their various movements (indicated by dotted lines), either straight, zig-zag, or rapidly revolving on a central axes; when they so revolve they cause a miniature vortex amongst the monads and atoms. I have commonly seen one segment move from side to side, as at J, whilst the other segment remained quiescent. I have also seen them bud from the centre, and occasionally they occur with three limbs instead of two, radiating from the central axis. The vibriones are like vegetable screws, and are shown at K. The spores and infusoria neither collapse nor burst in boiling. As for the monads, vibriones, and bacteria, it can hardly be admitted that they are generated spontaneously from inorganic materials; my experiments rather point in the direction that they are only differentiated forms of already living cells. However this may be, my boiling has not destroyed either vitality or form, comprehended there is little difficulty in correctly seeing their characteristic form. The difficulty is something like that experienced by beginners in separating very small and close double stars with a telescope; at first and sometimes for a long period only one star can be seen, till quite suddenly the two are made out, and they are seen as two ever afterwards.

It is not uncommon to find the spores of other dung-borne fungi sticking to the specimens of C. radiatus, and it is quite frequent to find not only the spores but the perfect asci of certain species of Ascobolus sticking to the under surface, to which position they have been projected from the plants of Ascobolus growing on the dung. I have also seen the eggs of various mites, nematoid worms, &c., carried up amongst the cells, which quite accounts for larvæ being found within the substance of apparently sound fungi.

In the works I am acquainted with there is no mention of the cystidia falling bodily out of the hymenium on to the ground, yet this is the case in several Agarics I have examined, and is so with C. radiatus. The spores naturally fall to the earth, and with them the cystidia, and it is upon the moist earth that fertilisation is generally carried out. All botanists will remember Hoffmann's observations, where he has indicated the passage of basidia into cystidia, and his remarks on the upper surface of the ring which grows round the middle of the stem in Agaricus muscarius. In this latter position Hoffmann found a quantity of gelatinous knots, from which projected one or more oscillating threads, terminated frequently with a little head, which occasionally becomes detached. My interpretation of these observations is, that Hoffmann lighted upon the fallen cystidia on the upper surface of the ring, where they were throwing out threads. Hedwig made somewhat similar observations on the ring in Agaricus.

From the condition of the infant plant, as figured on the hymenium, fig. 104, Z, and fig. 109, C, it is easy to trace the young fungus through the various stages of its growth, as seen at fig. 110, where the figures are all enlarged 500 diameters, the lower group of cells shows a plant of seven days' growth in the expressed juice of horse-dung. In all these figures it will be seen that crystals and spores are carried up by the cells, and the lower figure conclusively shows that the first cells of the new plant are the large ones which belong to the pileus; indeed the hairs of the pileus as here shown are amongst the earliest cells produced, these hairs and the threads of the mycelium (which is always highly granular near the plant) are almost one and the same in character. In fig. 110 and in fig. 111 the infant fungus resembles a Puff-ball, to which it indeed bears a certain natural relationship. The whole plant in infancy is enveloped in a wrapper of cells, the fructification being entirely concealed within. In the lower figure on fig. 110 may be seen two spermatozoids which have burst, and K K K shows the cells of straw.

When the fungus has made about the number of

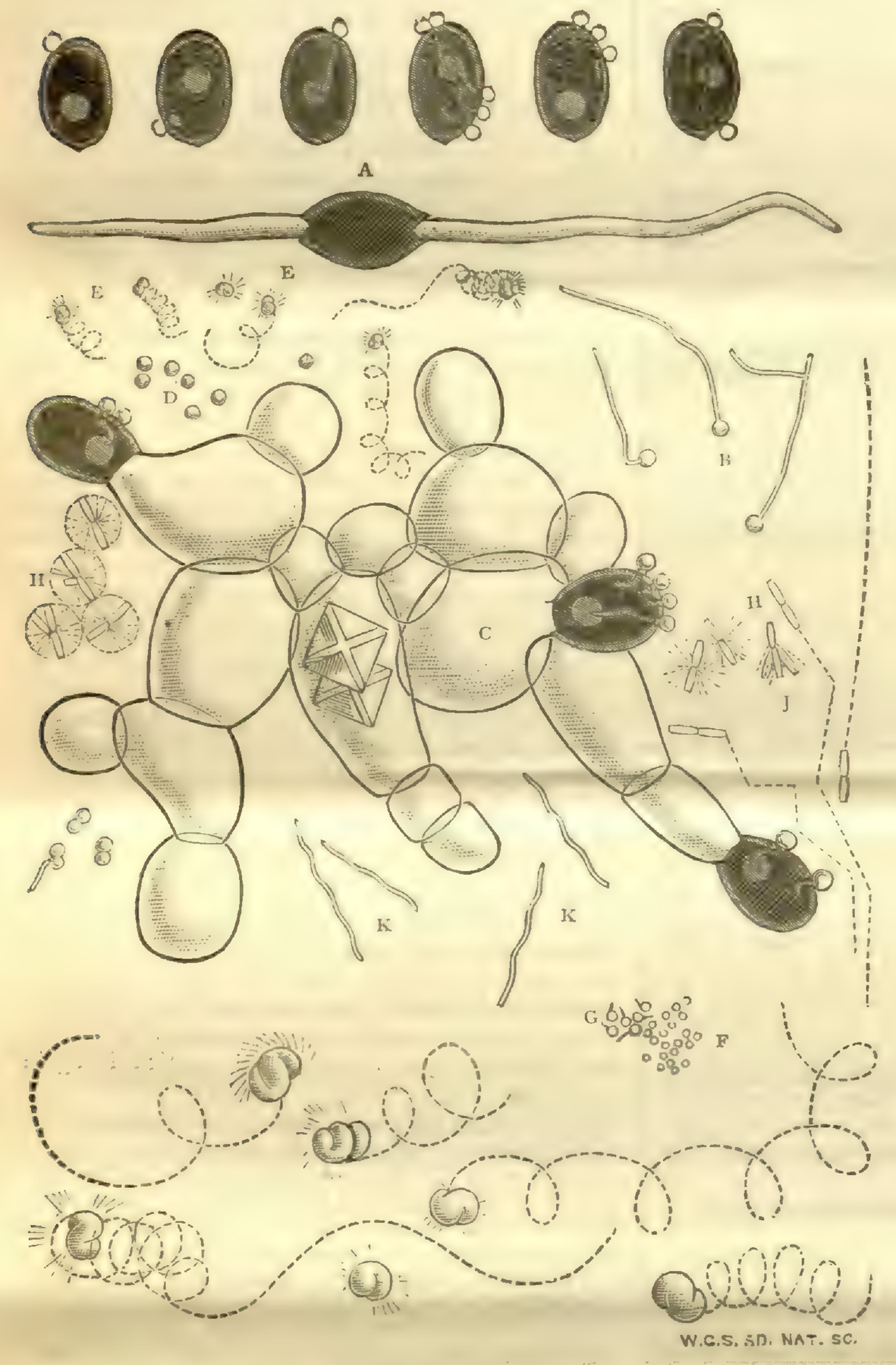

FIG. 109.—COPRINUS RADIATUS, FR.

Spores, infant plant C, and infusoria, enlarged 1000 diam.; spermatozoids at bottom further enlarged to 3000 diam.

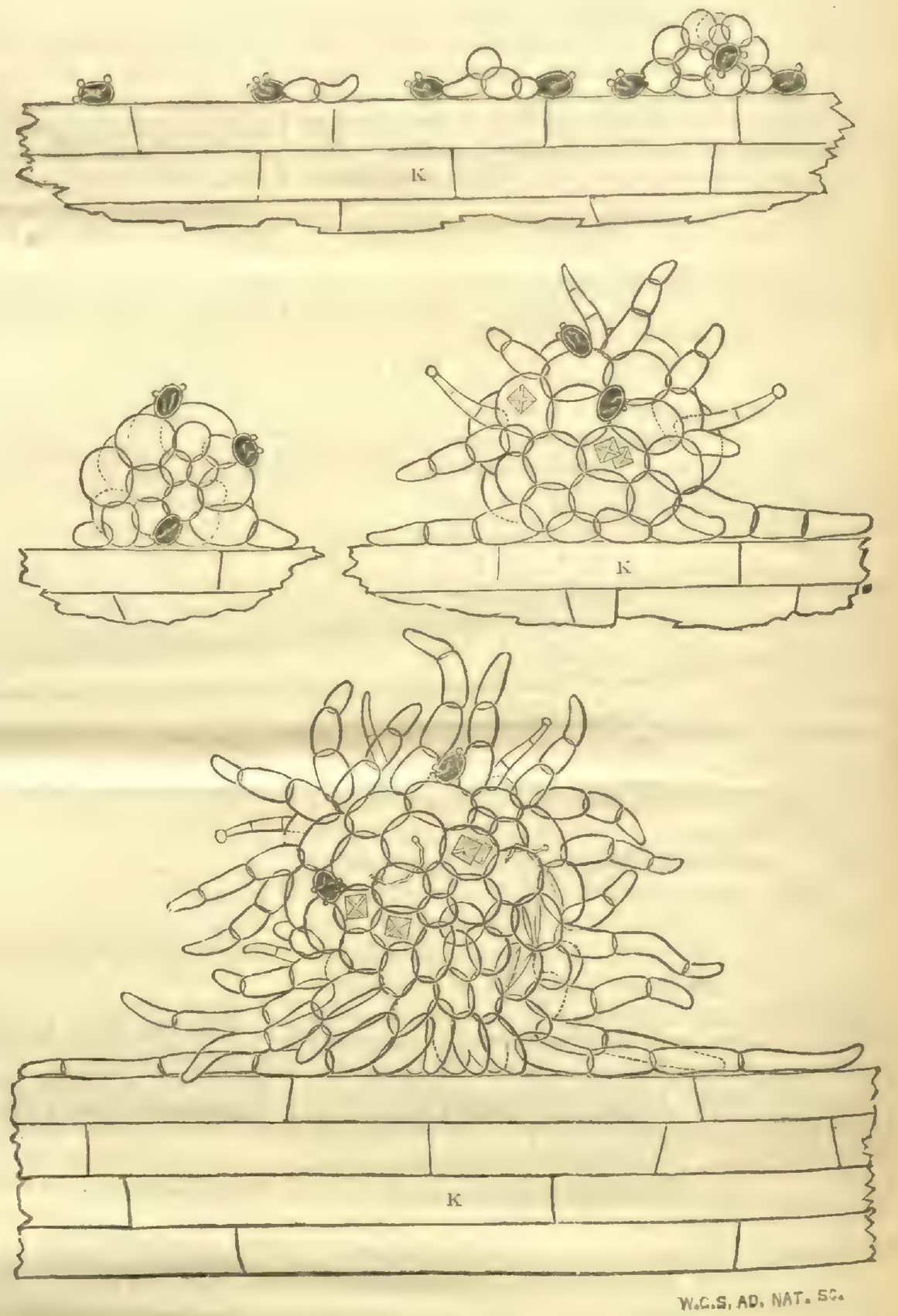

FIG. 110.—COPRINUS RADIATUS, FR.

Enlarged 500 diam., as grown from the spores, in expressed juice of horse-dung, under a covering glass of microscope.

and those interested in the subject of spontaneous generation may possibly read the result of the following experiment with interest. A dozen semi-decayed specimens of C. radiatus, swarming with minute infusoria, were boiled in a test tube for five minutes and then hermetically sealed at the highest point of ebullition. At the end of a month the tube was opened and a drop of its liquid contents at once placed under a cover glass of the microscope for examination. Spores, cells, monads, bacteria, and vibriones were all there, but the latter motionless and apparently dead. In fifteen minutes however they showed signs of life, and began to slightly move about, in thirty minutes the movements were decided in nearly every specimen seen, whilst in sixty minutes the infusoria darted about with almost the same energy as they did before they were boiled. For a better appreciation of the exact form and gyrations of the spermatozoids they are shown again at the bottom of fig. 109, enlarged 3000 diameters. At first it requires long and patient observation to make out the form of these bodies satisfactorily, but when the peculiar shape is once cells represented on the bottom of fig. 110, the growth cannot be carried any further beneath a covering glass. Fig. 111 represents on one side the elevation, and on the other the section of the very smallest infant plant it is possible to see with a lens on the dung. The fungus represented is magnified 200 diameters, and the original was about half the size of a pin's head (see A A A sketch in margin). The nature of the hairy coating, which forms the veil and the cells which are to form the future gills, are here clearly seen. This figure shows the fungus in its Puff-ball condition at the time when the cells are being actively produced. It contains only a small proportion of the actual cells which go to make up a perfect fungus, and represents probably a full week's growth from the spores. How it is the cells have an inherent property of building themselves up into a particular design, no one knows any more than it is known how the fine spark of life is kept up in these cells from one generation to another.

The mycelium now grows in a radiate manner from the base of the young plant, just as a germinat-

ing seed throws up a plumule and throws down a radicle. This mycelium being the produce of fertilisation is now capable, under certain conditions, of producing new plants on certain spots on the threads. Spores are now unnecessary, in the same way as fresh seeds are unnecessary where the creeping root-stock of Couch-grass is present. Or the mycelium may go to rest in the form of cords or thick threads, when it is termed Rhizomorpha, or in the form of knots or bulblets, when it is called Sclerotia. A similar state of things is common in many perennial flowering plants, as Convolvulus sepium and Sagittaria sagittifolia, and they both at first arise from a seed in the same way as a Mushroom arises from a spore. In Mushroom-spawn the grower gets a material similar in nature to the root-stock in Couch-grass.

Fig. 112 and last represents, enlarged 120 diameters, C. radiatus a few moments before expansion, when nearly all the cells are present. Most of the cells here shown are, however, only about one-half the size they reach at maturity, and they are not all and every one produced till the exact moment of complete expansion, as I have ascertained by counting the cells of many specimens. This is not to be wondered at, for if the 22,500,000 cells which go to make up one of these minute plants require fourteen days for their production, it follows as a necessity that the cells go on multiplying all the fortnight, night and day, at the rate of 1114 to the minute. It takes about five hours for the spores to be gradually produced all over the hymenium—say from 5 to 10 o'clock in the morning, and as there are upwards of 3,000,000 spores to each plant, they as a consequence gradually appear upon the basidia or spore-bearing spicules at the rate of 100,000 every minute.

No sooner has the plant arrived at perfection than that very moment it begins to perish. I have demonstrated that the cells of the pileus and the hairs which form the veil are the first to appear, and so they are the first to disappear. The fine matted hairs which form the veil in fig. 112, B B B, are all torn asunder during the few moments consumed in the expansion of the cap, and at the moment of maturity the hairs vanish and the pileus is naked, which nakedness is the first sign of its decay. When the fragile little fungus has at length produced its fruit, and is prostrate and dying upon the matrix from which it sprang, then, as can be seen with patience under the microscope, the cystidia produce spermatozoids which are at first passive and then active; these pierce the spores and cause the discharge of the first living cell of the pileus of a new plant. It will be seen from these observations that C. radiatus, though one of the most minute and fugitive of all the Mushroom tribe, is yet as completely perfect in all its parts as any of the larger and higher species of Agaricus. It must not be supposed that these observations can be followed without close attention and the utmost patience. All the 3,000,000 spores of the fungus do not grow and make new plants, or the world would soon be covered with C. radiatus. For every spore that is fertilised and grows there are millions which necessarily perish.

On a dung-heap which will produce C. radiatus, other species, as C. nycthemerus, &c., are sure to appear; and not only do allied species come up in company with C. radiatus, but every intermediate form between one and the other may be gathered any morning. These latter plants belong to no species described as such, but are natural hybrids, doubtlessly produced by the spermatozoids of one plant piercing the spores of another. Amongst the larger species of Agaricus similar forms are quite common, and they prove sore puzzles for those men who only want *names* for the fungi they find. I am convinced that at least three-fourths of the described species of the higher fungi have no claim to rank as true species, and that plants like Agaricus procerus, A. rachodes, A. excoriatus, A. gracilentus, with others, are mere forms of one and the same plant with every intermediate link.

Van Tieghem has recently been working on this species, and he has arrived at the conclusion that the fungus produces spores of different sexes. But to me it is quite unreasonable to imagine seeds or spores to be of different sexes. Known facts point quite in the opposite direction, and if sex is once allowed in seeds and spores then we must be prepared to allow sex in pollen and spermatozoids. A spore or ovule must be considered female, whilst unfecundated or still in the ovary, but when once fertilised it combines both sexes and cannot be other than hermaphrodite. A secondary colour, as orange (which combines the red and yellow primaries), can never be red or yellow. In diœcious plants the seeds are capable of producing either sex, and are not themselves male or female, and even the great fleshy rootstock of Bryonia dioica will be male in one place, and if removed to a different position be female. The Rev. M. J. Berkeley, writing of Coprinus (*Gardeners' Chronicle*, April 17, 1875, p. 503), says—"Late examinations of the spores of some Coprinus under germination seem to show that impregnation takes place at a very early period."

Now my observations show that this impregnation often actually takes place on the hymenium itself, the product being a single cell, which in the species now described rapidly developes into a new individual. The spore and spermatozoid may be considered as somewhat analogous with an ovule and a pollen grain, or with what is seen in Chara; or like the escaped oosphere and spermatozoids in Fucus amongst the Algæ.

I cannot attach much importance to Œrsted's interesting paper on the fructification of the Agaricini. His notes are on Agaricus variabilis, a plant he gathered from a Mushroom bed. Now, as far as my experience goes, A. variabilis is peculiar to dead stems, sticks, and leaves, and does not grow upon dung. Moreover Œrsted experimented upon threads of mycelium taken from dung, and presumed only to belong to this Agaricus; but this mycelium was quite as likely, in my opinion, to have belonged to fifty other things. De Bary, speaking of Œrsted's observations says—"It is impossible not to perceive the similitude between the phenomena seen by M. Œersted and those I have described in Peziza confluens." It

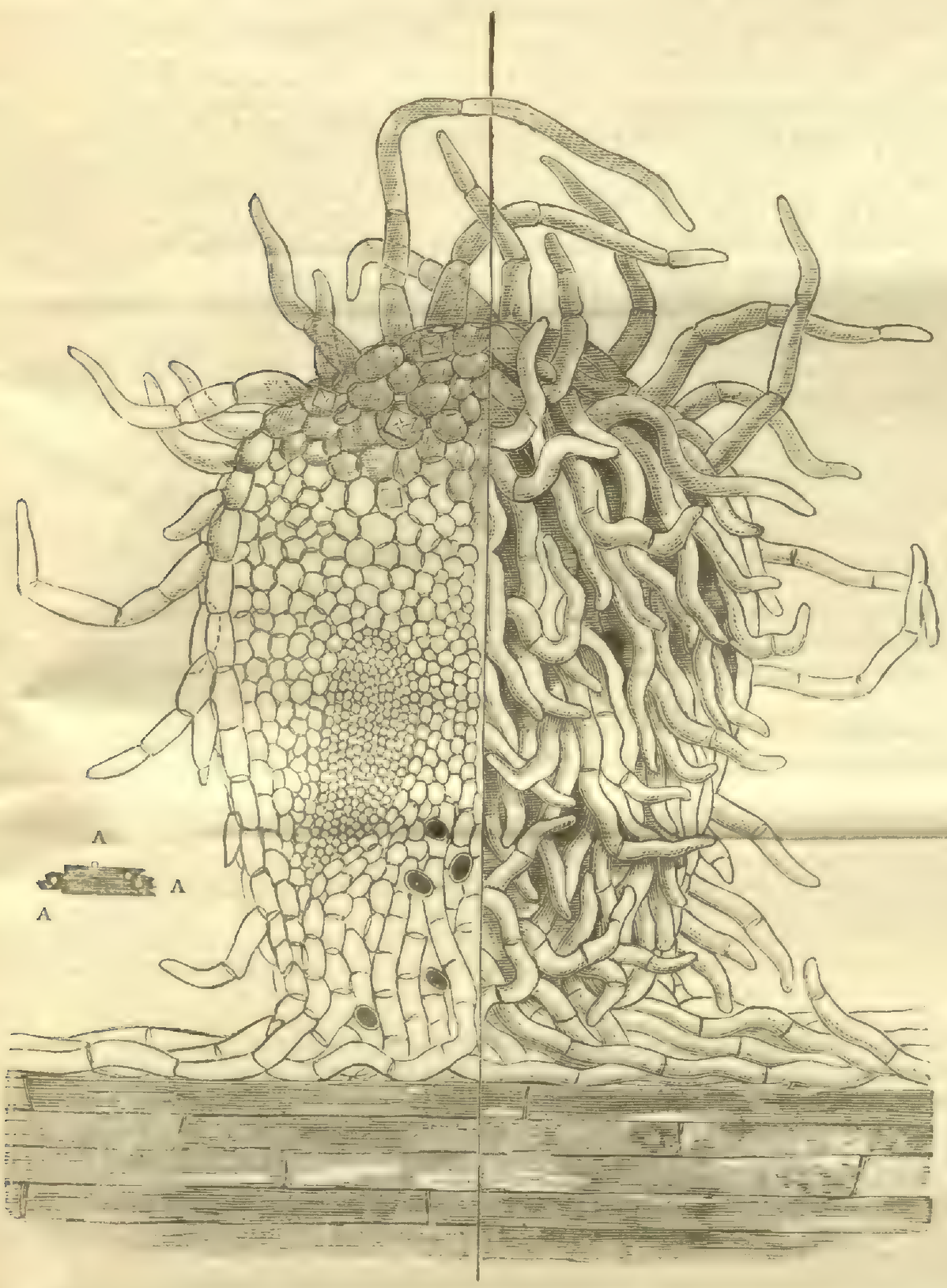

Fig. 111.—Coprinus radiatus, Fr.
Enlarged 200 diameters, and natural size at A, A, A.

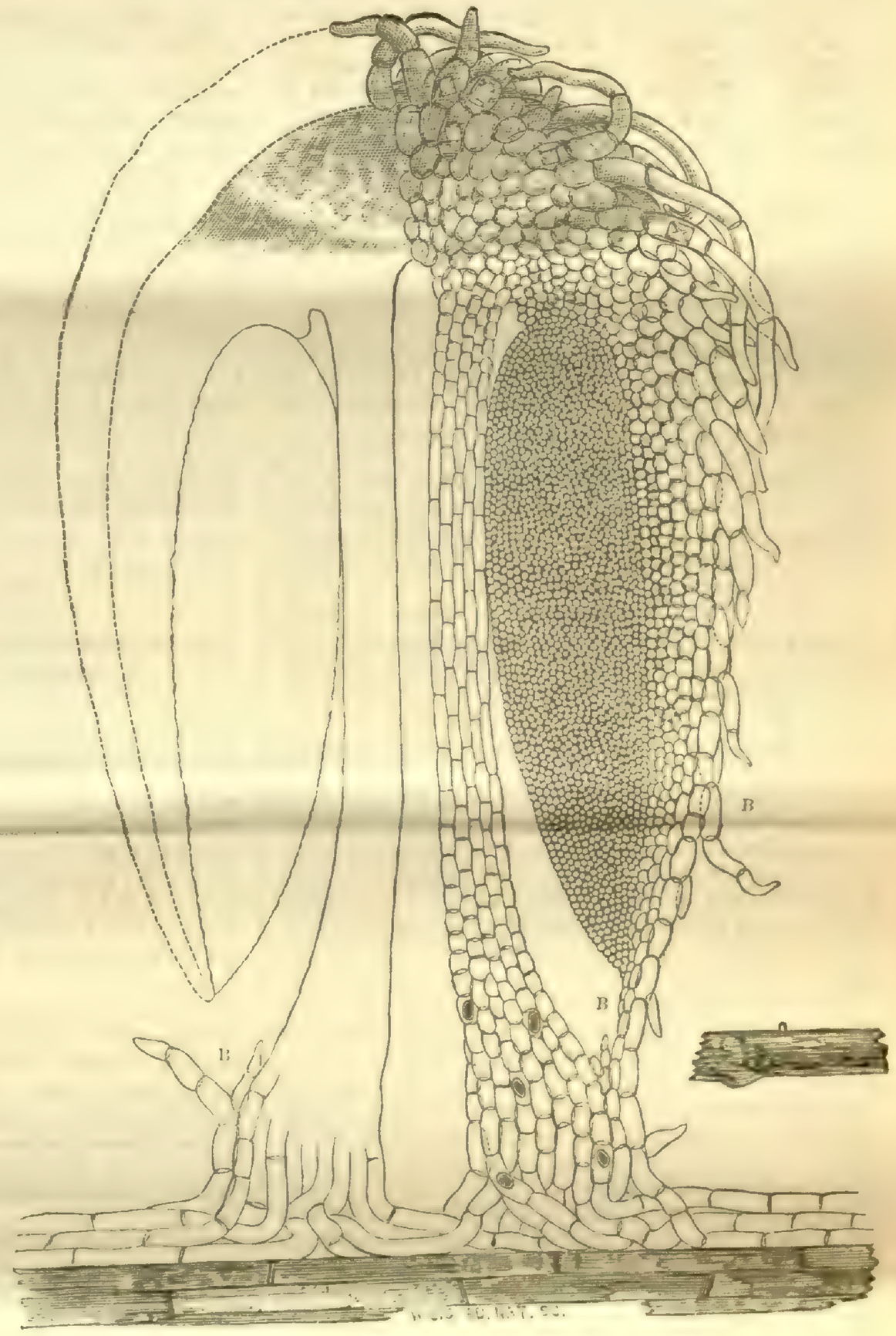

Fig. 112.—Coprinus radiatus, Fr.
Enlarged 120 diameters.

is quite doubtful whether or not Œrsted had got the mycelium of some dung-borne Peziza for his experiments, as P. vesiculosa, which is always present on dung-heaps.

In the observation of natural phenomena it is never well to follow, without thought and original observation, in the footsteps of others. In the case of Peronospora infestans, because De Bary said the resting-spores were not likely to be found in the Potato plant, it was almost universally accepted as a fact that they never could be there found. Because conidia had not been described, it was commonly believed that no conidia existed. The mycelium of Peronospora has till lately been described as always destitute of suckers, but in some of the Chiswick plants the suckers were abundant. The same fungus is commonly described as having its threads without articulations or septa, but it is equally common to see the figures of this fungus with septa in profusion.

Many botanists, as Corda, Bulliard, Klotzsch, and others, have considered the cystidium in Agaricus to correspond in some way with an antheridium, but as these views have not at present been favoured by Tulasne and De Bary, many botanists seem disposed to agree with De Bary in regarding the cystids as mere "pilose productions of a particular order," which is very indefinite, and the granules as mere conidia (Tulasne). Klotzsch and others have considered it possible that the spores are fecundated by a lubricating fluid given out by the cystidia. This fluid is evidently the same with the threads observed by me, and which at length gives birth to spermatozoids. I consider it quite possible that the mere contact of the threads (or fluid) from the cystidia with the threads from the unpierced spores may be sufficient for the production of a new plant. But De Bary, in criticising Klotzsch, says an opinion of this nature is entirely gratuitous, and the contact and its result, if real, would represent nutrition rather than fecundation, and, as far as he knows, there exists, he says, no other observation on any female organ susceptible of fecundation by the cystidia. I cannot fall in with De Bary's views at all, especially after the analogy found in Fucus and in the confervoid pollen (which has no outer coat), and which exhibits rotation in the flowering plants found under Zostera, Phucagrostes, &c., and which are fecundated when in a state of immersion in water.

As regards the spores of woody species of fungi, they are probably fertilised on the parent plant, and are blown away by the wind in a condition suitable to at once form the first cells of a new plant on any proper habitat. If Agarics were perennial and persistent, instead of being annual and fugitive, we might expect to see a new hymenium produced each year upon the lower surface of the old one, and this state of things really does exist in many species belonging to the perennial and persistent woody fungi of trees, where a new stratum of tubes is every year produced underneath the old one, so that the age of the fungus in years may be correctly ascertained by merely counting the strata. As to the mycelium itself, and the possibility of its producing sexual organs in Agaricus, I have had the subject before me for many years, and have seen many germinating spores, but no trace of any sexual organ other than the spermatozoids as produced from the cystidia themselves, or from the protoplasmic filaments which they throw out. I am therefore disposed to believe that the absence of sexual organs on the mycelium is owing to the threads being the produce of fertilisation.

As for the expressed juice of horse-dung, it abounds with nematoid worms, spores and infusoria of many kinds—no drop can be examined from a dung-heap after a shower of rain without seeing large quantities of these organisms. Therefore, any uncertain thread taken for examination from dung is sure to lead to error. All my experiments were carried out in duplicate, one with expressed juice, and the other with distilled water, with very little difference in result, as the new plant seemed to live principally on the remains of the old parent.

As a proof of how much there is still to be learnt respecting the life history of Agarics, I may say that in Sach's recently published *Text Book of Botany*, one of the very best and most complete books of its class ever published, there is no mention whatever made of cystidia in the description of Agaricus, and in La Maout and Decaisne's *Descriptive and Analytical Botany*, under fungi, it is stated that the male organs never produce antherozoids, and that the cystidia are always deprived of sterigmata or spicules.

To repeat and follow out these observations it is necessary to take the specimens for examination exactly at the proper period of growth, and to exercise the greatest care in securing an uniform moisture between the glasses. The life of the fungus is so short, and all the characters are so evanescent that the points to be observed may be present one moment and all gone the next.

All the drawings have been made with a camera-lucida, and from different specimens, so where the dimensions of the parts slightly disagree, it is only such a disagreement (within defined limits) as is commonly found in Nature.

Florists' Flowers.

SEEDLING CARNATIONS AND PICOTEES.—I never before saw a florist growing Carnations and Picotees under greater difficulties than Mr. Benjamin Simonite does at Rough Bank, Sheffield; and yet he has produced some splendid seedling flowers, especially of the latter, that are well worthy the attention of cultivators of this representative of the Dianthus tribe. His garden is almost within distance of a rifle shot from the Victoria Station at Sheffield, and it is a portion of a piece of land that is let out in allotment gardens. It bears no comparison in appearance to some of the dainty allotment gardens in the neighbourhood of Nottingham; there is nothing inviting in the approaches to it, but worthy work is done there notwithstanding; and it is a most interesting place to visit when the Auriculas, of which a fine collection is grown, or the Carnations and Picotees (these two flowers being worthy Ben Simonite's specialities) are in flower.

His plot of ground is exposed to all the smoky influences of sooty Sheffield, and it is open to the wild winds that come sweeping along the Yorkshire valleys and race up the hill-sides, like sportive demons bent on destruction. How difficult gardening has become in and near Sheffield is shown by the fact that new manufactories are springing up on every hand in the outskirts of Sheffield, and terribly vitiating the pure atmosphere so essential to a healthy plant life. When I stood with Mr. Simonite on the heights of Rough Bank, where he resides, I was told by him that in 1851 the valley stretching from the Wicker Bridge, over which the Manchester, Sheffield, and Lincolnshire Railway passes, away towards Rotherham, was a fine fertile valley; and now it is a city of ironworks and other manufactories of immense extent, reaching almost to Rotherham. Plant growing becomes more difficult year by year, and not only does the atmosphere appear to be heavily charged with deleterious influences, but the soil also becomes tainted with agencies of a harmful character. My worthy guide said he had to resoil his garden to a great extent annually, and by doing this he has considerably raised its level during the past few years.

In the current number of the *Florist and Pomologist* Mr. E. S. Dodwell (and who could better write a discriminating criticism?) has, in a most interesting article on "Carnations and Picotees," done justice to Mr. Simonite's flowers, and particularly alludes to a narrow, red-edged Picotee, named William Summers, as "quite to my taste—all that is desirable in quality, form, and formation of petal." It is in the snowy whiteness of the ground, the large, bold, rounded petals, the regular edging of colour, and the full substance of the flowers that Mr. Simonite's new varieties excel. The very best Picotee (the premier flower) at the late exhibition of the National Carnation and Picotee Society, at Manchester, was a light, red-edged seedling, raised by Mr. Simonite, as yet unnamed, very beautiful indeed, and of superb quality, beating Bowers' Mrs. Bowers, which is considered to be one of the best flowers in its class. Fanny Crossland has a medium edge of rich rose; fine, broad, smooth petals; pure white in the ground, and without the least spot or bar breaking in from the colour. Prima Donna, light purple edge, has a very fine smooth petal, snow-white ground, sparkling in colour, without the least spot on the edge, which is like a fine piece of wire. This was sent out in 1874, and by one of the leading northern growers has been pronounced to be one of the finest Picotees he ever saw. Mrs. Nicol, rose edge, pure white ground, and a finely-rounded smooth petal, is also very fine; and so is Mrs. Crossland, light purple edge, which is as solid in character as that of Prima Donna—large, smooth petal and pure ground. This variety came very fine indeed this season. In addition Nevins' Fanny Ellen was a very fine flower; it is a heavy rose edge, with good petals and pure white ground, very free from bars, the edge of colour very pleasing, and, indeed, a grand flower. The foregoing represents some of Mr. Simonite's finest selected seedlings; and he does well to make a small selection only from his most striking varieties, for from such a fine strain as that possessed by him something good will be almost certain to spring each succeeding year.

In Carnations, too, Mr. Simonite is scarcely less strong, as he has raised some fine things, among them J. D. Hextall, crimson bizarre, which was sent out last autumn. This is remarkable for its depth of colour, bright markings, clear ground, and finely rounded petals. The Rev. F. D. Horner, scarlet flake, fine broad smooth petal, and a pure white, which is well marked with bright scarlet. This was exhibited by Mr. Simonite at the National Carnation and Picotee show at Manchester last August. Seedling No. 1, purple flake, has a pure white ground marked with rich purple, fine petal, and full substance, highly promising. Seedling No. 35, P. F., fine large flower, and good marking; a flower that remains in perfection for a considerable time. All the Sheffield Carnations and Picotees are remarkable for their large size, finely rounded petals, and full substance; and if they could be subjected to a generous growth in a pure atmosphere like that of Slough, and under the care of John Ball, they would be highly regarded by fanciers of this grand old flower.

I visited Mr. Simonite's garden at Rough Bank just at the time the Carnation and Picotee shows were on, and was much amused with the quaint appearance of his beds. The neatly painted white tin shades seen at Slough were wanting here, but as shading had to be done (and very close shading too, for smoke and wind had to be kept from the flowers more than sun), every available thing was pressed into this necessary service—can-lids, old trays, pieces of old boxes, and tins and boxes that had contained Fry's homœopathic cocoa, Huntley & Palmer's biscuits, Nixey's black-lead, &c. But there were glorious flowers beneath them.

Mr. Simonite is a working cutler, and devotes spare hours and odd moments to the flowers he tends with so much care. He is most deservedly esteemed by his brother florists in the North; and a visit paid to him during the summer is time well and profitably spent. *R. D.*

WISTMAN'S WOOD AND THE MISTLETO.

IN my narrative of a visit to Wistman's Wood, on Dartmoor (p. 387), I referred to its great age. In Bray's *Tamar and Tavy*, vol. i., p. 102, the author mentions a "Perambulation of the Moor" which is preserved among the records of the Duchy of Cornwall, and refers to a period shortly after the Conquest, when the wood was described as being in much the same state as at present. If that were the case it is not surprising that Risdon should have described it, more than 200 years ago, much as it is now. It has often been asserted that this was a sacred grove of the Druids, bearing the Mistleto, a plant rarely found on the Oak and therefore esteemed to be of peculiar virtue. The ceremony of collecting the Mistleto, when the high priest of the Druids ascended the tree and removed the parasite with a golden knife, has been represented as taking place on Dartmoor, where Grimspound has been supposed to have been referred to by Cæsar as a British town defended by woods and thickets. One cannot help feeling rather sceptical as to the thickets on exposed parts of Dartmoor. The Oak, Beech, and Elm usually grow in England only at an altitude less than 1400 feet. The Sycamore, it is true, is a break-wind tree, with strong spray and stiff habit, and it is found in very bleak positions both in England and Scotland. It grows with the Beech and Fir in several beltings at Post Bridge, in the middle of Dartmoor, but the situation is favourable. If, however, we grant that the valleys of Dartmoor might have been once filled with a hardy scrub, or with "woods and thickets," the Mistleto, I think, must still be denied Dartmoor for climatic reasons.

The Mistleto is a native of low grounds in England as far north as the Humber, and has been introduced, it is reported, as far north as Perthshire. But it requires a situation where it can obtain in England a mean annual temperature of 48° at the least, and as the mean of South Devon is 51½°, a reduction of 4°, representing 1200 feet in height, would be fatal to the Mistleto. But in point of fact it is, I believe, unable to climb higher than 500 feet or 600 feet. As it grows in Siberia and in all the countries of Europe except Lapland and Finland, it would not appear that it suffers from cold upon our hills, but from the absence of summer heat and of the shelter which it seems to require. It prefers a strictly agrarian zone, and cannot be expected to occur in a district which becomes almost arctic by its altitude, such as Dartmoor, which at the highest point exceeds 2000 feet above the level of the sea.

Some years since the Society of Arts offered a reward for the discovery of Mistleto on Oak, and obtained only one specimen, which was found in Gloucestershire. Mr. Jesse, the Surveyor of Her Majesty's Parks, was unable to meet with an example of the Mistleto growing on the Oak. Pliny says that the Druids held nothing more sacred than Mistleto obtained from an Oak, regarding it as heaven-sent, and as a certain sign that their god had made choice of that particular tree for himself. But Pliny adds that the Mistleto grew on the Oak very rarely. It was not the Viscum album, but an allied parasite, the Loranthus europæus, which admitted Æneas to the infernal regions, and this Mistleto of Southern Europe grows freely on the Oak. Our above-named parasite is found on the Whitethorn, Crab, Apple, Ash, and Maple, and may have grown more frequently on the Oak in the extensive forests of ancient Britain, when the atmosphere was less moved by wind, and the climate was damper than at present. "Give me air or I shall die," are words which have been aptly put into the mouth, so to speak, of Asple-

ninum viride, when gasping in a sheltered situation. The Cacao of South America, on the contrary, died out in several districts when the removal of forests set the air in motion, and diminished the amount of vapour, and the Mistleto in England may have suffered the same fate in some instances.

The "branch of spectres" still covers the Apple orchards of Glastonbury, which, as the Isle of Avelon —Isle of the Apple—was a stronghold of Druidism. And possibly it might be induced, in such a sheltered and favourable situation, to strike root upon the branches of the Oak, as it will do very freely on those of the Apple, when the viscid pulp of its fruit is smeared upon them. *H. Evershed.*

The Villa Garden.

Wintering Soft-wooded Plants.—The following remarks are intended for those who have to rely on shifts and expedients in order to preserve through the winter a few favourite bedding plants, such as Pelargoniums, Calceolarias, Verbenas, &c., which are denominated soft-wooded plants. It is high time something were done in the interests of their safety, for wintry winds have commenced to blow, and the stings of early frosts have been felt by many tender plants. Many inquiries are constantly being made by those who "have no greenhouse" as to how such plants can be best preserved through the winter, and many schemes are put in operation to secure this desirable end. Some of these are much more calculated to defeat rather than to further the object in view; and it is nearly as necessary to show "how not to do it," as to set forth the best and safest means that can be adopted.

A few days ago we were called in by a neighbour to express an opinion as to the means he had adopted to winter a few cherished bedding plants. It was an excellent illustration as to what to avoid. He had selected a damp spot under a north wall, where very little sunlight could fall; he had dug out a shallow pit and filled it in with soil, and in this bed he had commenced to plant, taking them out of the store pots for the purpose, the cuttings he had struck during the summer. The bottom of the pit being impervious to moisture, the soil was very damp, and decay had already set in among the leaves, and owing to the wetness of the soil the young rootlets would soon begin to decay. To make matters worse, my neighbour had begun to build round his bed a wall of fresh stable manure, with a view to keeping the plants warm, but this, so well meant, would only tend to aggravate the disadvantages of the position and generate more damp. Under such circumstances what the damp spared, the first severe frost would be certain to destroy.

When plants have to be wintered by such contrivances as can best be employed, the first great desideratum is dryness. Damp does far more injury than frost. Cuttings put into pots in August will be rooted by this time, and these can be wintered in a loft or garret, or in a cellar that is dry, provided some light can reach them. The plants may be said to be stationary and at rest during the winter, and in that condition they can be kept very dry during frosty and damp weather.

A great many cuttings are struck in the open ground, and by this time they are nicely rooted. The best method of wintering these is to lift the plants from the open ground with a little soil adhering to the roots, and replant them in some fine and rather dry soil, in shallow wooden boxes of a common character, such as can be purchased at a fishmonger's or grocer's, at a very cheap rate. Then let the plants be sprinkled overhead, the leaves dried in the sun, and the boxes put away in a dry loft or garret, or a spare room. During the winter the boxes can be brought to the open air when the weather is fine, and watered, then dried, and taken back again to their winter quarters. All decaying leaves should be removed as they fade away, and all signs of damp on the foliage be similarly treated. Stumps of plants in a living state, but entirely denuded of leaves, will be certain to break into growth by-and-by, when the heart of spring throbs with the genial influences that occasion the great renewal at that glad season of the year.

Failing indoor accommodation, what can be provided without? A bed might be extemporised in some sheltered, sunny spot; but instead of digging a pit, we would prefer to have the bed on the level, or, better still, above the level of the ground. We would recommend building up a wall of leaves, or some such material; or failing these, of rough planks, of a suitable height, and then putting in the bottom some broken bricks, or mortar rubbish, or large cinders and clinkers, a foot in depth, if possible. This would ensure a considerable protection from stagnant moisture, and a certain amount of warmth. Then raise the boxes of cuttings on bricks, above the level of the floor, and expose them in fine weather, protecting them in some way from heavy rains and frost; giving as much air and light as possible when it can be afforded, and suitable protection when the plant should be kept close. Store pots of cuttings could be wintered here, as well as plants taken out of the beds now, trimmed root and branch, and then potted into the smallest pots that will contain them. They should be put into some fine soil, giving the plants a slight watering, so as to have the soil tolerably moist about the roots at the outset, and then they will last a considerable time without need of further watering. We have known many plants to be safely wintered in this way, but the great condition is that the plants be in as small pots as possible.

Coming down to a lower level of contrivance, a bed of soil 5 or 6 inches in depth may be made upon a dry earth, stone, or brick floor, and the plants lifted from the open ground with a little soil adhering to the roots and planted in this soil. Some moist soil about the roots will keep the plants in good preservation for a long time without need of applying water. Even sawdust, Cocoa-nut fibre, or finely sifted cinder ashes may be used in the place of soil; and we have known plants safely wintered in this way in almost total darkness. More than this, we have known plants such as Geraniums, Fuchsias, Calceolarias, &c., lifted from the open ground, and the roots bound up in damp moss, and then hung up in a loft, garret, or warehouse, where they would be out of reach of harm from frost, and preserved alive till spring. It is necessary that when the weather is fine and open, the plants (always suspended with the roots downwards) should be taken down, the roots immersed in water so as to thoroughly moisten the soil and moss, and then allowed to drain before they are hung up again.

Apiary.

The Improved Straw Hive.—There are three straw hives, sold by those who profess to deal exclusively in apiarian furniture, which very closely resemble each other, but, to listen to the high encomiums

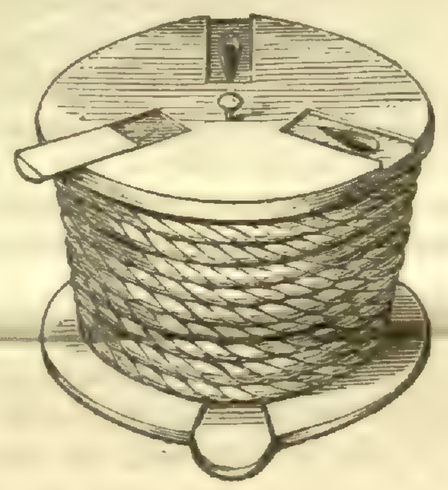

Fig. 113.—Pettit's Improved Straw Hive.

lavished on them by the respective inventors, we should feel inclined probably to purchase all the series. However, I hope your readers, after reading these notes, will be persuaded to try only one, which he can afterwards so modify as to be equal to any cottage hive.

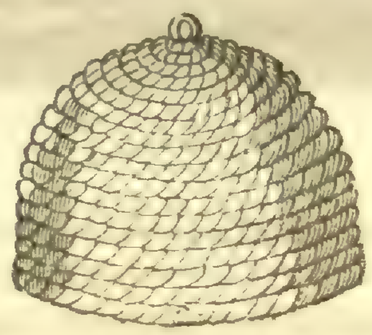

Fig. 114.—Cover for Improved Hive.

Pettitt's Improved Straw Hive is as above figured (fig. 113), with an ordinary inch board, in which are three openings, closed by zinc covers sliding in a groove cut in the wood; over these holes one or more honey glasses can be placed, at the will of the bee-keeper, in early spring. A straw cover, closely resembling a common straw skep (fig. 114), is used to cover the honey-glasses. This hive possesses all the requisites of a good cottage hive.

Milton's Cottage Hive is similar to the above; and when Mr. Milton introduced it to the apiarian world, in 1846, it was thought to be so useful and, withal, such a first-class honey-making hive, that he gained the Ceres Medal from the Society of Arts, The only real difference, either in size or style, is that, instead of possessing only one board fastened on the straw it has two, the upper one being made to revolve on an iron pivot. When the honey-glasses, or supers, are filled, instead of sliding in the zinc to shut out the bees, the wooden cover is turned round; of course the bees are effectually prevented from gaining access to the supers, but this point is gained with much less expense and trouble by using the zinc slides.

Mr. Bevan Fox several years since made a slight modification upon Pettitt's Improved Straw Hive, which was made public in the pages of the *Gardeners' Chronicle*. The openings through the cover to the supers are usually made round, but Mr. Bevan Fox pointed out the great advantage of having them cone-shaped, *e.g.*, one end being sharply pointed, so that when pushing in the zinc slides, to exclude the bees before removing the honey-glasses, the bees are gradually urged out of the way (if they are slowly pushed in), the risk of crushing or destroying the bees being thus reduced to a minimum.

The hives are certainly very reasonable in price, and, best of all, they can easily be manufactured by any one possessing a little genius. During the winter months I shall try to point out a few useful hives, so as to give our apiarian friends a number of hints for the following season, which I hope will be a better honey year than the present. *R.*

Notices of Books.

Mycographia seu Icones Fungorum (Figures of Fungi from all Parts of the World), drawn and illustrated by M. C. Cooke. Part I. Williams & Norgate.

There is little excuse now, except so far as the intrinsic difficulty of the subject is concerned, for students of mycology being unable to determine either the names or affinities of the subjects which come before them. There are numerous collection of dried fungi which greatly facilitate their studies, though occasionally even the most commonly known species are incorrectly named, and therefore some caution must be used, though such collections as those o Fries, Mougeot and Nestler, Desmazières, Cooke, and especially that of Madame Libut, are very free from errors, which cannot always be said of some more recent publications. There are extensive series of drawings, like those of Fries, Saunders, and others, which are a most important help, besides all the commentaries on older illustrations connecting them with modern nomenclature; and, above all, the labours of Tulasne, De Bary, Woronin, and a host of observers, have thrown such light on their more intimate structure, development, and affinities, as to make many matters clear which were formerly involved in obscurity. From various causes little comparatively has been effected in this country as regards such points, though from time to time more has been effected than is frequently allowed; but in respect of accurate diagnosis in this, as in other branches of botany, we may fairly challenge comparison.

No more important contribution in this direction has been presented to the public than the work whose title is given above. The number, which is confined to the illustration of the genus Geoglossum and the Humaria division of the great genus Peziza, contains twenty plates, each of which gives figures and analyses of four species, with accurate admeasurements according to the French measurement, by parts of a metre, which can easily be reduced into parts of inches. What gives an especial value to the work is that almost all the figures are taken from authentic specimens, and are therefore illustrations of such papers as those of Messrs. Berkeley, Curtis and Broome on Cuban and Ceylon fungi, together with many others. The only cases in which there is matter for doubt are those in which it was impossible to get authentic specimens; for example, we do not think that the plant figured as Peziza aruncosa of Bulliard is his species, unless the figure is altogether inferior to that of Bulliard, leaving out the distinctive character. It is, in our estimation, no small merit that Dr. Cooke has not been seduced into adopting such genera as those constituted by Fückel and others, which are proposed on no solid grounds and can only lead to inextricable confusion. Dr. Cooke has sacrificed much time and labour to the illustration of mycology, we fear often with little solid profit to himself. It is greatly to be hoped that this very valuable publication may receive such support as may insure its continuance. Unhappily the number of subscribers to scientific works is in general but small; still we think that more efficient support might well be anticipated to such an indispensable publication, as, for example, the *Icones* of Fries, to insure its completion. As, however, the drawings in the latter case are all deposited in the museum at Stockholm, it can be resumed at any time, though, should this ever be the case, we should still have to regret the guiding master-hand of the great Swedish mycologist. Trusting that Dr. Cooke may receive the encouragement he deserves, we can honestly recommend this work to the notice of mycologists. *M. J. B.*

HORTICULTURAL EXHIBITIONS, 1875.

NOVEMBER.

10.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
10 and 11.—Bristol Chrysanthemum Show.
15 and 16.—Loughborough Chrysanthemum and Fruit Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.
16 and 17.—Borough of Hackney (late Stoke Newington) Chrysanthemum Society's Show, in the Town Hall, Hackney. Sec., J. Rainbow jun., London Road, Clapton, E.
25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Cheetham Hill Horticultural Society's annual exhibition of Chrysanthemums, Miscellaneous Plants, and Fruit.

THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 23, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Oct. 25	—Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Oct. 26	—Show of Fruit, &c., of the Hull, Yorkshire, and Lincolnshire Pomological Society (two days). Sale of Orchids, at Stevens' Rooms.
WEDNESDAY,	Oct. 27	—Sale of Dutch Bulbs, at Stevens' Rooms.
THURSDAY,	Oct. 28	—Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Oct. 29	—Sale of Liliums, at Stevens' Rooms.
SATURDAY,	Oct. 30	—Sale of Dutch Bulbs, at Stevens' Rooms.

AT the present day there is a laudable and almost general disposition evinced, in most of our large towns, to make up in some measure for the hitherto almost total neglect of the CULTIVATION OF TREES AND SHRUBS in the available OPEN SPACES and immediate vicinity of towns. That this is not alone essential to mere appearance but is also conducive to health, is equally evident. So far, the possibility of getting trees to grow in the small unoccupied spaces in even the centre of the largest towns, is fully confirmed by such as may be found living, generally under conditions of positive neglect, in the very heart of London and other places, where, if not surrounded by so many miles of buildings, they are yet under more baneful influences. That soot alone, although decidedly injurious when the leaves become coated with it, and the capacity of these breathing organs *is seriously interfered with, is not* absolutely so destructive to vegetable life as has been sometimes represented, is manifest from the length of time town trees continue to maintain a fairly healthy appearance, when other essentials to their well-being exist if only to a limited degree. Take, for instance, the trees and shrubs in the squares of the metropolis. Their present state, compared with what might be accomplished were they better cared for, is a subject that has been so often urged in these columns that it possesses anything but the charm of novelty. True, within the last year or two there have been some few signs of a disposition to shake off the lethargic indifference, that, if persisted in, must ere long result in the inevitable destruction of such trees as still remain, but which, if treated according to their requirements, might yet flourish.

Londoners who visit Continental cities are loud in their praises of the condition in which they find the trees growing in every available space in these towns, and they console themselves that it is owing to the climate, which they set down as being superior to ours; but, if this question is carefully studied in all its bearings, it will be seen that the climate of the large Continental towns, so far as regards the matter under consideration, is not so much more favourable than our own, as to account for the difference in the condition of the trees growing immediately within them. Undoubtedly in Southern climes they exist under the influences of a comparatively cloudless sky and brighter sun, with an atmosphere much less charged with soot, but the sun's uninterrupted rays, and the absence of rain during the long summers would, instead of being an advantage, effect their destruction, were nothing done to assist Nature in the shape of copious waterings—more than is ever attempted with the trees growing in similar situations with us. Again, if with us they are subject to greater accumulations of soot, the much more frequent showers we get, even in our driest summers, directly tend to mitigate the evil by washing it off.

There are three elements essential to the existence of vegetable life—suitable soil, light, and water; if all or any of these are non-existent in sufficient quantities, the inevitable result is a dwindling existence and ultimate death. There are a number of principally deciduous trees and shrubs not over particular as to the nature of the soil in which they grow, provided it is not from the first exceptionally poor, or allowed afterwards to become exhausted. If light is deficient the leaves and sap can never attain the condition requisite to healthy existence. If the roots are short of water, the whole energies of the plant are at once paralysed, through the expenditure by evaporation being in excess of the supply, causing premature decay and falling-off of the leaves before they have had time to fulfil their allotted functions. This latter is the principal cause of disease in town trees. A great portion of the roots are situated under paved or hard-surfaced gravel walks, all but impervious to water; deep arterial and surface drains are ever at work drawing off the limited quantity of rain that is able to reach any portion of the soil, and next to nothing is done in the shape of artificial waterings to supply the deficiency. It is owing to this cause—insufficient moisture at the roots—more than to all others put together that trees in the London squares languish.

The question might be asked of those who are the most directly interested in this matter, Is it not worth while to take means to remedy the evil? Surely no one will deny that handsome trees in a flourishing state enhance the appearance of even the finest examples of architecture, and their presence is infinitely more desirable when the buildings that surround them are of the plainest possible character, to say nothing of the individual beauty of the trees themselves—the grateful shade and relief they give—amid the miles of monotonous bricks and cement. Is the richest city in the world so deficient in spirit on the part of those most concerned as to allow the continuance of such a state of things? Were London an arid desert, where it was necessary to economise every drop of water to sustain animal life, the case would be different. What is required is, that through the dry periods of summer the soil everywhere, where it can be got at, including the space occupied by beds, grass, and gravel walks, be regularly soaked, so as to keep it in a healthy, moist condition down as deep as the roots go. This is not an operation difficult to perform; were it carried out it would not only alter the state of the trees, but it would make the cultivation of the shrubs and ordinary flowering plants that are now attempted to be grown amongst them something more than a mere burlesque upon legitimate gardening.

Another source of weakness to tree life in such situations is the loss of Nature's recuperative process; she returns to the earth what has been taken from it, by the medium of the decomposed leaves, which are allowed to remain where they fall, and ultimately to become incorporated with the soil. For appearance sake we remove these leaves, but the liberal dressings of several inches of manure which should in their stead be applied every winter are not always forthcoming, though they could easily be supplied without using any that would be objectionable to the senses. What we have said applies more particularly to such trees and shrubs as already exist. Whatever is done in the shape of fresh introductions should be carried out with judgment, by a judicious selection of plants adapted to each situation, and not by planting banks of Rhododendrons packed together as closely as if in a railway truck for transit, as, for instance, was done last year in Leicester Square. Very few evergreens will grow in the interior of a large town, with the exception of Aucubas, but in these now we have considerable variety. There is no objection to a liberal use of Rhododendrons, if there is the means to replace them when needed with fresh plants. That ordinary flowering plants can be not only induced to grow so as to make them attractive, and give pleasure to the general observer, but that they can be so managed as to bear inspection by the initiated in gardening matters, is evident from the Chrysanthemums and other things in the Temple Gardens, and the bedding plants on the Thames Embankment, which have this summer been little inferior to those grown in more favoured spots, though the surroundings have not been so well kept. If nothing more were done in country places, in the preparation of the soil and subsequent attention to the trees and plants grown, than is usually to be seen in towns, where everything possible to insure success should be done, the result in the former would be vastly behind what it is.

To again revert to what is accomplished in Continental towns: it is the thorough preparation of the soil, proper selection of the subjects grown, and assiduous careful after-treatment, that produces so much more satisfactory results than are accomplished with us. The window gardening of late years in the West End has emancipated London from the anomalous position of evincing the least possible pretensions to taste in gardening, whilst being the capital of a country that holds the first position as regards gardening of any nation in Europe. How soon will the squares follow suit? Perhaps when those responsible are shamed into it by the productions forthcoming from the occupants of cellars and back slums, who exhibit at the City flower shows!

If we leave the interior of London and come to the outskirts—to the parks, here, so far as the condition of the trees go, they are not by any means in the most satisfactory state. The dying Elms at the bottom of Kensington Gardens are often commented upon. Different writers have assigned many different reasons for their present condition, but to any one possessing a reasonable amount of practical knowledge on arboricultural matters, accompanied with ordinary powers of observation, the principal cause is palpable. So far from there being any reason for surprise at their present state, the wonder is that they have existed so long under conditions that have prevented the possibility of their ever attaining one-fourth their wonted proportions, or existing half the length of time natural to their species. From the time that these trees had been planted a score of years in the positions they now occupy, there began a life and death struggle through want of room, intensified year by year as time has passed on, until now the whole have all but succumbed to the slow but certain effects of starvation through overcrowding. These Kensington trees are amongst the worst examples we have ever met with of the fatal results produced by an insufficiency of room, as over the whole space of the several acres which they occupy they must, by their present appearance, have for forty or fifty years been at least four times too numerous to admit of full individual development, or of the capacity of the ground they stand upon to sustain them in a condition conducive to longevity. Ample proof of this exists on the spot. Any one who will take the trouble to look at those that stand in the front next the different roads, will see that where they have on one side had more space for both roots and branches, the trees are comparatively healthy, carrying plenty of branches, and have attained double the girth and strength of those that are crowded on all sides in the interior of the area

they occupy. In a few years this part of the ground will be a bare blank space, as the trees are past the possibility of recovery; and it is too much to expect that any steps will be taken to have the ground at regular intervals occupied by young growing trees to take the place of those whose existence is rapidly drawing to a close. True, as the dead ones are taken down here and there young trees are planted in their place, but what should be done is the immediate removal of three or four of the old trees from spaces at distances sufficiently far apart to insure enough room for the young ones planted. The ground for these should be thoroughly prepared by deep trenching, and the removal of all the old roots. By this means a thriving plantation would be coming on over the whole ground, to succeed those that are dying out.

The war of extermination which is here all but fought out is only somewhat in advance of what has begun elsewhere. For almost the entire length of the Park up the side of the Bayswater Road, and to some extent on the opposite Kensington side, the trees are much too close for them to live to more than half the age they would attain if sufficient space were allowed them by the removal of a portion. In the Regent's Park the trees are younger, and the effects of insufficient space are not yet apparent, but if timely thinning is not very soon resorted to the next generation will see the trees in a similar condition there. Take the principal avenue that runs parallel with Albany Street, and about half way betwixt it and the Botanic Gardens, the points of the branches of the trees have nearly met, which is just twice as close as they ought to be, with a view to their future well-being and ability to attain a healthy old age. The greater part of the space occupied by their roots is covered by a hard gravelled road, so far impervious to water that four-fifths of the descending rains run off instead of being absorbed by the soil to afford these roots the requisite sustenance. We very much doubt whether the soil in which the roots of these trees are or others similarly situated, absorbs through the year more than one fourth of what it would in ordinary land. Yet they must be wholly dependent for water on this insufficiently moistened space; and this over-dry state must obviously be intensified by any approach to crowding.

Those who have the slightest knowledge of the requirements of vegetable life, need not be told that an atmosphere more or less charged with deleterious gases, such as is inseparable from a near proximity to large towns, is inimical to the health of trees. Vegetable, like animal life, when by force of circumstances compelled to exist under any influence opposed to health, should, if possible, have some assistance to compensate for the adverse conditions which it is not possible to remove. This, in the case of town trees can best be accomplished by giving them more room than would be requisite were all the conditions necessary for their well-being present: yet with the trees in the London parks this is just the thing, above all others, that is not done. In addition to the atmospheric impurities they have to contend with, the, for them, over-drained and consequently too dry condition of the soil, is fatally augmented by overcrowding through an unaccountable oversight in attempting to grow too many. In ninety-nine cases out of a hundred gratuitous advice is about the last thing that is cared for or accepted, and in sounding this note of warning we do not for a moment suppose it will

Fig. 115.—Hereford Free Library, and Group of Woolhopeans. (see p. 527.)

have any further effect than many which have before been directed to the same object; yet the facts pointed out are incontrovertible by any process of sound reasoning, and the consequences which are now so apparent in the Kensington trees will follow in the other cases alluded to if means are not taken without delay to obviate the evil.

Although in these remarks particular reference is made to the trees in and around London, yet so far as regards the advisability of promoting the cultivation of trees in and about all towns they are of general application. In the principal manufacturing centres, continuously enveloped in dense smoke, which hangs almost perpetually over them like a cloud so as to obscure the sun, little is likely to be accomplished, except in the outskirts; but there are scores of towns where no serious adverse influences exist, and still nothing in the shape of tree culture has ever been attempted, though it might be extensively carried out with the best results, both as to health and appearance. That this state of matters cannot long continue we feel certain. The local authorities in most towns of importance are beginning to bestir themselves in improving the general aspect of the places they govern. They might turn public money to worse account; for the sense of pleasure produced by association with trees and flowers has a greater influence upon health than the world collectively has yet been able to appreciate.

—— WE are extremely glad to hear, in the interests of the ROYAL HORTICULTURAL SOCIETY—an institution which all loyal horticulturists will support to the utmost so long as its management is honestly carried on in accordance with its professed object—that the swamping policy of admission by transferable tickets is likely to be abolished, and a system of personal fellowships adopted instead. There may be some little difficulty in working out the new arrangement, but we hope this may not prevent its adoption, since there can be no question it is a change in the right direction. The issue of illimitably transferable tickets, for which about one-third of their honest value as personal tickets was paid, was enough to bring any society to ruin.

—— We learn with much satisfaction that at one of its recent meetings the Council of the ROYAL HORTICULTURAL SOCIETY decided that the prizes at the forthcoming November exhibition should be paid in full, and not subjected to 50 per cent. reduction, in accordance with the policy of Lord BURY'S Council, as has been the case with the previous exhibitions of the present year. The Council have also decided to make this a two days' show, and intending exhibitors are requested to allow their productions to remain until Thursday, at 4 P.M. It is also intended that the arcade should be lighted with gas, and the public admitted in the evening, after 6 o'clock, at a charge of 1*s*. We are glad to find this policy of looking up the "shilling public" adopted by the Society. The difficulty is to get at them, and we trust that the information that the exhibition is open to their inspection may be thoroughly circulated amongst them, and, as a consequence, that they may be induced to come in crowds, and that coming, they may find in the fruit and flower show the opportunity of spending a pleasant and not unprofitable hour or two of their evening's leisure. We may add that the date of the November show, in 1876, has been altered from the 8th to the 15th.

—— The result of some recent experiments on the EFFECTS of COLOURED LIGHT on GERMINATION, and on growing plants, made by WEBER, show that germination takes place soonest under the darkest glasses, while the amount of mineral substances the plants contained was found to depend on the colour of the light. Calcium, for instance, was most freely absorbed under the influence of the rays transmitted by the blue and violet glasses; while the absorption of phosphorus was greatest under the yellow and red glasses.

—— When chilling rains and nipping frosts have reduced summer bedders to a condition that renders them no longer attractive, the latest autumn-blooming HERBACEOUS PLANTS are doubly acceptable. This, the third week in October, there are flowering in Mr. WARE'S Hale Farm Nursery, Tottenham, the following:—Aster Novæ-Angliæ purpurea, A. Novæ-Angliæ rubra. Both these are large, profuse-blooming, deep-coloured sorts, of compact habit, very handsome, after the earlier kinds are all but over. Senecio pulcher, flowers deep red, 2½ inches diameter, a very fine thing. The white and red varieties of Anemone japonica, and a fine hybrid rose-coloured one. Aconitum autumnale, two varieties, dark and lighter blue. The double-flowered scarlet Geum (Geum coccineum flore-pleno), one of the brightest of the genus. Echinops Ritro, globular blue flowers. Schizostylis coccinea, brilliant scarlet. Liatris scariosa, large branching heads of purple flowers, individually not unlike a double Senecio. The deep crimson Dianthus Atkinsii. Lithospermum prostratum, the points of its compact prostrate shoots decked with flowers of deep cœrulean blue. Amongst Phloxes, those that keep on blooming late are P. Cerberus, P. Crœsus, P. Edith, P. Roi des Roses. Colchicum flore-pleno album and C. flore-pleno purpureum, both very handsome, and later flowering than the common kinds. Several varieties of Cyclamen europæum, not nearly so generally grown as they deserve. The white and darker flowered forms of Pampas-grass. The extremely handsome-leaved Aralia spinosa, with dense heads of its clouded white blooms, 2½ feet across; this is a fine shrubbery plant, contrasting well with any other subjects it may be associated with, having a cheerful fresh appearance when most things have donned their autumn garb. Zephyranthes candida, with its large white Crocus-like flowers. Arum italicum, the beauty of which through the autumn is in its bright red fruit, produced in dense masses, in shape like heads of Indian Corn, closely studding the ground all over, about 8 or 10 inches high. It is effective and singular in appearance, and is at its best through September.

—— The *Times* states, with reference to the usual annual series of markets for THE SALE OF MUSTARD, which commenced at Wisbeach on Monday, that most of the manufacturers or their agents were present, but few samples changed hands, the growers, who did not muster in great force, not being anxious sellers, and the merchants seeming to wish to "feel their way" before operating to any great extent. Sad complaints are made relative to the yield of the crop, and although nearly all the seed grown in this immediate neighbourhood was secured in capital condition, some of the Lincolnshire farmers show samples considerably injured by the weather; the acreage under the crop is also far below that of late years; so that with these combined circumstances, if there is the usual demand, prices ought to be considerably enhanced. The highest price made on Monday was 15*s*. per bushel.

—— Through an accidental misreading, as we learn from Professor ASA GRAY, we have fallen into error in the designation given to the splendid Lily figured at p. 493. The name given to this Lily was intended to commemorate that of its raiser, Mr. PARKMAN, an author on early American history, and therefore should read LILIUM PARKMANNI, instead of L. Packmanni as we have printed it. Those who are interested in the subject will please make a note of this.

—— The cultivators of the large-flowered or SHOW PELARGONIUM need to be reminded at this season of the year, when cold winds and rainy days interfere with that freedom of ventilation which is of so much value to the plants, that when kept a little close they are apt to become affected with greenfly. The leaves of the Pelargoniums, perhaps because of their young and tender growth, are among the very first things in a house of mixed plants that become infested with greenfly, and their presence on the leaves leads to injurious results. If there are a few plants, the leaves may be kept clean by brushing them with a camel's-hair pencil sufficiently stiff for the purpose. In the case of a group of plants, they should be fumigated well with tobacco smoke. Only recently we saw some plants presenting a miserable appearance, much to the sorrow of the cultivator, and on examining them they were found to be much infested with greenfly. Some years ago it was a practice with not a few leading growers to give the second shift to cut-back plants as late as January. Now, it is generally done in October in preference, and it has been found that the plants are wintered much better, and bloom earlier—a matter of the first importance with those who grow for early exhibitions.

—— One of the handsomest among deciduous shrubs at the present time is EUONYMUS LATIFOLIUS, a native of Central and South-eastern Europe. Several species, including the indigenous one, are very ornamental at this season of the year, and continue so for a considerable period. A North American species, E. atropurpureus, is perhaps equally as striking as E. latifolius, but it does not appear to fruit so freely in this country. In the United States it bears the name of Burning Bush, and our plant deserves the same appellation. It has larger and broader leaves on longer stalks than those of E. europæus, and the common peduncle is much longer than n that species, and very slender, bearing a many-flowered dichotomous cyme. The flowers are succeeded by eventually deep red capsules; and now when the capsules are open, exposing the orange coloured seeds to view, this shrub is one of the mos ornamental in the shrubbery.

—— The fine specimen of ARENGA SACCHARIFERA (Saguerus sacchariferus) in the centre of the Palm-house at Kew, has nearly reached the end of its existence, and those who wish to see it, or see it again, should go soon, for it will shortly be removed. Like the Caryotas, and some other Old World Palms, the Arengas enjoy only a definite or determinable period of existence. It is definite in so far, that after they begin to flower they cease growing, and all their energies are devoted to reproduction. They begin flowering at the top, and continue downwards until the tree is exhausted and dies. This peculiarity in flowering is, we believe, confined to certain genera of Old World Palms. Arenga saccharifera is one of the most remarkable and striking Palms in cultivation, and one of the most useful to man. It is a native of the Indian Archipelago.

—— At p. 172 of the present volume we noticed several SPECIES OF ERYNGIUM FLOWERING AT KEW, and spoke of their value for the subtropical garden. Although natives of South Brazil, Uruguay, and La Plata, they will, doubtless, prove quite hardy in the south and west of the United Kingdom. Those at Kew, we are informed by the authorities, bore the rigour of last winter unprotected without receiving any injury. To prevent the plants from suffering from drought—one of the principal difficulties at Kew—an ingenious device was resorted to. The soil was taken out to a greater depth than required for the plants, and at the bottom of the hole a broad pan, filled with water, was placed. To prevent the displacement of the water, the pans were roughly built over with staves and brickbats. Above this a plant was set, and judging from the appearance of the plants, this method has succeeded admirably. Of the four species planted at Kew, two, viz., E. pandanifolium and E. paniculatum, are well worth the attention of all admirers of plants with fine foliage and stately, though not showy, inflorescence. The first, in foliage, has a much greater resemblance to some of the Bromeliaceæ than to the genus Pandanus. It is of tufted habit, with long, narrow, tapering, involute leaves, 5 or 6 feet long, sharp-pointed, and furnished with marginal prickles. The candelabrum-like inflorescence rises to a height of 8 or 10 feet, and remains fresh for two or three months. The branches are very numerous, each ultimate branchlet terminating in a small globular head of minute greenish-white flowers—not so red as described in the periodical referred to below, though the anthers may give them a reddish tinge, E. paniculatum is a similar plant, of about half the dimensions. The species with the short broad foliage, like E. serra, appear to be of much shorter duration, the foliage dying off early in autumn. These Eryngiums have now been on trial for three or four years in France, and descriptions of several species, with cultural directions, are given in a recent number of the *Nouvelles Annales de la Société d'Horticulture de la Gironde*. The late M. LASSEAUX collected a number of species in the neighbourhood of Buenos Ayres, and Professor DECAISNE determined and described them ("Remarques sur les espèces du genre Eryngium a feuilles parallélinerves," in the *Bulletin de la Société Botanique de France*, vol. xx., p. 19). Two new species are described by him, namely, E. Lasseauxii and E. eburneum. The first is said to resemble Bromelia Karatas in foliage, and to differ in its smaller stature, erect leaves, and whitish instead of red flowers, from E. pandanifolium. E. eburneum is a yet smaller plant, with leaves from 2 to 3 feet long, and the inflorescence about 5 or 6 feet high.

—— We have just received, by the kindness of Messrs. LEE, of Hammersmith, an enormous Mushroom, which seems well worthy of being recorded. It belongs evidently to that form which is figured by Mrs. HUSSEY under the name of Agaricus arvensis (Bank Horse Mushroom), but which, unless it have a specific distinction, must rather be referred to A. campestris, and to that variety figured by DE BRONDEAU under the name of A. villaticus. The pileus is 13 inches across, of a fine rich brown, scaly, with depressed pilose scales except in the very centre; the stem is 9 inches high, rather scaly, with the scales directed downwards, tinged with yellow and remarkably obtuse below, above which it is swollen and 3 inches in diameter; the ring is quite smooth beneath, and the gills, though free, are not separated from the stem by a distinct space, so that it cannot be referred to A. augustus. Mrs. HUSSEY remarks of it that it does not yield much ketchup, but that what it does yield is excellent. It is often tufted, though of such an enormous size. The specimen sent to us was much corroded by worms, but quite free from any bad smell. As there is nothing to separate it from the true Mushroom, which varies from pure white and smooth to

brown and scaly, except size, we think that Fries is quite right in not adopting it as a species. Specimens identical with this, but of smaller size, were exhibited by Mr. English at the South Kensington Fungus Show on October 6. We take this opportunity of stating that we have examined the fungus referred to A. aureus at Perth, a species of especial interest, as A. spectabilis (one of our largest and finest species, which grows always on wood, and not on the ground) has been long confounded with it. We have received excellent specimens from Mr. Macintosh, who gathered them near Dunkeld at the south end of the Inver tunnel beneath an underway bridge, while much larger specimens, 9 to 10 inches in diameter, grew on the neighbouring embankment. The pileus is quite smooth, and the fungus clearly belongs to that form which was formerly received by Fries as a species, under the name of A. Vahlii. Amongst other novelties which appeared at the same show, which quite puts to shame our South Kensington display, was A. robustus, the firmest species we ever met with, the flesh being as tough as that of Polyporus squamosus, and having precisely the same taste and smell. *M. J. B.*

—— The crop of Holly Berries this autumn will bear comparison with the crops of all other fruits this year. The bushes are literally covered with the masses of beautiful coral-red berries that everywhere greet the eye in the country districts. Probably in no part of the home counties does the Holly grow in richer luxuriance than at Mr. Walter's fine estate, Bearwood, Wokingham. There, springing up in all directions as a background, the Holly just now is really grand, huge tree-like bushes being almost a mass of brilliant colour. Caterers for Christmas decorations need be in no fear that this year their favourite material will be lacking, and without doubt the cockney of all classes will presently admit with us that a finer crop of Holly fruit has seldom been seen.

—— Mr. Blackwood, late of Buscot Park, is appointed to the management of the extensive gardens of Sir George Musgrove, Eden Hall, Cumberland.

—— We are requested to state, with regard to the awards made at the recent Exhibition at Cologne, that the two highest prizes of honour—the large gold State medals given by the Prussian Government—have been awarded to M. Lemmonnier, of Brussels, for his collection of Palms, Orchids, &c.; and to M. F. J. C. Jurgens, of Hamburg, for his collection of Conifers. The prize of the Prince Imperial was awarded to Messrs. Veitch & Sons for their excellent collection of hothouse plants, and one of the prizes of the Empress was given to Mr. Williams, of Holloway, and one to M. Linden, of Brussels. The prize of the Hamburg sub-committee, a silver flower plate, was given to M. Charles van Gert, of Antwerp, for his collection of Conifers.

—— The following, amongst other prices, were realised at the Sale of Mr. Bull's Selection of New and Rare Plants at Stevens' Rooms on Thursday last:—Pleocnemia Leuziana, 42*s.*; Croton majesticum, 378*s.* and 483*s.*; Croton spirale, 231*s.* to 336*s.*; Croton volutum, 462*s.*; Dipladenia Brearleyana, 90*s.* to 168*s.*; Rheum palmaticum tanghuticum, 6*s.*; Tillandsia musaica, 20*s.*; Eucholirion corallinum, 10*s.*; Doryanthes Palmeri, 40*s.*; Phormium Colensoi variegatum, 55*s.*; Dæmonorops palembanicus, 57*s.* 6*d.*; D. plumosus, 40*s.*; Macrozamia spiralis, 50*s.*; Livistonia rotundifolia, 28*s.*; Artocarpus Cannoni, 70*s.*; Phyllotænium Lindeni, 105*s.*; Encephalartos villosus, 88*s.* to 105*s.*; Dracæna Baptistii, 147*s.*; D. amablis, 63*s.*; D. Fraseri, 90*s*; D. Shepherdii, 60*s.*; D. magnifica, 70*s.*; D. Moorei, 84*s.*; Cocos nucifera, 150*s.*; Verschaffeltia splendida, 90*s.*; Paullinia thalictrifolia, 90*s.*; Anthurium crystallinum, 120*s.*; Croton undulatum, 80*s.*; C. Youngii, 120*s.*; Cocos Weddelliana, 120*s.*; Cyathea Dregei, 120*s.*; C. Smithii, 75*s.*

—— The following circular has just been issued by the organising committee of the Amsterdam International Horticultural Exhibition to be held in 1877:—

"The former bulletin announced that the Commission charged with the regulation of the National and International Horticultural Exhibitions in the Palace of Industry, in connection with the horticultural societies and other unions and establishments in this country, had formed the intention of holding an International Horticultural Exhibition in 1876 at Amsterdam. With this was to be combined an exhibition of vegetable productions, chiefly from the Dutch colonies, and a botanical congress. That Bulletin stated, moreover, that the projected plans had been imparted to the International Congress held in 1874 at Florence, and that this Congress, in view of similar information from London, had declared that precedence ought to be given to the resolutions taken in Netherland in this matter.

"Shortly after issuing the first bulletin in Belgium, the organising committee received a missive from the Société Royale de Flore at Brussels, intimating their intention of holding in 1876 a grand International Exhibition in combination with a botanical congress; it being impossible to hold this exhibition either sooner or later for the following reasons:—Firstly, because this exhibition was to be its hundredth exhibition, not held in 1875 intentionally, in order to hold it in the succeeding year with all the more *éclat*; and secondly, which is indeed the chief reason, because the locality designed for the exhibition cannot be had before April, 1876, and will be demolished in the month of May of that year. In addition to this it is stated that, even should not the Société Royale de Flore give an international character to its hundredth exhibition, nor combine therewith a botanical congress, yet the Society was nevertheless bound to organise a grand exhibition in 1876. For all these reasons the organising committee deemed it advisable to prevent, if possible, the simultaneous opening of the two exhibitions at Brussels and at Amsterdam.

"The Société Royale de Flore referred to a communication sent May 15, 1873, to the General Commission, in which it had given notice of the intention of celebrating its hundredth exhibition with great splendour, and of giving it an international character; that this would probably take place in 1875, but that the period, depending on the time when a good locality should be available, might have to undergo an ulterior change. Further information was promised as soon as a decision was come to; no further information arrived. The organising committee was of opinion — considering what had been said at the Congress of Florence—that the intention of holding an International Exhibition at Brussels was deferred or relinquished, till they saw themselves suddenly placed in the dilemma, either to advise the General Commission not to proceed with the projected exhibition, or to hold it simultaneously with a similar undertaking at Brussels. This latter alternative was deemed the less advisable. The organising committee ascertained that the managers of the Palace of Industry had no objection to an eventual postponement till 1877, and delegated two of its members—M. Krelage, chairman, and Dr. Westerman, member—to a conference with the delegates of the Société Royale de Flore, who had appointed as such M. De Cannaert d'Hamale, President of the Fédération Horticole de Belgique, and MM. H. Doucet, member, and L. Lubbers, secretary of the Société Royale de Flore. This interview, which took place on April 3 last, resulted in a resolution of the General Commission on May 13 last to hold the exhibition at Amsterdam in 1877. They had previously ascertained from official sources that there were good grounds for expecting that the exhibition to be held at Brussels would hold a high place among the International Exhibitions, and further, that the London Royal Horticultural Society was disposed to postpone its projected exhibition till 1878.

"The Commission considered itself the more justified in taking such a resolution, as now by holding the exhibition in 1877 it has the prospect of being able to give greater extension and importance to the display of vegetable productions, than if the first period had been adhered to. It is their intention to employ the longer time at their disposal for the realisation of their ideas in the most useful way for the promotion of the comprehensive task which they have taken upon themselves.

"This bulletin, No. 2, is accompanied by a project of programme for the exhibition of vegetable productions, projected by the committee charged with this special part of the exhibition, consisting of the following gentlemen:—Prof. Dr. C. A. J. A. Oudemans, F. W. Van Eeden, Dr. H. F. R. Hubrecht, and Prof. Dr. W. F. R. Suringar.

"The present committee will gratefully receive any proposals or observations concerning their labours as marks of interest in their scheme, which will be the more welcome as such an exhibition will be for the first time combined with an International Horticultural Exhibition.

"The distinctions to be awarded to contributors will be stated in the final programme, to be issued hereafter.

"The committee perceives, with no small gratification, that its plans are received everywhere with sincere approval, and that it may already rejoice in many marks of goodwill and strenuous co-operation.

"There is every prospect that Government will yield a powerful support by moral influence and substantial assistance. It has also promised to promote the affair by the concurrence of its representatives abroad.

"From the Dutch Minister of the Interior the committee received the information that, through the mediation of the Dutch Embassy at Vienna, the Austrian Minister of the Interior had taken cognisance of the exhibition, and had brought it under the notice of the Ministries that it regarded at Vienna and at Budapest. A reply from these quarters promised their co-operation for the attainment of the desired object. The Minister of Agriculture at Vienna has directed the attention of those interested in the matter to this exhibition in the official *Gazette*, and intends taking further measures as soon as he shall have been in possession of further details.

"Further special mention may be made of His Majesty's Consuls or Vice-Consuls at Algiers, Ancona, Athens, Bordeaux, Dresden, Manchester, Mannheim, Paris, Rouen, Saigon, Stockholm, and Varna.

"From a great number of foreign horticultural societies, learned societies, and institutes, letters of gratulation have been received, and the very welcome information added, that either a beginning has already been made, or the intention formed, of promoting the plans of the Commission as much as possible.

"Especial mention ought to be made here, that the call on the public Press has been responded to in the most liberal manner. Not only have the Dutch newspapers published with laudable readiness whatever reports the committee thought fit to issue, but the foreign papers also, even of far distant countries, have no less contributed to give that publicity to the projected schemes which may be considered as indispensable to render the enterprise successful.

"Since November 7, 1874, the following changes have taken place in the Commission:—M. R. J. A. Kallenberg Van den Bosch, at Teteringen, delegate of the Society of Agriculture, Horticulture, and Cattle Breeding, in the arrondissement of Breda, has declined being member of the Commission; A. J. Baron Schimmelpenninck Van der Oije Tot Hoevelaken, delegate of the Guelderland Agricultural Society at Arnhem, being by his departure to West India no longer in the occasion of serving that society, has been succeeded by M. D. Vreede, at Wageningen. The Society Arti et Amicitiæ at Amsterdam, and the Geographical Society at Utrecht, who had been invited to give their support to the exhibition, have appointed for their delegates M. C. Springer at Amsterdam, and Dr. D. J. Coster at Amsterdam, respectively. As members of the General Commission have acceded:—Jonkheer, Mr. H. Hoeufft Van Velsen, honorary President of the Amsterdam section of the Holland Agricultural Society, member of the direction of the International Horticultural Exhibition of 1865 at Amsterdam; and F. W. Van Eeden, secretary of the Netherland Society for the Promotion of Industry, member of the Commission for the Exhibition of Vegetable Productions at Haarlem.

"In the assembly of the General Commission, held on May 13, a resolution was passed to empower the Commission for the regulation of the exhibition of vegetable productions and the organising committee, on a motion of the latter, to form themselves into one corporation.

"The committee hope in their next bulletin to state the names of the members of the direction, and at the same time to issue the project of programme for the exhibition of horticultural productions."—Signed by the organising committee:—J. H. Krelage, Chairman; F. W. Van Eeden, C. Gijm, H. F. R. Hubrecht, C. A. J. A. Oudemans, C. J. Van der Oudermeulen, W. F. R. Suringar, G. F. Westerman, H. Groenewegen, Secretary. *Amsterdam, August 14, 1875.*

The programme for the exhibition of vegetable products, referred to in the above circular, provides for the exhibition of cotton under eighteen sections; tobacco, seventeen sections; Peruvian bark, eleven sections; madder, fifteen sections; indigo, thirteen sections; caoutchouc and gutta-percha, twelve sections, fats and fatty oils, forty-nine sections; ætherial oils, three sections; vegetable substances for paper, nine sections; cereals; catechu, four sections; vanilla, five sections; rhubarb; sarsaparilla. The committee invite suggestions in reference to the requirements set forth in this project, which we propose to print in full next week.

THE HEREFORD FUNGUS EXHIBITION, AND MEETING OF BOTANISTS.

The crowded and enthusiastic meetings held this year at Hereford and Perth have been in striking contrast with the flat and spiritless London meetings of the past two years. The Fungus Exhibition of the Royal Horticultural Society without the presence of Mr. Berkeley would be dull indeed, for of late years there have been no exhibitors of any account, and botanists have not visited the rooms. The Fungus Meeting of the Royal Horticultural Society might be made one of the most interesting and best paying exhibitions of the year, but to attain this, certain alterations of the schedule are necessary, the first and foremost being the abolition of the prize system. With flowering plants it is different; plant merchants and gardeners cannot be expected to send valuable Orchids, Ferns, &c., for exhibition without getting some money remuneration in return, and it is proper they should receive it, but with funguses and fungus-men the case is not the same. The object of a fungus exhibition is to display good named collections in botanical sequence for the instruction of those who are interested, and it is absurd for one man (unacquainted with fungology) to every year bring a few things from one spot, that have been exhibited at every successive fungus exhibition, and carry off all the money prizes. The men who know fungi, the men who attend the Hereford meetings year after year, and who entirely keep the study alive in this country, do not care to compete in a general scramble for £1, £2, or £3 as prizes. The way to make the London exhibition a great success is this: Letters should be written to, say, twenty of the leading fungologists of Great Britain (the men who exhibit at Hereford and Perth), requesting a hamper of fungi from their different districts, the carriage to be paid by the Society; these hampers of fungi would be forwarded with pleasure, and should reach South Kensington at least a clear day before the public exhibition, so as to allow time for proper arrangement in the Council-room, which they would fill. Then some competent botanist should be asked to arrange the specimens, and, if no better man comes forward,

the writer of these notes here promises to give one or two entire days to the best arrangement and naming of which he is capable of the fungi next autumn. South Kensington should also imitate Hereford and Perth, either through the new Horticultural Club or otherwise, in offering some little hospitality to strangers from a distance; if this could be done as it is done elsewhere the London exhibition would be equal to that of Hereford and Perth, both in contributors and specimens of fungi.

There is always good work done at Hereford, and this year is therefore like its predecessors. As heretofore, critical papers have been read by Mr. Broome and others, and various new species have been added to the British lists. Mr. Broome was one of the first to arrive, and he strolled over to Dinmore and at once lighted on Agaricus (Armillaria) bulbiger, a plant of the greatest interest, belonging to a very small subgenus and new to Britain.

Most of the visitors to Hereford arrived on Monday, October 11, and the week's "foray" began on the following Tuesday, when a visit was made to the Bishopstone Woods, under the leadership of the Rev. R. H. Williams, of Byford. This gentleman not only led the party through the woods, but he supplied the visitors with cherry brandy, sherry, and biscuits, and afterwards most hospitably entertained the whole party at his house. Happily the showers were few, but the defiles were at first intolerably muddy. A rare starry Puff-ball, Geaster rufescens (illustrated in the *Gardeners' Chronicle* for April 26, 1873, and here reproduced, fig. 116), was found, and a plant growing on Beech mast which was doubtfully referred to the rare Agaricus balaninus of Persoon. Another singular Agaric, possibly A. phlebophorus, was also met with, but the probabilities were altogether in favour of this plant being an entirely new species (as species of fungi are at present valued). A third dubious plant with blood-red stains was doubtfully referred to Cortinarius Bulliardi; it had not, however, the brilliant crimson mycelium peculiar to this plant. The singular Puff-ball, Geaster hygrometricus, also commonly has blood-red mycelium, although the character is not mentioned in botanical books. The rare Lactarius uvidus was found here and elsewhere—a plant notable for its change from white to bright purple on being bruised or broken. The dog Phallus — Cynophallus caninus — was also found in some abundance: this remarkable plant is new to Herefordshire. Just before reaching the house of Sir Henry Cotterell, Dr. Bull found Marasmius fœtidus—a fungus with an offensive odour truly horrible. On passing to the house of the Rev. R. H. Williams the lovely and brilliant tints of blue and green were greatly admired in the abundant plants of Hygrophorus psittacinus, Agaricus æruginosus, and A. geophyllus, which were all common. Mr. Berkeley's lovely Agaricus Iris was found here, with its brilliant but fugitive tints of blue. Young plants of this exquisite little plant, when seen from above, have the exact appearance of a small blue eye with its pupil, though it is probable that Mr. Berkeley had the passing tints of the rainbow in view when he named the plant. But in classic mythology Iris was the messenger of the gods when discord was brewing, so opinions are likely to differ a little about the naming of this plant. A great number of species coming under Agaricus, Russula, Lactarius, Helvella, &c., were found during the day, some more or less rare, and on reaching Hereford the fungi were at once taken to the Free Library (see p. 525). In the evening a meeting was held at the house of J. Griffith Morris, Esq., for the purpose of examining various minute fungi under the microscope. Amongst the most interesting objects here examined were the original specimens of Artotrogus, kindly sent by Mr. Berkeley. These curious bodies have from the first been referred to the second form of fruit of the Potato disease by Mr. Berkeley, and this view is now generally accepted amongst botanists. The specimens were critically examined and warmly discussed; and, as Mr. Stephens' singular confirmatory original sketch (published in *Gardeners' Chronicle* for October 2, 1875, p. 433) was also exhibited, together with the original drawings of the resting-spores of the Potato disease made by the writer, there was plenty of subject-matter for discussion till near midnight.

On Wednesday, October 13, several of the most active botanists were up before 7 in the morning, and at work in the museum arranging the specimens. Dr. Bull's professional duties kept him this day at Hereford, whilst the rest of the party drove to the rich woods of Dinmore Hill. The morning from 6 till 9 had been very red and portentous, and the barometer had rapidly fallen, but happily the threatened storm passed off, and no rain fell. Amongst the first fungi found at Dinmore may be mentioned the critical Hypocrea alutacea, growing, as it perhaps always does, in close company with Spathularia flavida. The rare Sistotrema confluens was again found, together with eight specimens of Strobilomyces strobilaceus, the latter, with one exception, all too far decayed for exhibition. A truly magnificent and dense ring of the rich-coloured Cortinarius cinnamomeus, growing round the drip of a Larch, attracted the attention of most of the excursionists, whilst the Rev. W. Houghton found a specimen of the rare and beautiful Russula aurata,—"one of the handsomest of the genus," says Mr. Berkeley—a plant with a deep golden-orange top and white gills, furnished with a golden edge. Torrubia militaris was also met with—this a crimson, club-shaped fungus, found growing upon the dead pupæ of moths as they lie buried in the ground. Mr. Percival lighted upon the rare and exquisitely beautiful cobalt-blue Agaricus euchrous, a plant only once before found in Herefordshire. The ground was here everywhere brilliant with the golden-orange masses of Peziza aurantia, and more than once the rare orange-juiced P. succosa was found, and possibly the still more rare P. Isabellina. Hydnum zonatum, Agaricus sejunctus, A. portentosus, A. longipes, A. geotrupus, the fragrant Lactarius glyciosmus, and the fœtid, but very handsome Magpie Coprinus, C. picaceus, were also found. Some of the party, tired and hungry, called at the head keeper's house for refreshment, but the goodwife said her "gaffer" was not at home, and she had nothing but dry bread and water in the house. Whilst, however, the hungry fungologists were preparing to discuss the bread and water the sturdy "gaffer" himself came back, and speedily sent elsewhere for butter and beer. On returning to the station various specimens of the Roast Beef plant, Iris fœtidissima, were seen, and admired for their brilliant coral-red seeds and prostrate capsules; and the paths and roadways in the woods were in some places covered for many yards with the curious but not uncommon lichen named Bæomyces rufus: the plants belonging to this small genus are often mistaken for fungi. As on the previous evening, the fungi gathered were at once taken to the Free Library. Dr. Bull, who was unable to accompany the party during the day, entertained a good number of the visitors at his house to dinner in the evening, and as soon as dinner was over all repaired once more to the Free Library to go on with the naming and arrangement of the specimens.

FIG. 116.—GEASTER RUFESCENS.

Thursday, October 14, was the Club day, when the members and visitors always muster in strength. The working party was at the Museum long before 7, setting the specimens in botanical sequence, and at length a large number of excursionists started by train for Foxley, by the kind permission of the Rev. George H. Davenport. Arriving at Mr. Davenport's private station, the party at once set to work.

At Foxley may be seen some of the finest Hemlock Spruces in this country, and near these trees, which were soon reached, the true Agaricus portentosus of Fries was at once found. On charcoal heaps A. carbonarius and A. atratus were met with, and soon after the Pear-scented A. pyriodorus, the delicious A. orcella, and A. sulfureus in some abundance were met with, the latter smelling of gas-tar. Near the house, and under the drip of a noble Cedar of Lebanon, was a great broken ring of magnificent specimens of the Horse Mushroom; many of these plants were taken to Hereford for the evening's dinner, together with the white ally of the Mushroom in Agaricus cretaceus found by Mr. Houghton. In various places the air was laden with the delicate odour of the decaying bracken, varied by the fumes from a few pipes carried by Woolhopeans. The Hereford botanists do not, however, smoke so much as the Scottish men; the latter nearly all carry pipes and smoke Cavendish or Latakia, which practice has a tendency to prevent the proper appreciation of the odour of many species of fungi. Smokers little think how much they lose by having their olfactory nerves thus blunted. Phallus impudicus might as well be without an odour for smokers, and it is the same with Thelephora fastidiosa, which is like Agave filifera (when in flower) in possessing a strong whiff of a dead horse in the dog days, yet I have known fungologists (who smoke) to be so dead to odours as to be unable to appreciate either. Agaricus cucumis is in smell notoriously like rotten herrings, Coprinus picaceus is like an old drain, and Russula fœtans is like carrion far gone: but smokers of tobacco never properly appreciate these scents. A Woolhopean has even been heard to boast that his pipe and tobacco pouch were synonymous to him with Lactarius piperatus and Agaricus fumosus, and that pipe-lights were the only Fusee-sporiums and Flammulas he cared for,—but this man was an exception. During the Club-day part of the Great Dyke made by Offa, King of Mercia, was visited: the huge ditch long ago made near the present boundary of England from Wales. On the side of part of this stupendous earthwork Dr. Bull gathered several nice specimens of the edible Hygrophorus pratensis, which were eaten for dinner, and they thus formed a slight link between the dim, troublous past, and the peaceful mycological present. Amongst the best finds of the day were Clavaria amethystina, a lovely purple-branched fungus new to Hereford, and very seldom seen anywhere; C. botrytis, very rare and beautiful; Hydnum diaphanum, new to Britain; Tremella epigæa, rare, and new to Hereford; the deep blue Corticeum cœruleum, the delicious and highly coloured Lactarius volemum, Agaricus strobiliformis and A. adiposus. Russula vitellina, with its fine shades of yellow, was met with in several places, as was the gorgeous Cortinarius cinnabarinus. The latter plant was found abundantly under old Beeches, and the fallen autumn-tinted leaves when lit up by the sun were almost exactly the same in brilliant red colour with the fungus itself, making one almost wonder whether Darwinians would push the protective mimicry theory so far as to say the rare red fungi protected themselves from Woolhopean raids by putting on the exact colours of the dead Beech leaves. The virulent Lactarius pallidus was everywhere common: the pale, moist, livid face of this fungus may be said to be pallid from suppressed malignity.

The Museum at Hereford was once more reached, the specimens again set in order, and a paper read in the Free Library (see p. 525) on "Reproduction in the Mushroom Tribe" (see pp. 488, 519).

The dinner, which took place at the "Green Dragon," was much the same with all the other Hereford dinners; sixty-one guests sat down, and the five edible fungi presented for consumption were Hydnum repandum, Agaricus procerus, A. arvensis, Coprinus comatus, and Hygrophorus pratensis. The bill of fare was not quite so comprehensive as the one belonging to the Perth dinner, but it was equally safe, for I shall never forget my shock when a great tureen of Marasmius oreades was brought round at the latter dinner just after it had been a subject of remark that few or no fungi belonging to this species had been seen in the room. I am far too hardened now to be terrified by a poisonous fungus, but when I think of the harrowing possibility of "D. Deal" doing for me as he has done for so many other men—viz., writing a melancholy obituary of me in the *Journal of Horticulture*—it makes me shiver in my shoes, and, in fact, causes me to be far less reckless than I otherwise should be. Amongst the visitors was a "vegetarian," from London, who, tired of long years of Cabbage and diseased Potatos, visited Hereford to try Dr. Bull's famous novelties in the way of Vegetable Lamb's Kidneys, Vegetable Sweetbread, Vegetable Beefsteak, Vegetable Oysters, &c.; but Vegetable Goose has not yet been discovered, and, when a real roast goose was placed before the vegetarian, he was seen to shudder like a fungologist in a gleam of sunshine, and disappear after the manner of the "Ghost of Banquo" in *Macbeth*.

After dinner, Dr. Bull at once rose and gave a brilliant and lengthened *resumé* of all the fungus work of the year, especially referring to the new fungi found by Hereford men. Amongst species new to Britain he mentioned Agaricus (Eccilia) atropunctus, found last autumn by himself, and certainly one of the most interesting plants of the British Flora; another was A. (Omphalia) Postii, found last September, and sought for again in vain this year; a third was A. (Phc-

liota) unicolor, with Marasmius varicosus, and many other plants either rare or quite new. He then adverted at some length to the show of fruit, and referred to Mr. Berkeley's kindness in sending down a very large number of choice grafts, which were being gradually distributed all over the county. Dr. Bull then spoke at some length of the fungus which causes the Potato disease and the work of Mr. Berkeley and other British botanists in working out its life-history. Dr. Bull then paid a high compliment to Mr. Berkeley as a botanist and gentleman, and briefly adverted to the work taken in hand by the Royal Agricultural Society in regard to the Potato disease. Amidst great applause, Dr. Bull then referred to the noble and disinterested way in which Mr. Berkeley (free from the slightest stain of selfishness common with inferior men) was the first to come forward and frankly acknowledge that the last fact in the life-history of the Potato disease has been supplied, not directly by himself, but by a pupil who had, said Dr. Bull, merely followed in the course long indeed foreseen and pointed out by Mr. Berkeley himself.

Mr. Chas. B. Plowright, who had formed one of the party at Foxley, fell very ill early in the afternoon and consequently could not attend the dinner and read the paper set down for him, viz., "A Spring Foray at Whitfield." Dr. Bull, however, read this essay, which principally dealt with a large number of spring fungi found early last summer at Whitfield.

Mr. Edwin Lees, of Worcester, who was a little elevated (he stood on a chair), then read a popular and pleasant paper "On the Colours Imparted to Landscape Objects by Cryptogamic Vegetation." This paper dealt with the surpassingly brilliant colouration of fungi, algæ, &c., as seen in autumn landscapes, and was fully illustrated by a number of coloured drawings of the objects referred to.

After dinner all the botanical members, at the kind invitation of Thomas Cam, Esq., repaired as usual to this gentleman's house, where tea and coffee were provided and various botanical subjects discussed. Microscopes with the higher powers and various new books treating of fungi and kindred subjects were on the table. Here Mr. Broome read a valuable paper on the "Pollinaria and Paraphyses of certain Fungi;" this paper in other words was a perfect *resumé* of all that has at present been published of the reproductive process in fungi, and the paper was illustrated with a number of diagrammatic drawings of the processes in question. Dr. Cooke read a paper on new Scottish fungi, detected by him at the Perth exhibition; the list comprising a new species of Xylaria and three small new species of Peziza: they were all illustrated; and it may as well be said here that in my report of the Perth show I accidentally omitted Hydnum lævigatum and Thelephora intybacea, both new to Britain, and magnificent specimens of the rare Trametes pini, all three brought by Dr. Buchanan White from Rannoch.

The Rev. J. E. Vize read a paper on the "Eccentricities in the Occurrence of Certain Fungi," the essay dealing with many extraordinary cases of sudden appearance and disappearance of fungi, as in the Hollyhock fungus, &c. At this meeting the subject of the Potato disease was again returned to, and several botanists took part in the discussion. The writer of this report produced a small bottle of turbid water which had dripped out of rotten Chiswick Potatos in the spring, and which had originally contained oogonia, antheridia, and resting-spores belonging to the Potato fungus, and which bodies were then growing with typical Peronospora on the tubers. The bottle had been sealed up for between three and four months and was air-tight. When first sealed the bodies were all at the top of the water, but shortly after sealing a sediment formed at the bottom. Now the great question was, would these hotly discussed bodies be found still uninjured in the water, or would the bottle and its contents be in the condition of Billy Barlow's bellows when slit open by B.B. to see where the wind came from? Fortunately for your Commissioner, the first dip of the pipette into the bottle when opened, and the first glance at the slide when placed under the microscope revealed the fact that the bodies were all there in abundance, and so far from being destroyed by the water they were in perhaps better condition than when first seen. Every person interested had a good opportunity of examining these organisms under the microscope, and the bottle was once more sealed.

It had been arranged to keep the fungus exhibition open till Saturday, so the working members were at the Museum again at 7 on Friday morning, where they remained till 12 putting a few finishing touches to the arrangement and noting any rarities that had been sent from different quarters. Amongst these rarer fungi were A. resplendens, A. lacteus, A. polystictus, A. conspersus, A. dryinus, A. xanthopus, A. subpalmatus, Cantharellus Friesii, new—the latter found by Master Arthur C. Houghton on an Elder tree in Mr. Spearman's garden at Preston Weald Moss, Wellington, Salop—Lactarius cilicioides, Agaricus (Hebeloma) glutinosus, new to Britain, a curious plant covered with thick gluten, sometimes in small lumps resembling boiled tapioca; Boletus purpureus, Sparassis crispa, Lactarius camphoratus with a powerful smell like a doctor's shop (Berkeley says Melilot), Polyporus fumosus, and other plants too numerous to mention. The show of fungi was not large, but it was uncommonly good in species.

On Friday, the last day of the "foray," an excursion was made to the Credenhill woods, the first fungus found being new to Herefordshire in Polyporus spumeus from an Apple tree. Several specimens of Agaricus radicosus were found, and a closely allied species not yet described in any book. Fine groups of Nyctalis parasitica were found growing upon Russula fœtans, and Thelephora anthocephala, T. cristata, and T. Sowerbei. Amongst Truffles, Hydnangium carneum was found, a subterranean fungus new to Britain, and amongst Russulæ the magnificent Russula lepida in abundance by Dr. Bull. Credenhill is traversed by earthworks in the form of covered ways, is crowned by the remains of an immense camp of 50 acres, is protected by two series of deep ditches, and is very difficult of access. Credenhill Camp once protected the Romans, and overlooked the town of Magna Castra (now Kenchester) at its base. In the afternoon of this day Mr. and Mrs. Herbert, of Credenhill Court, most hospitably entertained the Woolhopeans with a substantial meal and draughts of famous Foxwhelp cider. In the evening the last meeting of the year was held at Dr. Bull's house, when the drawings illustrative of the reproductive process in the Mushroom tribe were again exhibited, explained and discussed, and Mr. Chas. B. Plowright read a paper "On the Present Position of Puccinia as a Genus." This paper dealt with the history of the destructive parasites of our crops and kitchen garden produce found under this genus, with many critical observations on the fungi themselves.

A last glance at the rooms at 7 on Saturday morning, with its capital collection of Apples, Pears, Quinces and Siberian Crabs, revealed the presence of one or two fungi before omitted in this report, as Agaricus macrocephalus and A. macrorhizus—two very different plants and the last new to Britain; Agaricus paradoxus, recently found by Mr. Phillips, also new to Britain, but really a true Paxillus. Paxillus involutus not unfrequently grows in this country and elsewhere with its entire lower surface quite porous, when it puts on the appearance of a Boletus. The American Boletus paluster of Peck is no other than the Paxillus porosus of Berkeley, and Mr. Berkeley's name ought not to have been laid aside, especially after it was identified by the writer and its correct name given to Mr. Peck.

Mr. English kindly sent a few of his now well-known Epping fungi, similar to the species recently exhibited at South Kensington; and the rare and curious earth-star, Geaster colliformis, and Batarrea, were also taken down to Hereford.

One always leaves these pleasant fungus meetings with regret, and with a knowledge that, after all, the work has not been all done. Mr. Broome, Dr. Bull, Dr. Cooke, Mr. Renny, Mr. Vize, Mr. Houghton, Mr. Plowright, Mr. Perceval, Mr. Morris, Mr. Phillips, Mr. Lees, and many other competent men worked as hard as possible; but one and all must feel that there is every year a great deal of work left unfinished. In the four days of the foray many new plants crop up which it is impossible to name on the spot, and they perish and are gone before they are named.

There is no set of fungi so little understood as the plants found under the genus Cortinarius, and next year the Club has decided to concentrate all its best efforts to make out and set in proper order a good collection of these plants. The date of the next meeting has been settled for the week beginning September 25, 1876, and the Club day for September 28—"The king is dead—long live the king."

So, with many very pleasant recollections of Hereford and Perth, the last fungus report of the year is brought to a close. *W. G. Smith.*

Home Correspondence.

Culture of the Watercress in Pots.—As your correspondent "A. D." has brought this subject forward I will give you a few words on the mode of culture adopted here. Soon after I entered my present situation (now nearly seven years ago) we made a little addition to our glass erections, and my employer (now deceased) having a preference for fruit and vegetables, I resolved as far as possible to do the best I could with salading, including Watercresses. Since that time I have always cultivated it in pots from October to March. We plant the first batch of cuttings, consisting of a dozen or two of 32-size pots, in the first week in October, and put in successional batches as may be likely to be required. The pots are filled with some nice soil, not too heavy, leaving room at the top as for sand, but instead of sand I use some white gravel, washed, which gives the Cress an inviting appearance. We obtain three or four good gatherings from each pot. I prefer growing them in pots for winter supply, as they are so easily moved from one house to another and take but little room on side shelves; and where one sends something in the way of "green food" to the breakfast-table every morning Watercresses so grown are clean and tender, and, I think, generally appreciated. After March we get a supply from some that are planted out underneath some Fig trees (which we begin to keep a little warm by the end of January), and those give us a supply on into the summer. I can therefore strongly recommend the culture of Watercress in pots to those who may require nice salads during the winter months and have not yet adopted that plan. *L. Batters, Chilworth Manor, Romsey, Hampshire.*

The Fox and the Fruit.—Will foxes eat Grapes? may be asked in reference to *Æsop's Fables*. I can answer for this that foxes will eat fruit. At the side of the kitchen garden here is an outlying orchard containing Apples, Damsons, &c., and adjoining this is a shaw with large Oak trees, some of which were cut down in the spring for barking and lay in their several places until October 11, when I was engaged with the timber merchant measuring those barked Oak timber trees. Just at the point where we were about to take the girth lay a billet containing Damson stones, Apple skins, black-beetles' heads, legs and wings, also the centre short joints of the backbone of a rabbit, and the hairs from off itself that were taken into the stomach of the animal when licking and cleaning its body. The smell was that which would have brightened up the face of a huntsman, *i.e.*, that of a fox. I may just say that two earths of cubs were reared in this park during the present season, five and six in each earth, and I may mention that it is by no means an uncommon thing to find Cherry stones in the billets of the fox, from fruit that have dropped from the trees. *Philip Fry, Addington Park, near Maidstone, Kent.*

Limekiln Heating and Puddling.—As Mr. Bennett has leased a nursery "in a hole," where the idea of draining can only be entertained by those who are "mad," I shall say no more on that head; but, as he has offered me the contract of puddling his kiln stokehole, permit me to say that very probably the "Kiln-heating Company" would cheerfully undertake that trifling matter, along with the other work, but, should their engineers be unequal to the task of puddling a stokehole above the water-line, and in a manner that shall make it safe, not only for five, but for fifty years, I shall then be pleased to offer Mr. Bennett some practical suggestions on the subject, as his puddling experience appears to have been of an exceedingly unfortunate kind; but I am not in a position to undertake "contracts" of that sort, as he no doubt guessed before offering me the job. It may be mentioned that Mr. Fish, who seems also to realise the "situation" at Rabley, has stated that Mr. Cowan has "succeeded in building the water out at Garston," and no doubt he could do the same for Mr. Bennett. I long to see him enjoying at Rabley such peaceful slumbers as he experienced at Hatfield, and which, we know, are the reward of a quiet conscience and a knowledge of perfect security—from frost, for instance. He disclaims having stated that the kiln defrayed the cost of fuel, &c. Well, I have not time to read up all Mr. Bennett has written on the subject for the evidence to this effect, but, according to a balance-sheet published by the company, and other evidence, the kiln not only defrays the cost of fuel, but leaves a margin of profit; and as Mr. Bennett, in a very conspicuous letter of his published in the company's catalogue, and to which "the attention and careful consideration" of all are invited, has declared that the Hatfield kiln "exceeded his expectations," is a "decided success," and a "glorious success," one can only conclude that it accomplished more than its most sanguine projectors anticipated or asserted, or else that Mr. Bennett's adjectives are mere empty phrases, put in simply to "adorn a tale." I should never have troubled you on this subject had not Mr. Bennett appeared to consider his action in the matter of sufficient public interest to necessitate the publication in more than one paper of his reasons for declining to have a kiln on his own extensive establishment. With regard to Mr. Gordon's remarks about anonymous communications I have only to state that I consider them less objectionable than the communications of those having a monetary interest in the affair, for they cannot be expected to see the question in other than a favourable light. *Jonathan.*

Limekiln Heating.—I quite agree with Mr. Gordon (see p. 498) that anonymous correspondents of the class of "S. E." and "Jonathan" do more good than harm in one respect. I have always advocated that such critics should sign their names in full, especially when one correspondent's name is genuine. "S. E.," as Mr. Gordon truly states, gives us a lot of chemical information that all persons are unable to unravel, and, like Mr. Gordon, I should be glad if "S. E." could tell us how it is that over 7000 feet of piping can be heated from a kiln charged with chalk and coal combined in proportions of 6 bushels of coal

to four or five times the same quantity of chalk (which was my daily charge in frosty weather), when 6 bushels of coal would only just keep up the temperature for a few hours. According to the theory of "S. E." there is no heating virtue in chalk, then how is the extra heat accounted for? *Edward Bennett, Rabley Nursery, Herts.*

Rubus arcticus.—I wish your correspondent "B. M.," who speaks, in p. 486, of having obtained preserved Rubus arcticus, would let me know how I could do the same. From the glowing description of Linnæus I was desirous of procuring the fruit in the only form in which it can be had in England, and, through a Norway merchant, I sent for some, but, though I explained the difference between Chamæmorus and arcticus, and the merchant knew their botanical names, yet he sent me a barrel of Chamæmorus, packed in a raw state. They made a palatable jam, after removing the hard seeds, but arcticus is still a desideratum. In Warwickshire I have seen it growing in the open air and blooming well, but never setting a fruit; near London I have seen it under greenhouse treatment, but, of course, barren. I once heard of its fruiting in the extreme north of Scotland. The plant is very pretty, and worth growing for its flowers. *G. S.*

Quercus fastigiata.—Respecting the remarks on Quercus fastigiata, I may say that Mr. Loudon's statement is quite correct, as I have beautiful plants, 5 to 7 feet high, from acorns sown by myself. *Edward Holmes, The Nurseries, Lichfield.*

Potatos.—I have great pleasure in recommending Mr. Fenn's red kidney Potato Bountiful. It is the best Potato that I have tasted, as a novelty, for some time. It is a great cropper, its flesh is tender, and its flavour "nutty." As Mr. Fenn was so good as to express a wish to call a Potato after my name, I wished him last year to change the name of Bountiful to Radclyffe, but he rightly observed that Bountiful having been out four years it was impossible to do so without confusion. I have just commenced autumn planting. I sent a distinguished man, well-known, 140 Lapstones, as fine as could be seen, from tubers no bigger than a hen's egg. Were such seed planted in the spring it would be worthless. I see Potatos are beginning to move at the eye. With regard to the "mystery" I am more puzzled than ever, still I defer to Mr. Berkeley and Mr. Worthington Smith, who, as fungologists with powerful glasses, must know more about it than "a mole" groping in the dark. *W. F. Radclyffe, Oct.* 19.

The Victoria Regina Violet.—I am pleased to find that some one (see p. 498) is able to grow Victoria Regina Violet to his satisfaction, for it is not all who can. One gentleman residing in Ireland who wrote me last season almost charged me with swindling him, speaking of it in the most degrading terms as nothing like so good as the Czar, and the like. Of course I felt very sorry at his disappointment, but knew it was not the fault of the variety. What I do know, too late, is that I am a great loser by letting it out at all. I think your correspondent "A." will find layering the runners much the best way to produce good plants. I do not begin very early—we are too busy with Strawberries, &c., all hands engaged—but we begin before the Fern is ready for use, and at first employ small hooks made of the trimmings of Pea sticks and, as soon as the Fern is ready, of Fern (the common Bracken). *George Lee, F.R.H.S., Clevedon.*

The Resting-spores of The Potato Fungus.—I am of the same opinion as your correspondent, Alexander Dean (p. 496), that the resting-spores of the Peronospora leave us yet quite in the dark as to whether they can find a home in the healthy seed-tubers. As to their lying dormant all winter in the ground, by an experiment made here in 1846 a crop of raised diseased Potatos showed that this could not have been the case as regards them. In that year a lot of Potatos (about 2 tons) was received from Portugal, where he was ambassador, from the late Lord Howard de Walden, and they were guaranteed never to have had the disease there. They were planted in a newly broken-up piece of forest land that had never been planted with Potatos before, nor with any other crop in the memory of the people about. Now, the crop of these Potatos when lifted in September of that year showed the fungus unmistakably both on the haulm and tubers; and as there could have been no dormant spores in the ground it must therefore have come from germs floating in the air. We know that the moulds which attack the Pea and Turnip crops in dry, warm autumns must come from germs which disperse in the air as soon as the weather is fit for their development. The attack of the oïdium, or Vine mould, is likewise common in vineries where too much dampness prevails without heat and proper ventilation, and in Vine countries abroad a certain state of the weather is required for it to make its appearance. The Potato fungus requires moisture and heat in the end of July and throughout August, and in a certain stage of the Potato's growth—that is, just about before the ripening period; and any grower conversant with the disease can tell to a few days when his crops will be stricken by it in sultry moist weather. Of course, now we know the life history of the Potato fungus, the only cure will be to try and find out what will kill it, either by a purification of the soil, or by steeping the tubers in some strong dose. If the attacks are atmospherical, of which there is too much reason to fear, we can only hope to escape its ravages in dry fine summers. *William Tillery.* [Our correspondents generally seem to overlook the fact, that the "resting-spore" is only one of the means by which the fungus is perpetuated; and now that we know something about that, the attempt must be made to learn more. EDS.]

Blenheim Pippin Apple.—I am curious to know what position this Apple is to occupy at the ensuing South Kensington fruit show. Last year it was shown in all the collections of dessert Apples; and specially I remember that both 1st and 2d prizes in the class for a single dish of "any other dessert kind" were awarded to large samples of it. This, I should have thought, indicated that it was there recognised as a dessert variety in preference to one for kitchen use. In the schedule of the present year the Blenheim Pippin is classed as a kitchen Apple, as prizes are offered specially for it in class 42; the question, therefore, arises—if thus recognised in the schedule as a culinary variety, could it also be admitted into the classes for exclusively dessert varieties? There ought to be a little consistency governing this, because no judges would admit either of the other five mentioned kinds of kitchen Apples as dessert kinds. If the compilers of the schedule desired by placing Blenheim Pippin where it is to eliminate all large fruits from the dessert classes, they have my complete sympathy, as I have often thought that in judging dessert Apples there has been hitherto rather too much leaning towards size, and hardly enough towards table quality. Perhaps, in selecting the six varieties they have as dessert kinds for single dishes, they meant to indicate that, for dessert purposes, flavour and quality should have the pre-eminence over mere size. *A. D.* [Apply to the Secretray. EDS.]

Rheum nobile.—In answer to "Rheum's" inquiry, I can only say that I fear he will have the greatest difficulty in growing Rheum nobile. I have seen this plant in its native country, and though I think it is no exaggeration to say it is the most striking and noble of all known alpine plants, the conditions under which it grows are not such as will be possible to imitate. The mountains of Sikkim, at an elevation of about 13,000 to 14,000 feet, are the habitat of this plant, which grows on steep hill-sides and cliffs. The formation is, I believe, micaceous schist, and to a non-geological eye is much like that of Ben Lawers. In winter the plant is covered with deep snow, and probably protected in a great measure against frost, though the strong creeping rootstock, which is 3 or 4 feet long, and as thick as one's arm, would not probably suffer from a moderate degree of cold. As soon as the snow melts in May, the rainy season commences, and there is hardly a day on which drizzling or heavy rain does not fall. The mornings are usually bright, but after noon it is almost invariably wet. The heat is never great, but there are no frosts in summer, and the air is constantly saturated with moisture. I sowed two pans of fresh seed of this plant in January last, most of which germinated, but the young plants never made any progress and died off before May. In February I threw a handful of seed down on a shady border and covered it with 2 feet of snow. In April several young plants appeared, and grew slowly all the summer, making about six leaves, of which the largest were the size of a crown. They have now with two exceptions all died off, and I very much doubt whether any will survive the winter. Some plants sent me in pots had evidently grown faster at first, but never recovered the journey, and will I fear all die. At Kew a great quantity were raised, some of which were planted out and others kept in frames, but a number of them died early, and the rest did not, when I last saw them, look very flourishing. As Dr. Hooker was the discoverer and first introducer of this noble plant, I am sure he would have tried every means to cultivate it, and if he does not succeed we may conclude that in this climate it will be very difficult to do so. Perhaps, however, others may have been more fortunate, and if so I hope they will communicate their experiences. If the plant will grow anywhere I know of no place so likely to suit it as the highlands of Perthshire, where both soil and climate have some points in common with its native country. *H. J. Elwes.*

Preserving Laurel Berries.—In reference to Mr. Batter's inquiry (see p. 496) respecting the uses and wholesomeness of the fruit of the common Laurel (Cerasus Laurocerasus), he may safely use it in any form he pleases, but it is not advisable to swallow the stones, although children frequently do so, with no apparent ill effect. When large, plump, well-ripened fruit can be got it makes a fair dish for dessert in October, and is relished by most people after a trial or two. It also makes a capital tart, a good jelly, and an excellent jam. In making tarts and jam the fruit should be stoned, which is easily done as the stone parts easily from the flesh, and it is better to be kept out. I have seen the fruit used in the different ways named in various parts of the country, but there seems to be more prejudice against it in England than in either Scotland or Ireland; at least I have not seen it used with the same freedom there as in the other two countries. Heavy crops of fruit are seldom seen, except on large old Laurels, but in the autumn of 1851 there was a very abundant crop in the mid-counties of Scotland, especially Fife and Perth, where every one ate them who could get at them, and found them very agreeable and wholesome food. Since then I have seen them occasionally in England in less abundance, and very plentiful in Ireland (Co. Wicklow) in 1865, '66, and '67, where the people were so eager to get them that a guard had to be set on the Laurels to prevent them being destroyed by men and boys climbing into them and breaking them down to get at the fruit. *M. D., D.*

—— Seeing in the *Gardeners' Chronicle* of October 16 a proposal to preserve Laurel berries for eating, I wish to warn the people against swallowing so much prussic acid, which may be pleasant, but is very poisonous, and is always more powerful in its action when fresh. I have known an old gentleman eat the berries, apparently without harm, but that was an exception; and I guess the birds would have attacked them if they were safe. I know nothing of the Bird Cherry. *C. L. T., Cowbridge.*

Aralia Sieboldii Flowering (see p. 498).—After this plant is established a year or two, I have seldom seen it miss flowering annually. For the last three years a plant of the variegated variety has flowered freely here (near Edinburgh); it is now in fine flower, growing in a pot, in a cool greenhouse. It fruits and ripens well. The seeds germinate freely, but it is difficult to get into the rough leaf, as the seedlings come up mostly "albinos" and soon "damp off." Seedlings of the common variety are much more easily raised. It flowers freely and annually out-of-doors in the South of Ireland. *M. D., D.*

—— I beg to state it is not unusual for this plant to flower; I have a plant here that flowers yearly, and it has now thrown up a flower-spike measuring 20 inches long and branching the same distance. I have many seedlings now 18 inches high from the same plant, which I find very useful for decoration; when nicely cleaned their bright shining, Fig-like leaves look well among other plants. This one stood two winters in the open ground, and is now about 4 feet high. By flowering yearly it makes the plant very bushy. *H. H., Scarisbrick Hall.*

Apple Jelly.—The Apple recipe at p. 490 is very seasonable, and especially at this season and this year, when mostly everybody have plenty of Apples by them, and those who haven't can buy them cheaply. Labour is the next consideration after the procuring or purchasing, and if an excellent jelly can be made without peeling and coring, a great labour is saved, and of course the jelly cheapened. It is quite unnecessary to peel or core Apples for jelly, in fact, the jelly made with the rind and core is of better flavour. Slice the Apples, and only discard the eye and stem, leaving all else, especially pips, for stewing: of course, in the case of windfalls, bruised parts must be cut away too. *Chevalier.*

Abutilon Boule de Neige.—At this season of the year, when white flowers are scarce, we find the Abutilon Boule de Neige very useful. A planted-out plant carries an immense quantity of flowers, and if a large Eucharis-like flower is wanted, you have nothing more to do than to pinch out the stamen and turn back the petals; they then answer well for ladies' hair. It is a strong grower, making leaves when young and planted out nearly a foot in diameter. These also are useful in many ways. On the whole, it is a first-class plant for conservatory planting, or grown in pots, in which state it also has the happy character of flowering when very young. *Chevalier.*

Ageratums.—By far the finest variety of this I have seen was at Newbattle Abbey, Dalkeith, forming the second-row plant in a lengthy ribbon border in the kitchen garden. In point of habit this was intermediate between Tom Thumb and Imperial Dwarf; it was of a bold habit, yet compact and regular, without the slightest symptom of losing its density of growth, which is the general objection to and characteristic of the general types of this class of plants. Altogether I consider this strain to be unrivalled for profusion of bloom and regularity of growth. *G. W.*

The Beurré Clairgeau Pear.—I last year sent you a short account with photograph of a Beurré Clairgeau Pear tree growing at my place here [See p. 141, vol. i., 1875], and I venture to think its doings

is season may interest some of your readers who are nd of Pear culture. The tree was this year allowed bear forty-eight Pears, thus giving it plenty to do, it is only about 12 feet high by 6 feet wide. They ere gathered last week, and weighed 72½lb.; every ear was a picture, and the tree before they were cked an object of great beauty. I send you one them which unfortunately got injured during growth, that you can judge for yourself. I have other urré Clairgeaus growing close to this one, strong d healthy, but I have never succeeded in getting y fruit from them of remarkable size. Our show fruit was held last week, and as regards Pears was e largest collection we have seen here, but they were t so fine or so well coloured as last year. The 1st prize ty Chaumontels were an exception, as they were a autifully coloured and even lot, and weighed 55½lb. think many of the delicate varieties were injured by e cold bleak nights we experienced in May, June, d July. I have always noticed the Pears are finer d cleaner when we get warm weather during these ree months, even if it is dry, but this year it was th cold and dry, which I think accounts for the ss in size and beauty of the Pears this season. *ward Pond, The Vineries, Jersey, Oct.* 18. [The ecimen sent turned the scale at 1¾lb. EDS]

Reports of Societies.

Helensburgh and West of Scotland osarians' Society.—The first annual general eeting of this Society was held in the Town Hall, elensburgh, last week, at which there was a good endance of members—Bailie Stuart in the chair. ie Secretary being unable from ill-health to attend e meeting, the directors' report was read by Mr. lloway, and the treasurer's report submitted Mr. Ramsay, both of which were unanimously opted. From these reports it appears that the ciety is in a very flourishing condition, its first nibition having proved a great success. The ciety consists of 216 members. For the 102 prizes ered in July last, 209 competitors entered, their tries being divided thus: 167 for Rose blooms, e for Rose plants, seven for table decoration plants, d thirty for bouquets, being entries representing 90 specimens in all. The subscriptions to the funds the Society have been liberal, so that, notwithnding the unfavourable weather experienced at opening of the show, the treasurer's report ows a respectable surplus after defraying all penses. After the adoption of the reports, following office-bearers were elected :—Presint—Thomas Watson, Esq., Inchalloch; Vicesidents—John Stuart, Esq., Thistlebank, and A. rrick Robertson, Esq., Woodend; Secretary—hn Mitchell, Esq., Charing Cross; Treasurer—exander Barron, Esq., Gowanlea; Directors—ssrs. John Webster, George Galloway, William rlane, James Paton, James M. Ramsay, James lfer, Wm. Paterson, and Alexander M'Callum. e election of hon. president and two honorary e-presidents being vested in the directorate, se offices will be filled at the first meetof the directors. A recommendation to nge the name of the society to the West of otland Rosarians' Society was considered and opted. It was also decided that the exhibition of 76 should be held in Helensburgh, and the directors re instructed to fix the date. Votes of thanks re tendered to the retiring office-bearers and ectors, and after awarding the same compliment the Chairman the meeting separated. We trust t the spirit with which this Society has entered on its work will be amply rewarded, and that the w in 1876 may prove even a greater success than t of July last.

Law Notes.

SINGULAR ACTION ABOUT A PEAR TREE.—*lden* v. *Butes*.—In this action, brought in the reditch County Court on the 15th inst., before B. Dasent, Esq., Judge, the plaintiff, residing at Hermitage, Shacklewell Green, sought to recover n the defendant, a neighbour in Shacklewell Lane, sum of £2 under somewhat singular circumstances. e plaintiff stated that when she was from home on gust 10 the defendant plucked a quantity of fruit n her Pear tree, and also damaged the tree, which nage she estimated at 10*s*., and the value of the t at 30*s*., which amounts were stated on the parlars of claim. On August 12 plaintiff saw defendant's wife and daughter knock off a quanof Pears with a stick. In answer to the learned ge the plaintiff said that the Pear tree overhung defendant's garden. The plaintiff, in continua-, said she remonstrated with the defendant, who laughed at her. The plaintiff subsequently obed assistance to gather in the Pears, and, when g so, the defendant's wife with a hooked stick k the tree, and breaking one of the boughs ed a quantity of Pears to fall into the defendant's garden, as well as into the garden of a neighbouring public-house. In answer to the Judge the plaintiff said the stem of the tree was in her garden, but the boughs overhung the defendant's garden as well as the public-house one, the visitors to which were continually robbing her of the Pears. The plaintiff stated she had two years' occupancy of the garden, and paid a weekly rent for it. This was the plaintiff's case. The defendant stated that the house in question was formerly a large mansion, but was latterly let out in tenements, and that the garden in which the plaintiff's tree stood was only separated by a narrow fence: the various tenants had hitherto been in the habit of dividing the fruit amongst them, to which arrangement the plaintiff, when she took the premises, said she did not object. The defence being concluded, the learned Judge considered that the plaintiff had only a weekly interest in the tree, and was liable to a notice to quit at any time, and, as the plaintiff did not see the defendant break the tree, she had failed to establish that part of her case. There could be no doubt that the fruit on the tree clearly belonged to the plaintiff, but she could not gather the fruit overhanging the defendant's garden without being liable to an action for trespass; while, on the other hand, the plaintiff had no right to allow the boughs to overhang the defendant's garden so as to cause an obstruction to the light and air, and the defendant had every right to have cut off every branch which grew over his garden. As, however, the fruit indisputably belonged to the plaintiff, he (the learned Judge) decided that the defendant must pay 2*s*. 6*d*. for the Pears he had taken.—Judgment was entered for 2*s*. 6*d*. in favour of the plaintiff, with costs.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, OCT. 20, 1875.

MONTH AND DAY.	BAROMETER. Mean Reading Reduced to 32° Fahr.	BAROMETER. Departure from Average of 18 Years.	TEMPERATURE OF THE AIR. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	WIND. Average Direction.	RAINFALL.
Oct.	In.	In.	°	°	°	°	°	°			In.
14	29 07	−0.63	50.9	39.7	11.2	44.5	− 5.9	41.9	91	E.: N.E.	0.14
15	29 37	−0.33	54.8	41.8	13 0	47.5	− 2.7	43.1	86	N.: N.E.	0.01
16	29 55	−0.15	56.5	41.0	15 5	47.0	− 3.0	42.8	86	N.W.: WNW	0.00
17	29.65	−0.05	61.0	38.0	23.0	50.6	+ 0.8	40.2	68	S.E.	0.00
18	29.62	−0.09	62.5	42.9	19.6	50.2	+ 0.5	46.3	87	NE: E: E.S.E.	0.00
19	29.53	−0.17	52.9	44.9	8.0	47.7	− 1.8	45.6	93	E.S.E.: E.	0.55
20	29.28	−0.43	53.4	45.8	7.6	48.6	− 0.7	47.3	96	E.S.E.: S.E.	0.76
Mean	29.44	−0.26	56.0	42.0	14.0	48.0	− 1 8	43.9	87	E.	sum 1.46

Oct. 14.—A dull, cold, wet day.
— 15.—Slight rain in early morning. Fine from 10 A.M. to 3 P.M. Overcast, and dull after.
— 16.—A fine, but dull and gloomy day.
— 17.—A fine bright clear day.
— 18.—A fine morning, dull and cloudy afterwards.
— 19.—Overcast, and dull throughout. Heavy rain fell in the morning, and rain fell generally over the country on this day, and at many places very continuously.
— 20.—Overcast, dull, and wet throughout the day.

—— During the week ending Saturday, Oct. 16, in the vicinity of London the reading of the barometer at the level of the sea increased from 29.82 inches at the beginning of the week to 29 95 inches by the morning of the 10th, decreased to 29.27 inches by the afternoon of the 11th, increased to 29 44 inches by the evening of the 12th, decreased to 29.18 inches by the afternoon of the 14th, increased to 29.79 inches by the end of the week. The mean reading for the week was 29.47 inches, being 0.56 inch lower than that of the preceding week, and 0.42 inch below the average.

The highest temperatures of the air at 4 feet above the ground ranged from 59¾° on the 11th to 51° on the 14th; the mean value for the week was 55½°. The lowest temperatures of the air varied between 42° on the 11th and 35½° both on the 12th and 13th, the latter being the lowest night temperature recorded since April 25, when the value was 30°; the mean for the week was 39½°. The mean daily range of temperature in the week was 16°, the greatest range in the day being 20¼°, on the 12th, and the least 11¼°, on the 14th.

The mean daily temperatures of the air were as follows:—10th, 46°.7; 11th, 49°.8; 12th, 44°; 13th, 44°; 14th, 44°.5; 15th, 47°.5; 16th, 47°; and the departures in defect of their respective averages being 4°.9, 1°.5, 7°, 6°.7, 5°.9, 2°.7, 3°. The mean temperature for the week was 46¼°, being 4½° lower than the average of sixty years' observations. The highest reading of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, was 118° on the 10th; the mean for week was 86°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 33° and 34° on the 12th and 13th; the mean for the seven low readings was 37¼°.

The direction of the wind was S.W. and W., and gentle in motion.

The weather during the week was somewhat fine, but cold and wet; and the sky was generally cloudy.

Rain fell on five days, the amount collected was 0.51 inch.

In England the highest day temperature of the air, at the height of 4 feet above the ground, was 60° at Truro, at Bradford the highest temperature in the week was 52°; the mean value from all stations was 55½°. The lowest night temperature of the air was at Cambridge, 27½°, at Truro the lowest temperature was 38°; the mean from all stations was 32°. The greatest range of temperature in the week was 31¾° at Cambridge, and the least 17½°, at Liverpool; the mean from all stations was 23¾°. The mean of the seven high day temperatures was the greatest at Truro, 56½°, and the least at Bradford, 50½°, the average value from all stations was 53°. The mean of the seven low night temperatures was the largest at Truro, 44°, and the smallest at Manchester, 33¾°; the general mean from all stations was 38¼°. The mean daily range of temperature in the week from all stations was 14¾°, it was the largest at Manchester, 19½°, and the smallest at Liverpool, 10¼°.

The mean temperature of the air for the week was 44¾°, being 8½° lower than the value for the corresponding week in 1874. At Truro, the mean temperature of the week was the largest, viz., 49¼°, and at Wolverhampton and Manchester it was the smallest, viz., 42½° at both places.

Rain fell on every day in the week at Truro and Norwich, and on four or five days at most other stations; the heaviest were at Birmingham, 1.80 inch, and Truro and Nottingham, 1.50 inch; and the least were at London, 0.51 inch, and Sheffield, 0.66 inch: the general average fall over the country was 1.03 inch.

The weather during the week was tolerably fine, though cold and wet.

In Scotland the highest temperatures of the air ranged from 60° at Paisley to 50° at Glasgow. The lowest temperatures of the air varied between 35° at Greenock and 28° at Perth. The average of the former was 54¾°, and that of the latter was 31°. The mean range of temperature in the week was 23¾°. The mean temperature of the week was 45¼°, both at Dundee and Aberdeen; at Glasgow it was 42°; and the mean for the week from all stations was 44°, being 4½° lower than the value for the corresponding week in 1874. The heaviest fall of rain in the week was 2½ inches, at Dundee, and the least was half an inch, at Glasgow and Paisley. The average fall over the country was 1¼ inch nearly.

At Dublin the highest temperature was 57°, the lowest 30°, the mean 45°, and the fall of rain 0.38 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—*Bouvardias.*—Where a continuous supply of flowers is required for cutting, nothing can be grown that will surpass these. The compact, free, and persistent flowering varieties now in cultivation are so far superior to the straggling weak-growing sorts that existed some years back that they would scarcely be recognised as belonging to the same family. Of late years their requirements also have been so much better understood as to render them capable of producing flowers in far greater quantities. It is found that to induce them to produce their full complement of blooms through the winter they must be kept all during the cold season in a brisk heat, in which they go on making growth and bearing flowers. Plants that were struck as advised in the spring, and planted out in frames or pits in good soil, and a short time back transferred to 6 or 8-inch pots in loam well enriched with a liberal admixture of rotten dung and leaf soil, and are now placed in a temperature of 68° or 70° in the night, with a rise of 6° or 8° in the daytime, will soon be studded over with flowers, and keep on without intermission for months. They should be stood as near the glass as possible, which not only increases their disposition to bloom, but the flowers so produced have so much more substance as to last considerably longer, especially when cut, for which they are better adapted than most things. An application of manure-water once a week will also materially assist them. The most useful kinds are *B. Humboldtii corymbiflora*, which has large white flowers like a small Stepha-

notis: the bunches contain ten or twelve highly fragrant blooms; *B. Hogarthii* is a fine free-growing scarlet, a good contrast and suitable companion plant to the last; *B. jasminoides*, is a good grower and profuse flowerer; *B. Vreelandii*, dwarf, compact in habit, and an abundant bloomer. These Bouvardias have the good property of being equally suitable for large or small establishments, and deserve a place in even the most select collection of plants, requiring only to be better known and their cultivation understood to make them much more generally grown. In the winter time plenty of heat and light are the two indispensable elements they require; when only kept at an intermediate-house temperature through the winter, as they used often to be subject to, their flower-producing capabilities are never brought out.

The first potted *Roman Hyacinths* will now have made plenty of roots, and where required early in bloom should be placed in heat and close to the glass. There are few private places wherein exists a house so well adapted for winter flower forcing of small plants, such as the foregoing, as are to be met with in any of the innumerable flower-forcing establishments that supply the London market. These are cheap erections, span-roofed, about 12 feet wide, having a sunk narrow path down the centre, with raised beds on either side, so that the plants stand with their heads all but touching the roof-glass, the smallest growing things being put on raised shelves or inverted pots, so as to elevate them as much as possible. In such a situation not only do they get every ray of light, but the flowers, as they are developed, are continuously in a position wherein is a circulation of air, as there always is near the glass, which makes them robust and strong, and enables them to last longer.

Griffinia hyacinthina and *G. Blumenavia*.—These remarkably beautiful South American bulbous plants are amongst the very finest autumn blooming subjects we possess, opening their delicate blue and white striped flowers in succession for at least two months, and yet they are seldom met with. This may in some measure be accounted for by the directions given in some cultural treatises to dry the plants off whilst at rest, which directions, if carried out, are very likely to dry them out of existence, as they are evergreen bulbs, the soil of which should never be allowed to become quite dry. Now, whilst in flower, they should be kept in a temperature of 60° in the night, with the soil moderately moist.

Gesneras of the *zebrina* section, of which the beautiful *G. zebrina* is one of the best, must be well attended to with plenty of light, and not allowed to remain where the temperature will be too low, or they will fail to flower freely at the time they are required; if they are in small pots give them manure-water once a week.

Many of the summer-flowering plants in the stove will now show signs of completing their bloom, and at no time are evidences of the necessity for cultivating subjects with finely-coloured leaves more apparent; still more so by the deciduous things, such as *Caladiums*, being now upon the wane. The small-growing, fine-leaved plants that can be grown in little pots and stood about on the side shelves in numbers are now the most useful, such as the *Bertolonias*, *Fittonias*, *Peperomias*, *Tillandsias*, *Sonerilas*, smaller-growing *Marantas*, and others of moderate growth. Most of these occupy very little room, and their brilliant colours supply the place of flowers. Where there is a deficiency in the number of these, they may now with advantage be increased, as they can be propagated as well at the present time as in the spring, with the advantage of leaving the busy season clear for the many things that then require attention. *Bertolonias* strike freely from cuttings in sand, under a bell-glass, growing well in peat and sand, with a little leaf-soil. The following are deserving of a place in every stove: in the foremost rank stands the new *B. Van Houttei*, while *B. superbissima* and *B. splendens* are both indescribably beautiful. The *Fittonias* are of the easiest possible growth, succeeding in either peat or loam, providing it is made sufficiently porous to allow the water to pass freely off. They also make excellent basket plants for suspending; they will root in a few days under a bell-glass. *F. argyroneura* and *F. Verschaffeltii* are especially suitable for small pot culture. The quaint colouring of the *Peperomias* contrasts well with the bright markings of the above plants; if the crowns are divided and at once potted in sandy peat, in a few weeks they will root and become fully established. *P. argyræa* and *P. argentea* are both deserving of a place. *Tillandsia musaica*, *T. tessellata*, *T. sanguinolenta*, and *T. zebrina*, are all desirable plants, thriving well in fibrous sandy peat, in 6 or 8-inch pots. *Marantas*, of such kinds as *M. lineata alba*, *M. lineata rosea*, *M. regalis*, *M. fasciata*, and *M. Makoyana*, are all handsome, and not too large. Plants consisting of several crowns shaken out and divided, each crown retaining a portion of roots, placed in small pots and kept a little close, will soon get established, and make nice decorative subjects. These associated with such things as *Curculigo recurvata variegata*, *Aralia Guilfoylei*, in a small state, *A. Veitchii*, *Nidularium pictum*, *N. Innocentii* and *N. spectabile*, *Euphorbias* and *Poinsettias*, that will shortly come into flower, make a display equal to, and even more interesting than produced in summer by the larger plants then in bloom. *T. Baines.*

FRUIT HOUSES.

MELONS.—The Melon season may now be considered almost at an end, probably quite at an end as regards small gardens and amateur cultivators, for whom the remarks offered under this head from time to time are principally intended. We may, therefore, dispense with any further directions in this department for the present, after observing that the pits and frames should be turned to good account by way of wintering bedding stuff, salads, and the like. I have previously advised that to grow Melons thus late, plenty of both top and and bottom heat must be at command, and where this exists Melons will still form part of the dessert. Cease to apply any atmospheric moisture from this date, and also be very moderate in the application of water to the roots—a little once a week will now probably suffice. Cut out all superfluous laterals, and well thin out the old foliage, that the fruits may get the full benefit of what little ripening power the autumnal sun still possesses. Maintain a mean temperature of 74°, or thereabouts, and give a little air at the apex on every favourable opportunity. As fast as the last batch becomes cleared off, winter Cucumbers might occupy their places forthwith, observing the directions previously laid down. As opportunity offers, and if not already done, let the cultivator secure a goodly quantity of rather strong maiden loam, stack it up grass side downwards, and at the same time incorporate about a couple of bushels of quicklime with every cartload of loam. A fair proportion of well decomposed cow-dung might also be stacked in with it, and which will make an excellent compost ere it is wanted next spring. *T. Simpson*, *Chelmsford*, *October* 19.

VINES.—There are several good varieties of late Grapes, which, if more largely grown, would prevent the necessity for very early forcing, and yet have Grapes all the year round. The following are all good late kinds, only they must be ripened with fire-heat—cool vineries for such varieties are out of the question. I place them as to merit as follows:—Lady Downe's Seedling, the most valuable Grape yet raised: it is a sure bearer and keeper; we have had fruit of it quite plump and fresh to the end of May which were fully ripe in September of the previous year. As to quality it is unsurpassable as a late Grape, even at this early season (ripened in strong heat) it has the Muscat flavour. Gros Colman is destined to become as popular as the last-named. In appearance it is simply magnificent, sometimes having berries 4½ inches in circumference, and the bunches averaging 4 lb. weight. The bad name it has got as being coarse and second-rate in flavour is because the fruit has not been properly matured. It takes longer to ripen and colour than any Grape I know, but pays for all the time it takes. Trebbiano and Raisin de Calabre, are two white companions for the foregoing, and are the best of their class, large both in bunch and berry, splendid keepers, and when well done excellent in flavour. Black Alicante is an excellent keeper, and invariably finishes off well, and will ripen in a cooler temperature than any other late kind. West's St. Peter's is also an invaluable late Grape. My neighbour, Mr. Bell, of Strathfieldsaye, grows this variety splendidly; he has a house full of it, and never fails to keep it in fine condition till the month of April. Barbarossa [Gros Guillaume], though a shy fruiter when pruned and grown on the "spur" system, never fails to produce a full crop on the annual rod system; and though there is some difficulty in getting it to colour nicely, it is worthy of no mean place in the list of late Grapes. When the above varieties are not cultivated, or only on a limited scale, preparation must be made for early forcing. The Vines having been pruned, and the loose bark picked off, paint the rods with a solution of Gishurst Compound, or soft soap and sulphur, after which add fresh compost to the border, as directed in a former Calendar. Leaves and stable litter, three parts of the former to one of the latter, should be well mixed and placed on outside borders for warmth, previous to closing up the house. Syringe the rods twice daily, and force but gently till the Vines show signs of breaking. From young Vines that have completed their growth cut off a part of the laterals, to give light and air to the buds, and induce earlier ripening of both wood and roots. Pot Vines that are not intended to be forced early should be placed under cover; an open shed with a north aspect, and the roots protected by bracken or straw, is one of the best positions to retard growth—a proceeding often desirable, especially if the Vines are intended for late spring planting or fruiting. Keep a sharp look-out for decaying berries amongst ripe fruit—one bad berry soon spoils a large bunch; slight warmth in the pipes, when the atmosphere outside is charged with moisture, is at all times advisable. *W. Wildsmith*, *Heckfield.*

FIGS.—Those trees intended to be forced early in pots, if they have been placed in the open air to mature their wood, will now want to be taken under cover to keep them from the cold autumnal rains now due. Any thinning or pruning of the shoots, or top-dressing the surface of the pots, should now be done, so as to make the plants ready for forcing in November. The late trees permanently planted out in the borders will now be about shedding their leaves, and the houses will want shutting up in very wet weather, but all possible air must be given when it is fine, to harden and ripen the wood. Any planting of new varieties or making fresh borders should be done as soon as all the leaves are fallen, or when a surface-dressing only is required, on purpose that the roots may not be disturbed too much before forcing commences. The following new varieties of Figs have been grown by me this year, and I can highly recommend them for pot culture:—Bourjassotte Blanche, Negro Largo, Col de Signora Blanca, Lee's Vineyard, Œil de Perdrix, Grosse Violette de Bordeaux, and White Ischia. *William Tillery.*

KITCHEN GARDEN.

An indication of the weather that may now be expected has already occurred, and it should be a warning to be on the alert in regard to all tender subjects in this department, and not to postpone any precautionary means which may be required in the way of protecting or lifting those things which require it. If measures were taken to have a supply of *Lettuce* and *Endive* ready at the season for lifting, the operation should be delayed no longer, as the value of Lettuce, which is the constituent part of a good salad, is much deteriorated when the midribs of it are injured by frost. Where means are not provided solely for salading, a good supply of the subjects for the purpose may be maintained for a considerable period onwards by making a late Peach-house or similar structure available. Here, without any interference with the border, numbers may be packed in beds when lifted with a small ball of earth attached to each, and will, with ordinary attention to ventilation, &c., keep in excellent condition a long time. *Beet* is also impatient of frost; it should be taken up at once In lifting and trimming care is necessary to avoid damage, otherwise the colour, which is an important point in this esculent, will be reduced. To preserve it in a fresh and solid state until the next year's supply is fit for use, our experience justifies recommending the plan of putting it below the surface of the soil in a cold and sunless place, and covering it with a little straw, and then soiling it over entirely. *Celery*, another important edible for winter use, will at this season, if left too much exposed, sustain material damage, therefore allow no favourable opportunity to pass without giving it the requisite attention. Roots of *Carrots*, *Salsify*, *Scorzonera*, and a portion of the *Parsnips*, should now be taken up and stored for winter use; avoid trimming these too hard, or placing them in large stacks, or fermentation will ensue and destroy many of them. They are best put up into narrow stalks in a cold moist place, with a layer of sand on the surface. Complete the planting out of *Lettuce*, *Endive*, and *Cabbage* as soon as possible, and finish pricking out from seed-beds *Cauliflower* plants; some of these should be placed at the base of a south wall; in ordinary seasons they will in that position withstand frost, and be well inured for planting out early in the spring. While open weather continues fully expose *Cauliflowers*, *Lettuce*, *Endive*, and *Radishes* in frames, and be wary of the early frosts, as these are most hurtful to vegetation. Generally remove all decayed and ripened leaves from about crops of *Broccoli* and *Winter Greens*, so as to expose and harden them as much as possible.

FORCING DEPARTMENT.—Pits or houses which contain late crops of *French Beans* will require considerable attention to prevent them damping off. Keep the temperature from 65° to 70°, with a chink of air on constantly. Make successional sowings in 8-inch pots, using moderately light and rich soil for them at this season, and commence periodical sowings of *Mustard* and *Cress*. *Geo. Thos. Miles*, *Wycombe Abbey.*

Obituary.

THE news of the death of SIGISMUND RUCKER, Esq., at the age of 66, which took place at his residence, West Hill, Wandsworth, on the 19th inst., will be received with sincere regret by all true horticulturists throughout the kingdom. Mr. Rucker has occupied the foremost rank as an amateur for a period extending over some forty years, and was amongst the exhibitors on the occasion of the introduction of the very successful flower show at Chiswick, and continued to exhibit as long as the Society held shows at these gardens.

Mr. Rucker's collection of Orchids at this early period was unrivalled; and the plants were always

notable for the freshness and beauty of their foliage and flowers. He succeeded for a considerable number of years in carrying off the first prizes for the largest collection of Orchids in flower, and on many occasions has contributed three vanloads of Orchids for this class alone, and this at a time when Orchid collections were rare.

The collections of Messrs. Loddiges, Rollisson, Knight, Low, and later on the Messrs. Veitch, of Exeter, were constantly visited, and every new plant of merit was added to Mr. Rucker's already unrivalled collection. When Mr. Skinner introduced so many fine Orchids from Mexico and Guatemala, which were usually sold at Mr. Stevens' rooms, Mr. Rucker, or his gardener, Mr. John Mylam, was always to be seen; and it was well known that the best things would invariably be purchased for the Wandsworth collection. A keen competition once occurred between Mrs. Lawrence, of Ealing, and Mr. Rucker for a large mass of Barkeria spectabilis, and after a bid of, we believe, 80 guineas, it was purchased by him, but under an arrangement that Mrs. Lawrence should have half of it, she being the principal opponent of Mr. Rucker at the Chiswick shows.

About the year 1844 or 1845 Mr. Rucker commenced growing hard-wooded plants, principally Heaths, in which he was eminently successful. He had also a very fine collection of Camellias and Azaleas, all of which were grown to perfection. In fact whatever was attempted in the garden at West Hill was carried out successfully. Gleichenias and the filmy Ferns were special favourites of his, and many splendid plants are to be found in his collection. A short time ago, when the collection had grown so large as to fill seven or eight houses, Mr. Rucker's health became impaired through his remaining so long in the heated atmosphere, and he made up his mind to part with them; eventually they were purchased by Messrs. Veitch & Sons, who, after selecting some of the best for their collection, sold the remainder at Messrs. Stevens', the sale occupying four days. Every one supposed Mr. Rucker had then entirely given up the culture of his favourite plants, but to their surprise he commenced purchasing with a vigour which soon re-filled several of the houses which had been so recently denuded, and he had at the time of his decease almost as large a number of plants as ever.

Mr. Rucker was so well versed in Orchid lore that he knew when most of the plants were introduced, by whom purchased, when flowered, and where figured; in fact, every scrap of information that was interesting or useful he carefully treasured up in his memory, and which he readily communicated to every one he came in contact with who, like himself, was a lover of his pet plants. By nurserymen he has been often called the prince of gardeners, for he seldom visited the nurseries without purchasing something, and often largely. Mr. Rucker has more than once had a seat at the Council board of the Royal Horticultural Society, and was, until recently, one of the members of that body. He was as well-known and as much respected in the provinces as in London, and when the Society visited Bath in 1873 one of the gravest charges against the Council was that they had put off Mr. Rucker, who, as the objectors inferred, was the only horticultural member upon it.

Mr. Rucker was remarkably liberal in distributing to others those objects that gave him so much pleasure, and was always ready to divide a plant with his friends, providing it could be done with safety.

A correspondent writes of Mr. Rucker's death as follows:—"A noble branch of the great horticultural tree has fallen—Mr. Rucker, of Wandsworth, died on the 19th inst. Foremost for more than forty years in all that was great and successful in Orchid cultivation, his was not mere money gardening. No expense was spared in keeping up his collection, and his tact and temper always secured him the aid of first-class headgardeners, but he was his own chief gardener. Those who have been privileged to accompany him in his evening inspection of his plants, by lantern-light, know how thoroughly and intimately he knew them all. His garden, always open to those who studied or valued plants, has taught many most valuable lessons; his death leaves a blank no living Orchidist can fill. In private life the charms of his conversation, assisted by his wonderful memory and quickness of thought, his unvarying kindness of disposition, and quiet and unostentatious readiness to help with kind offices or charity, made him beloved alike by rich and poor." *G. F. W.*

—— We have to record the death of Mr. William Willison, of the Rose Nursery, Whitby, Yorkshire, which took place on the 16th inst. Mr. Willison has always been known as a great lover of plants and of flowers, and so long since as 1836 communicated some remarks on a remarkable seedling Dahlia to the *Floricultural Magazine*; he was also a cultivator of Roses, and a close observer, too, for in 1838 we find him writing to the same publication as follows:—

"Having a good variety [of Moss Roses], and also a good stock of many of them, I began to observe on some a phenomenon which seemed very strange. . . . The first thing which struck my attention was a shoot of the White Moss, with some of the flower-buds as free from moss or any bristly appearance as the common Provence; others, again, in the crested variety, mossed down one side of the bud, having the other smooth. I took off nearly the whole of this shoot, and having budded it on a few stocks which took very well, two of them flowered the following season: the one was quite free from moss every way, while the other differed in no way from the White Moss; the rest of them have this year flowered, and they are in the same way part of them mossed and part not; I also find that the plants which bloomed last season are blooming just the same this, those which were mossed last year also mossed this, and so in respect to the smooth kinds. The next thing I observed was the colour of one cluster of Roses on the old White Moss, which were nearly all red; the account I had heard respecting the origin of the White Moss occurred to my mind, and the circumstances which I have just related appeared to confirm this opinion. I therefore resolved on proving this shoot, and last year one of the plants raised from a bud of the shoot in question produced white flowers, which again led me to doubt the stability of varieties thus obtained. To my great satisfaction I find that this year the rest of the plants raised from this shoot are entirely red, differing only, as far as I can see, from the old Red Moss, by being somewhat less mossed, as is the case with the white variety. This season has furnished me with another of these singular sports, on a plant of the White Perpetual Moss, which is entirely free from moss both in leaf and flower; and, what is still more singular, instead of the flowers being white as in the rest of the plant, and on all the other plants, except now and then a stripe of pink, they are entirely red. This last mentioned sport has given me an idea, which to some may seem wild, still, I cannot help entertaining it, which is, that many of the new kinds of Moss, and other sorts, are only sported shoots of old varieties."

Of late years he had been a successful collector of new forms of British Ferns, some interesting acquisitions having been gathered and others raised by him. Amongst the more recent results of his skill in hybridising are the Clematis Willisoni and the hybrid Spiræas to which we referred some few months since. He had nearly reached the alloted "threescore years and ten," his age being sixty-nine.

—— The death is announced of Mr. W. S. Ginger, of Clarence Lodge, Shirley, Southampton, who expired on the 7th inst., at the age of 73. Many years since, when the Royal Horticultural Society was located at Chiswick, Mr. Ginger, who then resided near London, was a frequent exhibitor at its shows, as he was a successful amateur cultivator of the Auricula, Polyanthus, and other old florists' flowers. Since his residence at Shirley he has been a liberal supporter of the local horticultural societies, and his plants at all times occupied forward places at the exhibitions. Horticulture has lost by his death a generous friend, and his gardener a kind and liberal employer.

—— Mr. Thomas Appleby died on the 20th inst., at Park Avenue, Longsight, Manchester, at the advanced age of 80. He was at one time prominent in the world of horticulture. Some forty years since or more he was gardener to T. Brocklehurst, Esq., of The Fence, Macclesfield, where Orchids were successfully grown. Subsequently Mr. Appleby was manager of the Pine-apple Nursery, while in the hands of Mr. Arthur Henderson; and he was for many years a regular contributor to the *Journal of Horticulture*. A series of papers on Orchid culture printed therein were afterwards published separately under the title of the *Orchid Manual*. Mr. Appleby was in his day a good practical gardener, and a successful plant cultivator.

Answers to Correspondents.

Gardening Instruction: *A Young Beginner.* Read Paxton's *Cottagers' Calendar.*

Mosses: *E. C. Baines.* 1, Bryum albicans; 2, Rhacomitrium heterostichum; 3, Hypnum plumosum; 4, H. commutatum β.; 5, 6, 7, H. cupressiforme. Mosses not being garden plants, we do not, as a rule, undertake to name them.

Names of Fruit: *T. Twyman.* White Grape, Royal Muscadine; black Grape, Black Prince. Plum, Impératrice. The Tomato is not new, and commonly called the Cherry-fruited red.—*C. D. Smith.* 1, M, Marie Louise d'Uccle; 2, B, Beurré de Capiaumont; 3, B, Althorp Crassane; 4, K, Gloria Mundi; 4, K K, Bedfordshire Foundling; 4, K K K, Lord Suffield; 5, Beurré Diel.—*Francis Ram. Apples:* The large one is Blenheim Pippin, the small one Early Nonpareil. *Pear:* Seckle.—*Clover.* 1, Tardiff de Mons; 2, Brown Beurré; 3, Bezi de la Motte; 4, Very imperfect, probably Beurré Clairgeau; 5, Beurré Langelier; 6, Easter Beurré; 7, Marie Louise d'Uccle; A, Dredge's Fame; B, Wellington; C, Nottingham Pippin; D, Margil; E, Cellini.—*D. C.* Only one sent. *Pear:* Triomphe de Jodoigne.—*A. F. Apple:* Striped Monstrous Reinette. *Pear:* Reine des Poires.—*R. Cowan.* 1, Glou Morceau; 2, Louise Bonne of Jersey; 3, Passe Colmar; 4, Hawthornden; 5, 6, Green Reinette.—*A. J., Ballycury. Large Apple:* Dutch Codlin. *Small Apple:* Barchard's Seedling.

Names of Plants: *R. H. E.* Coronilla Emerus.—*A Subscriber from the First* will please use initials another time, to save confusion. 1, Pyrus Aria; 2, Mespilus grandiflora; 3, Crataegus melanocarpa; 4, C. coccinea.—*N. M.* The Fern is Polypodium ornatum and the Aroid Colocasia antiquorum.—*W. Wilson.* The plant with spines is Hygrophila longifolia, the other we cannot name without flowers.—*J. R. Haig.* Ceanothus azureus. Try placing cuttings of the young wood in sand, under a bell-glass, and in a little heat.—*Fogylone.* Instead of Lilybum marianum as printed at p. 500, read Silybum marianum.—*Cor., Crawley.* The Scarborough Lily, Vallota purpurea—Amaryllis purpurea.—*T. S. P.* Phytolacca acinosa. None of the Phytollaccas are poisonous, so far as we know.—*J. K.* Coccoloba platyclada.—*G. T. B.* The water weed is Myriophyllum spicatum, which is difficult to eradicate.

Viola: *J. C.* The Viola, a deep concolorous purple, appears darker and richer than those usually grown, and is highly promising. You should send it to Chiswick for trial. The Primula, though with more yellow than usual in the eye, is in other respects very poor and weedy; by growing it on and seeding it, you may, however, obtain improvements.

☞ Foreign Subscribers.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

Catalogues Received.—J. B. A. Deleuil (au haut de la Rue Paradis, Marseilles), Catalogue of Amaryllis, Begonias, Echeverias, Yuccas, &c.—Edmund P. Dixon (The Nurseries, Sculcoates, Hull), Catalogue of Roses, Fruit and Ornamental Trees, Stove and Greenhouse Plants; also Catalogue of Select Bulbous Roots, &c.—André Leroy (Angers, Maine-et-Loire, France), Descriptive Catalogue of Fruit and Ornamental Trees, Plants, &c.—A. M. C. Jongkindt Coninck (Tottenham Nurseries, Dedemsvaart, near Zwolle, Holland), Wholesale Trade List of Fruit Trees and Roses.—Héméray-Gauguin et Fils (Rue Guignegault, 15, Orleans), Catalogue of Fruit Trees, Plants, &c.—J. C. Wheeler & Sons (Kingsholm Nursery, Gloucester), Autumn Catalogue of Fruit Trees, Roses, Ornamental and Forest Trees, Flower Roots, &c.—John Clasper (Old Kiln, Stevenston), List of New Gladiolus, &c.—Wm. Drummond & Sons (Stirling, and 58, Dawson Street, Dublin), Catalogue of Forest, Ornamental, and Fruit Trees, Roses, Shrubs, Conifers, &c.

Communications Received:—T. S. D.—H. & Son.—A F.—C. W. N.—F.—C. D. S. (thanks).—J. M. G.—W. Bishop (next week).—J. W. (next week).—B.—P. L. S.—J. F. R.—W. B. H.—J. J.—J. S.—T. H. G.—A. B.—T. Kettle.—W. W.—G. S.—W. H.

DIED, October 19, at the Nursery, Chepstow, very suddenly, John Pillinger, aged 69 years.

Markets.

COVENT GARDEN, October 21.

There is no change to report since last week, markets being heavy, and very little business doing. Foreign fruits consist of French Pears, Dutch Grapes and Peaches, Spanish Melons, and large quantities of Almeira Grapes. *James Webber, Wholesale Apple Market.*

Fruit.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 6	Oranges, p. 100	20 0	..
Cobbs and Filbts., lb.	0 6	0 9	Peaches, per doz.	2 6	12 0
Damsons, per bushel	2 0	4 0	Pears, per doz.	1 0	4 0
Figs, per doz.	0 9	3 0	Pine-apples, p. lb.	4 0	7 0
Grapes, per lb.	0 9	5 0	Plums, per bushel	2 0	6 0
Lemons, per 100	8 0	12 0	— per punnet	0 6	1 6
Melons, each	2 0	5 0	Walnuts, p. bush.	8 0	12 0

Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Horse Radish, p. bun.	3 0	5 0
— Jerusalem, p. lb.	0 3	..	Leeks, per bunch	0 2	0 4
Beans, French, per bushel	6 0	..	Lettuces, per score	2 0	..
— Scarlet Run., do.	5 0	..	Mint, per bundle	0 4	..
Beet, per doz.	1 0	2 0	Mushrooms, per pott.	1 0	2 0
Brussels Sprouts, lb.	0 4	..	Onions, young, bun.	0 4	0 6
Cabbages, per doz.	1 0	2 0	Parsley, per bunch	0 4	..
Carrots, do.	0 6	..	Radishes, per bunch.	0 2	0 4
Cauliflowers, p. doz.	4 0	..	— Spanish, doz.	1 0	..
Celery, per bundle	1 6	2 0	Salsafy, per bundle	0 9	..
Cucumbers, each	0 3	0 9	Seakale, per punnet	3 6	..
Endive, per doz.	1 0	2 0	Shallots, per lb.	0 3	..
— Batavian, p. doz.	2 0	3 0	Tomatos, per doz.	1 0	2 0
Herbs, per bunch	0 2	0 4	Turnips, per bundle.	0 4	..
			Veg. Marrows, doz.	1 0	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Camellias	4 0	12 0	Pelargoniums, 12 spr.	1 0	2 0
Carnations, 12 blooms	1 6	4 0	— Zonal, do.	0 4	1 0
Cornflower, p. doz. bun.	3 0	6 0	Primula, dbl., p. bun.	1 0	1 6
Cyclamen, 12 blooms	0 3	0 6	Roses, indoor, p. doz.	2 0	6 0
Epiphyllum, p. doz.	1 0	3 0	— outdoor, 12 bun.	9 0	12 0
Eucharis, per doz.	4 0	9 0	Spiræa, 12 sprays	1 0	3 0
Gardenia, per doz.	2 0	6 0	Stephanotis, 12 sprays	4 0	9 0
Heliotropes, 12 spr.	0 6	1 0	Tuberoses, per doz.	2 0	4 0
Mignonette, 12 bun.	3 0	6 0	Violets, 12 bunches	1 0	3 0
Myosotis, per bunch	0 4	0 9			

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6	0–12 0	Heliotrope, per doz.	3	0–12 0
Bouvardias, do.	12	0–18 0	Lilium auratum	12	0–36 0
Chrysanthemum, do.	4	0– 9 0	Mignonette, do.	3	0– 6 0
Coleus, do.	4	0– 6 0	Myrtles do.	3	0– 9 0
Cyclamen, do.	12	0–24 0	Pelargoniums, dble., per doz.	4	0–12 0
Cyperus, do.	6	0–12 0	— Scarlet, do.	3	0– 9 0
Dracæna terminalis	30	0–60 0	Primula sinensis, do.	4	0–12 0
— viridis, per doz.	12	0–24 0	Solanums, do.	6	0–24 0
Ficus elastica	1	6– 7 6	Veronica, do.	4	0–12 0
Fuchsia, per doz.	3	0–18 0			
Heaths, in var., doz.	12	0–30 0			

SEEDS.

LONDON: *Oct.* 21. — Nothing of importance has occurred since our last in the agricultural seed trade. For red Clovers a little more inquiry has manifested itself, but as yet there has been an absence of the speculation which often springs up during the autumn months. Trefoils also exhibit no movement. Holders of Alsike and white Clover are firm in their demands, owing to the unfavourable reports of the new crops. Of winter Tares the supply seems nearly exhausted; as the season advances the demand of course diminishes. Small orders continue to drop in for Trifolium incarnatum. With regard to Canary seed, quotations keep steady at the late advance. America is still a competitor with this country for this article in the Dutch markets—the quantity of home-grown seed offering is small. Hemp seed is dearer. For white and brown Mustard the trade is slow. Feeding Linseed is obtainable on moderate terms. Owing to its scarcity fine Rape seed is higher. Blue boiling Peas are in active request. Other articles, in the dearth of transactions, offer no subject for remark. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the business transacted was unimportant. The tone was nevertheless firm, and the better qualities of Wheat realised an advance of 1*s.* per quarter. Barley was held for the extreme rates of last Monday, and rather more inquiry was apparent for choice malting samples. Malt was without alteration. Sound Oats were 6*d.* per quarter better on the week, but inferior corn was dull. Maize had a slight upward tendency. Beans and Peas met with a slow sale, and the quotations for both were about supported. American barrel flour was somewhat dearer than last week, but there was no improvement in other kinds.—The Wheat on offer on Wednesday was somewhat affected by the weather, and fine dry samples were therefore not readily disposed of at the advance of Monday. Barley was in moderate supply, and good malting qualities had an upward tendency. Malt remained without change; and full rates were given for Oats, Maize, Beans, and Peas. Flour was firm on former terms.

CATTLE.

At Copenhagen Fields on Monday there was a fair supply of beasts, but very few of choicest qualities, consequently prices continued high for them. There was a fair demand for all kinds, and a good clearance was effected. The number of sheep was unusually small, yet trade was slow; prices, however, were better on the average. Good calves were in demand at higher rates. Quotations:—Beasts, 4*s.* to 5*s.*, and 5*s.* 8*d.* to 6*s.* 4*d.*; calves, 4*s.* 8*d.* to 6*s.* 8*d.*; sheep, 5*s.* 6*d.* to 6*s.*, and 6*s.* 8*d.* to 7*s.* 2*d.*; pigs, 4*s.* 6*s.* to 5*s.* 6*d.*—The supply of choice English beasts at market on Thursday was short, and prices were but little under those of Monday, but on the average quotations were with difficulty obtained (4*s.* to 5*s.*, and 5*s.* 6*d.* to 6*s.*). Trade in sheep was dull, and previous quotations were scarcely realised. Calves remain unaltered, and for milch cows trade is reported better.

HAY.

At the Whitechapel market trade was affected by the weather, and prices were slightly easier, notwithstanding a very moderate supply. Prime Clover made 100*s.* to 154*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 134*s.*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 50*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 132*s.* to 140*s.*; inferior, 90*s.* to 115*s.*; superior Clover, 150*s.* to 160*s.*; inferior, 110*s.* to 130*s.*; and straw, 45*s.* to 50*s.* per load.

POTATOS.

At the Borough and Spitalfields market arrivals from abroad have fallen off, and home-grown supplies come forward sparingly. A fair demand prevails, and the markets are very firm. Quotations:—English Regents, 100*s.* to 120*s.*; Rocks, 80*s.* to 90*s.*; Middlings, 50*s.* to 60*s.*; Chats, 30*s.* to 35*s.* per ton.—The imports of foreign Potatos into London last week consisted of 5205 bags from Antwerp; 51 tons, 349 bags, and 6928 sacks from Dunkirk; 95 tons, 2251 bags, and 5 baskets from Rotterdam; 195 tons and 7360 bags from Harlingen; 258 bags from Brussels; 141 sacks from Boulogne; 35 tons from Jersey; 20 bags from Terneuzen; 10 bags from Bremen; and 4 casks from Hamburg.

COALS.

In the market on Monday "best" house coals were sold at a rise of 6*d.* per ton, and "seconds" advanced 1*s.* per ton. On Wednesday there was a small supply at market, and the price further advanced 1*s.* per ton. Quotations:—Walls Ends—Haswell, 27*s.*; Hetton, 27*s.*; East Hartlepool, 26*s.* 9*d.*; Original Hartlepool, 27*s.*

To the Trade.—Seed Potatos.

H. AND F. SHARPE are prepared to make Special Offers of SEED POTATOS grown on their own Farms from the finest selected stocks. Their List this season comprises all the English and American varieties worthy of cultivation. The prices will be found very moderate.
Seed-growing Establishment, Wisbech.

To the Trade.—Lilium eximium.

MR. MYATT has still a few thousand second size BULBS of this LILY, for which he solicits offers for not less than 1000; or will EXCHANGE for good varieties of ROSES, or best sorts of PHLOX, PENTSTEMON, or TREE CARNATION (White and Scarlet). Also a few first size Flowering Bulbs, for which he will receive orders to the 25th inst., after which time they will be replanted.
Manor Farm, Lewisham Road, New Cross, S.E.

Vines, Vines, Vines.

B. S. WILLIAMS begs to announce that his stock of VINES is now in fine condition, and ready for sending out. It comprises all the leading kinds, strong Canes of Pearson's Golden Queen.
For prices and description see BULB CATALOGUE.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.
Carlton, Tasmania.

Mulberries.—Important to the Trade.

SALTMARSH AND SON'S stock of the above consists of several thousand fine, healthy, well-grown Standards of various sizes, and may fairly be said to be unsurpassed, if equalled, in the Trade, The system adopted in their cultivation prevents the ugly knotty stems so frequently seen. Prices per dozen or per 100 on application.
N.B.—A few fruit-bearing trees with good heads can be supplied. The Nurseries, Chelmsford, Essex.

THE NEW PLANT AND BULB COMPANY beg to call attention to their unrivalled collection of LILIUMS, the present being a most suitable time for planting. Their Bulbs are this season remarkably fine.
For further particulars see CATALOGUE, sent free on application, which also contains Bulbs of all kinds, rare Terrestrial Orchids, and other plants from North America; Tropical Orchids, Tree and other Ferns, all at very low prices.
Lion Walk, Colchester.

Dutch **Bulbs.**

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other DUTCH ROOTS, in fine condition. Early orders are requested. CATALOGUES free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

LAURUSTINUS FOR SALE.
Apply to
WM. TRESEDER, Nurseryman, Cardiff.
Well-grown and recently transplanted, in large quantities.
Good Plants, 9 in. to 1¼ foot, 8*s.* per 100, sample doz. 1*s.* 3*d.*
Bushy Plants, 1 to 1½ foot, 12*s.* 6*d.* per 100, sample doz. 2*s.*
Very good, 1-yr. older, 20*s.* per 100, sample doz. 2*s.* 9*d.*
Large and good bushes, two and three times transplanted, 40*s.* per 100, sample doz. 6*s.*
Extra large, well-furnished plants, 2 to 3 feet, 50*s.* per 100, sample doz. 7*s.*
Post Office Order or Stamps must accompany order for sample dozen. Sample dozen will be carefully packed gratis.

LARCH—150,000, 1½ to 4½ feet; 100,000 strong and extra strong QUICK; 60,000 ASH, from 2 to 4 feet; 10,000 strong LAURELS and PRIVET; 10,000 specimen CONIFERS and other Trees, suitable for ornamental planting, from 1*s.* to 30*s.* each. Fine SPRUCE and SCOTCH FIR, from 5 to 10 feet; pyramid and bushy YEWS; strong STANDARD ORNAMENTAL TREES, in variety; IVIES, in pots (strong), &c. LIST, &c., upon application to
W. GROVE, Tupsley, Hereford.

Rhubarb Roots.

W. FROMOW, having lately taken some ground of a Market Gardener, has a large quantity of extra strong Roots of LINNÆUS to Dispose of, the ground being wanted for nursery stock. Excellent for forcing. Price to Trade and others on application. Low price for quantity.
Sutton Court Nursery, Turnham Green, W.

New Pelargoniums Raised by Mr. George.

GEORGE SMITH has now a Good Stock of the beautiful HYBRIDS and ZONALS to offer; the Stock last Spring was was very limited and all orders could not be supplied. G. S. having since flowered them recommends them with confidence, as distinct and desirable varieties to add to the choicest collections. The set of nine now ready, in good plants, for 13*s.*
SIR GARNET WOLSELEY (H.N.), crimson upper petals, shaded purple, large bold flower of great substance and very large truss. Received a First-class Certificate, South Kensington, July 15, 1874.
GEORGE FREDERICK (Z.), orange-scarlet, large flower, extra fine form, zoned foliage.
BLACK PRINCE (H.N.), very deep glowing scarlet, very large truss, good habit and distinct.
CELEBRITY (Z.), lustrous orange-scarlet flowers, pip stout and circular, large showy trusses, plain foliage.
BELLE OF SURREY (H.N.), white, with large, distinct carmine centre, fine truss and distinct.
ROSE UNIQUE (H.N.), lively salmon-rose hue, flushed with orange, fine pip, noble truss.
ENCHANTRESS (H.N.), crimson, margined with deeper colour, flushed with purple, very fine bold truss and distinct.
PAR EXCELLENT (Z.), fine bright scarlet, white eye, large pip, very fine form, extra large bold truss.
NEMESIS (George Smith), nosegay, very brilliant scarlet, large pips, immense truss of compact form, and a grand flower for exhibition.
Tollington Nursery, Hornsey Road, Islington, London, N.

Gladioli.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), has the honour to inform his numerous Friends and the Public that he will be prepared to supply them, on and after November 15 next, at the lowest possible price, with all they may require in Gladioli.
NEW VARIETIES for 1875-76 (Souchet's):—

Amaranth	Leandre
Camille	Miriam
Christophe Colomb	Niobe
Esther	Phœnix
Fiammetta	Rosita
Hecla	Titania.

The Twelve Varieties for £3 12*s.*, carriage free to London.
CATALOGUES will be forwarded on application, about the end of October.

Gladioli.—New Roses.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), will place in commerce, in November next, the following magnificent ROSES, obtained by him from seed, and which gained a Silver-gilt Medal at the Paris Exposition in June:—
HYBRID PERPETUALS.

Abel Carrière	Guillaume Koëlle
Dingee Conard	L'Etincelante
Duchesse de Chartres	Mme. Grandin-Monville
Edmund Wood	Mme. Prosper Langier
Général de Cissey	Mdlle. Berthe-Sacavin
Général Duc d'Aumâle	Mdlle. Emilie Verdier.

The Twelve Varieties for £10 16*s.*, carriage free to London.
IMMENSE STOCK of GLADIOLI.
CATALOGUES of Gladioli and of all the New Roses may be had on application, about the end of October.

Roses, Camellias, Gladioli, and Pæonies, from Paris.

LÉVÊQUE AND SON, NURSERYMEN, 26, Rue du Liegat, Ivry-sur-Seine, Paris, beg to offer:—
ROSES, at per thousand, in beautiful and very strong Standards and Dwarfs of Perpetuals and Tea-scented varieties, and also on their own roots. Prices (low) sent on application.
CAMELLIAS, best sorts, splendid pyramids, from 12*s.* to 30*s.* each; small plants, 2*s.* 6*d.* to 6*s.* each.
GLADIOLI (named), very numerous, healthy and cheap.
,, seedlings, splendid and large stock; large flowering bulbs, 8*s.* per 100, and £3 per 1000.
PÆONIES, arborea and sinensis, low price, choice of the best sorts.
LISTS and prices on application.

Richmond Nurseries, Richmond, Surrey.

To GENTLEMEN, NURSERYMEN, LARGE CONTRACTORS, LANDSCAPE GARDENERS, and OTHERS.
G. AND W. STEELL beg to call the attention of all Planters to their very extensive and fine grown NURSERY STOCK, consisting of an excellent selection of Ornamental Evergreen and Deciduous Shrubs and Trees, Standard and Dwarf Rose Trees, Standard and Dwarf Variegated and Green Hollies of the newest and best varieties, Standard and Dwarf Fruit Trees, &c., which they can highly recommend for their fine growth and moving qualities.
N.B.—Where large quantities are required they can be supplied at very low prices.

Cranston's Nurseries.—Established 1785.

THE FOLLOWING CATALOGUES are now Published:—
Descriptive CATALOGUE of ROSES, 1875—1876.
Descriptive CATALOGUE of FRUIT TREES.
Descriptive CATALOGUE of CONIFER TREES and SHRUBS.
Descriptive CATALOGUE of BULBS.
Descriptive CATALOGUE of GREENHOUSE and HERBACEOUS PLANTS.
Descriptive CATALOGUE of SEEDS. Address,
CRANSTON AND MAYOS, King's Acre, near Hereford.

From Paris—New Roses for 1875-1876.

LÉVÊQUE AND SON, NURSERYMEN, 26, Rue du Liegat, Ivry-sur-Seine, near Paris, beg to announce that their LIST of NEW ROSES is now ready, and and will be sent immediately on application. They recommend particularly the following four sorts of their production:—H.P. Duc de Montpensier, H.P. Avocat Duvivier, H.P. Monseigneur Fournier, and a seedling of Cloth of Gold, Madame Miolan Carvalho, a deep yellow. Fifty other sorts of different growers are described in their List. On application they give confidential information. They give, as Discount, one plant or one sort over in each dozen ordered.

VINES, VINES, EPIPHYLLUMS, TREE CARNATIONS, and CYCLAMENS.
VINES.—Strong, well-ripened, and short-jointed fruiting and planting Canes of the following varieties, 2*s.* 6*d.* to 5*s.* each:—Buckland's Sweetwater, Black Hamburgh, Black Alicante, Foster's Seedling, Gros Colman, Lady Downe's, Muscat Hamburgh, Madresfield Court, Dr. Hogg, Mrs. Pince, Muscat of Alexandria, Seacliffe Black, Trentham Black, White Lady Downe's, West St. Peter's; a few of Waltham Cross, 7*s.* 6*d.* to 15*s.* each; Duke of Buccleuch, 7*s.* 6*d.* to 10*s.* 6*d.*
EPIPHYLLUMS. — Strong grafted plants, 6 to 15 inch stems, heads 6 to 9 inches in diameter, 9*s.* per dozen, 60*s.* per 100; larger plants, 12*s.* per dozen, 90*s.* per 100.
TREE CARNATIONS and CYCLAMENS, fine for this season's blooming, 9*s.* and 12*s.* per dozen, 70*s.* and 90*s.* per 100.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

AVENUE TREES.

	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 ,,
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 ,,
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 ,,
,, Scarlet, 10 to 14 feet high	8 to 10 ,,
,, Double, 10 to 14 feet high	8 to 10 ,,
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 ,,
ELMS, 15 to 18 feet	7 to 9 ,,

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots.
They are without doubt the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.
Knap Hill Nursery, Woking, Surrey.

PÉPINIÈRES—NURSERIES—BAUMSCHULEN.

(FORTY HECTARES.)

P. J. LOOYMANS ET FILS,

OUDENBOSCH (HOLLANDE),

October, 1875.

PRIX-COURANT sur demande.

CATALOGUE on application.

PREIS-VERZEICHNISS auf anfrage.

NEW PEAR—"LUCY GRIEVE."

E. G. HENDERSON & SON

Have much pleasure in offering this really fine Pear as a most valuable addition to its class of fruits for the dessert. A First-class Certificate was awarded to its merit by the Royal Horticultural Society, and the following description of it is given by Dr. Hogg in his recently published "Fruit Manual," a Coloured Illustration of which will be forwarded for six postage stamps; a double outline of the fruit, with Dr. Hogg's description, is also given in the "Gardeners' Year-Book" for 1874:—

LUCY GRIEVE.—"Fruit large, above the average, upwards of 3 inches long, and 2½ wide, oval in outline, combining the features of Glou Morçeau and Swan's Egg. Its complexion lemon-yellow, with a red blush towards the sun, and the whole surfaced with cinnamon-coloured russet dots. Flesh white, very tender and melting, very juicy, and richly flavoured. It is a delicious Pear, having the texture of flesh found in Marie Louise, and ripens in October."

10s. 6d. each. Pyramids, 21s.

The seed of this Pear was sown in a flower-pot by the daughter and only child of Mr. Peter Grieve, gardener at Culford Hall, near Bury St. Edmunds, who carefully tended the plants till they were large enough to be planted out, but ere the first of them bore fruit, in 1873, the little maid was in her grave. The first-class qualities of this fruit will perpetuate her name, and as a living record become at once a professional *souvenir* and "forget-me-not."

The wholesale trade firms upon E. G. HENDERSON & SON'S books have each had a Coloured Illustration sent, with a List of New and other Plants, specially priced for October and November. Any other Firm can have a copy of their Priced List sent free, and the Illustration also, for six stamps.

A NEW AUTUMN CATALOGUE

Of Miscellaneous Hardy and Exotic Bulbs, Roses, Fruit Trees, Spring-flowering Bedding Plants, &c., sent free on application.

THE WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

HORTICULTURE IN ALL ITS BRANCHES.

THE PINE-APPLE NURSERY COMPANY,

MAIDA VALE, EDGWARE ROAD, LONDON, W.,

NURSERYMEN AND SEEDSMEN,

ARCHITECTS AND ENGINEERS.

This Company possess inexhaustible resources for the supply of ORNAMENTAL TREES and SHRUBS, FRUIT TREES, GRAPE VINES, HERBACEOUS and ALPINE PLANTS, ROSES, STOVE and GREENHOUSE PLANTS, &c., in every size and variety.

The SEED and BULB DEPARTMENT, which is an important and extensive branch, is conducted by men of ability and experience. Every variety and class is warranted of the best quality, and true to name and description.

Great attention is paid to the make, form and quality of GARDEN IMPLEMENTS; the most improved kinds are supplied from the best manufacturers.

The GRAND WINTER GARDEN CONSERVATORY is one of the finest productions of modern Horticultural Building.

The *Morning Post* thus refers to it:—"The Pine-Apple Nursery at Maida Vale has a history and reputation of its own. It is now a place of pleasure as well as of utility, and is in such a state of perfection probably not surpassed throughout the world. The Exhibiting Department is a superb conservatory, of colossal dimensions, enriched with a profusion of the most beautiful plants."

The HOT-WATER APPARATUS at this Establishment is the most extensive of any Nursery in the world. The water circulates freely through 12,700 feet of cast-iron pipe, effectually heating on the one-boiler system the great Winter Garden Conservatory and thirty other large hothouses, all or either of which can be regulated at pleasure.

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THE PINE-APPLE NURSERY COMPANY,

Maida Vale, Edgware Road, London, W.

Bulbs, Bulbs.

THE HEATHERSIDE NURSERIES COMPANY (LIMITED), 59, Queen Victoria Street, London, E.C.; Nurseries—Bagshot, Surrey.

Illustrated CATALOGUES Gratis.

Our special Guinea Collection contains:—

9 Hyacinths, choice named.
9 do., in 3 colours for beds.
18 Daffodils, double.
18 Tulips, mixed, choicest double.
18 do., mixed, choicest single.
6 Jonquils.
6 Triteleia uniflora.
50 Crocus, large blue.
25 do., large white.
50 do., large yellow.
25 do,, large striped.
12 Anemones, finest double.
12 Anemones, finest single.
3 Lilies.
25 Ranunculus.
18 Narcissus, double, white.
18 do., Poeticus.
18 Tulips, Duc Van Thol.
6 Polyanthus Narcissus, choicest varieties.
9 Violets, Dog's-tooth.
9 Iris, English.
12 do., Spanish.
25 Snowdrops.

Packing and Carriage Free.

SPRING-FLOWERING PERENNIALS, &c., for Spring Gardening, Carpet Bedding, and Herbaceous Borders:—

Ajuga reptans fol. var., Aubrietia purpurea fol. var., Campanula persicifolia and C. persicifolia alba, C. carpatica and C. carpatica alba, Cheiranthus Marshallii, C. alpina, Dianthus barbatus fl.-pl., D. barbatus nanus compactus, Seedling Delphinium, Helianthemums in named sorts, Lithospermum prostratum, Lychnis of sorts, Œnotheras in variety, Saxifrages in twelve kinds, Sedums in twelve sorts, Spiræa filipendula fl.-pl., Schizostylis coccinea, Violet Victoria Regina. All the above at 2*s.* 6*d.* per dozen.

Alyssum saxatile, Antennaria tomentosa, Aubrietia purpurea, Barbara præcox fol. var., Canterbury Bells, double and single, Iberis coriifolia, I. Tenoreana; Violas, alba, Enchantress, Magnificent, lutea, and grandiflora; Arabis albida, Phlox frondosa, P. verna, Silene pendula compacta, S. pendula compacta alba, Armeria rosea, and Veronica incana. Any of the above at 1*s.* 6*d.* per dozen; 50 for 5*s.*; 100 for 9*s.*

Daisies, red, white, or rose; Wallflowers, double or single; Dactylis elegantissima, Golden Pyrethrum, Myosotis dissitiflora, M. sylvatica, M. sylvatica alba or rosea, Polyanthus, Sedum acre elegans, S. glaucum, S. lividum, Sempervivum tectorum, S. californicum, Stellaria graminea aurea, and Sweet Williams. Any at 1*s.* per dozen; 50 for 3*s.*; 100 for 5*s.*

For descriptions, &c., of above, and for Spring-flowering Bulbs to plant with above see CATALOGUE, post free on application.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

TO THE TRADE

WHITE ROMAN HYACINTHS, true, pure white early variety, price very low.
LEUCOJUM VERNUM—Spring Snowflake.
HELLEBORUS NIGER—Christmas Rose.
GLADIOLUS BYZANTINUS.

Snowdrops
Winter Aconites
Narcissus poeticus
„ double Roman
„ paper-white
Dielytra spectabilis
Hepatica, single white
„ single blue
„ single red
„ double red
Iris pumila azurea
„ germanica
Hyacinth, blue grape
„ blue feathered
Cyclamen europæum
Triteleia uniflora
Scilla campanulata
Jonquils, double
Dog's-tooth Violets
Double Daffodils
Star of Bethlehem
Pancratium maritimum
Cyclamen persicum.
Lilium bulbiferum
„ excelsum
„ martagon
„ tigrinum
„ candidum, fol. var.
„ chalcedonicum
„ eximium
„ lancifolium roseum
„ Humboldtii
„ Washingtonianum
„ Szovitzianum
„ tenuifolium
„ pulchellum
„ auratum
„ lancifolium rubrum
White Garden Lilies
St. Bruno Lilies.

All in extra fine bulbs. Prices very low. On application to SANDER AND CO., Seed Growers, St. Albans.

TO THE TRADE.

BOUVARDIAS, best sorts, fine plants, 12*s.* per dozen.
LIBONIA FLORIBUNDA and L. PENRHOSIENSIS, extra fine plants, 9*s.* and 12*s.* per dozen.
GREVILLEA ROBUSTA, fine, 12*s.* per dozen.
SCHIZOSTYLIS COCCINEA, fine clumps, 6*s.* and 9*s.* p. doz.
CALLA ÆTHIOPICA, nice stuff, 40*s.* per 100, 6*s.* per dozen.
ACACIA LOPHANTHA, 6 to 9 inches, 4*s.* per dozen.
VIOLETS CZAR and NEAPOLITAN, fine prepared clumps, 20*s.* per 100; for potting, 28*s.* per 100.
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RUBUS AUSTRALIS, fine stuff, 12*s.* per dozen.
NERTERA DEPRESSA, 6*s.* per dozen.
CEANOTHUS AFRICANUS, 9*s.* per dozen.
„ DIVARICATUS, 50*s.* per 100, 8*s.* per dozen.
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„ VEITCHII, 9*s.* per dozen.
MÜHLENBECKIA COMPLEXA, nice little plants, 25*s.* per 100, 4*s.* per dozen.
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Hooper's — for Spring autumn blooming Bulbs.

Purchasers will find a REAL ADVANTAGE in procuring one or more of Hooper's assortments of Bulbs, which are prepared as under:—

For both INDOOR and OUTDOOR CULTURE.
No. 1, £4 4*s.* (containing 1345 bulbs); No. 2, £3 3*s.*; No. 3, £2 2*s.*; No. 4, £1 1*s.*

For CONSERVATORY and WINDOW CULTURE.
No. 5, £4 4*s.* (containing 446 bulbs); No. 6, £3 3*s.*; No. 7, £2 2*s.*; No. 8, £1 1*s.*

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No. 10, £4 4*s.* (containing 1701 bulbs); No. 11, £3 3*s.*; No. 12, £2 2*s.*; No. 13, £1 1*s.*

All carriage free on receipt of remittance.
CATALOGUES may be had on application.
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PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17*s.* per ton. A small sample will be sent by Post, free.
W. TARRY, "Golden Farmer," Bagshot, Surrey.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.
BROWN and BLACK PEAT, for general purposes.
Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.
FRESH SPHAGNUM, 10*s.* 6*d.* per sack.
WALKER AND CO., Farnborough Station, Hants.

COCOA-NUT FIBRE REFUSE for Gardening purposes, sure Preventives against Frost, as supplied to the following gentlemen, many of whom have sent Testimonials:—

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His Imperial Majesty the Emperor of Prussia
The Right Hon. the Earl of Powis
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The Right Hon. Lord Otho Fitzgerald
Sir Francis Turville, Bart.
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Colonel North, M.P.
Messrs. Veitch & Sons, Royal Exotic Nursery, Chelsea
W. Bull, Esq., Establishment for New and Rare Plants, Chelsea
J. Wills, Esq., South Kensington, Florist to Queen and Royal Family
Messrs. Dixon, Nurserymen and Seedsmen, Moorgate Street, E.C.
Herr Schmidt, Nurseryman, &c., Erfurt, Prussia
Messrs. Ewing & Co., Nurseryman, Norwich
Messrs. Cranston & Mayos, Hereford
Messrs. Dickson & Sons, Chester
The Brighton Aquarium
Southport Winter Garden, &c., &c.

Twenty bushels, 6*s.* 8*d.*; fifty for 12*s.* 6*d.*; truck load, 45*s.* Delivered Free within 6 miles, or on to rail.
THOMAS HODGES AND CO. (late H. WRIGHT), 81, Bishopsgate Street Without, E.C., and the Eagle Steam Fibre Works, Hatcham Road, Old Kent Road, London, S.E.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
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SUPERPHOSPHATE.
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NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.
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A DISCOVERY.—The secret of obtaining Bunches of Grapes of immense weight is TANTON'S IMPROVED ROLLER CRUSHED BONE, as exhibited at South Kensington, Manchester, Brighton, &c.
One inch, Half-inch, Dust, a Sample Peck for 30 stamps.
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BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass. Retail 1*s.* 6*d.* and 2*s.* 6*d.* per bottle, of the Sole Manufacturers,
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GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6*s.* Supplied to Seedsmen and Chemists.
Prepared by JOHN KILINER, Wortley, near Sheffield.

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1*s.* 6*d.* and 3*s.* per bottle—1*s.* 9*d.* and 3*s.* 4*d.* per bottle, if packed for travelling, of the Manufacturers,
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PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of
CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton; and the late Professor Lindley, &c.
MADE of PREPARED HAIR and WOOL.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* and 1*s.* 10*d.* per yard.
"FRIGI DOMO" CANVAS.

2 yards wide	.. ..	1*s.* 10*d.* per yard run.
3 yards wide	.. ..	3*s.* per yard.
4 yards wide	.. ..	3*s.* 10*d.* per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.
NOTICE.—REMOVED from 3, CANNON STREET, CITY.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
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RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100*s.*; Petersburg, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mat at equally low prices, at
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Russia Mat Merchants.

MARENDAZ AND FISHER, 9, James' Street, Covent Garden, W.C., IMPORTERS and MANUFACTURERS, have received a large consignment of New ARCHANGEL MATS; also Heavy, Close-woven, and Light ST. PETERSBURG MATS, for covering purposes; RAFFIA FIBRE, NETTING, CANVAS, TWINES, &c.

Garden Tarpaulins, Police Capes.

GARDEN TARPAULINS, 6 feet by 4, 24*s.* per dozen, Second-hand Railway redressed; New Tarpaulins, very stout, 1¼*d.* per square foot; medium, 1*d.* per foot; thin, ½*d.* per foot, any size. London POLICEMEN'S CAPES, 36*s.* per dozen; LEGGINGS, 24*s.* per dozen.
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MANUFACTURERS OF

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THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),
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HOT-WATER BOILERS,

NEW PATENT "CLIMAX" BOILER (1874). See p. 666, 1874, *Gardeners' Chronicle.*
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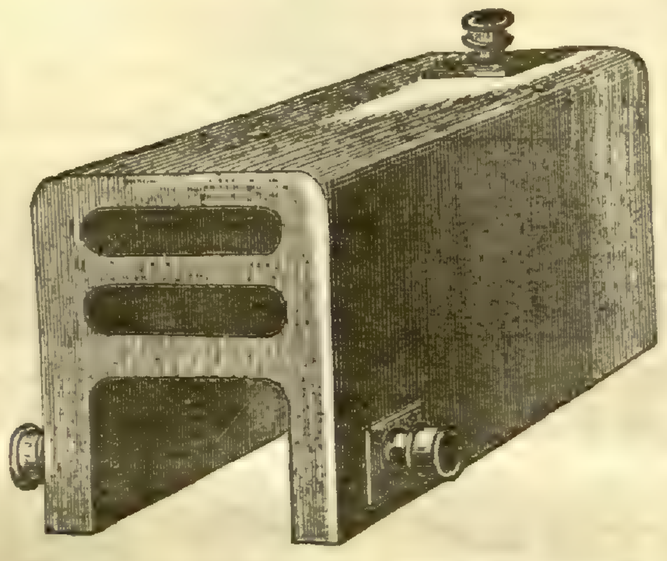
PATENT "EXCELSIOR" BOILER (1871).

☞ *The largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.*



("WITLEY COURT" BOILER.)

PIPES, CONNECTIONS.

"WITLEY COURT" BOILER (Silver Medal 1872).
"TRENTHAM IMPROVED" BOILER, with Waterway End and Smoke Consumer.
"TUBULAR," and every other Boiler of known merit or excellence.

☞ *Prize Medal Awarded at the National Contest, Birmingham,* 1874.

HOT-WATER APPARATUS ERECTED COMPLETE.
PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

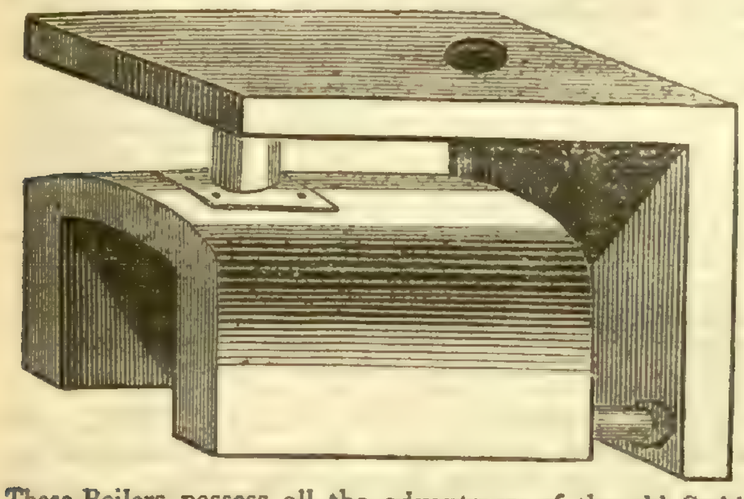
BARNARD, BISHOP & BARNARD'S
NORFOLK IRON WORKS, NORWICH.

GALVANIZED WROUGHT IRON ESPALIER TRAINERS,
ON THE FRENCH SYSTEM.
ILLUSTRATED PRICE LISTS FREE ON APPLICATION.
ALL ORDERS EXECUTED FROM STOCK ON RECEIPT.

WEST of ENGLAND Manufactory.

Horticultural Buildings, Hot-water Apparatus, &c. **V. SKINNER,** CROFT, **BRISTOL.**

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.
High.	Wide.	Long.	Feet.	£ s. d.
20 in.	18 in.	18 in.	300	7 0 0
20 ,,	18 ,,	24 ,,	400	8 0 0
20 ,,	18 ,,	30 ,,	500	9 0 0
24 ,,	24 ,,	24 ,,	700	12 0 0
24 ,,	24 ,,	30 ,,	850	14 0 0
24 ,,	24 ,,	36 ,,	1,000	16 0 0
24 ,,	24 ,,	48 ,,	1,400	20 0 0
28 ,,	28 ,,	60 ,,	1,800	25 0 0

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries, Balham Hill, S.W., May 29, 1873.*

"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

PRICE LISTS of HOT-WATER PIPES and CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

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When ordering Boilers please refer to the above advertisement.

HOT-WATER APPARATUS.

BARNARD, BISHOP & BARNARDS

will be happy, upon application, to furnish estimates for Heating Churches, Conservatories, Greenhouses, Forcing Pits, &c.

NORFOLK IRONWORKS, NORWICH.

ESTABLISHED 1856.

KEEP OUT THE FROST.

WILLIAM H. HONEY'S PORTABLE VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

Prices, in block tin, 30*s.*; in copper, 50*s.* Copper, with glass, to give light and heat, 55*s.* Either will be sent on receipt of Post-office Order.

To be seen in operation at

WILLIAM H. HONEY,

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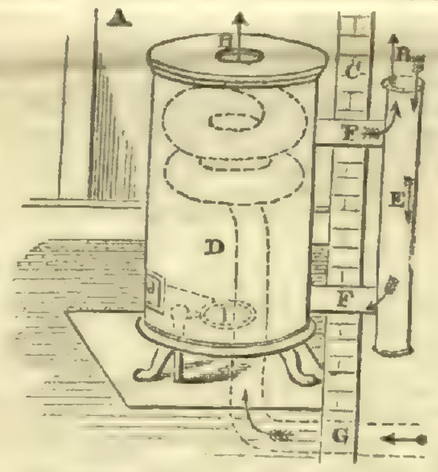
Catalogue free. No agents appointed.

GEORGE'S PATENT CALORIGEN,

FOR

Warming and Ventilating Small Conservatories.



The only Gas Stove in which the product of combustion is entirely excluded from the Conservatory.

Made in Wrought Iron, £3 3*s.*

Made in Copper, £5.

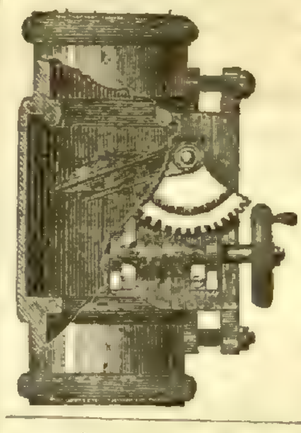
Height, 28 inches; diameter, 14 inches.

It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).

Illustrated Prospectuses and Testimonials on application.

J. F. FARWIG AND CO., 36, Queen Street, Cheapside, E.C.

This Stove introduces a strong current of warmed (not burnt) fresh air.



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PATENT VALVES for Hot or Cold Water, Gas, &c., are the cheapest perfect Valve made. They are in general use throughout Scotland, England and Abroad.

MESSENGER'S Patent ELASTIC-JOINTED PIPES, for Hot or Cold Water are the cheapest Portable-Jointed Pipes made, and the most perfect. Illustrated Price List free on application to

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AGRICULTURAL LOCOMOTIVES,

STEAM PLOUGHING MACHINERY,

ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES, STEAM ROAD ROLLERS.

For Prices, Description, and Reports of Working, apply to the Manufacturers,

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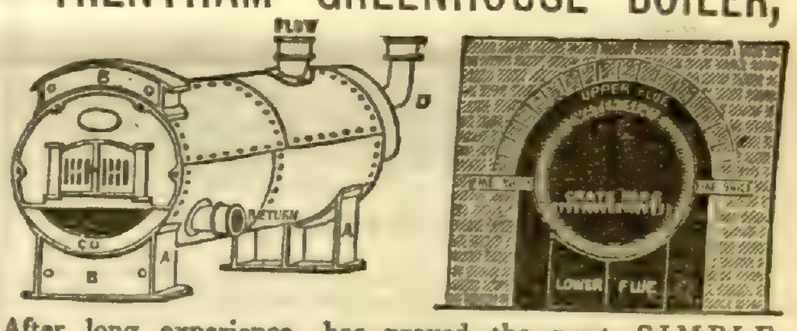
ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

STEVENS' TRENTHAM GREENHOUSE BOILER,



After long experience, has proved the most SIMPLE, ECONOMICAL, EFFECTUAL, and LASTING BOILER extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers,

F. & J. SILVESTER,

Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

☞ Our Boilers are the ONLY ones made with the sanction and under the inspection of the inventor, Mr. Stevens — all others being base imitations.

FROST DEFIED.

THE PATENT TRUE FRIEND STOVE

is an especial boon to Amateurs for SMALL HOUSES, CONSERVATORIES, &c.,

as it perfectly defies Frost and gives a surrounding heat that cannot be attained by any other System.

It is also adapted for Halls, Offices, Passages, Linen or Harness Rooms, &c.

The peculiar and novel construction of the Patent WHITE STAR GERMAN ROUND BURNER makes it especially acceptable in any position in the household, as it only heats the air in passing through the Stove, without throwing off a burning smell, or any unpleasant odour from the oil, and it is in fact the greatest desideratum of the age, as by simply lifting off the upper part of the Stove it is adapted for any description of Cooking, by Boiling or Frying, which at once makes it useful the whole year through. Experience proves that it gives by a single burner more NATURAL heat than four flat burners, or any other known Petroleum Stove. It can never get out of order, it is always cold on the Oil-well, and cannot explode; and the economy is obvious, as it can be kept at full burning power by using one quart of any mineral oil in thirty-six hours, and will effectually warm a space of twenty square feet.

27 inches high.

Price, £1. 2s. 6d.

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THE GARDENERS' CHRONICLE.

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9 ,,	..	..	0	5	6	20 ,,	..	..	0	11	0
10 ,,	..	..	0	6	0	21 ,,	..	..	0	11	6
11 ,,	..	..	0	6	6	22 ,,	..	..	0	12	0
12 ,,	..	..	0	7	0	23 ,,	..	..	0	12	6
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Gardeners, and others, wanting places, 26 words 1*s.* 6*d.*, and 6*d.* for every additional line, or part of a line.

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Advertisements for the current week MUST *reach the Office by Thursday noon.*

P.O.O. to be made payable at the King Street Post Office, W.C. to W. RICHARDS.

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Under the Patronage of the Queen.

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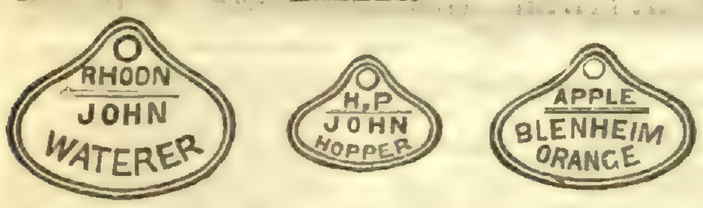


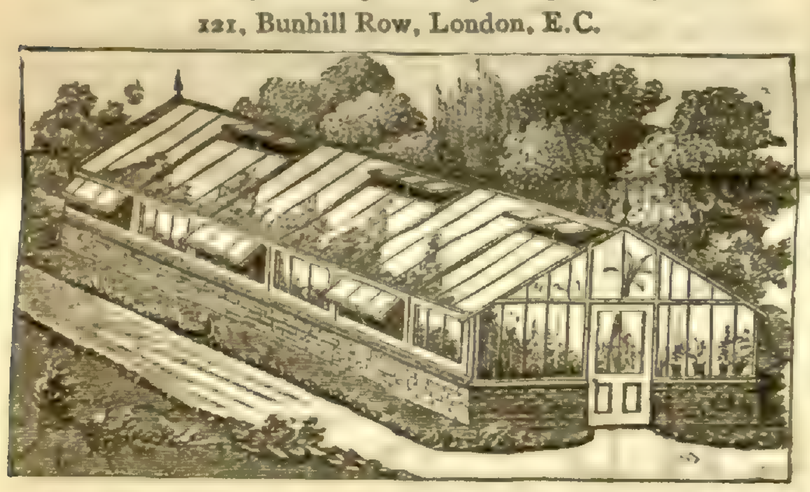
The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

Samples and Price List free.

Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



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BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities, of

BETHAM & SON,

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B. & S. have always a large Stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., in 16 oz. and 21-oz.

Garden Wall Wiring.

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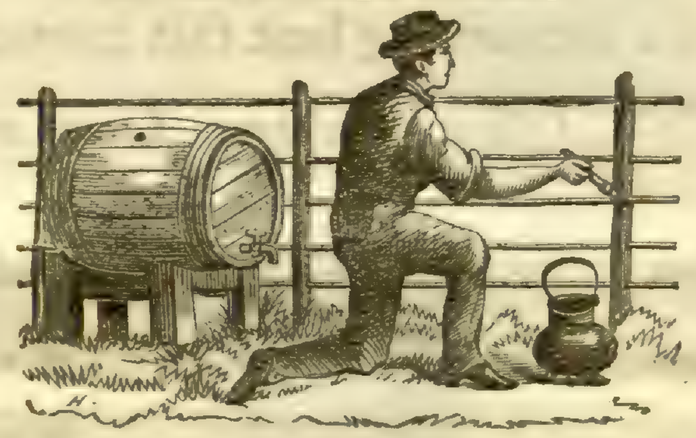

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B. S. WILLIAMS

begs to announce that he has received his

ANNUAL SUPPLY OF HYACINTHS,
TULIPS, NARCISSI, CROCUS, &c.,
in splendid condition.

CATALOGUE Gratis on application;
also of New Plants, Fruit Trees, Roses, &c.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

WORCESTER PEARMAIN APPLE.

Awarded a First-class Certificate by the Royal Horticultural Society, October 6, 1875.

Fruit 2¾ inches wide, and same in height, conical; skin smooth, brilliant red, with minute fawn-coloured dots; flesh very tender, crisp, juicy, and sweet, with a very pleasant flavour, perhaps the most valuable of all for market. The tree is as productive as Lord Suffield Apple, and one of the handsomest fruits in cultivation. Ripe end of August, and will keep till Christmas.

Maiden Trees, 10s. 6d. *each; Pyramid or Trained Trees,* 21s. *each. Coloured Plates,* 6d. *each.*

RED HAWTHORNDEN APPLE.—Dr. Hogg describes this as large, oblate, and angular; skin smooth, greenish yellow, with a red blush next the sun; flesh white, tender and juicy, with a sprightly and agreeable acidity. A very early and valuable culinary Apple; ripe August and September. Maiden trees, 7s. 6d. each; Pyramid or trained trees, 10s. 6d.

YORKSHIRE BEAUTY APPLE.—Dr. Hogg, in his *Manual*, says this fruit is 3½ inches wide and 3 inches high, roundish, flattened, and angular; skin bright yellow, with a bright red blush on the sunny side; flesh tender and juicy, with an agreeable acidity. A first-rate culinary Apple for August and September, the great size and excellent quality ought to commend it as a good orchard fruit for the market. Maiden trees, 5s. each; Pyramid or trained trees, 7s. 6d.

NEW GOLDEN LABURNUM.—Unquestionably the finest hardy golden-leaved tree known, of immense value for park and garden scenery; it will take a foremost position among pictorial and garden trees; the foliage is a brighter golden-yellow than the flower of the ordinary Laburnum. First-class Certificate awarded by the Royal Horticultural Society, August 4, 1875. Price 10s. 6d. each; Standard and extra strong trees, 21s. Coloured plates, 6d. each.

OTHERA JAPONICA.—A new and beautiful evergreen shrub. One of the most distinguished Japanese travellers says this is perhaps the prettiest evergreen they have in Japan; it grows about 20 feet high, has dark green leaves and a profusion of bright red fruit; it is very effective and perfectly hardy. Price 10s. 6d. each; extra strong, 21s.

CLIMBING ROSE, COUNTESS of OXFORD.—The old variety in all respects, except in being a free climber. 7s. 6d. each.

FIFTY ACRES OF FRUIT TREES.

Standard and Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, very fine trees for walls.

Standard, Pyramid, Dwarf, Bush, and Cordon APPLES, PEARS, PLUMS, and CHERRIES.

ORCHARD HOUSE TREES, Established in Pots, for Immediate Fruiting.

PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, APPLES, FIGS, ORANGES, and MULBERRIES.

VINES, Planting Canes, 3s. 6d. to 5s. each; Extra Strong Fruiting Canes, 7s. 6d. to 10s. 6d. each.

All the above of superior quality, perfect in form, roots, and health, and true to name.
See Descriptive Price List.

TWELVE ACRES OF ROSES,

Standards and Dwarfs, all the popular sorts; 80,000 choicest Tea-scented and Noisette Roses, in pots. Extra strong Hybrid Perpetual Roses, in pots for immediate forcing. Climbing Roses in great variety. *See Descriptive Price List.*

FOR SHRUBBERIES.

		Per 100.
LAUREL, Colchic, the best hardy variety	3 to 4 feet	35s.
,, Portugal, very fine	1½ to 2 feet	35s.
,, Portugal, very fine	2 to 2½ feet	50s.
,, Caucasian, very fine	2 to 3 feet	50s.
,, Round-leaved, extra fine	2 to 3 feet	70s.
,, Six distinct and beautiful vars.	2 to 3 feet	50s.
COTONEASTER SIMONSII, fine	3 to 4 feet	35s.
PYRUS JAPONICA	2 to 3 feet	50s.
EUONYMUS RADICANS VARIEGATA	1 foot	40s.

		Per doz.
JUNIPER, Chinese	4 to 5 feet	36s.
,, Chinese	5 to 6 feet	42s.
OAK, Austrian Evergreen	2½ to 3 feet	30s.
,, Austrian Evergreen	3 to 4 feet	42s.
,, Ford's Evergreen	3 to 4 feet	36s.

		Per 100.
IVY, strong, for climbing	3 to 4 feet	40s.
VIRGINIAN CREEPER	3 to 4 feet	40s.

		Per 100.
CISTUS LAURIFOLIA, in pots	1½ to 2 feet	50s.
ARBUTUS (Strawberry tree)	1½ to 2 feet	60s.
,, (Strawberry tree)	2 to 2½ feet	75s.
CEPHALOTAXUS DRUPACEA	1½ foot	60s.
TREE IVIES, full of flower	1 to 1½ foot	75s.
LAURUSTINUS	1 to 1½ foot	40s.
BROOMS, White and Yellow	2 to 3 feet	30s.
YEW, English, bushy	1½ to 2 feet	40s.
,, English, bushy	2 to 2½ feet	60s.
,, English, bushy	2½ to 3 feet	80s.
,, Golden, bushy	1 to 1½ foot	90s.

		Per doz.
CRYPTOMERIA ELEGANS	2 to 2½ feet	21s.
PICEA PINSAPO	2 to 2½ feet	36s.
,, PINSAPO	2½ to 3 feet	42s.
YUCCA GLORIOSA PENDULA	12 to 15 in.,	12s.
,, GLORIOSA PENDULA	15 to 18 in.,	18s.

		Per 100.
ROSES, Climbing, in variety	3 to 4 feet	40s.
HONEYSUCKLES, in variety	3 to 4 feet	40s.

DECIDUOUS FLOWERING SHRUBS in 50 beautiful varieties, 30s. per 100.

AVENUE AND ORNAMENTAL TREES, many thousands in great variety. See Priced Lists.

RICHARD SMITH,

NURSERYMAN AND SEED MERCHANT, WORCESTER.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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Important Notice to Foreign Subscribers.

FOREIGN SUBSCRIBERS are PARTICULARLY REQUESTED, *when sending Post Office Orders through the Post Office, to Advise the Publisher that they have done so. (Signed)*

W. RICHARDS, Publisher.

Post Office Orders should be made payable at the King Street Office, Covent Garden, London, W.C.

To Secretaries of Agricultural Societies, Farmers' CLUBS, HORSE, POULTRY, and DOG SHOWS.

THE PUBLISHER of the AGRICULTURAL GAZETTE ALMANAC will be obliged to Secretaries of Societies named above if they will kindly furnish him with the dates fixed for holding their Exhibitions in 1876.
W. RICHARDS, 7, Catherine Street, Strand, London, W.C.

SCOTTISH ARBORICULTURAL SOCIETY.—The TWENTY-SECOND ANNUAL GENERAL MEETING of the SCOTTISH ARBORICULTURAL SOCIETY will be held in the Rooms at the ROYAL BOTANIC GARDEN, Edinburgh, on WEDNESDAY and THURSDAY, November 3 and 4, at 12 o'Clock at noon each day. Professor Balfour, President, in the chair.
Edinburgh, October 26. JOHN SADLER, Sec.

LEEDS HORTICULTURAL GARDENS COMPANY (LIMITED).—The SECOND ANNUAL GRAND SPRING FLOWER SHOW will be held in the Large Hall at the Gardens, MARCH 15 and 16, 1876. Schedules on application.
Office: 103, Hyde Park Road. G. FORBES, Sec.

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THOMAS S. WARE'S AUTUMN CATALOGUE of the above, including Pæonies, Phloxes, Pyrethrums, Pansies, Violas, and other Hardy Florists' Flowers, is now ready, free on application.
Hale Farm Nurseries, Tottenham, London.

GRAPES THE FIRST YEAR.—Canes from 6 to 7 feet, 5s. each; ditto from 8 to 9 feet, 7s. 6d. each. 10 per cent. discount for cash.
Mr. R. TANTON, The Old Nurseries, Epsom.

GRAPE VINES, GRAPE VINES. Strong well ripened Canes of all the best varieties.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

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H. LANE AND SON have a large stock of transplanted bearing Trees of all the leading kinds to offer at a reduced price, as the ground must be cleared by Christmas.
The Nurseries, Great Berkhamstead, Herts.

Fruit Trees.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE for the present season is now ready, and may be had on application. The Trees are extra fine this season. The Royal Nurseries, Slough.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c. Free by post for one stamp.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

To Nurserymen and the Trade.

SEAKALE and ASPARAGUS for forcing, extra fine, 80s. per 1000; second size, 50s. per 1000.
HENRY PAGE, Walham Green, Fulham, S.W.

To the Trade.

DUTCH BULBS at Dutch prices.
SANDER AND CO., Seed Growers, St. Albans.

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THOMAS S. WARE'S new A. B. C. BULB GUIDE (now ready, free on application) contains a selection of all the best Spring-flowering Perennials and Bulbs in cultivation.
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ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., having a large stock of unusually fine and sound DUTCH BULBS, will be pleased to submit Special Prices to Buyers on application.

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HOLLIES, green, 12 inches to 4 feet; variegated do., 1 to 4 feet; English YEWS, 1 to 5 feet; LAURUSTINUS, 1 to 2½ feet; and LAWSONIANAS, 2-yr. removed, 5 to 8 feet, well furnished plants. Samples and cash prices on application to
W. TRIGG, Hook Hill, Woking Station, Surrey.

HOLLIES.—To Gentlemen wishing to plant with immediate effect, a quantity of magnificent Hollies of variegated and other kinds for Sale, from 10s. 6d. to £5 5s.
Apply at Bache Hall, Chester.

To the Trade.

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LARCH, SCOTCH FIR, SPRUCE, AUSTRIAN PINE, OAK, QUICK, GREEN HOLLY, transplanted. All sizes, very fine and cheap. For sample, apply H. JACKSON, Nursery, Kidderminster.

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EARLY RAINHAM, EARLY BATTERSEA, EAST HAM, LITTLE PIXIES, at 3s. 6d. per 1000, including package, and free to rail.
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The above are all well-rooted stuff, growing on red sand, and cannot fail to give satisfaction.
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Samples, with prices, addressed to
CRANSTON AND MAYOS, Cranston's Nurseries, Hereford.

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WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
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ROSES, ROSES, ROSES. 60,000 extra fine Dwarfs and Standards. Fine Plants and choicest sorts.
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H. LANE AND SON have a very large stock to offer, Wholesale and Retail.
Priced CATALOGUE Free on application.
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The Oxford Roses, on Cultivated Seedling Briar.

GEORGE PRINCE'S Priced and Descriptive CATALOGUE now ready. All Roses are grown exclusively on the above stock at this establishment.
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To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

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A. M. C. JONGKINDT CONINCK'S Wholesale TRADE LIST of FRUITS and ROSES is now ready, free on application.
Large quantity of home-grown, very sound bulbs of LILIUM AURATUM.
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ROSE SHOWS, 1875.—50 First Prizes, 25 Guinea Silver Challenge Cup, and other Premier Prizes. See Cranston & Mayos' DESCRIPTIVE ROSE CATALOGUE for 1875. Address,
CRANSTON'S Nurseries, King's Acre, Hereford.

To the Trade.

LEWIS WOODTHORPE'S Wholesale CATALOGUE is now ready. Those requiring good ROSES at cheap rates should write for one.
Glazenwood Nursery, Braintree, Essex.

Dielytra spectabilis.

E. H. KRELAGE AND SON, Haarlem, Holland, have yet to spare a few thousand plants of DIELYTRA SPECTABILIS, fit for forcing.
Price on application.

To the Trade.

EUONYMUS JAPONICA, strong handsome plants, 2 feet high by 18 inches, £5 per 100.
CYRTOMIUM FALCATUM } in 48-sized pots, 12s. per doz.
CYRTOMIUM FORTUNEI }
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A. STANSFIELD AND SON beg to say that their NEW CATALOGUE of FERNS, No. 10, for 1875-6, is now ready, and may be had for 3 stamps. It contains more than 1000 species and varieties, many of them new and rare, with Descriptive and Cultural Remarks.
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CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.
Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

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THOMAS S. WARE'S AUTUMN CATALOGUE of the above, including Carnations, Picotees, Pæonies, Phloxes, Pyrethrums, and other Hardy Florist's Flowers, is now ready, free on application.
Hale Farm Nurseries, Tottenham, London.

Lilies of the Valley.

E. H. KRELAGE AND SON, Haarlem, Holland, have a splendid Stock of 3-yr. old Clumps of the best variety of LILY of the VALLEY at the disposal of the Trade. The plants are extra fine this year. Prices per 100 and 1000 on application.

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LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

ORCHIDS, for Sale, cheap, the property of a Gentleman who has left England. A few duplicates still available of those formerly advertised. Apply to
The GARDENER, The Cottage, Sibbertoft, Market Harborough.

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CONSIGNMENT of 700 choice Double CAMELLIAS and AZALEA INDICA from Ghent, well set with bloom-buds; several handsome TREE FERNS from New Zealand, in growing condition, for unreserved sale.

MESSRS. PROTHEROE AND MORRIS will include the above stock in their SALE of DUTCH FLOWER ROOTS, to take place at the Auction Mart, Tokenhouse Yard, E.C., on MONDAY, November 1, to commence at half-past 11 o'Clock to the minute.

Clarke's Branch Nursery, Wallington, Surrey.

Important Notice.

COMPULSORY CLEARANCE SALE of VALUABLE NURSERY STOCK, consisting of thousands of Evergreen and Coniferous Shrubs, a considerable number of Transplanted Fruit Trees in great variety; also a large quantity of Forest and Ornamental Trees.

MESSRS. PROTHEROE AND MORRIS beg to announce that in consequence of the inclement weather this AUCTION SALE is POSTPONED to MONDAY, November 1, and will commence punctually at 12 o'Clock. No reserve whatever, land must be cleared by Christmas.

Catalogues may be had on the Premises, and at 98, Gracechurch Street, E.C.

Chichester.

TWO DAYS' SALE of SURPLUS NURSERY STOCK.

Important to Gentlemen, the Trade, and Others largely Engaged in Planting.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. D. Scott to SELL by AUCTION, without reserve, on the Premises, The Northgate Nurseries, Chichester, on TUESDAY and WEDNESDAY, November 2 and 3, at 11 for 12 o'Clock precisely each day, a great quantity of well-grown SURPLUS NURSERY STOCK, including a great number of handsome Specimen Coniferæ; also many thousands of beautifully grown Evergreens, including 3000 Laurustinus, 1¼ to 5 feet; 4500 Golden and other Euonymus, 4000 bushy Laurels, 2 to 8 feet; Portugal Laurels, 2 to 7 feet; 4000 Aucubas, 1 to 4 feet; 1000 English Yews, 2 to 7 feet; Evergreen Oaks and Phillyreas, thousands of Thujas, Pinus, Thujopsis, Juniperus, and other Coniferæ, and a great variety of other useful Stock.

The Stock may be viewed any time prior to the Sale.

Kingston-on-Thames.

FIVE DAYS' CLEARANCE SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Jackson & Son to SELL by AUCTION, on the Premises, Park Road and Elm Vale Nurseries, Kingston-on-Thames, seven minutes' walk from the Norbiton and Kingston Stations, on TUESDAY, November 2, and Four following days, at 11 for 12 o'Clock precisely each day, without reserve, the Land occupied by these two Branch Nurseries being required for building purposes, the whole of the valuable NURSERY STOCK, consisting of a beautiful assortment of thriving Evergreens and Coniferæ, in fine condition for removal, including 15,000 green Hollies, 2 to 6 feet, 1300 variegated Hollies, 12,000 common and Portugal Laurels, 700 Araucarias, 3 to 5 feet, 1500 Cupressus Lawsoniana of sorts, 1800 Aucubas, 1 to 3 feet, 3500 Arbor-vitæ, 3 to 8 feet, 7500 oval-leafed Privet, 3 to 5 feet; 3500 Euonymus, 1000 Rhododendrons, thousands of Thujas, Piceas, Pinuses, &c.; Scotch and Spruce Firs, Austrian Pines, &c., and large quantities of similar stock too numerous to mention in detail; also thousands of Ornamental Trees, 600 Standard and Dwarf Roses, 13,000 extra strong Quick; also a nicely varied assortment of 3000 clean grown Fruit Trees, consisting of standard, pyramid and trained Apples, Pears, Plums and Cherries, dwarf-trained Peaches, Nectarines, and Apricots, &c.

May be viewed, and Catalogues may be had.

Groombridge, Tunbridge Wells.

GOLDSMITH'S PARK NURSERIES.

EXTENSIVE and UNRESERVED SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Edwin Hollamby to SELL by PUBLIC AUCTION, on NOVEMBER 4, 5, and 6, many thousands of beautifully-grown specimens of WELLINGTONIA GIGANTEA, CEDRUS DEODARA, THUJA AUREA, THUJA LOBBII, CUPRESSUS LAWSONIANA, LAURELS, PORTUGAL LAURELS, LAURUSTINUS, PINUS STROBUS, LARCH, SCOTCH and SPRUCE FIRS, DECIDUOUS TREES, and flowering SHRUBS of all sizes; 1000 splendid RHODODENDRONS, 4 to 5 feet high, well set with bloom-buds; 1000 choice-named Standard ROSES; the whole of which has been recently transplanted, and well worthy the attention of intending planters.

Catalogues may be had of Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, London, E.C.; and at Mr. HOLLAMBY'S Office, Parade, Tunbridge Wells.

Atherstone.

IMPORTANT SALE of SURPLUS NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have been favoured with instructions from Mr. H. Baker to SELL by AUCTION, without reserve, on the Premises, the Nursery, Atherstone, Warwickshire, half a mile from the Railway Station, on TUESDAY, November 9, at half-past 11 o'Clock precisely, a considerable quantity of NURSERY STOCK, consisting chiefly of Coniferæ and Evergreens, including many fine specimens, amongst which will be found Aucubas, Cupressus, Cedrus Deodara and Libani, Araucarias, Thujas of sorts, Laurels, Gold and Silver Hollies, Rhododendrons, &c.

Now on view. Catalogues had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Beddington.

IMPORTANT SALE of CHOICE AMERICAN PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Rollisson & Sons to SELL by AUCTION, without reserve, at their Branch Nursery, Beddington, Surrey, close to the station, on THURSDAY, November 11, at 11 for 12 o'Clock precisely, a large quantity of Choice AMERICAN PLANTS, consisting of 7000 Rhododendrons, including fine named Hybrid and Pontica varieties, Andromedas, Hardy Azaleas, 1200 Kalmia latifolia, 5000 Border SHRUBS in beautiful variety, together with a quantity of FOREST and ORNAMENTAL TREES and Hardy CLIMBERS in pots.

May be viewed prior to Sale. Catalogues may be had on the Premises, at the Exotic Nurseries, Tooting, and of the Auctioneers.

Streatham, Surrey, S.W.—Expiration of Lease.

To Noblemen, Gentlemen, Nurserymen and Others.

IMPORTANT CLEARANCE SALE of 30 ACRES of NURSERY STOCK, the Ground being required for Building purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. George Clarke to SELL by AUCTION, on the Premises, Streatham Place Nursery, Brixton Hill, Surrey, S.W., on MONDAY, November 8, and five following days, at 11 for 12 o'Clock precisely, the whole of the Valuable NURSERY STOCK, consisting of many thousands of well-grown specimens carefully prepared for removal, including handsomely grown Cedrus Deodara, 5 to 15 feet; Wellingtonia gigantea, 1500 Arbor-vitæ, Araucaria imbricata, Thujas, Pinus, Junipers, fine Evergreen and Deciduous Shrubs, comprising 4000 Rhododendrons in variety, 4000 Acubas, Green and Variegated Hollies, English and Irish Yews, Berberis, Forsythias; 20,000 Common Laurels, 3 to 12 feet; 2000 fine Limes, Scarlet and Horse Chestnuts, and other Ornamental Trees, fine Standard and Pyramidal Fruit Trees, comprising Pears, Apples, and Plums in bearing condition; 2000 Gooseberry and Currant Trees, 20,000 fine Standard and Dwarf Roses in all the leading varieties.

On view prior to Sale.

Exeter.

HIGHLY IMPORTANT SALE of probably the largest and most unique COLLECTION of SPECIMEN CONIFERÆ ever yet submitted to public competition, comprising thousands of unusually handsome examples of all the choicest and most approved kinds in cultivation, and for which these Nurseries have obtained the highest reputation, including skilfully trained pyramidal English, Irish, and Golden Yews, Thujopsis borealis and borealis pendula, dolabrata; Thuja gigantea, Lobbii, sibirica, chinensis, and aurea; Chinese and other Junipers, Cedrus Deodara and atlantica, Araucaria imbricata, Retinosporas, and many others remarkable for their perfectly symmetrical form and great beauty, also immense quantities of smaller stock, more detailed particulars of which will shortly appear.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Lucombe, Pince & Co. to SELL the above by AUCTION, without reserve, at their Exeter Nurseries, on TUESDAY, November 23, and several successive days, in consequence of a branch nursery being required for farming purposes.

The stock may be viewed any day prior to the Sale. Catalogues, when ready, may be had (*6d.* each, returnable to purchasers), and of the Actioneers.

Preliminary Notice of

FORTHCOMING SALES of NURSERY STOCK, &c., by PROTHEROE AND MORRIS.

OCTOBER 29.—The NURSERY, Epsom. By order of Mr. Tanton. A quantity of useful Nursery Stock.

NOVEMBER 13.—LOAM PIT VALE NURSERY, near the Railway Station, Lewisham. By order of Mr. W. Epps. A fine stock of Ornamental Trees, Shrubs, and Greenhouse Plants.

NOVEMBER 16, 17 and 18.—The BRANCH NURSERY, Teddington. By order of Mr. Laing. A beautiful assortment of well-grown Nursery Stock.

NOVEMBER 16.—The NURSERY, Caterham, Surrey. By order of Mr. G. Woollett. A quantity of fine Nursery Stock, growing on land adjoining the Home Nursery, the term for which is about to expire.

NOVEMBER 17.—HOLLAND NURSERY, Holland Street, Brixton Road, S.W. By order of Mr. J. Fowle. General Stock.

NOVEMBER 19 and 20.—The NURSERY, High Road, Lewisham, S.E. By order of Mr. Biggs. A fine assortment of Nursery Stock.

NOVEMBER 23 and following days.—ASCOT. By order of the surviving Partner of the late Mr. John Standish, deceased. A very large quantity of Nursery Stock, Plants in pots, &c.

NOVEMBER.—The NURSERY, Seven Sisters Road, Holloway, N. By order of Mr. Crastin. Clearance Sale of Glass Erections and Plants.

Catalogues, when ready, of any of the above Sales may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, Essex.

Spring Flowering Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, Importations of first-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, GLADIOLI, and other BULBS, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 4, at half-past 12 o'Clock precisely, a quantity of IMPORTED ORCHIDS, just arrived from Brazil ex Elbe, all in splendid condition, consisting of Oncidium sarcodes (true), some of the finest pieces ever imported, in full bloom when collected, and considered by the collector (Mr. Henry Blunt) to be the finest varieties; some magnificent specimens of the new and very rare Oncidium curtum (these are the very best pieces of this variety ever imported); Oncidium Marshallianum, splendid masses, in best possible condition; Oncidium concolor, very rare and lovely species; Miltonia candida, Lælia cinnabarina (true), the long-bulbed variety, very rare; Scuticaria Hadwenii, also Lælia Perrinii, L. purpurata, and Cattleya Leopoldii, &c.

On view the morning of Sale, and Catalogues had.

Champion Hill, S.E.

IMPORTANT SALE of GREENHOUSE PLANTS.

MR. J. C. STEVENS has received instructions from J. C. Im Thurn, Esq., to SELL by AUCTION (in conjunction with Messrs. Ellis & Son), on the Premises, Champion Hill, S.E., on FRIDAY, November 12, at 12 o'Clock precisely, his entire Collection of STOVE and GREENHOUSE PLANTS, consisting of magnificent specimen Palms, in tubs, and mostly in pairs; Camellias and Azaleas of the finest varieties, a beautiful assortment of plants for table decoration, such as Cocos Weddelliana, Aralia Veitchii, Croton Weismanni, &c.; a choice collection of Ferns, Heaths, Epacris, Amaryllis, &c.; a few good Orchids, a quantity of the best sorts of Standard and Dwarf Roses, also some fine ORNAMENTAL VASES, the LAWN MOWER, HANDLIGHTS, GARDEN IMPLEMENTS, &c.

May be viewed by Catalogues the day before and morning of Sale, and Catalogues had of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.; and of Messrs. ELLIS AND SON, 49, Fenchurch Street, E.C.

Rare and Choice Lilies.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 9, at half-past 12 o'Clock precisely, many thousands of the best and choicest known Lilies in good flowering bulbs, including some hundreds of the handsomest Californian LILIES, just received by express overland. Also a quantity of other CALIFORNIAN BULBS, such as Cyclobothras, Bloomerias, and Brodiæas, and a quantity of good Bulbs of the rare and beautiful Lilium Krameri, L. callosum, and some good Bulbs of the rare L. Wallichianum. Also a great quantity of Amaryllis, and some magnificent extra-sized bulbs of Lilium auratum, with good bulbs of the new and extremely handsome Crinum ornatum rubro-vittatum—flowers white, striped with crimson, one of the most beautiful Crinums ever introduced.

In this Sale will be comprised a large quantity of a Lily collected and sent from California as the new Lilium Bloomerianum oscellatum, but the bulbs are very unlike those imported last year of that variety. They are also unlike the bulbs of any of the other Californian Lilies with which we are acquainted, and, therefore, may prove a totally new kind.

On view the morning of Sale, and Catalogues had.

Hither Green, Lewisham, Kent.

PARK ROAD and GROVE NURSERIES.—IMPORTANT SALE of NURSERY STOCK.

MESSRS. OWEN AND SON will SELL by AUCTION, on MONDAY NEXT, November 1, at 11 o'Clock punctually, a large and choice assortment of NURSERY STOCK, including large and well-grown Specimen Shrubs of every description, Forest Trees, Standard and Dwarf Roses, Evergreens, Shrubs, and STOVE and GREENHOUSE PLANTS in great variety.

On view prior to Sale, and Catalogues on the Premises, and of the Auctioneers, Burnt Ash, Lee, and The Lodge, Forest Hill, Kent.

Betchworth,

Midway between Reigate and Dorking, and One Mile from the Station on the Reading and Reigate Branch of the South-Eastern Railway.

To the NOBILITY and GENTRY, the TRADE, and the Public in general.

MESSRS. WHITE AND SONS are instructed by Mr. J. Stewart (quitting) to SELL by AUCTION, on the Premises, The Gardens, Betchworth, on MONDAY and TUESDAY NEXT, November 1 and 2, at 10 for 11 o'Clock to a minute, on account of the number of Lots, all the excellent NURSERY STOCK (a particular description of which is precluded by the limits of an advertisement), Trade Requisites, Implements, Tools, Machinery, 50 Yards of rich Manure, Light Spring Van, Light Cart, Pony Manure Cart, Harness, Saddle and Bridle, an excellent Pony, three 18-months old Heifers, genuine HOUSEHOLD FURNITURE, 20 bushels of keeping Onions, and useful Miscellaneous items.

Catalogues may now be obtained at the Inns in the neighbourhood; of Mr. J. STEWART, on the Premises; or of the Auctioneers, Dorking.

Oatlands Park, Weybridge.

CHOICE COLLECTION of fine SPECIMEN STOVE and GREENHOUSE PLANTS, CARRIAGES, HORSES, HARNESS, and STABLE UTENSILS, and about 72 dozens of choice WINES.

MESSRS. VENTOM, BULL, AND COOPER are instructed to SELL by AUCTION, at The Beeches, Oatlands Park, Weybridge, on TUESDAY, November 2, at 12 for 1 o'Clock, a quantity of fine STOVE and GREENHOUSE PLANTS, including established Orchids, beautiful specimen plants; Crotons, Dracænas, Allamandas, Stephanotis, Alocasias, magnificent Camellias, Azaleas, Tree Ferns, and numerous other plants. The carriages, most of which are by Laurie & Marner, comprise a capital single Brougham, a Victoria, a Barouche, a Mail Phaeton, a Waggonnette, a Pony Phaeton, an Omnibus, a Spring Cart, &c., also a 2-horse Sleigh and a single-horse ditto by Acker, of New York, a Grey Horse and a Brown Cob, sets of Single and Double Harness, Saddles, Clothing, &c. The Wines comprise Chateaux Leoville, Lafitte, La Rose Clarets, Clos Vougeot, Chateau Y'Quem, Piper's Champagne, &c.

May be viewed the day preceding and morning of Sale. Catalogues may be had of the Auctioneers, 35, Old Jewry, E.C.

Bulbs from Holland—Choice Consignment.

MR. ALEXANDER will SELL by AUCTION, at the Mart, Tokenhouse Yard, on WEDNESDAY, November 3, at 1 o'Clock precisely, a Consignment of Exhibition Varieties of HYACINTHS, TULIPS, CROCUS, &c., in Lots to suit Trade and Private Buyers.

On view morning of Sale. Catalogues at the Mart.

Short Notice.

IMPORTANT SALE of VALUABLE NURSERY STOCK, Owing to Expiration of Lease.

In consequence of the unfavourable weather during their late Sale, Messrs. Lane & Son have instructed

MESSRS. WOODMAN AND SON to SELL by AUCTION at the Wigginton Nurseries, Berkhamsted, Herts, on WEDNESDAY, November 3, the remaining portion of NURSERY STOCK, which must be cleared by December 18, consisting of Araucarias, Wellingtonias, P. nobilis, C. Lawsoniana, C. atlantica, Pinus, Junipers, Red Cedars, Spruce Fir, Yews, Hollies, Rhododendrons, Oak, Beech, &c.; also, Pyramidal Apples, Pears, Plums, and Standard Roses.

Catalogue may be had on application.

Greenlaw Nurseries, near Paisley.

Within Fifteen Minutes' Walk of the Station.

MESSRS. HUTCHISON AND DIXON are instructed by Wm. Martin, Esq., 78, 80 and 102, Candleriggs, Glasgow, in consequence of Expiry of Lease of the Grounds, to SELL by AUCTION, on FRIDAY, November 5, at 11 o'Clock, the whole of the NURSERY STOCK, GREENHOUSE and STOVE PLANTS, comprising large sized Camellias in bloom, fine trained Azaleas, Acacias, fine collection of Ferns, Chrysanthemums, Geraniums, Roses; large quantity of Border Plants, Ornamental Trees and Shrubs, Portugal and Bay Laurels, Hybrid and Ponticum Rhododendrons, flowering Thorns, Hollies, Yews, Lilacs, Laburnums, Privets, Standard Apples, Gooseberry and Currant Bushes, &c.; Garden Implements, &c.; Forcing Frames, Close Cart with broad wheels, Barrel Cart, two Hand Barrows, Garden Barrows, sets Iron and Wood Harrows, Iron and Stone Rollers, Garden Engine, Plough, Sowing Machine, two Weighing Machines and Weights, Dutch Hoes, Hand Hoes, Spades, Grapes, Forks, Grindstone, Picks, Mattocks, Handlights, Bell-glasses; lot White Silver Sand, Van Body, Springs and Wheels, Van Harness, &c.

Enfield Town.

IMPORTANT to GENTLEMEN, BUILDERS, FLORISTS, and others who are planting largely.

MR. F. W. SEARLE has been instructed by Mr. J. B. Butterfield, to SELL by AUCTION (Third Sale—in 600 Lots), on the Premises, Baker Street Nursery, Enfield, Middlesex, half-a-mile from Enfield Station, Great Northern and Great Eastern Lines, on WEDNESDAY, November 3, at 11 for half-past 11 o'Clock punctually, in consequence of the number of the Lots, which include an immense quantity of very First-class NURSERY STOCK, in excellent condition for removal, having been kept constantly transplanted, including fine Evergreen and Coniferæ Shrubs, viz.:—10,000 Common Laurels, 4 to 5 feet; 1000 Gold and Silver Variegated Hollies, 2 to 4 feet; 1500 Chinese and American Arbor-vitæ, 3 to 8 feet; 500 Laurustinus, bushy, for pots, 2 feet; 1000 Rhododendrons, set with bloom, for pots; 1000 Tree Box, for pots, 1½ to 2 feet; quantities of Cupressus Lawsoniana, Thujopsis borealis, Cedrus Deodara and atlantica, Junipers, fine Pyramid Portugal Laurels, Red Cedars, 1500 Scotch, Weymouth and other Pines, 6 to 10 feet; Ligustrum ovalifolium, 100 Standard Portugal Laurels, Arbutus, Berberries of sorts, double Deutzia, Euonymus of sorts, also 1000 Specimen Evergreen and Coniferæ Shrubs, comprising Wellingtonias, 4 to 8 feet; Thuja aurea, Cryptomerias, Pinus insignis, Thuja Lobbii and gigantea. The Ornamental and Forest Trees comprise 2000 fine Limes and Planes, 8 to 14 feet; Ailantus, Balsam Poplars, Weeping Willows, 5000 Fruit Trees, consisting of fine Standard Apples, Pears and Plums, Cherries, Walnuts, Gooseberries, Currants; 1000 Standard and Dwarf Roses, together with some fine double Camellias and Azaleas, &c.

May be viewed one week prior to Sale. Catalogues on the Premises, and of the Auctioneer, Tottenham and Enfield.

Hare Hill Nursery, near Chertsey, Surrey.

IMPORTANT CLEARANCE SALE of NURSERY STOCK.

MESSRS. WATERER AND SONS have been instructed by Mr. G. Chapman, to SELL by AUCTION, on TUESDAY, November 9, at 12 o'Clock, and following days, upon the Premises, the whole of the very valuable NURSERY STOCK, comprising 7500 Common Laurel, from 2 to 5 feet; 1500 Portugal Laurel, from 1 to 3 feet; 11,000 green Hollies, from 1 to 3 feet; 12,000 variegated Hollies, from 1 to 3 feet; 7500 common Yews, from 1 to 5 feet; 1000 Rhododendron ponticum; 1200 Aucuba japonica, 1 to 2 feet; 1600 Tree Box; 2000 Cupressus Lawsoniana, 1 to 5 feet; 1000 Pinus austriaca; 700 Weymouth Pine, 2 to 4 feet; 1500 American Arbor-vitæ, 3 to 6 feet; 600 Thuja Lobbii, 300 Cedrus Deodara, 1 to 2 feet; Picea Nordmanniana, Red Cedars, Irish and variegated Yews, Chinese Arbor-vitæ, &c.; ten very fine specimen plants of Thuja aurea, 4 by 3 feet; 2500 Standard, Half-standard, and Dwarf Roses, of the most choice sorts, which will be sold in Lots suitable to the private purchaser and the Trade; 3000 Gooseberry and Currants, of sorts; 2000 Maiden Apples, Pears, Plums, Peaches, &c.; 100 Standard Paul's Scarlet Thorn; large quantity of fine Forest Trees, including 5000 Poplars, of sorts, from 4 to 10 feet; 4000 Norway Maple and Sycamore, from 4 to 12 feet; 10,000 Birch, from 2 to 5 feet; 1000 Mountain Ash, 6 to 10 feet; 2000 Spanish Chestnuts, 2 to 3 feet; 2000 Horse Chestnuts, 4 to 12 feet; 2000 Limes, from 3 to 10 feet; 200 Acacias, 1500 Scotch Firs, 2 to 4 feet; 2500 Spruce Firs, 2 to 3 feet; 10,000 2-yr. Seedling Quick, and a variety of other Plants. Also two very valuable and useful Cart Horses.

The Auctioneers can confidently invite the attention of purchasers to this stock, the whole being young, thriving, well-rooted, and in fine condition for removal. The Nursery is most conveniently situate for railway carriage, being within 1 mile of the Addlestone, 2 miles of the Chertsey and Woking Stations, on the London and South-Western Railway, with communication to all parts of England.

May be viewed seven days prior to the day of Sale, and Catalogues had upon the Premises, and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, Surrey.

Wonersh Nursery, near Guildford, Surrey.

To NOBLEMEN, GENTLEMEN, CONTRACTORS, BUILDING SOCIETIES and OTHERS.

MR. J. BULLEN has been instructed by Messrs. Virgo & Son, the well-known extensive Nurserymen and Florists, to SELL by AUCTION, on the Premises as above mentioned, on WEDNESDAY and THURSDAY, November 10 and 11, at 12 for 1 o'Clock punctually each day, a well assorted stock of TREES and SHRUBS, consisting of 200 Arbutus, 3 to 5 feet; 800 American Arbor-vitæ, 6 to 9 feet; 200 Thuja Warreana, 3 to 5 feet; 300 Cupressus Lawsoniana, 3 to 6 feet; 1000 Pinus austriaca, 3 to 5 feet; 1000 Weymouth Pine, 3 to 5 feet; 300 Portugal Laurels, 1½ to 3 feet; 250 Common Laurels, 3 to 5 feet; 500 Green Hollies, 1 to 2 feet; 20,000 Larch Fir, 1½ to 3 feet; 20,000 Scotch Fir, 2 to 4 feet; 20,000 Alder, 3 to 7 feet; 20,000 Birch, 2½ to 4 feet; 15,000 Ash, 1½ to 3½ feet; 15,000 Spanish Chestnuts, 3000 Sycamores, 3000 Beech, 3 to 5 feet; 4000 Hornbeam, 3 to 6 feet; 70,000 very strong transplanted Quicks, 30,000 Hazel, 2 to 4 feet 6 in.; a choice collection of Ornamental Trees, comprising Horse Chestnut, Spanish Chestnut, Turkey Oak, Sycamore, English Oak, Acacia, Laburnum, Thorns in sorts, Silver-bark Birch, Spruce Fir, Larch Fir, Scarlet Maple, and Poplars in sorts; together with about 50 dozen of choice Rose Trees, in standards and half-standards; and a variety of Fruit Trees in sorts.

NOTE.—The whole of the stock is well selected and in good condition for removing. Wonersh Nursery is a short distance from Bramley Station, on the Horsham Line.

May be viewed two days prior to the Sale, and Catalogues obtained of Messrs. VIRGO AND SON, Wonersh Nursery; "Grantley Arms," Wonersh; "Jolly Farmer," Bramley; "Albion Hotel," Woking Station; "King's Arms," Godalming; "Bush Hotel," Farnham; "Queen Hotel," Farnborough; and of the Auctioneer, 50, High Street, Guildford, Surrey.

Furze Hill and Stratford Road Nurseries,

Shipston-on-Stour, Worcestershire.

HIGHLY ATTRACTIVE SALE of the whole of the valuable contents of the above Nurseries.

MESSRS. BULL AND SON have received instructions from the Representatives of the late Mr. John Jennings, Sen., to SELL by AUCTION, on TUESDAY and WEDNESDAY, November 16 and 17, commencing each day at 11 o'Clock, the very valuable and choice collection of ORNAMENTAL TREES and FLOWERING SHRUBS, Standard and Dwarf ROSES, Standard and Trained FRUIT TREES, Gold and Silver HOLLIES, several thousand LARCH and young FIRS, FOREST and other TREES.

Full particulars will appear in future Advertisements and Catalogues.

The above may be viewed any day by applying to Mrs. JENNINGS, Shipston-on-Stour; or to the Auctioneers, Shipston-on-Stour, and Great Wolford.

Trinity Nurseries, Edinburgh.

SALE by AUCTION, on TUESDAY and WEDNESDAY, November 9 and 10, at 11 o'Clock, at Trinity Nurseries, Edinburgh, in consequence of the ground being taken for feuing purposes, of valuable NURSERY STOCK, consisting of Seedling and Transplanted Larch, Scots Fir, Spruce, Austrian Pine, Oaks, Sycamore, Elms, Hornbeam, Chestnuts, Laurels, Hollies, Cypress, Wellingtonia, Araucaria, Aucuba, Tree Box, Rhododendrons, Azaleas, Roses, and a large assortment of Grafted Ornamental and Weeping Trees, Fruit Trees, Currants, Gooseberries, and a large assortment of Hardy Shrubs. The plants are all in fine condition for being transplanted, having been specially prepared for that purpose,

Catalogues in preparation, and will be sent free on application to PETER S. ROBERTSON AND CO.

THE LOCAL BOARD of WEST DERBY are prepared to receive TENDERS from any person willing to become TENANT of their SEWAGE FARM at Fazakerley.

The Farm, which is within about 5 miles of the borough of Liverpool (which contains important Markets for Farm and Market Garden produce), covers an area of about 207 acres, and has been laid out for the Disposal thereon of the Sewage from the greater part of the district of West Derby.

Any Person taking the Farm would be required to take the Sewage as delivered by the Local Board, and to dispose of the same on the Farm by Irrigation.

Tenders are to be made in Accordance with and subject to the Terms and Conditions of the Specification, which can be seen on application to us, the undersigned, at our Office, 12, Hackins Hey, Liverpool.

Copies of such Specification, with map of the Farm annexed, can be had on application to us at our said Office, at the price of 5s. each.

Orders to view the Farm can also be had on application to us.

Sealed Tenders are to be sent in, addressed to us, to our said Office, endorsed "Tenders for Sewage Farm," on or before December 1, 1875.

The Board do not bind themselves to accept the highest or any Tender.—By order, RADCLIFFE AND LAYTON,
Clerks to the Local Board of West Derby.

Public Offices, Green Lane, West Derby,
near Liverpool.—October 11, 1875

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

Bradford-on-Avon, Wilts.

To NURSERYMEN, MARKET GARDENERS, &c.

TO BE LET, a SMALL but COMPACT NURSERY, with Dwelling-house, Shop, and Outbuildings; with immediate possession. Incoming about £130.

Apply to Messrs. FOLEY AND SON, Manvers Street, Trowbridge, Wilts.

SMALL FARM TO LET.—Tithe free, with the right of Sporting: 116 Acres of heavy Land with Homestead, in the Parish of Everton, near Sandy, Beds. For particulars apply to
SMITH AND ROBINSON, Estate Agents, Hemel Hempstead.

Primula cortusoides amœna.

GEORGE SMITH can supply good strong crowns of this beautiful hardy PRIMULA, out of pots, at 30s. per 100. Trade price on application.
Wilton Road Nursery, Salisbury.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON, Whips Cross and Orford Road Nurseries, Wood Street, Walthamstowe, Essex, N.E., offer the above. Part of their Nurseries being required for building purposes, it must be cleared. Trains from Liverpool Street Station, Great Eastern Railway, to Wood Street Station, which adjoins their Whips Cross Nursery, down and up, every half hour.

TO BE SOLD, by Private Contract, a COLLECTION of ORCHIDS, the property of a foreign Nobleman, and consisting of upwards of 220 plants, in various genera. The plants are in good health, and some of them are fine specimens, *e.g.*, Vanda Lowii, V. Batemanni, V. suavis, Phalænopsis, Saccolabium, Aerides, &c.

For further information address, in the first instance, to *Z., Gardeners' Chronicle.*

General Nursery Stock.

WOOD AND INGRAM'S General Descriptive CATALOGUE of the above, including FRUIT TREES, Hardy CONIFEROUS and TAXACEOUS PLANTS, EVERGREENS, ORNAMENTAL TREES and SHRUBS, HARDY CLIMBERS, FOREST TREES, ROSES, &c., is now ready, and will be sent free on application.
The Nurseries, Huntingdon.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

Phlox setacea.

W. MOFFAT, Botanic Nursery, Biggleswade, Beds, has an immense stock of this hardy and remarkably beautiful Spring Bedding Plant, 7s. 6d. per 100. Also all the best Hybrid Perpetual ROSES, dwarfs, 6s.; Standards, 10s. 6d. per dozen. Package included for cash.

FOREST TREES (Seedling and Transplanted) of sorts. Samples and Prices on application.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

New Rose, H.P. Triomphe de France.

J. MARGOTTIN, FILS, NURSERYMAN, Bourg la Reine, near Paris, begs to inform his Customers, and the Trade in general, that he will sell in November next a magnificent New Rose, under the name of TRIOMPHE DE FRANCE. The flower is of beautiful bright carmine, of extra large size, very full, perfect form, and a free bloomer, moderate or vigorous habit; a most distinct and grand Rose. Price £1 each.

The CATALOGUE of ROSES will be sent on application.

Larch, Limes, Mulberries, &c.

J. DYER has to offer to the Trade, for Cash, LARCH, 2 to 2½ and 2½ to 3 feet, very fine and clean grown; LIMES, 6 to 7 and 8 to 10 feet, with good heads; Standard MULBERRIES, all well rooted, with strong stems and well headed; also a quantity of GOOSEBERRIES and CURRANTS. Prices on application.
The Nurseries, Bridgwater.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, have to offer to the Trade the finest varieties of PANSIES and VIOLAS in cultivation, at the following moderate prices:—

100 Finest Show Pansies, in 40 sorts, 25s. per 100.
100 Finest Fancy Pansies, in 30 sorts, 30s. per 100.
100 Violas, in 20 sorts .. .. .. 20s. per 100.
Selection left to us.

Planting Season.

CHARLES BURGESS begs to offer the following:—Strong Standard, Pyramid and Dwarf-trained FRUIT TREES, ROSES, Evergreen and Deciduous FLOWERING SHRUBS, English OAKS, ELMS, and LIMES, up to 10 feet; Larch, Spruce, and Scotch FIRS, and a general Nursery Stock. Prices on application.
The Nurseries, London Road, Cheltenham.

Ornamental and other Plants at Cheap Prices.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the FOLLOWING PLANTS, of which a good Stock is in hand, at the annexed cheap prices:—

12 Musa superba, stout plants, 36s.
12 ,, discolor and rosacea, strong, 24s.
3 ,, Ensete, stout, 30s.
12 Anthurium Scherzerianum, 48s.
12 Doryanthes Palmeri, stout seedlings, 48s.
12 Ficus elastica, 24s.
12 Coffea arabica, strong, 18s.
12 best varieties of Crotons, 24s.
6 Ficus Parcelli, 12s.
50 Gardenia florida, 25s.
50 ,, radicans, 25s.
6 ,, florida variegata, 12s.
12 Hibiscus sinensis, of sorts, 6s.
12 Marantas, of sorts, 24s.
6 Medinella magnifica, stout plants, 18s.
12 Passifloras, of sorts, 9s.
6 Plumbago capensis, 6s.
6 Stephanotis floribunda, 9s.
12 Bromeliaceous plants, of sorts, 24s.
12 Echeveria atropurpurea, 9s.
24 Tropical Orchids, flowering plants, 60s.
100 fine named Gloxinias, 25s.
50 ,, ,, new Gloxinias, 36s.
50 ,, ,, Achimenes, Tydæas, &c., 15s.
24 Bulbous Begonias, mixed varieties, 30s.
12 named Ornamental-leaved Begonias, 6s.
24 Selaginellas, 12s.
100 Ferns, of sorts, 50s.
100 Hardy Ferns, of sorts, 63s.
12 Yucca aloifolia, strong, 20s.
12 ,, ,, variegata, 36s.
25 Aralia japonica, 18s.
12 ,, ,, strong, 18s.
6 Cycas media, 30s.
6 ,, revoluta, 30s.
12 sorts of choice Dracænas, 30s.

FERNS.

50 Cyathea dealbata, in small pots, 42s.
25 Balantium antarcticum, stout plants, 21s.
6 Cibotium Schiedei, strong plants, 30s.
100 Darea diversifolia, 42s.
50 Pteris cretica lineata, 21s.
12 Asplenium Billangeri, 12s.
12 ,, vivipara, 12s.
6 Lomaria cycadæfolia, 1 foot stem, 10s.
12 ,, Zamiæfolia, 24s.

PALMS.

25 Latania borbonica, stout plants, 50s.
25 Corpyha australis, 50s.
25 Chamærops Fortunei, 50s.
25 ,, humilis, 50s.
25 Livistonia humilis, 50s.
25 Sabal Adansoni, 25s.
100 Phœnix reclinata, 3-yr. seedlings, 21s.
25 Cocos coronata, strong, 63s.
12 Curculigo sumatrana, 18s.
12 sorts of Choice Palms, 42s.

VARIOUS GREENHOUSE PLANTS.

100 Indian Azaleas, with buds, 105s.
100 ,, ,, larger, 125s., and upwards.
100 Camellias, with buds, 125s., and upwards.
100 ,, without buds, 84s.
100 ,, ,, strong plants, 125s.
} My own selection.

100 Acacias, in varieties, 42s.
12 ,, dealbata, strong, 9s.
12 strong bulbs of Cyrtanthus, 24s.
12 fine named varieties of Amaryllis, 36s.
24 sorts of Agave, 50s.
12 Agave filifera, 30s.
12 ,, americana, 18s.
12 ,, ,, variegata, 18s.
12 ,, xylinacantha, 18s,
25 Dracæna Veitchii, fine young plants, 25s.
12 ,, australis, strong, 18s.
6 Orange trees, fine stems, 30s., and upwards.
25 Otaheite Oranges, 30s., and upwards.
6 Standard Oleanders, fine stems, 30s.
6 Nerium Madoni, fl.-albo-pl., 9s.
12 Pittosporum Tobira, 9s.
12 Primula sinensis fl.-alba-pl., strong plants, 12s.
6 Phormium Veitchii fol. var.
25 sorts of choice Cannas, 7s. 6d.

HARDY PLANTS.

100 Spiræa japonica, strong clumps, 25s.
12 Helonias asphodeloides, 24s.
12 Viola pedata, 6s.
25 Adonis vernalis, 6s.
12 choice varieties of Tree Pæonia, 24s.
12 Spiræa palmata, 9s.
50 Euonymus, of sorts, 21s.
12 Skimmia japonica, 6s.
100 fine mixed Gladiolus, 6s.
12 Hydrangea alba-rosea, 9s.
12 ,, paniculata grandiflora, 9s.
25 Asclepias tuberosa, 9s.
25 Ilex, of sorts, 21s.
12 Magnolia grandiflora, 12s.
2 ,, ,, large, in tubs, 30s.
12 ,, purpurea, with buds, 15s.
100 Fine named Ghent Azaleas, with buds, 84s. and upwards
50 choice herbaceous plants, 18s
100 choice Standard Perpetual Roses, £4
100 ,, Half-standard Roses, 50s.
25 Choice Phloxes, 7s. 6d.

CONIFERS.

50 different sorts of Conifers, 40s.
25 Wellingtonia gigantea, 1 foot, 20s.
50 Thuja elegantissima, strong, 60s.
25 ,, Vervæneana, strong, 30s.
12 Thuja semper-aurescens, fine, 30s.
50 Araucaria imbricata, fine plants, 60s.
12 Larix Kæmpferi, seedlings, 3-yr., 60s.

Mangel and Swede.

JOHN SHARPE can furnish, on application, his quotations for the choicest Stocks of the above, selected and grown by himself.

Bardney Manor, Lincoln.

AVENUE TREES.

	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 ,,
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 ,,
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 ,,
,, Scarlet, 10 to 14 feet high	8 to 10 ,,
,, Double, 10 to 14 feet high	8 to 10 ,,
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 ,,
ELMS, 15 to 18 feet	7 to 9 ,,

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots.

They are without doubt the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.

Knap Hill Nursery, Woking, Surrey.

VINES, VINES, EPIPHYLLUMS, TREE CARNATIONS, and CYCLAMENS.

VINES.—Strong, well-ripened, and short-jointed fruiting and planting Canes of the following varieties, 2*s.* 6*d.* to 5*s.* each:—Buckland's Sweetwater, Black Hamburgh, Black Alicante, Foster's Seedling, Gros Colman, Lady Downe's, Muscat Hamburgh, Madresfield Court, Dr. Hogg, Mrs. Pince, Muscat of Alexandria, Seacliffe Black, Trentham Black, White Lady Downe's, West St. Peter's; a few of Waltham Cross, 7*s.* 6*d.* to 15*s.* each; Duke of Buccleuch, 7*s.* 6*d.* to 10*s.* 6*d.*

EPIPHYLLUMS.—Strong grafted plants, 6 to 15 inch stems, heads 6 to 9 inches in diameter, 9*s.* per dozen, 60*s.* per 100; larger plants, 12*s.* per dozen, 90*s.* per 100.

TREE CARNATIONS and CYCLAMENS, fine for this season's blooming, 9*s.* and 12*s.* per dozen, 70*s.* and 90*s.* per 100.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Cranston's Nurseries.—Established 1785.

THE FOLLOWING CATALOGUES are now Published:—

Descriptive CATALOGUE of ROSES, 1875—1876.
Descriptive CATALOGUE of FRUIT TREES.
Descriptive CATALOGUE of CONIFER TREES and SHRUBS.
Descriptive CATALOGUE of BULBS.
Descriptive CATALOGUE of GREENHOUSE and HERBACEOUS PLANTS.
Descriptive CATALOGUE of SEEDS. Address,
CRANSTON AND MAYOS, King's Acre, near Hereford.

Richmond Nurseries, Richmond, Surrey.

To GENTLEMEN, NURSERYMEN, LARGE CONTRACTORS, LANDSCAPE GARDENERS, and OTHERS.

G. AND W. STEELL beg to call the attention of all Planters to their very extensive and fine grown NURSERY STOCK, consisting of an excellent selection of Ornamental Evergreen and Deciduous Shrubs and Trees, Standard and Dwarf Rose Trees, Standard and Dwarf Variegated and Green Hollies of the newest and best varieties, Standard and Dwarf Fruit Trees, &c., which they can highly recommend for their fine growth and moving qualities.

N.B.—Where large quantities are required they can be supplied at very low prices.

Gladioli.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), has the honour to inform his numerous Friends and the Public that he will be prepared to supply them, on and after November 15 next, at the lowest possible price, with all they may require in Gladioli.

NEW VARIETIES for 1875-76 (Souchet's):—

Amaranth	Leandre
Camille	Miriam
Christophe Colomb	Niobe
Esther	Phœnix
Fiammetta	Rosita
Hecla	Titania.

The Twelve Varieties for £3 12*s.*, carriage free to London.

CATALOGUES will be forwarded on application, about the end of October.

Gladioli.—New Roses.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), will place in commerce, in November next, the following magnificent ROSES, obtained by him from seed, and which gained a Silver-gilt Medal at the Paris Exposition in June:—

HYBRID PERPETUALS.

Abel Carrière	Guillaume Koëlle
Dingee Conard	L'Etincelante
Duchesse de Chartres	Mme. Grandin-Monville
Edmund Wood	Mme. Prosper Langier
Général de Cissey	Mdlle. Berthe-Sacavin
Général Duc d'Aumâle	Mdlle. Emilie Verdier.

The Twelve Varieties for £10 16*s.*, carriage free to London.

IMMENSE STOCK of GLADIOLI.

CATALOGUES of Gladioli and of all the New Roses may be had on application, about the end of October.

Bulbs, Bulbs.

THE HEATHERSIDE NURSERIES COMPANY (LIMITED), 59, Queen Victoria Street, London, E.C.: Nurseries—Bagshot, Surrey.

Illustrated CATALOGUES Gratis.

Our special Guinea Collection contains:—

9 Hyacinths, choice named.	12 Anemones, finest single.
9 do., in 3 colours for beds.	3 Lilies.
18 Daffodils, double.	25 Ranunculus.
18 Tulips, mixed, choicest double.	18 Narcissus, double, white.
18 do., mixed, choicest single.	18 do., Poeticus.
6 Jonquils.	18 Tulips, Duc Van Thol.
6 Triteleia uniflora.	6 Polyanthus Narcissus, choicest varieties.
50 Crocus, large blue.	9 Violets, Dog's-tooth.
25 do., large white.	9 Iris, English.
50 do., large yellow.	12 do., Spanish.
25 do., large striped.	25 Snowdrops.
12 Anemones, finest double.	

Packing and Carriage Free.

IMPORTANT NOTICE.

SUTTON & SONS

Will offer the following valuable PRIZES at the Royal Horticultural Society's Meeting, on November 10th next:—

For **Twelve Sutton's Improved Reading Onions**	1st Prize—Silver Medal and	£2 2 0
	2d Prize—Bronze Medal and	£1 1 0
For **Collections of Potatos**, Twelve Dishes, Twelve Specimens to comprise a Dish, distinct kinds, half Kidney and half Round, to include Sutton's Hundredfold Fluke and Sutton's Redskin Flourball ..	1st Prize—Gold Medal and	£3 3 0
	2d Prize—Silver Medal and	£2 2 0
	3d Prize—Bronze Medal and	£1 1 0
For **Six Specimens** of **Sutton's King of the Cauliflowers** ..	1st Prize—Silver Medal and	£2 2 0
	2d Prize—Bronze Medal and	£1 1 0

NO CHARGE FOR ENTRY.

For further particulars apply to Mr. A. F. BARRON, *Superintendent of Exhibitions, Royal Horticultural Society's Gardens, South Kensington, London.*

SUTTON & SONS will also offer, at the ROYAL BERKSHIRE ROOT SHOW, on November 20th next,

A SILVER CUP for the BEST COLLECTION of VEGETABLES,

A SILVER CUP for the BEST COLLECTION of POTATOS,

AND VALUABLE MONEY PRIZES.

No charge for entry. For further particulars apply to

SUTTON & SONS, The Queen's Seedsmen, READING.

SWEET-SCENTED HYBRID RHODODENDRONS

RAISED BY

ISAAC DAVIES,

BROOK LANE NURSERY, ORMSKIRK.

RHODODENDRON COUNTESS OF DERBY.

This beautiful Hybrid is the result of a cross between the best variety of my R. multiflorum and R. Edgworthii, its habit of growth being intermediate between the two parents. The flower, which is of great substance, and measuring from 3 to 4 inches in diameter, is pure white, bell-shaped, and most deliciously fragrant; so free-blooming is the plant that the smallest cuttings bear a truss of flowers. The parent plant, and a number of smaller ones in flower, exhibited at the Manchester Botanical and Horticultural Society's Exhibition, held in the Town Hall, Manchester, on April 27, 1875, were awarded a First-class Certificate of Merit. Plants are now offered for the first time. Price, 21*s.*, 42*s.* and 63*s.* each.

RHODODENDRON DUCHESS OF SUTHERLAND

Differs from R. Mrs. J. Shawe in being a more robust grower, the flower larger, pure white, with beautifully fringed margin.

Price of strong plants, 10*s.* 6*d.* and 21*s.* each.

RHODODENDRON COUNTESS OF SEFTON.

This was raised from the same parent as R. Countess of Derby, and possesses many of its good qualities, the plant being of a bushy compact habit, the flower fragrant, large, cup-shaped, white, with a band of rosy purple on each side of the corolla, which is beautifully fringed on the margin.

Price of nice plants, 7*s.* 6*d.*, 10*s.* 6*d.*, 21*s.* and 42*s.* each.

RHODODENDRON LADY SKELMERSDALE

Differs from the above in the flower being pure white and more trumpet-shaped, with beautiful even edge; the form is very handsome. Price, 7*s.* 6*d.*, 10*s.* 6*d.*, 21*s.* and 42*s.* each.

RHODODENDRON MRS. JAMES SHAWE.

A pure white cup-shaped flower of great substance. The plant is of a very bushy habit, bearing bloom in great profusion on the smallest plants.

Price, 7*s.* 6*d.*, 10*s.* 6*d.*, 21*s.* and 42*s.* each.

☞ I. D. can confidently recommend the above. They are the best he has raised of this class, and far superior to any yet sent out by other raisers, their bushy-growing and free-blooming habit, their handsome, sweet-scented flowers and their being so easily cultivated, make them invaluable for greenhouse decoration. Having been grown in cold frames during last winter without injury, it is very probable they will endure the winter in the open ground in favourable situations. These are certainly the finest Rhododendrons that have ever been offered to the public.—N.B. A full List of other Novelties raised by me post free on application.

NEW, RARE, and CHOICE LILIES.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 9, at half-past 12 o'Clock precisely,

Many thousands of the Best and Choicest Known Lilies,

in good Flowering Bulbs, comprising some hundreds of the handsomest CALIFORNIAN LILIES, just received by express, overland, including a number of the rare L. purpureum, L. californicum, L. Washingtonianum, and L. Humboldtii. Also, a quantity of other CALIFORNIAM BULBS, such as Cyclobothras, Bloomerias, and Brodiæas; and a quantity of Bulbs of the rare and beautiful Lilium Krameri, L. callosum, L. tigrinum flore-pleno, L. Thunbergianum splendens, L. superbum, L. canadense, and some good Bulbs of the rare L. Wallichianum. Also, a great quantity of AMARYLLIS, and some magnificent extra-sized Bulbs of LILIUM AURATUM, with good Bulbs of the new and extremely handsome CRINUM ORNATUM RUBRO-VITTATUM —flowers white, striped with crimson, one of the most beautiful Crinums ever introduced.

In this Sale will be comprised a large quantity of a Lily, collected and sent from California as the new Lilium Bloomerianum Oscellatum, but the Bulbs are very unlike those imported last year of that variety; they are also unlike the bulbs of any of the other Californian Lilies with which we are acquainted, and therefore may prove a totally new kind. Also, some Bulbs of LILIUM TIGRINUM JUCUNDUM, a new Lily, which although belonging to the tigrinum section, has glabrous leaves and green stems, with an entire absence of bulbils in the leaf axils; flowers light cinnabar-red, marked in the lower half by black dots.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

TO THE TRADE. *Carters* TO THE TRADE.

LIST of VEGETABLE and FLORAL NOVELTIES
FOR 1876,

Is now in the Press, and will be forwarded to their Trade Customers, on Monday, November 7th.

237 & 238, HIGH HOLBORN, LONDON, W.C.

NEW PEAR—"LUCY GRIEVE."

E. G. HENDERSON & SON

Have much pleasure in offering this really fine Pear as a most valuable addition to its class of fruits for the dessert. A First-class Certificate was awarded to its merit by the Royal Horticultural Society, and the following description of it is given by Dr. Hogg in his recently published "Fruit Manual," a Coloured Illustration of which will be forwarded for six postage stamps; a double outline of the fruit, with Dr. Hogg's description, is also given in the "Gardeners' Year-Book" for 1874:—

LUCY GRIEVE.—"Fruit large, above the average, upwards of 3 inches long, and 2½ wide, oval in outline, combining the features of Glou Morçeau and Swan's Egg. Its complexion lemon-yellow, with a red blush towards the sun, and the whole surfaced with cinnamon-coloured russet dots. Flesh white, very tender and melting, very juicy, and richly flavoured. It is a delicious Pear, having the texture of flesh found in Marie Louise, and ripens in October."

10s. 6d. each. Pyramids, 21s.

The seed of this Pear was sown in a flower-pot by the daughter and only child of Mr. Peter Grieve, gardener at Culford Hall, near Bury St. Edmunds, who carefully tended the plants till they were large enough to be planted out, but ere the first of them bore fruit, in 1873, the little maid was in her grave. The first-class qualities of this fruit will perpetuate her name, and as a living record become at once a professional *souvenir* and "forget-me-not."

The wholesale trade firms upon E. G. HENDERSON & SON'S books have each had a Coloured Illustration sent, with a List of New and other Plants, specially priced for October and November. Any other Firm can have a copy of their Priced List sent free, and the Illustration also, for six stamps.

A NEW AUTUMN CATALOGUE

Of Miscellaneous Hardy and Exotic Bulbs, Roses, Fruit Trees, Spring-flowering Bedding Plants, &c., sent free on application.

THE WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

HORTICULTURE IN ALL ITS BRANCHES.

THE PINE-APPLE NURSERY COMPANY,

MAIDA VALE, EDGWARE ROAD, LONDON, W.,

NURSERYMEN AND SEEDSMEN,

ARCHITECTS AND ENGINEERS.

This Company possess inexhaustible resources for the supply of ORNAMENTAL TREES and SHRUBS, FRUIT TREES, GRAPE VINES, HERBACEOUS and ALPINE PLANTS, ROSES, STOVE and GREENHOUSE PLANTS, &c., in every size and variety.

The SEED and BULB DEPARTMENT, which is an important and extensive branch, is conducted by men of ability and experience. Every variety and class is warranted of the best quality, and true to name and description.

Great attention is paid to the make, form and quality of GARDEN IMPLEMENTS; the most improved kinds are supplied from the best manufacturers.

The GRAND WINTER GARDEN CONSERVATORY is one of the finest productions of modern Horticultural Building.

The *Morning Post* thus refers to it:—"The Pine-Apple Nursery at Maida Vale has a history and reputation of its own. It is now a place of pleasure as well as of utility, and is in such a state of perfection probably not surpassed throughout the world. The Exhibiting Department is a superb conservatory, of colossal dimensions, enriched with a profusion of the most beautiful plants."

The HOT-WATER APPARATUS at this Establishment is the most extensive of any Nursery in the world. The water circulates freely through 12,700 feet of cast-iron pipe, effectually heating on the one-boiler system the great Winter Garden Conservatory and thirty other large hothouses, all or either of which can be regulated at pleasure.

ILLUSTRATED and DESCRIPTIVE CATALOGUES are published in frequent succession, and contain a mass of practical information, also lists of all the leading novelties worthy of introduction, Free by Post, on application to

THE PINE-APPLE NURSERY COMPANY,
Maida Vale, Edgware Road, London, W.

Rhubarb Roots.

W. FROMOW, having lately taken some ground of a Market Gardener, has a large quantity of extra strong Roots of LINNÆUS to Dispose of, the ground being wanted for nursery stock. Excellent for forcing. Price to Trade and others on application. Low price for quantity.
Sutton Court Nursery, Turnham Green, W.

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other DUTCH ROOTS, in fine condition. Early orders are requested. CATALOGUES free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

THE NEW PLANT AND BULB COMPANY beg to call attention to their unrivalled collection of LILIUMS, the present being a most suitable time for planting. Their Bulbs are this season remarkably fine.
For further particulars see CATALOGUE, sent free on application, which also contains Bulbs of all kinds, rare Terrestrial Orchids, and other plants from North America; Tropical Orchids, Tree and other Ferns, all at very low prices.
Lion Walk, Colchester.

Mulberries.—Important to the Trade.

SALTMARSH AND SON'S stock of the above consists of several thousand fine, healthy, well-grown Standards of various sizes, and may fairly be said to be unsurpassed, if equalled, in the Trade. The system adopted in their cultivation prevents the ugly knotty stems so frequently seen. Prices per dozen or per 100 on application.
N.B.—A few fruit-bearing trees with good heads can be supplied. The Nurseries, Chelmsford, Essex.

Vines, Vines, Vines.

B. S. WILLIAMS begs to announce that his stock of VINES is now in fine condition, and ready for sending out. It comprises all the leading kinds, strong Canes of Pearson's Golden Queen.
For prices and description see BULB CATALOGUE.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

To the Trade.—Seed Potatos.

H. AND F. SHARPE are prepared to make Special Offers of SEED POTATOS grown on their own Farms from the finest selected stocks. Their List this season comprises all the English and American varieties worthy of cultivation. The prices will be found very moderate.
Seed-growing Establishment, Wisbech.

Hoteia (Spiræa) japonica.

E. H. KRELAGE AND SON, Haarlem, Holland, have a very fine Stock of the SPIRÆA JAPONICA, good plants for forcing, to offer to the Trade. The plants are remarkably well grown this year. Price per 100 and 1000 on application.

To the Trade.

Home-grown GARDEN and AGRICULTURAL SEEDS.

H. AND F. SHARPE'S Wholesale Special Priced LIST of the above Seeds of 1875 growth is now ready; it comprises all the best sorts in cultivation. The quality is very fine, and the prices will compare favourably with those of other growers.
Seed Growing Establishment, Wisbech.

New Pelargoniums Raised by Mr. George.

GEORGE SMITH has now a Good Stock of the beautiful HYBRIDS and ZONALS to offer; the Stock last Spring was was very limited and all orders could not be supplied. G. S. having since flowered them recommends them with confidence, as distinct and desirable varieties to add to the choicest collections. The set of nine now ready, in good plants, for 18s.

SIR GARNET WOLSELEY (H.N.), crimson upper petals, shaded purple, large bold flower of great substance and very large truss. Received a First-class Certificate, South Kensington, July 15, 1874.
GEORGE FREDERICK (Z.), orange-scarlet, large flower, extra fine form, zoned foliage.
BLACK PRINCE (H.N.), very deep glowing scarlet, very large truss, good habit and distinct.
CELEBRITY (Z.), lustrous orange-scarlet flowers, pip stout and circular, large showy trusses, plain foliage.
BELLE OF SURREY (H.N.), white, with large, distinct carmine centre, fine truss and distinct.
ROSE UNIQUE (H.N.), lively salmon-rose hue, flushed with orange, fine pip, noble truss.
ENCHANTRESS (H.N.), crimson, margined with deeper colour, flushed with purple, very fine bold truss and distinct.
PAR EXCELLENT (Z.), fine bright scarlet, white eye, large pip, very fine form, extra large bold truss.
NEMESIS (George Smith), nosegay, very brilliant scarlet, large pips, immense truss of compact form, and a grand flower for exhibition.
Tollington Nursery, Hornsey Road, Islington, London, N.

SPRING-FLOWERING PERENNIALS, &c., for Spring Gardening, Carpet Bedding, and Herbaceous Borders:—

Ajuga reptans fol. var., Aubrietia purpurea fol. var., Campanula persicifolia and C. persicifolia alba, C. carpatica and C. carpatica alba, Cheiranthus Marshallii, C. alpina, Dianthus barbatus fl.-pl., D. barbatus nanus compactus, Seedling Delphinium, Helianthemums in named sorts, Lithospermum prostratum, Lychnis of sorts, Œnotheras in variety, Saxifrages in twelve kinds, Sedums in twelve sorts, Spiræa filipendula fl.-pl., Schizostylis coccinea, Violet Victoria Regina. All the above at 2s. 6d. per dozen.

Alyssum saxatile, Antennaria tomentosa, Aubrietia purpurea, Barbara præcox fol. var., Canterbury Bells, double and single, Iberis coriifolia, I. Tenoreana; Violas, alba, Enchantress, Magnificent, lutea, and grandiflora; Arabis albida, Phlox frondosa, P. verna, Silene pendula compacta, S. pendula compacta alba, Armeria rosea, and Veronica incana. Any of the above at 1s. 6d. per dozen; 50 for 5s.; 100 for 9s.

Daisies, red, white, or rose; Wallflowers, double or single; Dactylis elegantissima, Golden Pyrethrum, Myosotis dissitiflora, M. sylvatica, M. sylvatica alba or rosea, Polyanthus, Sedum acre elegans, S. glaucum, S. lividum, Sempervivum tectorum, S. californicum, Stellaria graminea aurea, and Sweet Williams. Any at 1s. per dozen; 50 for 3s.; 100 for 5s.

For descriptions, &c., of above, and for Spring-flowering Bulbs to plant with above see CATALOGUE, post free on application.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

Large Yellow Crocus.

E. H. KRELAGE AND SON, Haarlem, Holland, have a large surplus stock of large Yellow CROCUS of all Sizes at the disposal of the Trade. Prices per 1000, 10,000, and 100,000 on application. Large quantities will be offered at a very low figure.

ORANGE TREES.—To be Sold, either together or in pairs, four fine grown Tangierine Orange Trees, measuring about 5 feet high, and 3 feet 6 through the centre; they are thickly set with fruit, and planted in handsome slate boxes. Apply to
The GARDENER, Beech Grove, Sunninghill, Berks.

VENN'S SEEDLING BLACK MUSCAT combines all good qualities of a Grape. First-class Certificate Royal Horticultural Society, Kensington; also wherever exhibited. Patronised by the principal Grape growers in the kingdom, also by Prince of Wales. Abundant bearer, delicious flavour, thrives equally in hot or cold houses. Hangs perfect until March. Fine planting Canes now on sale, reduced price 15s., delivered to order on receipt of Cheque or Post Office Order, payable to
THOMAS Y. VENN, Sneyd Park, near Bristol.

To the Trade.

BILLING ROAD NURSERIES, NORTHAMPTON.
JOHN PERKINS AND SON beg to call particular attention to their large stock of Standard and Dwarf-trained FRUIT TREES, APPLES, PEARS, PLUMS, PEACHES, NECTARINES, and APRICOTS, strong GOOSEBERRIES and CURRANTS, EVERGREEN SHRUBS, CONIFERÆ, and FOREST TREES. Trade LIST upon application to
52, Market Square, Northampton.

CHOICE WINTER FLOWERS.

RHODODENDRON MULTIFLORUM, with 100 to 200 bloom-buds, 2s. 6d. to 3s. 6d. each.
,, PRÆCOX, 1s. 6d. to 2s. 6d. each.
AZALEA DAVIESI, 2s. 6d. to 5s. each.
,, HYBRIDA ODORATA, 2s. 6d. to 5s. each.
All nice bushy plants, covered with flower-buds.
A Descriptive PRICED LIST of these and other Novelties Free on application to
ISAAC DAVIES, Nurseryman, Ormskirk.

JAMES IVERY AND SON, Dorking and Reigate Nurseries, beg to offer the following LARGE EVERGREENS, PINUS, &c., fit to produce an immediate effect:—
PINUS AUSTRIACA, in heights varying from 6 to 10 feet.
,, EXCELSA, ditto, from 8 to 20 feet.
,, CEMBRA, ditto, from 6 to 10 feet.
ABIES DOUGLASII, ditto, from 8 to 15 feet.
,, MENZIESII, ditto, from 6 to 10 feet.
CUPRESSUS LAWSONIANA, ditto, from 6 to 9 feet.
CEDRUS DEODARA, ditto, from 6 to 15 feet.
YEW, Irish, ditto, from 6 to 9 feet.
,, Common, ditto, from 6 to 10 feet.
LAUREL, Common, ditto, from 4 to 6 feet.
BOX, Green, ditto, from 4 to 5 feet.
HOLLY, Green, ditto, from 6 to 9 feet.
SCOTCH, SPRUCE, and WEYMOUTH FIR, ditto, from 6 to 10 feet.
LIMES, dltto, from 8 to 20 feet.
BIRCH, ditto, from 8 to 10 feet.
WALNUTS, ditto, from 8 to 10 feet.
POPLARS, of sorts, ditto, from 8 to 10 feet.
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SATURDAY, OCTOBER 30, 1875.

CHRYSANTHEMUMS.

THE subject of the date of introduction of many of our most common and most popular garden plants has more than once been brought forward in these pages; and we have before this drawn attention to the fact that many of the flowers which ornament the smallest and poorest garden now-a-days were not, indeed, rare, but absolutely unknown among the horticulturists of former days. When speaking of Pelargoniums a few weeks back, we gave the dates of the first appearance of those now indispensable border plants in our gardens; and we now propose to trace in a similar manner the history of the introduction of another indispensable denizen of our gardens—we mean the Chrysanthemum.

It would, indeed, be difficult to over-estimate the value of this handsome plant in all its varieties. Just at the present season of the year, when the approach of winter is felt in the sharpness of the mornings, however bright they may be, when the Pelargoniums and Heliotropes are, as it were, in daily expectation of their final "notice to quit," when the Dahlias are on the eve of departure, and the Calceolarias show symptoms of speedily approaching dissolution—just now it is that the hardy Chrysanthemum comes to the front in its varied hues of pink and white and gold, and brings with it a renewed lease of cheerfulness to our borders, which does much to carry us through a good part of the flowerless and dreary winter season. Like the Pelargonium, the Chrysanthemum is equally at home with rich and poor, in the greenhouse of the former as in the small back garden of the latter; and it has one advantage not shared by the Pelargonium but boasted by the old-fashioned border flowers, in that it is a hardy perennial, and, once established, will blossom year after year without any further trouble. Moreover, although Geraniums, or rather Pelargoniums, are by no means deficient in variety, the Chrysanthemum excels them in this particular, and that not only in the varied colours, but in the forms assumed by its blossoms.

China and Japan — to which countries our houses and gardens are indebted for many of their most favourite inmates—have sent us the Chrysanthemum, which seems always to have been held in great esteem in its native land. All the early travellers and botanists who visited China seem to have been struck with the beauty and variety of its blossoms, and refer to it as one of the characteristic plants of that region. Gemelli, who travelled in China in 1696, tells us how the Chinese set Chrysanthemums between the rows of bricks in their courts "to make fine walks." He says "they plant them in spring; in two months they grow a yard high, and last four or five months." Loureiro, a Portuguese Jesuit missionary, to whom we are so largely indebted for our knowledge of the plants of Cochin China, a country in which he travelled at the end of the last century, mentions the Chrysanthemum among the plants which he saw on his journeys in that country; and Thunberg refers to it as being cultivated in all the gardens of Japan, and as occurring in a wild state in the neighbourhood of Nagasaki. The fullest account, however, by any early writer, is that given by Rumphius in the *Herbarium Amboinense* (1741-55). He tell us how the plant was cultivated not only in China and Japan, but also in India and Malaya, and mentions the infinite number of varieties which were grown in these countries, and how very large blossoms were secured. On the occasion of an entertainment given by a Chinese he decorates his tables and windows with Chrysanthemums; and he who can produce the largest flower is considered to bestow great honour upon his guests. He also mentions a variety, the Chinese name of which signifies "the drunken woman," the small white flowers of which hang down in the morning, become upright during the day, and in the evening droop again. Mr. Fortune, to whose intimate connection with Chrysanthemum culture we shall again recur, has many references to its cultivation in China and Japan. Perhaps the oddest use of the flowers is that to which they are put by the people of Jeddo, where the tea-gardens are adorned with "imitation ladies" made up of these blossoms. "Thousands of flowers," says Mr. Fortune, "were used for this purpose; and as these artificial beauties smiled upon the visitors out of the little alcoves and summer-houses, the effect was oftentimes rather striking." He mentions a method of growing the Chrysanthemum which, so far as we know, has not been attempted among ourselves: they are grafted upon the thick stems of a species of Artemisia, and are then trained as standards, after the manner of our standard Roses, growing with great vigour under these somewhat singular circumstances.

The Chrysanthemum of our gardens includes two distinct species, or, perhaps, more correctly, two distinct races of a common type, one of which is represented by the "Pompon," and the other by the tall, loose-growing plant, with large, usually pink or yellow flowers, which is common in suburban gardens, and to which may be referred all the large handsome forms which are so attractive at the annual Chrysanthemum shows, and notably in the Temple Gardens. The former of these, which is known to the botanist as Pyrethrum indicum, although often considered as a more recent introduction, was undoubtedly known to English horticulturists and botanists before the latter species (P. sinense) was introduced. It is represented in various old collections in the Sloane Herbarium, and is the plant figured by Plukenet in his *Phytographia* (1692), as is clearly established by the original of this engraving, which is preserved in the British Museum collection; none of the many specimens from various collectors appear to represent C. sinense with any degree of certainty, although there are one or two which might possibly be small forms of that species. The earliest specimen we have seen which undoubtedly belongs to that species is one in the Banksian Herbarium, brought from China by Sir George Staunton, who travelled in that country in 1793. But previous to this the "Pompon" had been in cultivation in our gardens. In the year 1764 a specimen was presented to the Royal Society among the fifty plants which the Chelsea gardens annually sent to that body, in accordance with the terms of the deed of conveyance by which the land on which they were formed was transferred from Sir Hans Sloane to the Apothecaries' Company, so that the plant must have been grown there before that period. This specimen is also preserved in the British Museum, and is certainly referable to P. indicum; but the plant was probably soon afterwards lost to cultivation, at any rate, when the present race of Pompons was introduced by Mr. Fortune, and became popularly known as the Chusan Daisy, it was regarded as an entire novelty.

Turning now to the large-flowered Chrysanthemum, P. sinense, we cannot do better than extract the following account of its introduction from Mr. Sabine's paper in the *Transactions of the Royal Horticultural Society* for

1822. This paper, by the way, with two others by the same author, in the *Transactions of the Linnæan Society*, vols. xiii. and xiv., will be found to contain a vast amount of information relative to the Chrysanthemum, and should be carefully consulted by any one who may be anxious to work up the subject more completely and more in detail than is possible in a necessarily brief paper like the present. "To the zealous gardeners of England," he says, "and more especially to Sir Abraham Hume, we are indebted for the many kinds of Chinese Chrysanthemums which we now possess; but the credit of their first reappearance [he is writing under the supposition that the Chelsea garden plants belonged to this species], as far as their present existence is concerned, belongs to M. Blancard, a merchant of Marseilles, who in 1789 imported three different plants from China, one with purple, one with white, and one with violet flowers. He lost the two last; the first lived, and was sent to the Jardin du Roi at Paris in 1791. This is the purple variety; it had been transmitted to this country from France in 1790, and, after its arrival here, the changeable white was obtained from it by cultivation." This so-called purple variety is the pink-flowered Chrysanthemum, which is perhaps the commonest form of the species; it was introduced to Kew from M. Cels, of Paris, in 1790, and flowered first at Colvill's nursery, in the King's Road, Chelsea, in November, 1795; it was figured by Curtis in the *Botanical Magazine* of the following year (tab. 327). "Between the years 1798 and 1808, inclusive, eight new varieties were imported from China into England in the following order: the rose and the buff together, in 1798; the golden-yellow and the quilled yellow together in 1802; the sulphur-yellow at the latter end of the same year; the Spanish brown in 1806, and the quilled white and large lilac together in 1808. Later importations have produced two others, the Tasselled white in 1816, and the Superb white in 1817."

The distinctness of the two species of Chrysanthemums was established by Sabine in 1823, and from a note in his paper in the *Linnean Society's Transactions* (vol. xiv.) it would seem that P. indicum had again made an appearance in English gardens, having been imported by Mr. Samuel Brooks, of Ball's Pond, from China, and presented to the Horticultural Society. Its last and permanent re-introduction by Mr. Fortune, when it became known as the "Chusan Daisy," is of comparatively recent date; and the history of the varieties of both species during the last thirty years may be traced by any one who will take the trouble to go through the horticultural journals of that period. The popularity of the Chrysanthemum may be said to date from 1827, when about forty varieties were in cultivation, distributed mainly through the agency of the Royal Horticultural Society.

The specific name, sinense, applied to the Chinese Chrysanthemum is somewhat misleading, as it appears that this plant, though in general cultivation in China, is not a native of that country, but is indigenous to Japan. In America it, as well as P. indicum, is in general cultivation, and would seem to be more or less naturalised in some regions of that continent, as Decandolle mentions that Vauthier collected specimens in Brazil, near Rio de Janeiro. P. indicum is of wider range, occurring spontaneously in China and Japan, and also in India, although in the last-named country, where it has always been a popular garden plant, it may be naturalised rather than truly indigenous. In the Mauritius both are known indiscriminately by the name of "Fleur de S. André," in allusion, it would seem, to their time of flowering in France, whence they were no doubt introduced—St. Andrew's Day being November 30. In connection with the French history of the Chrysanthemum it must not be forgotten that a M. Bernet, of Toulouse, originated the idea of raising the plants from seed; and some new varieties resulting from his experiments were brought into cultivation in 1826.

It would be quite impossible to give any adequate notion of the number or characters of the hundreds of varieties of Chrysanthemum now in cultivation; such an attempt would, moreover, be foreign to our intention, which has only been to give a short *résumé* of the history of their introduction. We shall therefore content ourselves with a mere passing allusion to the distinct races of the large-flowered species which have at a comparatively recent date been brought to our gardens; we allude to what are termed "Japanese Chrysanthemums," which in their eccentric irregularity and diversity of form are among the most remarkable of flowering plants. In our columns for 1861 (p. 550) figures of three or four of the first introduced of these bizarre and strange productions will be found, but they have been far surpassed in quaintness by the forms which have since been exhibited in this country. In concluding our sketch, we would advise all our readers who are able to make a point of visiting the approaching annual Chrysanthemum show in the Temple Gardens, with which, year by year, our metropolis is brightened during what is perhaps the dreariest and dullest of our dreary and dull winter months. *B. M.*

AMERICAN PEACHES
UNDER ENGLISH CULTURE.

THE recent introduction of American Peaches on a large scale into our markets is a remarkable fact, and may eventually cause some disturbance in the course of home production. Some articles of interest have appeared on this subject, and it may be useful to record my own experience in the culture of these foreign Peaches, which has now extended over some fifteen years, and has included nearly every variety introduced into Europe.

There are many native seedlings unknown to us, of course, but the best of all have been sent over for trial in England and in France. My own were tried in unheated orchard-houses, which, however, were capable of ripening some of Mr. Rivers' seedlings by the first week in June, whilst our latest fruit was eaten as late as December. This gave about six months for the purposes of trial.

Fire-heat, of course, would have modified the general results, but, as a rule, American Peaches, with bright exceptions, are a failure here. Let, then, the intending grower profit by my experience; Americans may also be curious to know which varieties have done best, and there is a "future," no doubt, for others raised by judicious crossing, which, to my mind, is the safest form of acclimatation.

Of American Peaches the most valuable, and also much cultivated in England, is probably Early York; it does well in France also, though subject to mildew, being glandless. Probably the finest, at least it is the most showy, is Exquisite, a Georgian Peach; it was first fruited in Europe by me, and the Peach, a yellow-fleshed one, reached to 11 inches round. Mr. Douglas, I see, still shows it, much to his credit, for it requires careful culture, and sets badly without fire-heat. The original tree is still here. Stump the World has not kept pace with its pretentious name, and has been destroyed by me, though it is worth trial where heat is at command, and, when well grown, is a monstrous Peach of 11 inches or more, of melting flesh and lovely colour.

Early Crawford is a fine, large Apricot-flavoured sort; it also requires care to grow well. Hale's Early is another good early American Peach, only lately known here, though so common in its own country. Some early sorts, like Troth's Early, &c., are not known to us, and will not be ever required now that Mr. Rivers' seedlings have completely distanced them even in Texas and elsewhere. Canary I grew many years, some like it still, and it has merit, but it is not first-rate by any means, nor has it succeeded at Angers. Golden Purple is still valued and excellent here, but it does not seem to be the same tree in every catalogue. Van Zandt's Superb is a fair Peach, but not equal to many at its date of ripening. Thomas' Late is a clingstone, which English people never like, but it is a good late Peach; I had it some twelve years and then destroyed it. Baldwin's Late was long in our houses as our very latest Peach, and I am disposed to recommend it where fire-heat is available. It was a prize-taker and a curiosity, and having many trees of it these became finally troublesome; this was the Peach we ate in December.

Most of the other American varieties are either now superseded or were never suitable for Europe. Amelia was a wretched October fruit, so were Asceola, Bernade, Pyramidal, Tippecanoe, White, and Tecumseh, all late September sorts and valueless. At that season only very excellent Peaches can be endured.

Coigneau is an August Peach, good, but not wanted where Early York is. Drindhill, a fortnight later, is a yellow sort of no value. Heath Cling was much better here with us, but we soon destroyed it. Morrisania, moderately good, not required here; it and Prince John were September fruits.

It would be useless so say much about the others, not, however, omitting Bergen's Yellow, which we liked well, but, being a clingstone, it is inferior to grow, compared with other clingstones.

Colombia, Henriette, President, Georgia, Crawford's Late, and Late Rareripe proved to be useless. Gorgos, however, was a finer fruit, but, coming in September, had many rivals.

Mr. Rivers used to be amused at my enthusiasm for what he called "the Yankee Peaches." But experience has proved that they are not generally well adapted for our climate, while, even in America, it is becoming recognised as a fact that English very early seedlings are displacing the natives on their own ground. Our neighbours, the French, also, though proverbially cautious in adopting English fruits into their systems of culture, have just "officially" decided on recommending Early Louise for general open-air use. It may be remembered that some months ago I had pointed out that their best catalogues were without the name of this Peach. But there never could have been any doubt on this point, nor that this Peach will be our best earliest market one, and also in America. But for its defect at the stone, Early Rivers would, however, have proved the larger, the more delicious, and the handsomer fruit, being also some days earlier in ripening. It is possible that its weakness may not be so apparent under the burning sunshine of Texas or California, and it may be the parent of some very valuable new sorts by judicious crossings. *Thomas C. Bréhaut.*

ROOT-PRUNING.

THE beneficial effects of root-pruning, under certain conditions of growth and soil, are, I believe, generally admitted by skilful fruit cultivators, and, as the present season is the best time for carrying out the operation, I have thought that a few words relating thereto may not be without use to some of your readers. There are some cultivators, however, who are averse to any interference with the roots, and who base their objections on the idea that it is not in accord with Nature; but then it must be remembered that all things under cultivation are in a state of artificial existence, and if the argument is good in one case, it ought to apply equally to pruning, training, or other means used to restrict growth. In speaking of root-pruning I do not mean the rough-and-ready method too often in vogue, of simply opening a trench round a tree and slashing away all roots the spade may come in contact with. This, to say the least of it, is a barbarous practice, and is no more root-pruning, in the proper sense of the word, than it would be to prune the top with a billhook or such-like implement.

Great care should be exercised in opening the trench, so that the small fibrous roots may not be destroyed or injured, as the object in root-pruning is to increase the number of these minute feeders as much as possible. This may be done at least a hundredfold by severing all the large gross feeding roots that appear rambling away from the tree or diving into the subsoil below. The latter, if allowed to go unrestrained, soon produce strong watery shoots in the tree, and when such is found to be the case it becomes necessary to check such redundancy of growth by severing the roots that cause it. These, then, should be carefully sought out, by opening a trench at a good distance from the tree to be operated on; and how far or near this should be must, of course, depend on the size of the tree and the probable depth to which its roots have penetrated. The best tool for the purpose is one of the ordinary steel digging forks, as with this a workman of ordinary skill will be able to remove sufficient soil to expose the whole of the large roots to view without causing the least damage to such as it may be desirable to retain intact.

The distance from the tree at which the roots should be severed may be roughly stated at from 3 to 5 feet, but in this the operator must be guided by the kind of growth the tree makes, and the character of the soil in which it is growing. When severed with a sharp knife, any that were found low down, for about making

their way into the subsoil, should be raised to a much higher level when filling in the trench, so that the fibrous roots emitted from them may be within the fertilising influence of sun and air. It has no doubt been observed by most cultivators that trees frequently under removal are always better set with flower-buds and by far the most fertile. This fertility is brought about by the large masses of small root-fibres such trees have as compared with others that have been long standing in the same situation. It, therefore, becomes obvious that when the fruit-bearing properties of a tree begin to fail through excess of vigour the quickest way to set the matter right is to replant or root-prune. In the case of a large tree an entire removal and replanting would be far too great a check, and the same end may be gained by severing most of the large roots. I have in my mind a case of some large Apple trees that were so operated on a few years back, whose growth at that time was so excessively vigorous that they seldom bore a crop. These were root-pruned, and at the same time a portion of the roots that had penetrated the wet subsoil were raised, and the result has been that the trees have since borne splendid crops of fruit.

I am not to be supposed as recommending root-pruning to be carried out on all trees of a fruit-bearing kind, or that it is alike beneficial in all kinds of soil; and I may here remark that the reverse of this is the case, as in some soils the very interference that brings about fertility, would, in others of a poorer character, most likely have the reverse effect, by throwing the trees into a state of weakness and decrepitude. A certain amount of vigour is essential to the production of fine fruit, and it is only when this runs to extremes that any interference is necessary. The thing, then, is to check unruly growth and preserve the happy medium, that fruit-buds may be produced instead of superfluous wood. Peaches and Nectarines are very apt to run riot, on account of the borders being cultivated, and the roots coming in contact with rich manurial matter. When these are found to be producing a strong watery shoot the feeding-root that is supplying the crude sap that led to its formation should be diligently searched for, and, when found, should be either entirely cut off or shortened back to within a foot or two of the tree. It is useless attempting to rectify matters by pruning the top, as the removal of one strong shoot is sure to be followed by another again and again, unless the cause that leads to their formation is checked also.

Many of your readers may not be so favourably circumstanced in the matter of soils as to render root-pruning necessary, and the difficulty with some is, not how to check a redundancy of growth in such trees as the Apple and Pear, but how to produce sufficient vigour to keep them in health and support a fair crop of fruit. To such as are so circumstanced, clay is the remedy, as in their case plenty of hungry roots are sure to be formed, and all they want is something to lay hold of. Food in quantity may be readily supplied them by working in plenty of clay, mixing the same well up with the soil. In addition to this, heavy mulchings of rich manure should be kept on the surface of the soil immediately surrounding the tree, and, where this is duly attended to, the soil must be bad indeed that will not, when so assisted, grow both Apples and Pears in abundance and of fine quality. *J. S.*

RARE CONIFERS.

Pinus aristata, Eng.—There seems little doubt that the first scientific man who observed this species was Captain Gunnison. The reader will remember that Gunnison was one of the United States' officers to whom was entrusted the survey of the best route for the Pacific Railway, and that he and a portion of his party were massacred by the Ute Indians at a few days' journey distance from Salt Lake City. He had made his way, in 1853, over the Colorado Mountains, by the Coochetopa Pass, which lies nearly south-west of Pike's Peak, and reaches a height of upwards of 10,000 feet. It was in the highest parts of that Pass that he met with this Pine. The facility of procuring timber for railway purposes was necessarily a factor not to be overlooked among the advantages and disadvantages of any route for a railway, consequently we find in his narrative numerous notices of the scarcity or otherwise of timber at different places, and of the various kinds of trees and their value. The route by the Coochetopa Pass, or what may be called the Colorado route, was singularly defective in this important item. He says:—

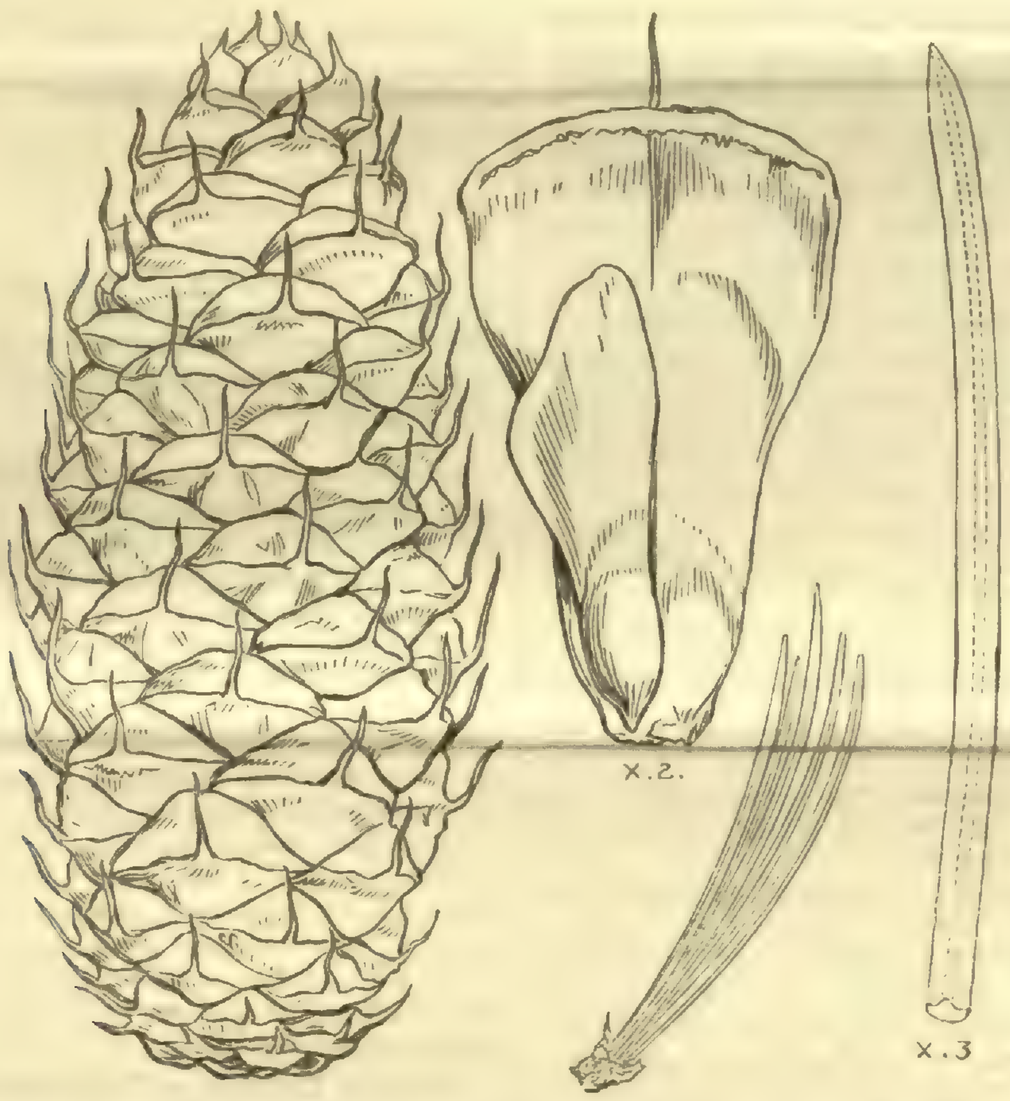


FIG. 117.—PINUS ARISTATA.

"For 150 miles west from the State of Missouri timber is found in sufficient quantities for the construction of a road to the junction of the Smoky Hill and Republican forks of the Kansas River, provided the entire amount suitable for its construction, now growing upon the watercourses, be applied to it, but not otherwise.

"Settlers upon these lands will find the quantity of timber upon them too limited for their necessities, and in the construction of a railroad, therefore, subsequent to their occupation, the requisite amount of timber will be no longer found upon them. From the junction of these streams west to the foot of the Sangre de Christo Pass, a distance of 500 miles, no timber whatever exists that can be used in the superstructure of a railroad. In and about this Pass Spruce Pine in abundance is at hand to supply ties for hundreds of miles of railroad, especially if that which the great fire of 1851 swept over and left standing be not left to decay.

"In ascending the valley of San Luis but little timber was seen in the mountains, and none exists in the valley which could be used in building roads. From Fort Massachusetts southward the mountains will, however, furnish an abundant supply of excellent Pine. In the mountains about Coochetopa Pass, 100 miles from Fort Massachusetts, Pine is the only timber (the Quaking Asp being only suitable for fuel after it has been seasoned), and it is generally small, but, it is believed, sufficient for the purposes contemplated. From the vicinity of this Pass west to the Sevier Lake, a distance of 550 miles, scarcely a tree was seen, except a few low branching Cedars among the rock-hills west of Green River, which could be used in the construction of a railroad; but it is probable, although very difficult of access, that a limited supply can be drawn from high up on the heads of numerous streams which enter Grand River from the mountains above, and for a short distance below, the junction of Blue River. And again, in the mountains between Green and White Rivers, and in the Wahsatch Mountains, in similar localities, it is probable that more or less timber can be obtained; but if sufficient in quantity, it will necessarily require to be transported to such distances as to make its expense enormous, which will render the substitution of stone necessary wherever it can be used."

The Pine here spoken of must, we apprehend, be the present species; for, in Professors Torrey and Gray's *Botanical Report* on the plants collected by Captain Gunnison in this district, we find only two species of Pine or Fir—one, a Fir, which is called in the *Report* Abies taxifolia, and which must be the Spruce Captain Gunnison speaks of in the above passage; and the other a Pine, which answers the description, and is no doubt the same as that now named aristata (fig. 117).

As to the Spruce, we may just digress for an instant to say that it is certainly not Abies taxifolia, which is a variety of Douglasii, but, in all probability, is Picea concolor, which comes from that quarter, and which corresponds with the brief description given in the *Report*, which is as follows:—

"*Abies taxifolia*, Lamb. Pin. 2, t. 47; Roubideau's Pass (38° N. lat.).—A handsome tree, growing from 35 to 40 feet high, and 12 to 16 inches in diameter. The specimens are without cones. *The leaves are from 1¼ to nearly 2 inches long, very slender, and glaucous on both sides.*"

The Pine was at first supposed to be the same as that collected by Colonel Fremont in 1843, and is so noticed in the report on Captain Gunnison's plants, but neither Fremont's nor Gunnison's collections contained cones, and in ignorance that there were two somewhat similar five-leaved species growing at no great distance from each other on these ranges it was natural to refer them both to the same species. The description of Fremont's species, brief though it be, does not however accord with that of aristata. It is—

"*P. undetermined.*—Defiles of the Wind River Mountains; August 13 and 14. Between P. Strobus and P. Lambertiana. Leaves in fives, 1½ to 2 inches long, rigid, no cones." This suits flexilis, and only flexilis. It and aristata both have rigid leaves five in a sheath, but in flexilis they are 1½ to 2 inches long, while in aristata they are only ½ to 1 or 1½ inch long, which latter is the length given of Gunnison's. But whatever species Fremont's may be, all dispute as to Gunnison's is removed by Professor Englemann, who has examined the specimens brought back from his expedition, and found them to belong to aristata. It was not from these that the species was described, however. Nine years later, viz., in 1861 and 1862, Dr. Parry again discovered and collected the same species on alpine heights between 9200 and 11,800 or 12,000 feet high on Pike's Peak and the high mountains of the snowy range, and it was described and figured from their materials by Professor Engelmann in 1863 in the *Transactions of the Academy of Science of St. Louis*, vol. ii., p. 205, 1861—68. For the technical description of the species we refer the reader to Professor Engelmann's paper, but many who may not have ready access to it may be glad to see a figure of its details, taken from the specimens lately sent home by M. Roezl. Very shortly after the publication of Professor Engelmann's description, a few specimens reached this country (if we mistake not in 1863), and our remembrance is that some of them at least were sold at Stevens', so that it is very possible that there may be plants upwards of ten years old growing in this country. Mr. Gordon, we observe, in the new edition of his *Pinetum*, places its introduction later (in 1870), and we therefore do not speak positively; but perhaps some of our readers may be able to speak with better authority, as well as to give some information as to the progress the tree has made in this country. We have made some inquiry for the purpose of this notice among friends likely to know, but without success. Englemann's remark regarding its growth is that it flourishes best in the higher elevations, and never descends below 9000 feet, in its lower ranges not ripening its fruit as well as on the bleak heights. So far as regards its alpine character it is the American representative of P. Pumilio; on sheltered slopes it grows to be a tree 40 or 50 feet high, and 1 to 2 feet in diameter, but on the bleak summits of the high ridges it becomes a straggling, prostrate, and almost creeping bush—a characteristic which it shares with Pinus flexilis. *Andrew Murray.*

GREENHOUSE PLANTS.—XXVI.

THEIR CULTURE AND MANAGEMENT.

CASSIA CORYMBOSA.—This handsome bright yellow-flowered plant is from Buenos Ayres. It belongs to a very numerous family indigenous to a wide extent of country, over both the eastern and western hemispheres, but few of them are of much account for cultivation in greenhouses. It is of comparatively easy growth and a very suitable subject for beginners in

plant-growing to try their hands at, as it is not so impatient in respect to water as some things. It is more deserving of cultivation on account of its colour, yellow being not so common amongst plants adapted for pot-culture in houses where a night temperature of not more than 40° is kept up during the winter season. It has been long known in this country, having been introduced towards the close of the last century; and is one amongst a number of fine things that some years back were allowed to fall into comparative neglect, only more recently the way in which it has been produced by some growers has shown what it is capable of when fairly treated, and it is now receiving the attention which its merits deserve. When thoroughly well managed it is effective as an exhibition specimen for late summer use, but from its continuous flowering disposition, rather than an ability to produce an extraordinary quantity of bloom at one time, it is better adapted for greenhouse or conservatory decoration than for the exhibition stage. It is a free, comparatively strong-rooted plant, not particular as to soil, thriving in either peat or loam; but as most things of a similar character that will succeed in loam are more disposed to flower freely in it than in peat, it is better to grow it in loam, which should be of a good fibrous nature, containing naturally or mixed with it a moderate quantity of sand, enough to keep it in an open porous condition. This is more essential, as the plant will, with ordinary care, last for a number of years, and moreover does not like the mutilation of its roots inseparable from shaking out.

It has somewhat of an inclination to run up, rather than branch out, consequently it is necessary in selecting plants to commence with—to obtain such as have been timely pinched back, so as to have them from the first furnished with enough shoots to lay the foundation for bushy specimens. Plants in 5 or 6-inch pots, such as above indicated, procured any time about the beginning of March, should during the month be moved into pots a couple of inches larger, using a fair amount of drainage, breaking the soil up by hand into pieces about the size of Walnuts, and being careful that it contains no worms. It is necessary to be more mindful in this matter with loam than it is with peat, as the latter is not so subject to worms as loam; a little well-decomposed manure may be used, but not more than one-sixth, or it has the effect of making the soil too light, in which case it shrinks into little room as the manure becomes further decomposed; pot firmly, pinch out the points of the shoots, and at once train them out in a horizontal position, bringing them down as nearly on a level with the rim of the pots as they will admit of.

If the plants can be placed in a light house, where a night temperature of 45°, or a trifle higher, is kept up, and 8° or 10° more in the daytime with sun-heat, they will progress all the quicker than if grown in an ordinary greenhouse. If there happens to be at hand a pit where the above conditions as to temperature exist, with plenty of light, it will answer for them in every way; yet, although this Cassia will make much greater progress with a little extra warmth, such as above described, it is by no means advisable to subject it to stove treatment, which has the effect of producing weak, elongated growth. After a few weeks the plants will get established, and should have plenty of air, without admitting it in a way that will produce a direct draught in contact with them. As the days get longer with more solar heat, syringe them overhead in the afternoons, closing the house whilst the sun is yet upon the glass; by midsummer, if all has gone well, they will have made 6 inches of growth, and should again have their points pinched out. With this plant, whilst young, it is necessary to persevere with stopping, so as to correct its natural tendency to straggling growth, otherwise the base will not be sufficiently furnished. Directly they have again broken into growth give them another shift; 2 inches additional will be enough, as, although a strong rooting subject, it does not make such a profusion of roots as some things. Use similar soil to that recommended for the first potting, and continue to treat as hitherto, giving more air in August and September, leaving it on at night as well as day to ripen the growth. In Septemher stop syringing overhead, to induce a disposition to cease growing.

As autumn advances, go over the plants and put them into shape: they do not require many sticks, but use sufficient to keep them in proper form. Through the winter let them be in a light situation, and in a temperature of about 40° during the night, with considerably less water at the roots. Again in March give them another 2-inch shift, and once more pinch out the points of the shoots as heretofore, keeping them a little close after potting. As growth increases train the branches out, keeping them well down, which will cause the plants as they get strong to break back in the old wood near the centre. Treat through the spring as in the preceding season. By the end of June the young shoots will have made considerable progress, but must not this summer be stopped, otherwise the flower, which is produced in succession as the growth advances, will be sacrificed. The plants will now be very useful for conservatory decoration, to which structure they may be removed; where they will keep on blooming until the autumn is advanced, when they should be transferred to their winter quarters, in a similar temperature to that in which they were kept the preceding season. As the previous season's shoots will have attained a good length through being allowed to grow without stopping, they should in the spring, a little before growth commences, be cut back to within 6 inches of the point to which they were last spring stopped. If not well shortened in this way the plants will get an untidy, straggling appearance, as the leaves are not retained on the old wood nearly so long as with many things. When they have fairly broken into growth give them pots 2 inches larger, and treat as previously advised through the summer and succeeding winter; in the spring again shorten back the shoots, but unless very large specimens are wanted it will not be necessary to repot them; the requisite assistance can be given by the use of manure-water once a week. By stimulants of this kind the plants may be kept in good healthy flowering condition another summer, after which it will be needful to either give larger pots or to remove several inches of the surface-soil, and replace it with new, to which has been added one-fifth of rotten manure. This is one of the comparatively few hard-wooded plants that will bear this replacement of the surface soil without danger of injury to the roots or collar.

This Cassia is equally well adapted for covering a back wall in a greenhouse or conservatory, or clothing a pillar; in the former case it should he planted out in a well prepared border of good sandy loam, with drainage enough to ensure a ready exit for the large quantities of water the plant with such an amount of leaf surface will require. Small plants previous to turning out should be grown for a season, as advised for pot specimens, so as to get them furnished with enough roots to enable them at once to lay hold of the soil when put out, which should be done in the spring before growth has commenced. The roots ought to be opened well out so as from the first to give them their required position, for if just merely turned out with the ball entire, and the roots undisturbed in the spiral curved form they necessarily have attained whilst confined in a pot, the plants in all probability will make little progress. In training keep the strongest branches the lowest horizontally, allowing the weaker ones a more upright position. This will tend to equalise the strength. Keep them stopped sufficiently to cause them to break enough shoots to cover the required space, and to furnish each summer an even good clothing of young flowering branches. When this plant is so managed it has not the fault of many climbers in only blooming at the extremities of the shoots, leaving a large portion at the bottom destitute of flowers. Plants in such a situation can be kept in a vigorous state by the use of manure-water and surface-dressings of rich soil.

Insects.—This Cassia is not so much subject to the attacks of insects as are many things. Red-spider will live upon it, for which a regular use of the syringe is the best antidote. Thrips and greenfly are also sometimes communicated to it from other plants, but can easily be destroyed by fumigation or syringing with tobacco-water. Scale will likewise live on it. If much affected with this pest the best plan is, in the spring, a short time before growth commences, to cut well in and wash thoroughly with insecticide sufficiently strong to destroy the scale. Repeat the dressing, brushing it into the inequalities of the bark three or four times before the plant breaks into growth. *T. Baines, Southgate.*

ON SALADS.

AMONG all the other changes which time brings about, is a change in diet. Our great-grandparents did not live exactly after the fashion of the generation preceding them, and we do not live as our grandparents did. There are fashions in food as in everything else, and certain dishes become unpopular, not because they are disliked, but because they are never thought of, and this has doubtless been the case with salads.

On the Continent the bowl of salad makes its appearance on the table once, often twice a day, with as much regularity as does our dish of Potatos. A French dinner without a salad would be like the play of *Hamlet* with the character of Hamlet omitted. Spring, summer, autumn, or winter—wet, dry, or frosty—a salad must be put upon the table, and in every case a salad is found, or, if not to be found, is concocted; indeed, to succeed in concocting a salad when the materials proper to such a dish are not to be had, is one of the great arts of the *ménagère*. In England, salads, as a rule, are greatly neglected, the people (meaning the bulk of the nation) only think of eating salad during the very early summer, when Lettuces, Onions, and Radishes are young, fresh, and plentiful; then, too, though they distinguish these things by the name of salad, they are no more salad than any other vegetable taken from the garden and eaten in a crude state. A salad, without quoting Sydney Smith's famous recipe, should be, as we take it, an oleaginous compound, in which many flavours may be distinctly tasted, but none predominate.

In general, English people, when they have a salad, will have it mixed with the regulation salad dressing, purchased ready made, or mixed at home; in the former case salads become rather expensive, in the latter they are generally a failure—there is too little of this or too much of that, and the main ingredient, Lettuce, which, if it is anything, is sweet, fresh, and crisp in flavour, comes to table in infinitesimal morsels of flabby, soddened green stuff, which might just as well be anything else.

Among the untravelled Britons there exists a most firmly rooted prejudice against the use of salad or olive oil; indeed, in their estimation it seems to rank but little higher than cod-liver oil, but little better than castor oil; we must imagine that, like Olives, it requires a cultivated palate to appreciate it thoroughly, and the sooner the taste is cultivated to its proper appreciation, the sooner will it be possible to enjoy a series of simple salads, mixed *à la Française* from the beginning to the end of the year.

To make a good, palatable salad, it is necessary to have the very best and purest Italian oil; the strong, rancid stuff often used is enough to disgust a novice, at once and for ever. With simple salads good vinegar and salt, pepper, mustard, &c., may be used according to taste, but with a multitude of ingredients the salad is no longer simple.

In summer the foundation of the salad is generally Lettuce; this should be, we need hardly say, scrupulously clean, and to ensure this it is generally necessary to use plenty of water, none of which must go into the salad bowl, or instead of being a dish for an epicure the salad will be a *fiasco*. In France, where the preparation of the salad is an important duty, only to be undertaken by an expert, wire drainers in the form of a bowl are in common use. The wet leaves being placed in one of these, it is waved frantically to and fro until every drop of moisture is thrown off. We have seen these salad driers in England, but never used them. We prefer cutting up the Lettuce or Endive, and leaving it to drain thoroughly before putting it in the bowl. The proportion of the mixing is one tablespoonful of vinegar to three of oil, but either ingredient may be increased or decreased, according to taste. As we have already said, when they are to be had, Lettuces are so popular they are sure to form the salad, either alone in their glory, or accompanied by such minor matters as Mustard and Cress, Radishes, Water-cress, &c. A salad in summer requires no thought and but little outlay—"garden stuff" is plentiful and cheap everywhere; but in winter it is quite a different matter—a salad then becomes a subject for thought and the exercise of inventive genius. For those to whom the bitter taste is agreeable Endive makes as good a salad as Lettuce, and is excellent interspersed with thin slices of boiled Beet. Celery and Beetroot also are good together, finely chopped. Tarragon may be scattered over either, or if Tarragon is not liked, or not to be had, a little fresh Parsley finely chopped is good.

Barbe de Capucin and blanched Dandelions might be had all the year round, only they are so seldom thought of. Failing them, or, indeed, if they are to be had, the blanched tops of Swede Turnips for a change are excellent, and, after having exhausted all the uncooked vegetables suitable for salad, we may turn to the leavings of the cooked ones, and procure a capital dish. Potato salad is an institution in the Fatherland, only the Potatos should be cut up and dressed before they have become quite cold, or they are liable to be heavy and waxy. Cold Cauliflower forms no mean salad, and cold Carrots are not to be despised. All or any of these things, and many others which we cannot call to mind at the moment, may be used alone or together, or be flavoured with other things, as taste or fancy dictate. We have merely suggested: it is left to the enterprising and adventurous housewife to discover for herself fresh forms of this wholesome dish. *J. J.*

HALF HOURS AT KEW.—VIII.

OAKS.

THERE are several Oaks from China and Japan and the mountains of Northern India, more or less hardy in the United Kingdom, but I must confine my remarks to some of the hardiest and most desirable of the evergreen species from Japan and North China. Amongst these, Q. glabra is undoubtedly the best. It is an exceedingly handsome evergreen shrub with us, though I believe in its native country it attains the dimensions of a medium-sized tree. In foliage it resembles the Sweet Bay, and more closely the beautiful Oreodaphne californica; but the leaves are very thick in texture, and of a rich dark green above, with a lighter green midrib, and greyish beneath. They are from 4 to 5 inches long in the specimen in

the plantation at Kew, which is about 5 feet high and as many through; but I have seen dried specimens with leaves more than 6 inches in length. It flowers and fruits in this country, the acorns being borne in spikes of a dozen or more. Young acorns are abundant on the Kew plant. This species was introduced some years ago, and I have seen it on record somewhere that there is a large specimen at Bicton. Possibly this and Q. glauca, cuspidata, &c., are only quite hardy in the south and west. Be that as it may, Q. glabra is certainly one of the finest evergreens I know. Q. glauca is another fine evergreen shrubby species. For descriptions of the varieties of this and several other Japanese Oaks, I may refer the reader to vol. i. (new series), p. 632 and 726 of the *Gardeners' Chronicle*.

There is one very handsome deciduous species from Japan and China which deserves mention here, namely, Q. serrata. In foliage this resembles the small-leaved varieties of the Sweet Chestnut; the leaves being lanceolate-oblong, about 6 inches in length and 1½ inch broad in the broadest part, with coarse distant teeth, terminating in short curved prickles. They are of a lustrous yellowish-green above, and slightly ferruginous below. Another Oak very much like this bears the name of Q. Bombyx tomentosa, a name I find in catalogues, but I have not yet come across it in the *Prodromus*, and as there is no index to the species in that work, it is not an easy task to run down synonyms. It differs from Q. serrata in the leaves being of a lighter, less lustrous green above, and in being clothed with a very minute ash-grey pubescence on the under surface. They are probably varieties of the same species. I know them only as young plants, but should imagine they would make handsome ornamental trees; and they are very distinct from any others commonly met with.

I will now give a slight sketch of some of the hardy North American species. Different forms of Oak are very numerous in the United States and some parts of Canada, the regions whence we obtain the hardy ones; and many of the forms in cultivation are believed to be of hybrid origin, as also certain wild forms. In the Northern States there are sixteen or eighteen species, besides a number of intermediate forms. With the exception of Q. virens and cinerea they are all deciduous trees or shrubs, and many of them are remarkable for the beautiful tints their leaves assume in autumn. The handsomest of this group are Q. tinctoria, coccinea, rubra, and palustris. They are all quick growing trees, with straighter branches and on more pyramidal heads than the common Oak; and the two former are large trees, producing valuable timber. Q. coccinea appears to have been the first American Oak cultivated in this country, the date of its introduction being given as 1691. It is certainly the most desirable as an ornamental tree. It has ovate-oblong leaves, 6 to 9 inches in length, with three or four bristly toothed lobes on each side, and very broad open sinuses or bays, glabrous on both sides, and glossy green above. In autumn, about the end of September in England, they change to a beautiful bright scarlet with intermediate shades of yellow and orange. The name coccinea applies to this character. Q. tinctoria, sometimes regarded as a variety of the foregoing, has similar foliage, which is more or less rusty-pubescent, at least when young, changing, it is said, to a yellowish brown after frost. It is the Quercitron, or yellow-barked Oak, and the inner bark is described as being very thick, and of a yellow colour. These two species or varieties are not easily distinguished, but if there is the difference pointed out in the autumn tints of the foliage, Q. coccinea should decidedly have the preference. There are several large trees of this in different parts of the gardens, two or three near the walk parallel with the boundary wall abutting on the main road from Kew to Richmond, and nearly opposite the large temperate-house; but I have seen only small ones of Q. tinctoria. Q. rubra differs considerably from either of the preceding, having, in young trees at least, larger, less deeply lobed leaves, with a long red petiole and a red midrib. Including the petiole, the larger leaves are from 9 to 12 inches long by about 4 broad. Another peculiarity of this species is that the leaves are clustered near the ends of the branches, as in some of the Magnolias, not scattered all along them, as in those described above. This is a very ornamental Oak, attaining a large size under favourable conditions; its leaves changing to a rich dark red in autumn. There is a fine large umbrageous specimen of this species on the left hand side of the Pagoda Vista, facing the Pagoda, and about forty or fifty yards distant from it. Unfortunately it is not likely to survive many years longer, for large branches are already dead, and others are fast decaying. This species is recorded to have been introduced in 1739, and therefore the tree in question was probably one of the earliest planted in this country. Q. palustris is an allied species, with more deeply lobed leaves, the lobes again cut and toothed. This and Q. rubra have shallow cups to the acorns, whilst in the other two mentioned the cup is deep, covering a third, or sometimes nearly half of the acorn. They are all perfectly hardy, but I have no experience of them in the neighbourhood of the sea. *W. B. H.*

HORTICULTURE IN THE SOUTH TYROL.

(*Concluded from p.* 519.)

Southern fruits, also, were well represented, especially the great Orange tribe, Figs, and Pomegranates. I may notice, on account of its superior beauty and excellence, the collection exhibited by the Archduke Heinrich; there were, moreover, several other good collections from Botzen. Details of these collections would carry me to too great a length, but I may mention the shell-fruit and Nuts. The Chestnut forms beautiful forests in some districts, and produces first-class fruit, which is also an article of commerce northward. The same remark applies to the Walnut: but unfortunately the demand for its wood is so great that the trees are felled to an extent that must act prejudicially to the prosperity of the country. The quality of the fruit leaves nothing to be desired. There are two varieties of the Hazel-nut cultivated here, namely, the long true Hazel and Lambert's variety, both of which I am told grow wild in the country.

I must not conclude my notice of the fruits without mentioning the collection of preserved, candied, and dried fruits exhibited by Messrs. Tschurschen & Schalco, of Botzen. It comprised a great variety, including all the sorts prepared in this manner by the firm. This firm deserves recommendation not alone for the good qualily of its preserved fruits, but also for their cheapness. Then there were the juices of different fruits served up in the form of jellies in glasses, together with a great variety of confectionary, from the establishment of Francesco Luterotti, which greatly attracted the visitors. The show of Grapes was extraordinarily large. The finest collection, undoubtedly, was that sent by M. Pizzini, of Ala, a most skilful and intelligent pomologist and œnologist, who has a large experimental garden for testing the qualities of different fruits. The valley of the Adige, from the Botzen district to Ala, has its peculiar varieties of Grapes as well as Apples; but some of these, as I have already observed, are not worth growing. According to the reports of competent judges, there are only seven varieties that merit cultivation, though twelve such are enumerated in the Botzen catalogue. The "Gray Vernatsch" is suitable only for making wine, while the "Noble Vernatsch" is a good table fruit. Other varieties are the White and the Gorwurz Terlaner, the Red Heumisch, the short-stalked and the long-stalked Lagrain, the Schwarzwälscher, the Blue Moster, and the Red Trollinger.

There was a pretty collection, in pots, of most of the principal varieties cultivated in the Trentino. Also a number of plants illustrating the different methods of culture practised, though only exceptionally, in a few of the private gardens. Two Vines in pots, shown by Francesco Marchi, the Mantua nurseryman already mentioned, deservedly received the largest share of admiration. They were three-year-old plants, which had been subjected to a peculiar system of pruning, bearing not less than fifty bunches of excellent appearance; and it was affirmed that under the same treatment they would sustain this unusual fertility. I doubt, however, whatever this method of culture would succeed with us in North Germany, or even on the Rhine. To obtain such a degree of productiveness, the climate of Mantua, or at least of the Trentino, would be necessary.

There was also a large number of wine presses of different construction exhibited; a proof of the desire for improvement in this direction. It is to be hoped that the better ones will soon replace those in general use in the country, and this change, together with a more careful selection of varieties, and perfectly ripe fruit, may gradually cause the bad wine commonly drunk in the Trentino to disappear in favour of a superior quality.

Next to the fruit and fruit products, vegetables and cereals were among the objects most fully represented in the apartments of the exhibition. In vegetables, again, the collection staged by M. Pizzini, of Ala, was conspicuous, comprising, as it did, nearly all the different kinds grown in the Trentino, in a high state of culture. This collection possessed an additional interest from the fact that the exhibitor had made a series of comparative trials of the qualities of various vegetables grown in the valley and on the hill-sides; the latter carrying the palm. A second collection, deserving particular commendation for good culture, was contributed by Messrs. Putzer. It was as good, and nearly as complete, a collection as the other just mentioned. It is notorious that root-vegetables do not thrive well in the South. Turnips and other similar roots usually divide into numerous branches. Those shown by Messrs. Putzer were tolerably free from this defect; indeed, their Beet was excellent, few of them being forked. In this collection there was some freshly-cut Asparagus, certainly a rare article at this late season. The entire collection was tastefully set off with wreaths of Hops. The relatively very slightly bitter Catkins are not used here for brewing, but they are sold by the apothecaries.

The collection of vegetables and grain-bearing plants exhibited by the Agricultural College of Trient was remarkable in every respect, not alone for the excellent quality of the various objects, but also for the tasteful manner in which they were arranged. In richness and variety it surpassed both of those already named. The large assortment of Potatos was especially noteworthy; and, in a less degree, the varieties of Maize, which, on account of its general use in the preparation of *polenta*, may be here classed with vegetables rather than with the cereals. There were two sorts of vegetable in this lot, which are little or wholly unknown in our gardens, represented by rare and beautiful varieties, that would be an ornament to any table. There were Chillies, Capsicum annuum, and the egg-fruit, Solanum Melongena; both in great variety. The Love-apple or Tomato, Lycopersicon esculentum, was associated with them. The latter, it is true, is pretty generally cultivated in the Rhine provinces, as also here and there in South Germany, where, as in France and Italy, it is used for a great variety of purposes. Both of the other fruits require a warm climate, such as that of the South of Europe, to bring them to perfection. The first is more of a condiment, and, on account of its pungent taste, a north countryman does not quickly acquire a liking for it. Chillies are largely grown in Germany; some varieties with large, others with small fruits. A variety shaped like a bishop's hat, and about 2 inches high, was remarkably handsome. The egg-fruit is highly esteemed, especially in the East, where it is dressed with gravy sauce while still unripe in the same way as the young fruit of the Bottle Gourd. The collection of cereals from the Agricultural College was a very instructive one, the sheaves of the different sorts forming a large pillar, resting on a pediment, on the steps of which the grain was exhibited in plates. Accompanying labels conveyed the necessary information respecting the relations of the grains and straw. To report on the whole of the cereals exhibited is out of the question, I may remark, however, that they served to embellish the otherwise naked walls of the rooms. Nevertheless, it is very desirable that a full report of this branch of agriculture, from the pen of a person thoroughly acquainted with the subject, should speedily make its appearance in one of the agricultural journals. Respecting the numerous collections of Buckwheat exhibited, I shall say nothing further here, because, being a stranger to its qualities, I am unable to judge of the merits of the respective varieties. The plant is certainly different from that grown in the north of Germany, and may probably belong to Fagopyrum tataricum.

The section for trees and shrubs was extremely interesting. M. Pizzini exhibited a collection of fifty distinct species of shrubs and trees, most of which grow wild in the vicinity of Ala. This collection was intended afterwards for instructional purposes in the communal school. Similar collections would be of great service in our national schools. There are two species of timber of special importance in the Trentino, namely, the Walnut-tree and the southern Nettle-tree (Celtis australis). The demand for Walnut wood has already become so great that the ordinary sources, the Rhine Provinces, and especially Italy, are no longer able to meet it. Merchants have found it necessary to turn their attention to other, extra-European countries. Persia has been called upon to contribute to the supply, and the forests of that country are already being worked by Europeans. Unfortunately the timber of the Rhine and Italy is only replaced to a very limited extent by other countries.

The Celtis, or Nettle-tree, bears the name of Whip-tree in the Trentino, as the best whip-handles are prepared from its wood. Its beautiful white wood is very solid, and at the same time is so elastic that long slender strips of it may be bent and twisted in any direction that may be required in making the woven whip-handles. But even the common whip-handles of this wood are so tough that they will not break. There are several manufactories in this country entirely devoted to the preparation of whip-handles.

Several other manufactories in the Trentino work up a great variety of woods for furniture, billiard cues, parquetry, and various fancy articles. Messrs. Pezcosta & Troner's factory at Trient deserves prominence here, because they exhibited a rich display of articles and materials. Among the woods in their collection were handsome specimens of Apricot, Plum, Pear, indigenous Oaks, Elms, and Maples, the first

especially finer than I ever before saw them. The most interesting of all was the collection of bird's-eye and fine-grained woods from different countries, cut up into veneers. A large trade, both home and foreign, is done in this kind of work. Besides the familiar veneers of Walnut, Elm, &c., I saw for the first time preparations for inlaying of the root-stocks of the common Elder. The root-stock or root-crown itself was more than 2 feet in diameter, and nearly round. It is worth investigating whether the Elder forms root-stocks of such dimensions with us, and if so, whether they might not be utilised for the same purposes; or whether it is simply the result of a more favourable climate.

Finally, I remember two kinds of wood which particularly struck me, on account of their unusual size and solidity. These were a White Beech and a Juniper. The specimen of the Beech was a trunk 15 feet in length, and not less than 4 feet in diameter. The Juniper, which we usually see as a shrub, more rarely as a small tree, was represented by a gigantic specimen, though it was cut up into a number of pieces. Unfortunately, the exact measurement of its height was lost, but I should estimate it to have been at least 45 to 50 feet high.

I will now pass on to a collection of dried plants, very well prepared, from the Val di Ledro, a locality exceedingly rich in rare species. They were exhibited by Don Pietro Porta, who resides in the district named; and I mention it here, not only in the interest of botanists, but of all those in search of novelties in the vegetable kingdom. What important additions might be made to our collections by putting ourselves in connection with the possessor of the herbarium mentioned, a brief inspection of its contents soon made manifest. Living plants, or even seeds, could doubtless be obtained. I recollect particularly the beautiful Orchid, Orchis undulatifolia, which, among other gems of this family, grows in the Val di Ledro.

But there were other collections of dried plants besides this, many of importance from the number of economic species they contained. Associated with these were collections of the parts of plants used in medicine. Among them I noticed a fine specimen of Gentian root, 6 feet in length.

In conclusion, let me say a few words respecting the textile plants cultivated here. They are Flax and Hemp. Specimens of the plants and their products in the raw and manufactured states were exhibited for the instruction and information of visitors. Besides these two textile plants, M. Francesco Papoleoni showed specimens of the common Stinging Nettle, 6 feet high, together with the rough fibre obtained from it, and some samples of manufactured cloth from the same source. But Nettle culture is by no means general in the Trientо, being limited, as in Hungary, to a few private individuals, who take a pleasure in busying themselves with improvements in cultivating the land.

I now come to the general exhibition of the Agri-Horticultural Union of Botzen and its associates in the political circuit of Botzen and Meran. I have previously had occasion to speak of the activity and usefulness of this Society. Its exhibitions have always ranked with the best and most instructive for pomologists and the general public, inasmuch as correct and intelligible nomenclature has been one of the characteristics—a feature too often neglected in exhibitions of this sort. This Society is also favourably known in Germany, as its members always take part in the large meetings of pomologists and fruit growers, and invariably carry off first prizes. It has the good fortune to number many energetic and capable men among its members, who are prepared to make some sacrifices for the general good. As an instance, I may name M. Mayor Schuler.

The collective exhibition of this Society occupied, as I have before stated, separate rooms, forming a distinct section in itself. It does not come within my province here to go into particulars; let a few general remarks suffice. The number of varieties of Apple exhibited amounted to 106; of Pears, on the other hand, 162. The Grapes of the country were represented by 17 varieties, against 89 of foreign origin; altogether 106 varieties. Then came 10 varieties of Fig, and 16 varieties of Peach. The southern fruits here, too, formed a special attraction, particularly the fully represented Orange tribe, and the Pomegranates. The Ritter von Goldegg and Toggenburg, and M. Lofferen, &c., distinguished themselves in this section. Finally, the Archduke Heinrich contributed a miscellaneous collection, from his gardens at Botzen, containing, among other things, many southern fruits, the whole being exhibited in a separate room.

I will finish my report with a notice of a useful literary work, which, when known, will be appreciated in England. It is a series of diagrams illustrating the pruning of fruit trees, by M. Mader, inspector of the trial garden belonging to the Society at Botzen, &c. With few exceptions the diagrams are original, and admirably adapted for the instruction of gardeners and amateurs who delight in fruit growing. I trust the work will obtain the wide circulation which it deserves. *Karl Koch.*

HAUTEVILLE HOUSE,

GUERNSEY,

THE RESIDENCE OF MONS. VICTOR HUGO.

HAUTEVILLE HOUSE is situated in the upper portion of the town of St. Peter Port, facing the street which leads to Fort George with its northern side. It is a town residence of good size, square and lofty; its exterior, however, as seen by the passers-by, presents nothing attractive, being built too closely to the footpath to allow of the common feature of a neat lawn with luxuriant shrubbery possessed by most houses in the island. To add to its secluded and somewhat gloomy look, two Quercus Ilex and one large Laurustinus bush hang, winter and summer alike, dependent over the dark green wooden railings between the house and the street. The door, which is ancient, is painted of the same dark colour; above it are inserted thick pieces of glass, which light mysteriously the remarkable interior, and the handsome passage, lined with services of valuable Sèvres china, which conducts straight to the lawn beyond. The door opens hospitably, and a pleasant French face admits the visitor, duly authorised, into the residence of the great master of literature. On your left winds the dark tapestried staircase leading to the treasures of art and research accumulated by years of discerning labour; the house is well known to the writer, but his business to-day is with the garden alone, and his subject is—Victor Hugo's garden.

Passing quickly through, I am on the lawn, and before me is the garden, seen at a glance, being of town dimensions. The day is brilliantly sunny and close, and, being an acquaintance of Madame Chenay's, who is the sister of the late Madame V. Hugo, and who has long presided over this household, I am left to my uninterrupted observations. The illustrious poet is absent, and living at his new apartments in Paris. Since the late war his visits to Guernsey have been of shorter and shorter duration each time; and now it is said by the household (which is of Republican dimensions) that he will not probably ever return. The house was purchased by M. V. Hugo in 1855, three years after his expulsion from Paris, and he has thus (with intervals of absence) resided in Guernsey ever since, where he has been as conspicuous by his benevolent hospitality and liberality to the poor, as by his simple and gracious habits to all.

M. Hugo is now seventy-three years old, though hale and full of energy; but the death of his two sons, first of Charles, and recently of Francis, the elder, have inflicted deadly wounds on his loving nature. But two grandchildren remain, the son and daughter of Charles (George and Jeanne by name), to inherit the family name and genius, and also the large property resulting from so much remarkable literary work.

The garden itself resembles an old English one, where old fashions prevail to the exclusion of geometrical designs, and where modern ideas of gardening are not in favour. This is caused mainly by the remote view of straggling and aged fruit standards mingling with tall bushes, and cut avenues, and by the presence of an urn and fountain in the foreground. An air of seclusion and picturesque variety pervades the whole garden, which is of small dimensions, the lawn itself being only 150 feet long by half as wide, and the kitchen garden beyond it 90 feet by some 75. We miss the closely clipped English turf, the brilliant flower-bed, and the stainless gravel walk broad enough to drive on. The owner's repeated absences have, no doubt, much aided in this respect, but at no time do we fancy our illustrious visitor could have been a gardener of any pretensions. But we feel also that modern art would hardly have been in character with the associations of the locality, and though, with our Shakspeare's gardener, we should like "to tie up yon dangling Apricocks," or aid Roland Græme in "supporting the fruit-laden bough" with Blinkhoolie, still we can afford to dismiss all rash thoughts of the pruning scissors in such a place at once.

In the distance, across a small valley, and 1000 yards away, run the parapets of the parade field of Fort George, whence the English drum or the fire of the loyal island militia on each Queen's birthday must often have been heard by the poet, who, sitting on this very spot, dreamt for years of exile of his return to France with the Republic, but who could not forecast that he should also pay the heavy price of hearing an enemy's trumpet sound victoriously in his beloved city.

There is not much to describe which shall please the gardener *pur et simple* here, nor do we expect it. Immediately on leaving the house the visitor passes under four or five gloomy Quercus Ilex trees, whose branches cause him to bow the head. Then he comes to a quaint old stone arbour, with a wooden Ivy-laced trellis overhead, through which the bright autumnal sun shines pleasantly to-day. Three long granite steps serve to ascend to it, and no doubt in former days the first proprietor enjoyed from hence a fine view seawards. Now it is hidden, and the arbour is but a secondary object. Beyond is the 7 feet garden wall, facing eastwards, with Pear and Plum trees trained on wooden rails, but all slenderly cropped. In the kitchen garden are many standards equally poorly provided, and among vegetables "Seakale, which tastes like Asparagus" (as V. Hugo says), and we are at the north wall, on which are two Cherry, one Apple, and three Pear trees, fan-trained. The border is full of scarlet Pelargoniums. Then we return to the house by the wall facing westwards, which has also trees trained on it, and, being loftier, affords a pleasant promenade in winter days. Here is also a border, tile-edged, full of Pelargoniums, Fuchsias, and Calceolarias, planted irregularly.

About half-way to the house is an old "look out" with ten steps, by ascending which a fine view over the town, some 200 feet below, with the harbour and island, is obtained. This might be made very picturesque, and quite a feature of the garden, but now is merely an ancient wooden look-out, covered with yellow and white Jasmines, and Passion-flowers growing luxuriantly. Under it is a glazed shed 18 feet by 6, quite empty when I looked into it, the few bedding Pelargoniums being in pots under the shade of several fine Camellia bushes. There is also a large Fuchsia some 10 feet high by 12 close by. This brings us to the house again, near which is a cut hedge, and the walls underneath are prettily draped with Honeysuckle, Jasmine, and Roses. All these close in the lawn on the east, or cold side of the garden, and are some of the prettiest portions of the place.

From the house, looking directly south, at 50 feet distant, is a fountain or reservoir with an ancient urn, having dolphinesque animals as handles. This reservoir may be 12 feet square, but the shallow water in it is muddled and brown, and the waterworks no longer play. The genius of the place has departed, and, with its presence, removed the vitality and energy which the wonderful owner had infused into this residence. With him there, all was characteristic and living; absent everything seems out of gear, and would easily relapse into the Guernsey of the past, unless some enriched modern would condescend to "restore it," or the spot become a source of vulgar speculation.

A prominent object in Victor Hugo's garden at present is the fine Agave which stands on the left (looking south from the house) of the fountain. It is a fine specimen, and one of which the great poet was proud, as I know. I measured it and found it to be about 25 feet high at the apex of the flower-stem, which was then only partially in bloom. On the opposite side of the reservoir is another good specimen with vigorous, upright leaves, but not in bloom. The one I am now describing has its leaves drooping to the earth, and shows signs of decaying as soon as the blooming period is over. This may last some four or six weeks more. These grand-looking Amaryllids are common enough in these islands, there being no less than five in bloom as I write. Victor Hugo's is a good specimen, but not the largest by any means ever seen in Guernsey. It seems to be about 10 feet in diameter at the leafy portion, and has a noble appearance here. It will shortly die, and symbolise our visitor's stay with us most perfectly, unless it live again in undying verse.

A portrait of the first of the Agaves which bloomed in the Channel Islands is before me as I write, and, though these plants are as common as Cabbages in many lands, still authentic details respecting their growth in the open air so far north as this island is, are not without value. The description of this first plant is, that it bloomed in 1814 in a garden now belonging to Mrs. Robilliard. During thirty-six years it had only annually put forth a few leaves, but after this, in three months, it emitted a stem 21 feet high, with thirty-nine branches, each crowned by a flower-tuft. The lowest began to blossom at the end of August (just as the present blooming five did), and by the middle of October two-thirds of the buds were in blossom. Then the lower tiers began to fade, whilst the upper ones blossomed, and the apex was still crowned till the end of November. It then gradually died away. There were seventy-four leaves on the plant, some of which were 5 inches in thickness.

There are at present in this garden, which is only separated from the sea by an esplanade, and fully exposed to the N.E. winds, five noble plants. In 1841 one bloomed. Its stem grew 2½ to 4 inches per day, and on some hot days as much as 6 inches. It reached to 24 feet high, and remained two months in bloom, then gradually died. The roots were but 24 to 30 inches long when dug up. Another plant succeeded on the same spot, which attained to a height of 26 feet. At its period of bloom numerous suckers round its base threw up short stems, which also bloomed. Both of these plants were at their best in September, and both were about a quarter of a cen-

tury old. The one hundred years myth is not much believed in now.

It may, perhaps, be of use to some to remind them that the great American Aloe (Agave americana) is not a true Aloe. The Agave belongs to the Amaryllis tribe (Amaryllidaceæ), and is a native of America. The outside leaves are crown-like; the middle consist of a thick spire, firmly entwined. It seems to suffer most from the rain, which rots the plant. The flowering stem is smooth, and the branches are very gracefully curved, like a candelabrum. All dry southern localities with a warm sun suit it; the epidermis, in fact, admirably resisting the action of heat. The interior is full of juice, containing in it much alkali and oil, so that it is sometimes used instead of soap. Cattle feed on the bruised leaves. It is a valuable tropical plant in places like Mexico, for instance. There they make wine and a strong spirit from it called "Mescal," which intoxicates, like grain-prepared spirit. "Pulque," or Mexican beer, is made from the heart of the plant. It is set to ferment, but soon gets acid from the oil in it; however, the natives like it in this condition immensely. The fibres of the Agave are useful for cords.

One exhibited at the Colosseum formerly was 25 feet high. This is an average height, but there are records of some considerably taller than these which have bloomed in Guernsey. They are certainly hardier than is generally thought, and might succeed well in the South of England. Looking back on Victor Hugo's house, this tall plant adds much to the interest of the garden, while its graceful outlines intersect those of the house with considerable effect.

This is not the place to say much about a locality so full of associations, and so enriched with collections of value. The second storey is called that of "Garibaldi," and is ornamented by fantastic carvings of the owner's own design and handiwork. Below is the *salon rouge*, or chief drawing-room, with its historical figures and fine old tapestry. Beneath lies the *salle-à-manger*, adorned with antique pottery, while above all, on the roof, is the gallery of glass, connected with another, where M. Hugo used to keep formerly, and whence have emanated all those marvellows works which are world-known, and have all been written here since 1855.

We must not dwell on these, but only allude to one —*Les Travailleurs de la Mer*—published in 1866, and dedicated, as the great writer says in the preface, "to that hospitable rock of liberty, that corner of the ancient Norman land, where lives the small and noble people of the sea, the island of Guernsey, severe and sweet, my present refuge, my probable tomb." Thus did this grand and kindly spirit address the island which sheltered him, from this very spot. Events have multiplied rapidly since then, and he is absent—perhaps for ever, but he will be remembered as he would wish to be.

Who but he could have conceived the idea of the book which has its local scenes placed here? Who could so well pourtray the incessant struggle of life with material obstacles?

This gallery overlooking the garden southwards at a great height, was the study from which he created all the phases of the book. Before, five leagues away, lie the twin Douvres where the Durande was caught, and released. Here Gilliat, the Toiler of the Sea, the "Job of the Ocean," on his precipitous nest witnessed that fearfully depicted "retarded equinox which treasures up to ravage the more," with its "incommensurable winds," "ubiquitous," "moving as a colossal atmospheric tide" through the livid pivoting clouds "above the expectant horror of the waves." Below, in that oceanic and lurid crypt dwelt the fearful fireware and "Sieur Clubin" perished so miserably with his ill-got wealth, to be recovered (with stern poetic retribution) by the heroic sailor who, on his return, is so miserably disappointed.

Behind, extends the road to St. Sampson's, where Dèruchette "of the divine smile, the white skin and auburn hair," dwelt, and, on the snowy road wrote once the name never to be associated with her own. Here also Caudray, the rector, lived, the successful lover. Below us, and quite near is Havelet, whence Gilliat mournfully embarked the pair who had been just married in the old church by the dean with the strange name.

Seawards is the rock with the Celtic appellation from which Gilliat witnessed their final departure, and from whose summit the "spot, which was no longer a human form, paled, diminished, and was dispersed, and naught but the sea remained," as the vessel itself was effaced below the horizon. *Thos. C. Bréhaut.*

Fig. 118.—Hauteville House, Guernsey, the residence of Victor Hugo. (From a photograph by M. Arsène Garnier.)

Foreign Correspondence.

A Land of Gardens: *Alicante, Province of Murcia.*—The province of Murcia, containing somewhat less than 2000 square miles of thinly-populated hill and dale, is one of the least visited, but most interesting in a country where every district teems with interest to the student of Nature or human nature. Lying along the shores of the languid Mediterranean, sheltered on every side by natural barriers of rock and hill, its climate is warm and relaxing. From its position at almost the south-east corner of the Peninsula, it is seldom invaded by tourists, while by the Spaniards of the adjoining provinces it is held somewhat in contempt. Yet, in the rich *huertas* or irrigated gardens that skirt the railway from Albacete to the Baths of Novelda, on the Alicante line, and spread far and wide to the north of the last-named place; in the hills, absolutely carpeted with aromatic herbs and underwood, filling the whole air with rich perfume as the heel of the wayfarer bruises them; and in the metal-producing districts in and around Cartagena, the agriculturist, the botanist, and the mineralogist will find their research and studies more than repaid.

The run in the early train from Albacete station to Alicante will give a fair idea of the nature of the district and the beauty of the scenery. As you pass from the wild, far-stretching, corn-producing steppes of La Mancha into the heart of Murcia, you are conscious of entering a new world. The rusty, brown dresses, devoid of grace or beauty, of the Manchegans yield to the picturesque white linen blouse, black waistband, sandalled feet, and bare legs of the Murcian peasant; the steppes of brown, unhedged stubbles to trim, irrigated gardens, where green is the prevailing colour. Nearing Villena, a town half-way between Albacete and Alicante, the character of the province is seen at a glance. It consists of a series of spreading and far-stretching cultivated valleys, inter-

sected, bounded, and sheltered on all sides by numberless small ranges of barren hills. Wonderfully striking is the contrast between these treeless hills, their crags here and there crested with the Moorish hill fort, deserted, crumbling, and ancient-looking as these hills themselves, and the living fertility of the garden valleys that spread between and at their feet. The morning sun rises, golden and glorious, in all its oriental strength, and the varied strata of the hills, the green, dark green, and yellow of the luxuriant plains offer a study of colour unequalled. Here stretches a long range of hills, fading away into the dim, lilac distance of white, friable loam; snowy white, it glistens in the sun; and every here and there, as if to relieve its dazzling whiteness, glance streaks upon streaks of the brightest roseate hues; there runs a crumbling hill-line of richest sandstone, broken here and there with white, and purple, and dun-coloured stretches. You carry your eye down from these castle-crowned slopes to the rich green plains below, and man and man's handiwork are there, and the barrenness is blossoming as the Rose. The valley literally teems with luxuriance. Thick and close, and of brightest yellow-green, stand the fields of Maize; then a vineyard, the low Vines bending beneath their wealth of black Grapes; then Tomato grounds, the flame-colour of the fruit contrasting beautifully with the dark green of the foliage; then homelier plants—the Pimiento [Capsicum], the Cabbage, the Pea; then a plot of scarlet, blue, lilac flowers clustering around the reed-built hut (*chóza*) of the gardener; then a plantation of young Almond trees, ready for transplanting; the Peach, the Fig, the Apricot tree stand in rich abundance; and here and there, stately, beautiful, and lovely in its pride, stands some ancient Palm tree, its feathery foliage and sienna-coloured fruit lending a grateful shade to all below.

As England has her "Blackthorn winter" and her "Lammas summer," so Spain has her "spring-flower winter" and her "Quince summer," called *Sol*, or *Verrano de membrillos*. In the September summer the sun is, if possible, more severe and scorching than in the legitimate summer; it smites down with a fury almost relentless, the thermometer often rising to 100° and 110° in the shade. However, from 5 to 10 A.M., and from 5 to 9 P.M., you may walk or work unhurt. All the shopping, all the marketing, all the sight seeing, and buying and selling in the annual fairs, are done during those hours. From 10 A.M. to 5 P.M. the world sleeps, or breakfasts and dines. This Murcian village lies in the heart of the rich irrigated gardens to the north of Alicante; its warm, steaming lands slope down to the blue, sailless Mediterranean. It is broiling noonday when you reach it; and, threading its narrow winding street, where the cool, dark, windowless houses, with their open doors back and front letting in a cool current of air, almost tempt one to repose, you pass out into the gardens, and the whole expanse steams with moisture; the whole tree-studded, fertile plain is dotted with the cool white dresses of the peasantry. "I wish to spend a day or two here and learn something of your system of gardening." The request is acceded to at once by the first group of honest brown African faces, and you feel at home in a moment; a house, food, and shake-down are at your service in a trice. Nor need you fear trusting yourself to these rough, sun-tanned, ignorant tillers of the teeming Murcian soil; their hands are dirty, but their hearts are clean; their words are rude and coarse, but their sentiments are kindly and honest.

Here, then, in their coarse, white, cool dresses are the gardeners; and all around you is the *huerta*, the irrigated garden grounds of the industrious Moors. Northward and westward lie hills of dun-coloured, friable soil; to the east sparkling in the sunshine, sleeps this blue Southern sea. You might fancy yourself in the tropics. The air literally steams with the reek of the freshly-watered earth. Ten miles away, to the north, are the chief irrigation works of the Moors, spreading fertility far and wide through every lone valley and distant plain. Men and women are busy pumping up water; through a thousand little trenches that intersect it the whole *huerta* is now being watered, and sending up its incense of perfume to the skies. Women's rose-coloured shawls, men's white shirts dot the landscape as they work at the wells. Look around, and you see the stately Algaroba, or Carob tree, laden with its Beans; the Fig trees, burdened with green and black ripe Figs; the drooping foliage of the Taravinto, or, as it is called in the other provinces, Pimiento tree; the Palm, absolutely festooned with fast-ripening Dates; the Olive, the Almond, the Pine, the Acerola, the Peach, the Nectarine tree, are spread athwart the plain. Every garden is fenced in with hedges of Cane; the little huts are built of Cane. At the foot of the far-stretching trees are plots of Melons, Cucumbers, Water Melons, Pimientos, Tomatos, Indian Maize—nay, even such homely crops as Onions and Potatos. All is peaceful and fertile in the gardens; all around, whether hill or plain, is absolutely barren, and even without a carpeting of herbs. The sun is scorching; in the road, half-hidden in dust, you can just see two stalwart Civil Guards escorting two prisoners to the nearest gaol.

The information I gathered from the gardeners on the plots where I walked was to this effect:—These irrigated lands are let out, in plots of about an acre or two, to the villagers. An acre will employ three men. The man who rents the allotment pays the landlord about £20 for two-thirds of an acre as annual rent. Some pay partly in kind; but this is unusual. Generally his sons (always supposing him to have them—Spanish gardeners generally do) work with him, and he pays them each about seven or eight reals per diem; if they be sons, they generally have not fixed money wages, but their share of the profits; but if the workmen be hired labourers, eight reals are the wages.

The hours of labour are as follows:—Summer, sunrise to sunset, with two hours (12 to 2) for siesta, smoking, and eating; winter, 7 A.M. to 5 P.M., with one hour for rest. The food is as follows:—Dried tunny, dried cod, dried sardines, with rice, and vegetables made up into a savoury mess, always red in colour, owing to the amount of ground Pimientos mixed with it. Hardly any animal food is eaten save fish. The enormous consumption of Gallician sardines and red salt sausages from Catalonia may best be guaged by a few hours spent in investigating the bales of dried fish to be seen at all times on the mole of Alicante.

The Melon grounds are disappointing. Never would you believe that from those dusty, little-watered plots would come all the wealth of succulent Melons that lie in heaps at every street corner. The Melon grounds look like an English ploughed or fallow field, with a thin carpeting of common Vegetable Marrow plants. Yet, here and there, you see the great, juicy, round fruit, half covered with dust, lying on the cracking earth. All those that were ripe were gathered over night. The Melons are planted in May; in less than a month they begin to bear fruit, and keep on bearing until the commencement of October; they require less water than any of the other plants. The Melon takes, from the time that the white or yellow flower falls off, to the time of plucking, about forty days to arrive at maturity. These Melons are of two kinds—first, the Melon proper, with its yellow, luscious, honeyed fruit, so well known to the rich in England; secondly, the Sandia, or Water Melon, grown on the coarsest and most sterile soil, and which is the cheapest fruit in Spain, and the salvation of the thirsty masses. The Sandia weighs from 8 lb. to 25 lb., and is sold at a farthing or less per pound. Its huge bulk, its hard, coarse-looking, dark-green rind, the rude way in which it is kicked about, would never lead you to believe that it is so justly prized as it is. Every traveller in Spain has been offered a slice of its rose-coloured rocky flesh, that looks like a crimson rock, yet melts in your mouth before you can taste its flavour. On every long, hot, dusty journey, the second-class traveller buys a huge Sandia, and offers a slice to his fellow-passengers; every *table d'hôte* groans beneath these crimson crags; a lump of this cools the fevered blood; 2 lb. may be eaten without fear of harm. The growth of the various kinds of Melons is so much in advance of the immediate consumption, although poor and rich alike almost live upon them during two months of the year, that the gardener cuts thousands just before they arrive at maturity and hangs them up for the winter. Half or three-quarters of an acre, as nearly as I could calculate, would produce no less in a favourable season than 400 arrobas of Melons! Each arroba weighs exactly 25 lb. avoirdupois. My gardener's exact words were, "One *taulia* of Melon ground brought me in 400 arrobas last year." Nowhere can I find the exact amount of the *taulia*. It appeared to me to be about half an acre of English measurement. Now, at a rough calculation, these 400 arrobas, weighing 10,000 lb., may be estimated at the value of three farthings per pound, giving 30,000 farthings, which, roughly speaking, is equivalent to £30 Spanish money. This calculation will give some, although but a slight, idea of the importance of the Melon trade. And, in forming his idea of the wealth of Spanish irrigated ground, let my reader remember that four crops annually are raised upon the same plot; and that growing amid Melon or Pimiento grounds stand the Peach, the Fig, the Pomegranate, or the Almond tree.

Of the other fruits and vegetables some few words shall be said presently under the heading of the fruit market, for my guide is bent upon Melons only, and we must go to his house with him to see them in their perfection. A cynical, somewhat bitter-tongued man, yet warm-hearted and honest, is this Murcian peasant. Unlike the reckless Andaluz, he is a saving man. He holds, bricked up and whitewashed over in the walls of his house, many a roll of gold onzas, black with age and dirt. Part of them were his heirloom, a portion he has himself saved by dint of clever gardening and hard living. The Andaluz peasant spends his all on love, and song, and wine; the peasant of Murcia, La Mancha, and the Northern Provinces hoards all that he receives. Cynical is this Murcian. He has but two proverbs, or *refranes*; for ever are they upon his lips—the one, "*No hay mas amigo que Dios, y un duro en la bolsilla*" (Trust no one but God, and a dollar in your pocket); the other, "*La tierre y el cielo es bueno, el entresuelo malo*" (Heaven and earth are good; all between them worthless). On this last he acts. He keeps to himself and his family circle; he neither asks nor receives friendship or friends. Not for him the sickly-smelling wine shop, with its tinkling guitar. He loves the privacy of home. Enter his house—nay, call it not his; it is your own. A queer rambling street it is, composed of one-storeyed stone houses, with the usual tiny apertures for windows, caged in iron bars. The house itself is very dark; it abounds in odd corners, small winding stairs, and dark, cupboard-looking rooms. Yet there are marks of comfort and prosperity in the donkey or mule occupying the lean-to at the back of the house, or passing, with panniered back, through the earth-floored sitting-room into the burning street; and the very darkness of the house gives an idea of repose and coolness; for, after all, the Murcian peasant needs protection against the sun, not the cold. The interior of the house is quaint enough; it seems like half a dozen Melon stalls. On every wall of every room, lying in heaps on the floor, so thickly that with difficulty can you thread your way from room to room, hung, hundreds upon hundreds, from the roof, are melons, melons, melons; strung even upon the doors, and festooning the windows. I counted, in one tiny room, 600 Melons of every size, shape, and colour. Daily the master spends two hours sorting out those which are growing too ripe to keep for the early market. These Melons will last until next June, when the new season commences. My kindly host bared his arms, called in his wife and son, and sliced Melon after Melon until all had feasted. Nothing would stop his hospitality. "Eat, eat, eat; the best thing in life is to eat." I expressed my gratitude. "You deserve far more." My astonishment at the numbers of the fruit. "If they won't believe it in England, I'll write and tell them."

These poor fellows readily offer a stranger a shake-down. At 2 in the morning you hear the watchman thundering at the door. The two sons are up in a trice, loading mule and ass, and soon are tramping along the dusty road towards the nearest market town. Stave it off as we will, the evil day of sickness or death comes. This last a rough peasant called "the old fashion" (had he ever read Charles Dickens?), a fashion which he accepts with stoic composure, being, like so many of the Spanish poor, more or less of a fatalist. Sickness, however, he meets and combats with success in his own peculiar fashion; neither Allopath nor Homœopath, he is a stanch believer in the efficacy of his native herbs. No sketch of Murcian peasant life would, indeed, be complete without a word on this last point. There is a lonely sierra in the Province, known to the peasantry as the Sierra Mariola, where the wanderer hears nothing but the hum of the wild bee, and where the air glows laden with perfume as the foot crushes the aromatic herbage. In the early part of May month, the Frenchman, the Spaniard, and the African Moor may be seen culling for the winter's store some of the rich aromatic medicinal herbs with which this range abounds. They are dried, tied up in small bundles, and sold in most of the market-places at two farthings per bundle. Sage, Rue, *doncella*, Lemon Verbena, Rosemary, wild Camomile, *captosera* (a panacea for everything), blood-herb, bulbs of various kinds, barks and roots, amounting to about fifty different classes, are strung around the "wise woman's" cabin; and the cures wrought are really worthy of a closer study than they have hitherto received. The herb doctor, man or woman, prescribes; the decoction is made, faith, implicit faith, is added; the cure is wrought. For every half-dozen villages there is a well-known herbalist. One known to me, who cannot read or write, possesses real medical knowledge. The qualified practitioner, more enlightened than his English brother, not only does not discountenance this guerilla warfare against the common foe, but himself condescends to take a leaf from the herbalist's book, and in many cases employs with success the same simple remedies. On the whole, as regards his condition, the Murcian peasant in the irrigated districts is a well-to-do man of his class; he seldom goes to the wine-shop, he does not rely upon the spasmodic charity of the rich, in a country where combined and organised aid to the poor is the exception, and where charity takes the form of impulsive individual bounty: he never gets into debt, above all, his daughters earn a capital income at the enormous cigar factory of the province.

As regards character, he has little or none of the charming *gracia* of the Andaluz, yet he loves his music and his rough jokes; he is vastly superstitious, and truly attached to his Church, accepting as law his padre's sentiments and dicta; he has none of the natural cleverness of the Andaluz, being, on the

contrary, somewhat stupid and heavy; he is, to sum it all up, an honest, hard-working, ignorant, saving, good-hearted son of the soil, and no stranger need fear to trust himself to the loyal honour of the Murcian peasantry. *Abstracted from an interesting article in the "Times."*

Notices of Books.

Handy Book of Ornamental Conifers, *and of Rhododendrons and other American Flowering Shrubs, suitable for the Climate and Soils of Great Britain.* By Hugh Fraser, F.B.S.E. Blackwood & Sons, Edinburgh and London.

This little book, like some others bearing somewhat similar titles, is a reprint of a series of papers printed in the *Gardener*. It is divided into three sections—ornamental Conifers, which occupy 167 pages; Rhododendrons and other American or peat-soil shrubs, filling up ninety-seven pages more; and herbaceous and other flowering and foliage plants, suitable for associating with the Americans, to which sixteen pages are devoted, the whole concluding with a tolerably ample index.

Commencing by a few practical remarks on the process of transplanting, for which very good advice is given, and having briefly touched upon the important question how to restore a lost leader, the author passes in review, in alphabetical order, the hardy genera of the Coniferous family, giving a brief account, scarcely a description, of the particular kinds which in his opinion are most worthy of cultivation. Of the elegant but rarely seen Abies orientalis it is remarked that "for a lawn of small extent, or indeed wherever a neat compact evergreen is desirable, no plant can be more strongly recommended," in which recommendation we cordially agree. Biota orientalis semper-aurescens, the best by far of all the Golden Arbor-vitæs, is said to resemble the columnar elegantissima in general appearanne, but it is far more like aurea, differing from that fine and useful shrub principally in being constantly instead of intermittently golden. Cryptomeria elegans is rightly said to be a valuable acquisition. It is further stated of it that its "habit of growth is broadly conical, the branches thick and massive, and the branchlets drooping at the extremities, giving the plant a weeping appearance. The leaves are much longer than those of japonica, of a light green in summer, changing in autumn and winter to a brownish-green or bronze tint. It is then very striking and distinct-looking, and invaluable as a contrast to most other shrubs." The Knap Hill Cypress, Cupressus Lawsoniana erecta viridis, is duly and properly credited with being "remarkably distinct and elegant," having a close columnar habit, the foliage very deep green; and our remark, that it is "quite unapproached for symmetry and beauty," is fully endorsed. Juniperus chinensis aurea is regarded as one of the finest of variegated Conifers, likely to prove a valuable acquisition. Larix europæa pendula is particularly recommended as an elegant weeping tree for a lawn, or for any prominent position. Libocedrus decurrens, the Thuja gigantea of many gardens, is truly said to be strikingly effective, and a plant of great beauty, while its aspect is well described as very close and columnar, the stem thickly clothed with long flattened lycopod-like branches. The Pines (Pinus) give scope for a lengthy chapter, in which the sea-enduring property of P. austriaca, the landscape effect of P. Lambertiana, the rabbit-proof and ornamental quality of P. Laricio, the distinct and striking habit of P. macrocarpa, the sand-binding property of P. Pinaster, and the general utility of P. sylvestris, are duly registered, with many hints for the culture of these and other ornamental species. The Silver Firs (Picea), as they deserve, receive full consideration—P. magnifica being regarded as one, the right of which to rank as an independent species is "still a disputed point." Under Thuja the identity of the true T. gigantea with Menziesii and Lobbii is pointed out, and the species is strongly recommended for its thorough hardiness, freeness and rapidity of growth, there being "every reason to believe that it will yet come to be regarded as one of the most valuable of British forest trees." Thujopsis dolabrata also "will come to be regarded as one of our indispensable ornamental trees."

The section devoted to American plants, Rhododendrons especially, goes more fully into cultural details, while the various tender and hardy species and varieties are briefly noted in sections under the following groups:—Greenhouse and conservatory species and varieties; early species and varieties suitable for forcing; and late-flowering varieties.

The book is nicely got up, but there are sundry misprints which should be corrected in a subsequent edition, such as findonensis for finedonensis, Fortuneii for Fortunei, dolobrata for dolabrata, Noblicanum several times repeated for Nobleanum. There is also a general disregard for capitals where they should occur in specific names, as negundo for Negundo, deodara for Deodara, morinda for Morinda, libani for Libani, pinaster for Pinaster, &c. On the whole, however, it will be a handy and useful guide to amateurs in the selection of ornamental plants from the two principal families of which it treats.

—— *Vine Culture for Amateurs*, by "Practical Hand" (*Exchange and Mart* Office) is a pamphlet of thirty-four pages, in which the different branches of cultivation are touched upon briefly, and illustrated by twenty-five figures.

Apiary.

Rustic Bee-Sheds.—Quite as many opinions prevail about bee-stands and bee-houses as are to be met with about hives. Whilst one person advocates keeping the stocks on distinct stands, another fancies it is better to have a splendid house made for his bees, so that he can place about ten hives "all in a row," but every hive touching each other. So far as keeping bees on distinct and separate stands, so that the hives are not less than 6 feet apart, no one can be a greater advocate for it than myself: but another thought comes before us—you must have them sheltered in the winter or suffer loss; then if they are in straw hives, and you place say an ordinary pan-mug over them to shelter them from rain, &c., you run the risk of finding both hives and bees rotting from the moisture of the winter. If they are in a shed open on all sides with a free circulation of air, they come out in the spring healthy and vigorous, and quite prepared for the coming hard work of the honey-gathering season; but I have never yet found any hive healthy which was closely shut up all the winter, free from air or ventilation, and after frost reeking with moisture.

The annexed illustration (fig. 119) is a plain rustic shed; if placed at the corner of the garden and covered neatly with sedges or rushes, it will prove an ornament to any garden or shrubbery. The one I have seen had a bench running the whole length, in the centre, made to hold five hives; this is certainly more economical than placing them singly on separate stands, but this may be adopted at the wish or will of the apiarian.

Other bee-keepers adopt plain wooden sheds,

Fig. 119.—Rustic bee shed.

covered in on all sides; these harbour insects and mice, which will sooner or later prove a sad pest; and not only so, for the bees I have kept in this way were never so healthy or so profitable as when in the open shed.

Our rustic bee-shed is open on all sides, it should have three posts at the back, but only two at the front, one at each corner, for it is advisable to put no obstacle before the hive when its inmates are busy working. Strong laths are sufficient for a foundation for the cover, which may be either straw, thatch, or reeds. The common river sedge (Scirpus maritimus, L.) is the best, it has a much neater appearance than straw, and if it is designed as an ornament, by all means use reeds, sedge, or the still more common rush (Juncus communis). On the score of cheapness little need be said: if suitable timber is at hand, a pound will go far towards completing the structure. On the other hand, if one of the splendid bee-houses, so called, are purchased from dealers in apiarian furniture, to have a good durable house will cost not less than £15. Having had extensive experience in my own and neighbouring apiaries, I cannot too strongly condemn all such houses.

Again, if a separate wooden cover is made for each of the hives it will be very expensive; let me persuade every bee-keeper, then, now that winter is approaching—and every lover of his bees, even on the score of humanity, must prepare some kind of shelter for his hives—to have an open shed. Many may object that the keen winds of winter, with bitter sharp frosts, may injure the bees. It is not cold that injures the stocks, but, as I have shown before most clearly, the wet and moisture which fills the hives, especially after a thaw. Have a free passage for the air through the hives, whether they be wood or straw, and keep them free from damp; they are then sure to be healthy, and the advantage of this natural treatment will be seen in the following spring. One inducement to preserve the stock in open sheds is, they consume far less honey during winter, for when kept in an unnatural, warm, or damp atmosphere, they are continually eating, but if they are kept in a natural condition, such as we can imagine to be the case when in tree stems, as in primeval forests, the contrary is the case. *R.*

Florists' Flowers.

The Potentilla.—It seems to be urgently necessary that a practical horticulturist should sometimes pause and survey the line of progress along which he has passed during a period of years, and ask himself if, in his anxiety to reach forward to what is new and novel among flowers, he is not in some danger of losing sight of good things that it were wrong to neglect. One of these neglected good things is the Potentilla. At one time it was nearly becoming a florists' flower, and, in the neighbourhood of Hull, Mr. W. Willison, Mr. D. Wood, and others took it in hand and raised some very pretty types. Recent years have witnessed the introduction of some remarkably fine double varieties, which we owe to the Continental horticulturists; but this has not retarded the improvement of the single sorts, for some of the newer ones are very beautiful, large in size, brilliant-hued, and handsomely marked.

In all probability the improved varieties of the Potentilla sprang from P. atrosanguinea and P. nepalensis, two imported species. From the former and P. formosa some pretty flowers were raised in the neighbourhood of Garstang, in Lancashire; and it was in all probability the sight of some of these that set Mr. Willison to work in the way of improving on them. In old gardens P. Fintelmanni and others can still be met with.

Like many other double flowers the fine varieties of the Potentilla are selected from the single varieties. It was the work of time, but the results amply compensated for the outlay of labour and patience, as many of the varieties have now large and finely-formed double flowers, with stout petals of rich velvety texture, varying in colour from brilliant crimson and maroon to rich orange and bright yellow, which in some flowers are manifested in stripes, while others are beautifully spotted, margined, and marbled with varying hues. One disadvantage of the single flowers of the Potentilla is that, though freely produced, they are not of a very lasting character; but the double flowers do last, and these, while freely produced, are continued many weeks in succession on vigorous growing plants, and they are of such an accommodating character that they thrive in almost any soil and situation. The Potentilla is a case in point illustrative of the advantage of double over single flowers. It is by no means always so, but double Potentillas are certainly to be preferred to single ones, for the reasons just given.

My note-book contains the following single varieties as first-rate in quality:—aurantiaca superba, bright orange, very large; bicolor elegans, golden-yellow, bordered with reddish orange; Hendersoni maculata, fiery red, spotted with yellow; Menziesii, fiery red, spotted with yellow in the centre of each petal—an old variety, cultivated a quarter of a century ago, but still very attractive and of good habit; rupestris, a pretty, early, white-flowered species; Smouti, yellow, marbled with purplish violet; splendidissima, bright vermilion, shaded with orange; striata multiflora, golden-yellow, striped with vermilion; and striatissima, orange, striped with vermilion, very handsome.

The double varieties are to some extent displacing the single flowers, and the most distinct among them are aurantiaca flore-pleno, very fine and showy; Belisaire, light red, flaked with yellow, extra fine; Dr. Andry, deep velvety red; Hamlet, large in size, and of a fine hue of maroon; Louis Van Houtte, deep crimson, very large and double; Miersschaerti flore-pleno, golden-yellow, striped with vermilion, large and very double; purpurea plena, crimson-scarlet, of fine form; rosæflora plena, rich velvety vermilion, spotted and sometimes bordered with golden-yellow, flowers large and very double, extra fine; Vase d'Or, canary-yellow, very double, a fine pure hue of colour; and William Rollisson, orange and yellow, very free-flowering, and splendid in colour and quality.

In point of soil the Potentilla is somewhat accommodating, thriving alike on heavy and light lands. A good loam, with plenty of leaf-soil mixed with it, suits it well. Sometimes one sees beds of different flowers, such as Stocks, Phloxes, Cloves, Pinks, &c., grown for cutting purposes, a bed of double Potentillas should be added, for not only do they supply plenty of cut flowers, but they also have a fine decorative effect. If some one would grow a collection in pots, and show them at one of the meetings of the Royal Horticultural Society in 1876, they would be doing good service to floriculture.

The Potentilla can be propagated by division of the roots in spring, replanting in soil assisted by leaf-mould. Seed of the double and single varieties can be had, and if this is sown in March with other hardy perennials, the plants will flower fifteen months afterwards. The best support for Potentillas is a cylinder wire guard about a foot in height. This should be placed over the crown, and the stems then take a natural and easy direction, and appear far better than when tied to a stick, which, when slovenly done, destroys much of the beauty of the plant. *R. D.*

HORTICULTURAL EXHIBITIONS, 1875.

NOVEMBER.

10.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
10 and 11.—Bristol Chrysanthemum Show.
15 and 16.—Loughborough Chrysanthemum and Fruit Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.
16 and 17.—Borough of Hackney (late Stoke Newington) Chrysanthemum Society's Show, in the Town Hall, Hackney. Sec., J. Rainbow jun., London Road, Clapton, E.
25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Cheetham Hill Horticultural Society's Annual Exhibition of Chrysanthemums, Miscellaneous Plants, and Fruit.

DECEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 30, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 1	Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Nov. 2	Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Nov. 3	Sale of Nursery Stock at the Baker Street Nursery, Enfield, by Mr. F. W. Searle. Sale of Shrubs, Fruit Trees, Roses, Bulbs, &c., at Stevens' Rooms.
THURSDAY,	Nov. 4	Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Nov. 5	Sale of Scientific Instruments, at Stevens' Rooms.
SATURDAY,	Nov. 6	Sale of Dutch Bulbs, at Stevens' Rooms.

AMONG the prominent features of our civilisation, perhaps not one is more noticeable than the wide-spread LOVE FOR FLOWERS; indeed, so marked has the universal taste become, that those who are not naturally endowed with a predilection for horticulture affect the virtue though they have it not, and plants and flowers may be seen, not only in the country, but throughout the length and breadth of the metropolis and all our large towns, struggling into existence, often into beauty, under the most adverse circumstances. It was once said that wherever there was a flower outside on the window-sill, there was sure to be plenty for the pot within. There are many instances where this scarcely holds good, for, in spite of bitter poverty—even dire want—a taste for the beauties of Nature will assert itself, although its expression may take no higher form than that afforded by the effort to grow a sickly plant in a broken jug.

The art of floriculture, if by floriculture we may be understood to allude to the cultivation of what are technically known as florists' flowers, has doubtless gone much out of fashion; but as it has died out of notice, horticulture, using the word in its widest possible application, has been daily spreading among us—we all desire to cultivate gardens, even though the extent of our operations be limited to the outer window-sill, or the indoor flower-stand.

Many causes have contributed to the present prevalent display of a LOVE OF HORTICULTURE—the establishment of local flower shows, the diffusion of elementary education, the growing refinement of life in the middle and lower classes, and a cheap Press. The benefits which accrue from a national love of gardening can scarcely be too highly estimated; it provides not only an innocent but a humanising and elevating pastime, as well suited to the recreation of the peer as the peasant, and one which is alike enjoyable by both sexes.

Of all the arts, gardening is the one which may be undertaken without preparation and at the least expense, with a fair prospect of success, and it is therefore peculiarly the art of the people; and those whose pursuits in life compel them to pass the greater part of their lives in dingy, squalid streets, or in sedentary occupations, are those with whom horticulture, when the opportunity occurs of practising it, becomes a passion—a passion the enjoyment of which is attended with good results alone, evidenced most fully in the homes of the very poor, where, the cultivation of plants having been once begun, cleanliness and neatness, if not already inmates, are sure speedily to follow.

Of all classes in England, the one least alive to the beauties of flowers, to the pleasures of cultivating ornamental plants, is the agricultural labourer. It cannot be in his case that familiarity breeds contempt, for the more familiar the educated man becomes with the marvellous and admirable works of Nature, the more he is attracted towards them; the more he studies the more he is astonished at the Divine wisdom which has assigned, even to the meanest herb, a special existence and a peculiar destiny, while the labourer seems incapable of regarding any member of the vegetable kingdom from any but a strictly utilitarian point of view.

As a rule, the hard-working dwellers in rural districts do not cultivate flowers, and the husband will look on with a sort of contemptuous pity at "the wife" while she tends the few ornamental plants which form a screen for the cottage window. The posies gathered by the children never seem to attract his attention for one moment, though they deck the lanes and hedgerows with inimitable beauty, and speak with mute eloquence of the beneficence which created this world, not alone for man's use, but also for his intelligent enjoyment.

Of late years a marked impetus has been given to the skilled cultivation of cottage gardens by the establishment of horticultural shows, where money prizes have been given for superior specimens of vegetables, fruits, and flowers. Silver will brighten the densest intellect, and the substantial reward of 5*s*. will hardly appeal without effect to the industrious energies of the most apathetic.

Experience is the best teacher, and those who have experienced the benefits derived from intelligent cultivation of the soil are never likely to relinquish the occupation, unless absolutely compelled.

Some years ago in Kent, a clergyman—a liberal and a wealthy man—opened what we might almost term a school for gardeners. He leased a sunny and suitable part of a large field, divided the ground into plots, and gave these gardens, with seeds and roots, and implements for their proper cultivation, to the best boys in the National School; the rewards were highly prized, and the boys, thus imbued from an early age with a love of healthy, remunerative labour, became intelligent, able workmen in after life—the majority following, as a means of livelihood, the occupation in which they had so soon learnt to take a delight. After the sedentary labours of the school-room, gardening in the fresh air became so enjoyable a recreation that these lads sought no other, and found no time to indulge in the unseemly brawls and coarse language which so often disgrace the neighbourhood of large schools.

—— THE illustration, fig. 120, represents one of the numerous small and unassuming TEMPLES erected IN THE VICINITY OF VILLAGES, monastic buildings, &c., throughout China. They are erected to various deities, a favourite dedication being to the "Gods of the soil," which, if idolatrous, at all events breathes a spirit of thankfulness to the Supreme Being for the showers that usher in the spring and cheer the thirsty ground. About it are many votive lanterns and joss sticks, a species of incense. Above is one of the usual omega-shaped tombs which cover the hill-sides in all directions. The well-to-do Chinaman is most solicitous to be buried in a good situation, and generally chooses beforehand, for his future resting-place, some lovely spot whence he has been accustomed to admire the landscape. The Chinese are admirable landscape gardeners, and consequently the grave of a wealthy Chinese citizen is often most tastefully placed. When an elder relation dies, the event is formally announced to all the branches of the family; each side of the door is distinguished by labels in white, which is the mourning colour. The lineal descendants of the deceased, clothed in coarse white cloth, with bandages of the same round their heads, sit weeping round the corpse on the ground, the women keeping up a dismal howl, after the manner of the Irish. In the meantime the friends of the deceased appear with white coverlids of linen or silk, which are placed on the body; the eldest son, or next lineal male descendant, supported on each side by relations, and bearing in his hands a porcelain bowl containing two copper coins, now proceeds to the river, or the nearest well, or the wet ditch of the city, to "buy water," as it is termed. The ceremony must be performed by the eldest son's son in preference to the second, and entitles him to a double share of the property, which in other respects is divided equally among the sons. The form of washing the face and body with this water being completed, the deceased is dressed as in life, and laid in a coffin, of which the planks are from 4 to 6 inches in thickness, and the bottom strewed with quicklime. On being closed it is made air-tight by cement, being besides varnished on the inside and outside. A tablet is then placed on it, bearing inscribed the name and titles of the deceased, as they are afterwards to be cut upon his tomb. On the expiration of thrice seven, or twenty-one days, the funeral procession takes place, the tablet being conveyed in a gilded sedan or pavilion, with incense and offerings before it. It is accompanied by music closely resembling the Scottish bagpipes, with the continual repetition of three successive strokes on a sort of drum. The children and relations of both sexes follow in white, without much order or regularity, and, upon reaching the grave, the ceremonies and oblations commence. It being part of their superstition that money and garments must be burned for the use of the deceased in the world of spirits, these are, with a wise economy, represented by paper. The form of the tomb, whether large or small, is exactly that of a Greek Ω, which, if taken in the sense of "the end," is an odd accidental coincidence. Those of the rich and great are sometimes very large, and contain a considerable quantity of masonry, with figures of animals in stone. The whole detail of sepulchral rites, with the sentiments of the Chinese concerning the dead, are contained in the drama of *An Heir in Old Age*. After the interment, the tablet of the deceased is brought back in procession, and if the family be rich it is placed in the hall of ancestors; if poor, in some part of the house, with incense before it. Twice in every year, in the spring and autumn, are the periods fixed for performing the rites to the dead, but the first is the principal period, and the only one commonly attended to. Unlike the generality of Chinese festivals, which are regulated by the moon (and therefore movable), this is determined by the sun, and occurs annually 105 days after the winter solstice, *i.e.*, April 5. About that time (for a day or two before or after does not signify to them) the whole population of the town is seen trooping out in parties to the hills, to repair and sweep the tombs, and to make offerings, leaving behind them on their return home long streamers of red and white paper, to mark the fulfilment of the rites. Whole ranges of hills, sprinkled with tombs, may at that season be seen covered with these testimonials of attention to the departed, fluttering in the wind and sunshine. For the use of the sketch from which our illustration was prepared, and for the interesting details above given, we are indebted to the courtesy of Captain S. P. OLIVER, R.A.

—— With reference to the remarks on the BLENHEIM PIPPIN APPLE, which appeared in our last issue (p. 530), we are requested to state that at the Great Fruit Show of the Royal Horticultural Society, on November 10, all varieties of Apples for which there are special prizes in the "kitchen" classes will be excluded from competing as dessert varieties.

—— Among the few showy plants which yet remain in our gardens at this season of the year is one which is seen far less frequently than its merits deserve. We allude to STERNBERGIA LUTEA—the "great autumn Daffodil," as our old writers called it—which has been known in England for 300 years at least, and was introduced originally from Constantinople. It produces a few glossy dark green leaves, and solitary chalice-like flowers of a rich deep yellow, which cast quite a ray of cheerfulness over the dull borders of shrubberies. Although solitary in the sense that only one blossom is produced at a time, there is often a succession of flowers from the same root, especially when it has become thoroughly established. When undisturbed it increases somewhat rapidly by means of offsets, and in this manner soon forms patches of considerable size. It would thus be a very useful plant for the front of shrubberies, or as an inmate of a mixed or "old-fashioned" border, where this most enjoyable adjunct to a modern garden is in existence. The Sternbergia (which used to be known as Amaryllis lutea) is a native of Spain and other parts of Southern Europe, and is imported from Holland under the title of Yellow Colchicum. The French call it Narcisse d'Automne—a name exactly equivalent to our "autumn Daffodil."

—— Continental NOVELTIES IN FLOWER SEEDS are just now being announced, and between now and Christmas they will be plentiful enough. Among them is found Petunia grandiflora alba, which is pronounced to be a variety that supplies precisely the

colour which has been hitherto wanting to complete the collection of Petunia grandiflora. Then there is P. grandiflora superbissima, which variety has invariably a pure white throat, the flowers comprehending rose, purple and crimson hues, "which reflect a metallic tinge and contrast charmingly with the fine fresh green of the recurved leaves!" In addition there is a crimson-flowered variety of Kaulfussia amelloides, the flowers carmine-red, and said to be reliable as coming true from seed; a rose-coloured variety of Fenzlia dianthiflora; a dwarf form of Callirhoe pedata, perfectly compact in growth, and forming compact bushes a foot in height, and therefore quite distinct from the branching, straggling style of growth of the old type; a cherry-red dwarf Scabious; a robust variety of Phlox Heynholdii, and much superior in constitution; and some novelties in Asters, especially of the needle or hedgehog type, respecting which form of Aster it is stated, that "its merits will most certainly meet, at no distant date, a much more general recognition than they do at present." Perhaps they will, but it will take something uncommonly good and very distinct in character to wean the regard of English cultivators, and especially exhibitors in this country, from the Victoria and Truffaut's Pæony-flowered types, which are unquestionably the two finest strains of Asters which are in cultivation.

—— Will Frost injure the Auricula? is a matter that has been discussed by florists, and with some difference of opinion. The old florists were against exposing their Auriculas to the influence of frost; Glenny, among later writers, simply states it is not desirable to get the plants frozen. Much depends, no doubt, on the state of the plants when frost sets in, and the comparative dryness or otherwise of the place where they are wintered. The proper condition of the plants during mid-winter—that portion when its rigour might be most severely felt—should be that of perfect rest, when the leaves are matured and somewhat tough in texture, and the soil about the plants pretty dry. Frost can scarcely do harm under such circumstances, and the Auricula is a hardy plant. The surface soil and foliage should be kept perfectly dry during the time frost prevails. The Auricula, as generally cultivated, in pots, may be said to have two seasons of growth—one in early spring, after the winter rest, and one in summer and autumn, after repotting. It is a good argument in favour of repotting, early in May for instance, that by so doing there is a better chance of the growth becoming matured by mid-winter, and therefore more capable of resisting frost when it comes. It is worthy of note that the winter of 1859-60 was unusually severe, and the winds too, during the latter end of April and the beginning of May, were of the most withering character, and yet a more than ordinarily fine and regular head of bloom succeeded. Last winter many Auriculas were frozen hard, it was practically impossible to exclude the frost from cold frames and unheated houses, and yet the bloom generally in April last was by no means to be despised. The treatment to be commended to cultivators is to keep their plants so dry, from the beginning of November till towards the end of February, that not a single plant is watered till it is seen to flag, and even then very sparingly. "Then," says a leading grower, "let them freeze as hard as frost can freeze them, the harder the better."

—— The worst fears of those who predicted that our Pea and Bean Crop would be of doubtful quality this season, owing to the heavy rainfall which took place just when they were ripening for harvest, appear as if likely to be realised. The samples of Peas are of very indifferent quality, and if picked over with the usual care will have to lose quite one half of their bulk. Especially does this appear to be true of the early varieties, the crops of many of these having laid for days exposed to a constant downpour, which caused many of the seeds to make growth. The later Peas are likely to prove a little better in quality, but the yield will be a scanty one, and enhanced prices must follow. The early Beans of the Longpod section are also of poor quality, in so far as they have come in from the growers, and will have to lose one-third of their bulk during the picking process.

—— Holders of last year's Grass Seeds are, owing to the scarcity in the new supplies of the current year's growth, and the consequent advance in prices, reaping a good harvest, and lest any prejudice may be excited by such a statement, it may be remarked that the growth of yearling grasses is invariably of a good average.

—— The double white form of Primula Auricula which is announced on the Continent will, if it at all answers to the description given of it, prove an acceptable companion to the old double dark and double yellow Auriculas, both of which are coming to the fore again. There appear to be two varieties of the latter, one much fuller than the other, but it may happen that any apparent difference is traceable to a lack of strength in some of the plants. The double varieties produce their flowers as freely as the single ones, and they will keep fresh in a cut state for a long time to come. The Rev. F. D. Horner has just flowered for the first time a yellow seedling Auricula with single flowers, very correct in character, and having broad stiff segments, but instead of being a true self it

Fig. 120.—Shrine and grave near Canton, illustrative of Chinese landscape gardening in connection with sepulture.

has a broad, good white mealed edge; the flower is capitally proportioned, the body colour of a rich yellow, the paste as good as in a real white-edged flower, good yellow tube, and neat anthers. This points to the possible introduction of a new division of show or edged Auriculas.

—— The Twenty-second Annual General Meeting of the SCOTTISH ARBORICULTURAL SOCIETY will be held in the rooms at the Royal Botanic Garden, Inverleith Row, Edinburgh, on Wednesday and Thursday, November 3 and 4, at 12 o'clock at noon each day, JOHN HUTTON BALFOUR, M.D., Professor of Botanity in the University of Edinburgh, President, in the chair. On Wednesday, November 3, the office-bearers, members of committees, and judges, will meet at half-past 11 o'clock for consultation. 1. President's address. 2. Report of proceedings of Council. 3. Election of new members. 4. Report of Treasurer and Auditor on the Society's financial affairs. 5. Report of committee on the British Association Grant. 6. Report by Convener of Judges on the following Competitive Essays sent in during 1875:—Pruning of timber-trees, considered physiologically, Motto, "*Ne plus ultra.*" Pruning of timber-trees. considered physiologically. Motto, "Onward." Pruning of timber-trees, considered physiologically. Motto, "Live and let live." Ages at which the various sorts of timber-trees grown in Scotland may be most profitably felled. Motto, "*Secundum naturam.*" Report on Silver Firs (Picea pectinata) damaged by beetles. Motto, "Perseverance." Present state and future prospects of arboriculture in Fifeshire. Motto, "Nomenclator." Present state and future prospects of arboriculture in Clare, Ireland. Motto, "Posthumous." Most profitable mode of disposing of home-grown timber. Motto, "*Labor omnia vincet.*" Distances apart at which forest trees of different species should be planted. Motto, "No quarrelling, neighbours; you may both be right." Utilising and protecting river sides. Motto, "*Dioec Monau.*" Members are requested to send to the Secretary in writing the titles of subjects connected with the science or practice of arboriculture for competition or discussion. 7. Election of office-bearers for 1875-76. The anniversary dinner of the Society will be held on this day (November 3), in Robertson's Albert Hotel, 25, Hanover Street, at half-past 3 o'clock precisely. Professor BALFOUR will act as Chairman, and Bailie METHVEN and Mr. JOHN GRANT THOMSON as Croupiers. The order of business on Thursday, November 4, is as follows:—The President in the chair. 1. Papers submitted by members to be read. 2. Subjects selected at last annual general meeting discussed. *a.* The failure of the Larch. Discussion to be opened by Mr. W. Gorrie, Rait Lodge, Trinity. *b.* Insects and cryptogamic plants injurious to forest trees, and their remedies. Discussion to be opened by Mr. M. Dunn, the Palace Gardens, Dalkeith. *c.* Different modes of pruning. Discussion to be opened by Mr. William M'Corquodale, wood surveyor, Perth. *d.* Is there any advantage in seasoning timber by girdling previous to felling? Discussion to be opened by Dr. Cleghorn, Stravithy, St. Andrews. 3. Subjects for discussion at next annual meeting selected. 4. Miscellaneous notices. 5. President's concluding remarks.

—— From *Der Landwirth* we learn that the manufacture of DRIED POTATOS is carried on in Lubeck, at CARSTEN'S works, as follows:—The Potatos are peeled with the hand, and cut into discs by a machine. These are put in a basket, and this in a boiler, where the Potatos are nearly but not quite boiled. Thereafter the discs are put on wire frames in a dry oven, where they are dried quite hard. It is important to preserve the colour of the Potatos, and to prevent them turning grey, as they would by the above process alone, the material after slicing is treated with cold water, to which has been added 1 per cent. of sulphuric acid, or 1 to 2 per cent of muriatic acid. Then it is washed in pure water, and the drying proceeds. The preparation obtained, and which has lost none of its starch, is of a slightly citron-yellow tint, and transparent like gum. Boiled with water and a little salt, it is said to resume the natural colour and fibrous structure of Potatos, and is not distinguishable in taste from newly boiled Potatos.

—— Do we sufficiently appreciate the value of LILIUM AURATUM as a decorative plant in the open ground? We saw a bed of it at Messrs. BUNYARD & SON'S nursery, at Ashford, a short time ago, which had been in bloom all the season, and was still bearing flowers as late as the first week in October. Some of the blossoms were remarkably fine.

—— In St. Louis, Missouri, the authorities of the asylum for insane, or Insane Asylum as they term it, have recently bored an ARTESIAN WELL to the depth of 4000 feet. Independently of the geological interest attached to the operations, there was the question of temperature. Of course we have records of temperatures at much greater depths, but only from open mines; and if the figures given in the *Transactions of the Academy of Science of St. Louis* are correct, they are noteworthy. A registering thermometer with Fahrenheit's scale indicated 106° at the depth of 3127 feet, 107° at 3129 feet, and then very gradually a lower temperature until it reached 105° at the depth of 3837 feet, the greatest depth attained.

—— A favourite winter decorative plant with Mr. TEGG, at Bearwood, is FUCHSIA DOMINIANA, of which he annually grows a large batch. The mode of culture is to put in cuttings early in the spring, and these when struck and well rooted are planted out into the open ground for the summer. Whilst yet young the plants are pinched once, and thus some five or six shoots are thrown up, and when lifted for repotting in the autumn form plants about 18 inches in height. These plants are now put into a gentle heat, and commence flowering at once, continuing to do so all the winter.

—— Lieut.-Colonel BLACKHALL, Chairman of the Shirley Horticultural Society, speaking to the toast of the "Army and Navy" the other day at the Society's annual dinner said, "An illustrious General recently at a public dinner remarked, that agriculture gave the army its best conducted men," but he thought he might have gone a little farther, and said that the flower of the army came from horticulture.

—— There is a very beautiful HARDY WATER PLANT, which, so far as we know, is not in cultivation in this country, although it is superior to any of our hardy aquatics! It is a rich crimson-purple variety of Nymphæa alba, and grows wild in some parts of Sweden. The specimen we have seen is a dried one, in FRIES' *Herbarium Normale*, which had retained its colour almost undimmed. As spread out in the dried state, the flowers are upwards of 6 inches in diameter; and we may judge of their beauty from the remark of the botanist who collected the specimens, as given on the label:—*Maximus et speciosissimus in Europa flos Victoriam æmulans.* Dr. TRIMEN informs us that he saw it growing in the botanic garden at Lund a few years ago.

—— The fact that both EURYALE FEROX and NELUMBIUM SPECIOSUM grow wild as far north in Eastern Asia as Peking, proves what summer heat will effect in the vegetable world. With a winter climate similar to our own this region enjoys a much warmer summer and autumn, and thus many plants and trees thrive, and flower and fruit there, which, although nominally hardy in the milder parts of the United Kingdom, rarely flower, and still more rarely fruit, with us. Nevertheless, these two plants would doubtless succeed in warm situations in the south and west. There are many curious and interesting plants in cultivation from this region, belonging to families or genera of a southern or subtropical type; and what the interior of China contains we can only surmise. But the collection of dried plants collected by Dr. SHEARER at Kinkiang, in 1873, the new species of which have recently been published in the *Journal of Botany*, promises a rich harvest to future explorers. It is to be hoped that Mr. WADE will succeed, not only in averting war, but also in opening the country to travellers.

—— We understand that Mr. BULL has again offered his silver cups to be competed for at the next GREAT SUMMER SHOW of the Royal Horticultural Society, on June 7 and 8, and at the Provincial Show, if any, in 1876. Messrs. VEITCH & SONS, of Chelsea, have also decided to hold another of their series of FRUIT SHOWS next year. It will be held in the garden of the Royal Horticultural Society at South Kensington, on July 19.

—— PASSIFLORA CŒRULEA, the only type of the numerous species of this lovely tribe that is at all hardy, has been flowering with great profusion this autumn in several suburbs of London. It should always have a south or south-west aspect, and a somewhat gravelly rather than a clayey soil, and it will then scarcely fail to do well.

—— Under the auspices of the Austrian Minister for Agriculture, a detailed report on the appearance of the Vine-pest, PHYLLOXERA VASTATRIX, IN AUSTRIA, has been published. It is something more than its title indicates, inasmuch as it includes the history of its appearance and spread in France and other countries, as well as a summary of the results of the various means tried to destroy this devastating insect. Indeed this report, which was ostensibly written to give the results of investigations instituted to ascertain how the Phylloxera was introduced into Austria, is one of the most interesting articles on the subject we have seen.

—— ECHEVERIA METALLICA makes a conspicuous object in the conservatory at this season of the year, when it is in full bloom. It is not difficult to have plants in flower in the autumn if old specimens are used for the purpose; or even those two and three years old from seed. Large plants in 10 and 12 inch pots throw up several noble spikes of flowers, and when mingled with other plants have an imposing effect. The plants need to be fully exposed to the light when they are throwing up their flower-stems, and kept away from any spot where the drip of other plants can fall upon them. As long as the energies of the plants are being devoted to the production of flower-stems, the plants—unless the weather is very dull and moist—may be treated to liberal supplies of moisture at the roots, but when in bloom kept somewhat drier.

—— According to M. CORDIER, of the Maison Carrée, Algeria, in the *Bulletin* of the French Acclimatisation Society, the beautiful EUCALYPTUS EUGENIOIDES is one of the fastest-growing species of this remarkable genus. Plants of this species 4 inches high, put out in June, 1873, are now upwards of 26 feet high, and the stems are about a foot in circumference 3 feet above the ground.

—— Mr. THOMAS P. TURNER has resigned his position as gardener to the Earl of MEATH, at Kilruddery, Co. Wicklow, and is succeeded by Mr. MOORE, late gardener to Earl BROWNLOW, at Belton, and formerly of Alton Towers.

—— The *Times* correspondent at Philadelphia states that—"From California there has been sent to the Philadelphia Exhibition a section of one of the 'big trees,' which has crossed the Mississippi, and is now on its way to this city. The section has a diameter of 20 feet, and is 16 feet long. It was taken from a tree 276 feet in height, with a diameter at the base of 26 feet. This tree, as indicated by the yearly rings in the wood, was 2120 years old. The section is hollowed out, so as to make a cylinder, with sides about 2 feet thick, including the bark. It will be converted into a circular house, and elegantly fitted up. The hothouses of the horticultural building at the Exhibition are completed, and some of them are ready for the reception of plants. Shipments of rare plants have already begun, and they will be arranged in these hothouses. A valuable collection will come from the Government Botanical Gardens at Washington.

—— Mr. ELWES, "Rheum," and without doubt many other correspondents, will be glad to know how the young plants of RHEUM NOBILE are at present doing at Kew. Some few are in pots, and with such confinement have made slow progress; a number of others are planted out in a frame, and these look as sturdy as could any other species of the genus. Taking one of the largest with six leaves, the blades average 4½ inches in length, by 3½ inches in breadth, with petioles 4 inches long. The largest blade measures 5 inches by 3½. There having been many failures, the mode of treatment will be of interest. The seeds were sown in a cold frame in March, and about May the young plants were pricked off in pots; these when established were planted out in a frame, on a bed of fibrous sandy loam, about 9 inches deep, with 4 inches of broken bricks underneath—below this there being already good drainage. During summer the lights were thrown back, and in their place a mat, frequently syringed, was supported by cross sticks. The young plants were also kept continually moist. Now the lights are always on during heavy rain, but with full air at back, by means of tilts; and no shading is necessary. Several other ways of treatment were tried, but this method has given the best result. At the Edinbugh Botanic Garden we believe plants have succeeded in the open ground. The greatest difficulty seems to be in transplanting the young seedlings; the radicle is so brittle as to break almost with mere movement of the soil, and all so injured seem doomed to die, as do perhaps many others not so unfortunate. When further advanced they seem likely to transplant with less difficulty, but this cannot be said with certainty. From the habit of the plant the reverse would seem more probable. One individual removed to a bed of peat is so far doing well. The seeds, if good, grow very freely either in a cold frame or with the assistance of heat. If germination does not take place within a moderate time, they may with certainty be pronounced dead. Large quantities have been received without a single one being alive. For the ultimate position of the plants, a soil composed in good part of leaf-mould, with plenty of broken bricks intermingled, would perhaps be best, and a cool, moist atmosphere must be provided.

—— The BOROUGH OF LAMBETH AMATEUR CHRYSANTHEMUM SOCIETY will hold its first exhibition at the Swan Inn, Great Dover Street, Borough, on Thursday and Friday, November 11 and 12. This Society is open exclusively to amateurs residing within 1 mile of the Elephant and Castle, and Mr. W. T. SUMMERS, 93, Falmouth Road, S.E., is the Hon. Sec.

ORMSON'S PATENT UPRIGHT TUBULAR CORNISH BOILER.

Hot-water boilers for horticultural purposes are so numerous and so varied that we need not be surprised to see a new form introduced. We may, moreover, be well assured that the new-comer will be closely scrutinised and criticised, and its chances of success very keenly discussed. The boiler, of which a sketch (figs. 121, 122) is subjoined, and whose name heads this notice, may certainly be described as a new form of horticultural boiler, and we think we may safely state that it appears to combine all the elements of a successful one. However, experience is better than speculation on such a point as this, and Mr. Ormson will very soon have it in working order, when its action may be tested by direct observation.

The new boiler is a combination of the tubular and Cornish boilers, designed to be used in a vertical position. It consists of two semicircular or dome-shaped ends, connected by short lengths of pipe, and when so connected it stands on a stout iron leg with a broad foot. Fig. 121 is the front view, the furnace-bars, which drop in on a level with the upper edge of the lower dome-shaped piece, being movable, and the hollow beneath serving as an ashpit. The fire plays in and out amongst the tubes which form the sides, and strikes directly against the upper dome-shaped piece, where the flames are beaten back and forced between the tubes, and in fact made to circulate about every portion of the boiler. This, indeed, is one of the merits claimed for the upright tubular Cornish boiler—that the heat strikes against the dome-like top with great force, and is then returned, instead of rushing away up the chimney, which Mr. Ormson contends is a fault in all other tubular boilers. It seems scarcely possible to make better use of the direct heat drawn from the fuel, while it has the power of heating—for heat, it must be remembered, as it gets further and further from its source, diminishes in force, and soon loses the power of imparting it to other bodies in anything like an effective manner. To test this, let the hand be held close to a good fire, and it would soon become scorched, but draw it away and it is surprising how quickly the heat moderates, and at how short a distance the hand can be held without the slightest inconvenience. A very similar action must take place in the case of the fires made to heat hot-water boilers; close to the source of heat the action is powerful and prompt, but comparatively little effect is produced at a distance from that source. This applies to the efficiency of the new boiler; another point to which we will now refer affects its safety and durability.

It is sufficiently well known that most, if not all the disasters which happen to boilers—most, if not all the cracking and bursting—is due to the deposit of sediment at the bottom of the boiler, which either causes the metal to burn through, or to expand unequally, and so crack. Now as regards the cleansing of its interior, this boiler is perfect. Standing vertically, as it does, all impurities, if any, in the water must sink to the bottom, and all serious incrustations must do the same; from the upper dome they must pass down the tubes to the lower inverted dome, where from the concavity they must pass to the centre, and here an outlet is provided. The sediment must of necessity pass down the leg at the base of the boiler, and into this leg a pipe is inserted at A (fig. 121) with a tap attached, and communicating with a drain in the stoke-hole; and in this way, by simply turning the tap, the whole of the sediment can be cleared out, and the boiler left perfectly clean. The circulation of the heated water is also fully provided for—the flow, C C, being at the extreme top, and the water, after traversing the pipes, re-entering the boiler at the extreme bottom, the return pipe being shown at B (fig. 122).

This boiler can be fed either from the top or bottom as may be preferred, provision being made for either plan. It can also be set in a deep stokehole in the ordinary way, or by the aid of an elevative expansion box it may be set almost on a level with the pipes, but in this way the action is less rapid. Experiments are now being made to arrive at the best results attainable in connection with shallow setting. The fire is made inside the boiler itself, and a considerable portion of the water-enclosing surface is brought within its direct action, and in close contact with the burning fuel. The figures show that the boiler is entirely enclosed in brickwork, the fire playing all round it in every direction.

The facility afforded in this boiler for removing sediment, and the great surface of water-space exposed to the direct action of the flames are very marked improvements, the former especially, showing a decided advance upon all others which have been described. Indeed there seems no reason to doubt that it will prove to be not only a most powerful boiler, but also a quick-heating and economical one.

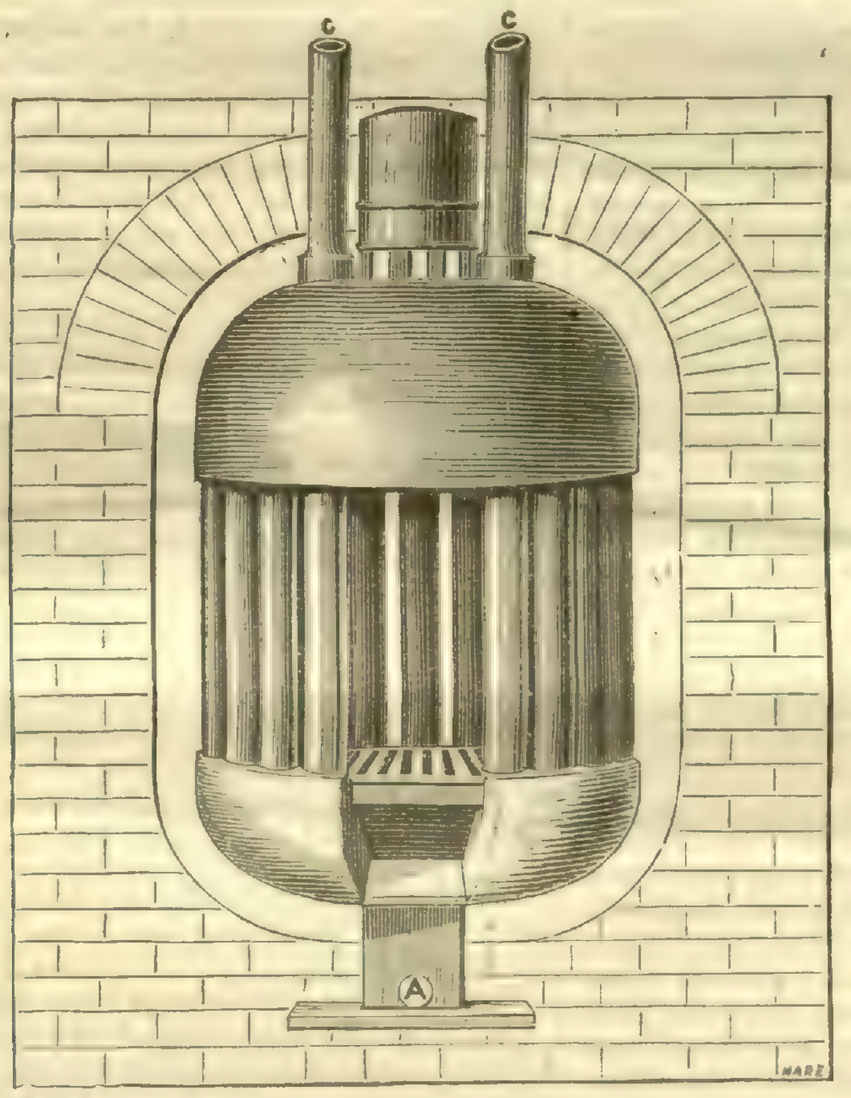


Fig. 121.—Ormson's Cornish tubular boiler, front view.

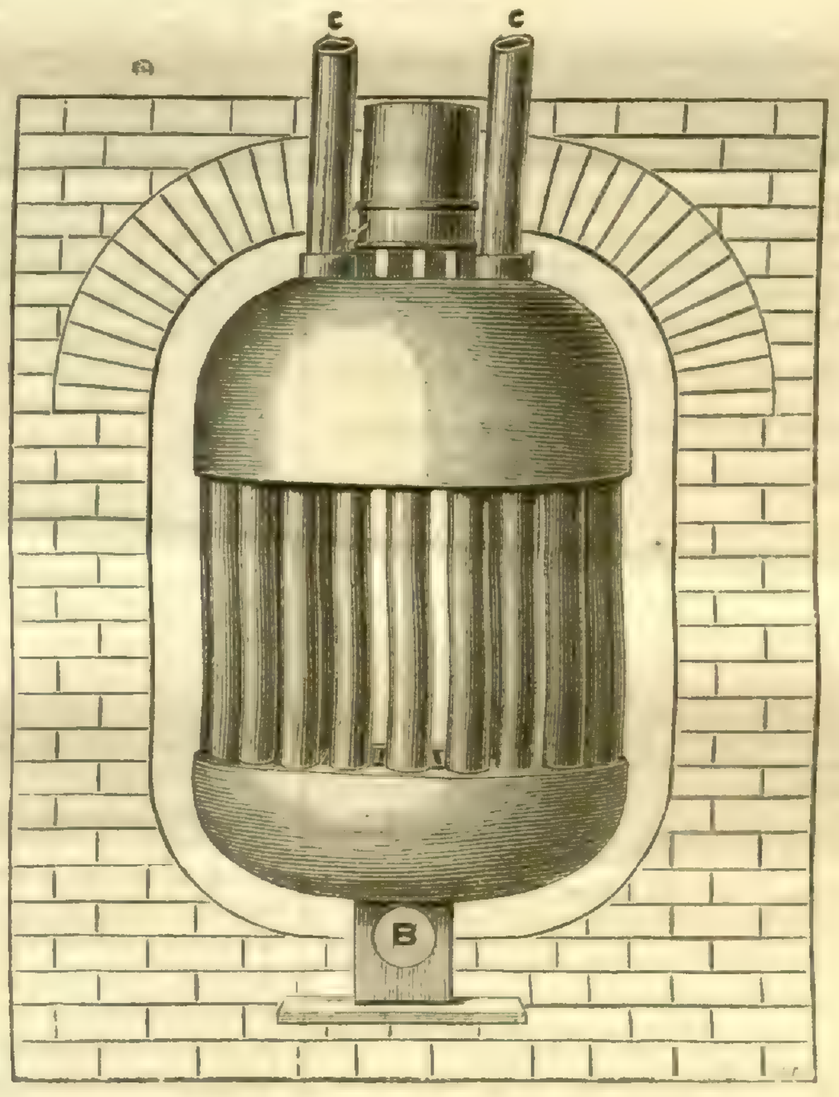


Fig. 122.—Ormson's Cornish tubular boiler, back view.

INTERNATIONAL HORTICULTURAL EXHIBITION IN 1877 AT AMSTERDAM.

The following is the project of programme for the International Horticultural Exhibition in 1877 at Amsterdam, referred to at p. 527:—

VEGETABLE PRODUCTIONS.

1.—Cotton.

Required:—1. A collection of Cottons of various origin, as much as possible, with specimens of plants.

2. A collection of Cottons from some limited geographically well-defined region, with specimens of plants.

3. A collection of Cottons, reared from exotic seed, with exact statement of origin of the seed used for acclimatation.

4. A collection of Cotton pods and seeds, with samples of the Cotton produced, and a description of the plants.

5. A good collection of standard samples of Cotton, in conformity with the Liverpool quotation.

6. A good collection of standard samples of Cotton, in conformity with the Havre quotation.

7. A collection of different Cotton fibres fit for being projected by an oxyhydrogen lamp upon a white surface or screen.

8. Exact drawings of Cotton fibres of different origin, on a scale of 1 to 1000.

9. Samples of Cotton oil, with the kernels from which the oil has been obtained.

10. Samples of articles prepared from Cotton oil.

11. Cotton gins, with statement of results obtained therefrom.

12. Presses for baling.

13. Packings, &c.

14. Exact measurements of Cotton fibre. Statements of length, thickness, and breadth of fibre from one and the same plant, and from different kinds.

15. Statements of absolute firmness of Cotton fibre of the same plant, and of different kinds.

16. Researches concerning the soil of Cotton lands.

17. Descriptions of the modes of sowing and reaping, in use among the various Cotton growing nations.

18. A complete description, illustrated with drawings, of a Cotton plantation.

2.—Tobacco.

Required:—1. A collection of Tobaccos of different origin, as much as possible, with specimens of plants.

2. A collection of species of Nicotiana, from some special geographically well-defined region.

3. A collection of species of Nicotiana, reared from exotic seeds; specimens of successful acclimatation, with exact statement of the origin or home of the seeds.

4. A collection of species of Nicotiana, with samples of Tobacco produced therefrom.

5. Leaves of Tobacco plants in the several stages of growth (all these specimens are required to be properly prepared, *i.e.*, dried and stoved).

6. A collection of fresh native Tobacco samples.

7. Drawings of fully matured Tobacco leaves (natural size).

8. Researches of soils suited for Tobacco growing.

9. Statements and researches concerning the ashes of several kinds of Tobacco.

10. Statements on the content of nicotianine of Tobaccos, also of the leaf in the different stages of its growth.

11. A somewhat considerable quantity of pure nicotianine, with the results of its elementary analysis.

12. Physiological experiments on the effects of nicotianine.

13. Models of drying and stoving barns.

14. Materials for packing.

15. Description of the mode of cultivation observed in some particular Tobacco growing district.

16. A complete description, illustrated by drawings of a Tobacco field.

17. Statutes and regulations of societies of insurance against hailstorms.

3.—Peruvian Bark.

Required:—1. As complete a collection as possible of the bark of different species of Cinchona, reared by Government in Java, and moreover a series of samples showing the progress in the culture since the first parcel of Java Cinchona bark was sent to Netherland for sale. The botanical derivation of the barks must be stated throughout.

2. As complete a collection as possible of blossoming and of fruit-bearing sprigs of Cinchonas reared in Java, and well defined.

3. Samples of Peruvian bark, reared by individuals in Java, with the proviso that each specimen must bear the name of the species of Cinchona from which it was taken.

4. As complete a collection as possible of Cinchona (bark) from British India, with the proviso that each specimen bear the name of the species from which it was taken.

5. As complete a collection as possible of blossoming and of fruit-bearing branches, belonging to well-defined species of Cinchona, reared in British India.

6. As complete a collection as possible of Cinchona alkaloids, obtained from Java.

7. Idem, from British India.

8. A collection of coloured plates of blossoming and of fruit-bearing branches belonging to different species of Cinchona, especially of such as are reared in Dutch and in British India.

9. A collection of implements employed in collecting and preparing the Peruvian bark.

10. As complete a collection as possible of notices and reports relating to the culture of Java Cinchona.

11. Idem, of British India.

4.—Madder.

Required:—1. Dried specimens of Madder plants (species or varieties).

2. Samples of Madder roots in their different stages of development.

3. Samples of garancine.

4. Samples of soils and manures employed for the culture of Madder.

5. Models and figures illustrating the preparation of Madder.

6. Statements concerning the cultivation and preparing of Madder, with the costs of the same.

7. Samples of dyes obtained from Madder, either alone or mixed with other colouring matters.

8. Stuffs dyed with such dyes.

9. A series of stuffs, dyed partly with Madder dyes, partly with artificially obtained alizarine, and with other chemical productions, suited for comparisons, in addition to an opinion as to the prospects of Madder industry by the continual improvements of these productions.

N.B. The Madders to which the above nine questions refer are those of the Levant, of Avignon, Naples, Russia, various parts of Netherland, and some other parts of the world.

10. Adulterations of Madder. Samples for elucidation, and statement of the way in which these adulterations may be detected.

11. Plants furnishing colouring matters similar to Madder, with statement of whatever may relate to the culture and preparing of such dye-stuffs, elucidated by dried specimens and samples.

12. A statistical review of the culture of Madder, and the trade in it during the last years.

13. A collection of writings about Madder, its culture and industrial appliances.

14. A complete catalogue of such writings, also of those occurring in periodicals.

15. Coloured representations of the Madder plant and roots, in the various stages of their development.

5.—INDIGO.

Required :—1. Dried specimens of Indigo plants (species and varieties), with productions obtained therefrom,

2. A statement of the manner in these plants are reared and the dyes prepared.

3. Samples of the soils in use for Indigo growing.

4. Models and figures for illustrating the process of Indigo preparation.

5. Samples of dye-stuffs obtained from Indigo alone, or from mixtures of Indigo with other dye-stuffs.

6. Stuffs dyed with such dyes.

7. A series of stuffs, dyed partly with Indigo dye, partly with productions from coal-tar or other mineral substances, adapted for comparison. In addition an opinion as to the prospects of the Indigo business under the increasing competition of chemical dyes.

N.B. The descriptions of Indigo adverted to in the above seven queries are those from Dutch India, British India, Central America, South America, Egypt, Africa, Western Asia, Southern Europe, and any other region of the world.

8. Adulterations of Indigo, with samples of the articles used for that purpose, and a statement of the way in which such adulterations may be detected.

9. Other plants from which an approved blue dye can be obtained for manufacturing purposes, and cultivable on a large scale. An account of the culture of such plants and the preparation of the dye-stuff, elucidated by models, figures and samples.

10. A statistical review of the Indigo culture and Indigo trade of late years.

11. A collection of writings on the culture and preparation of Indigo.

12. A complete catalogue of such writings; also of such as occur in periodicals.

13. Coloured representations of the Indigo plant and its productions.

6.—CAOUTCHOUC (INDIA-RUBBER) AND GUTTA-PERCHA.

Required :—1. As complete a collection as possible of species of Asiatic Caoutchouc, with statement of the names of the plants from which, and the places whence derived.

2. As complete a collection as possible of species of African Caoutchouc, with statement of the names of the plants from which, and the places whence derived.

3. Idem, of American Caoutchouc.

4. Caoutchouc from a definite district of Asia.
5. Idem, of Africa.
6. Idem, of America.
} With statement of the name of the plant from which it is obtained.

7. Objects made of pure Caoutchouc.

8. Fluid Caoutchouc, as it exudes from the tree, in white glass vessels.

9. Implements used for collecting and preparing Caoutchouc.

10. Samples of Gutta-percha, with statement of the name of the plant from which, and the place whence derived.

11. Dried flower-bearing and dried fruit-bearing branches of Caoutchouc-yielding plants, if possible, with the botanical and native appellation, and in each case with a sample of Caoutchouc therefrom.

12. Dried flower-bearing and dried fruit-bearing branches of plants yielding Gutta-percha, if possible, with the botanical and vulgar name, and in each case with a sample of Gutta-percha obtained therefrom.

(To be continued.)

Home Correspondence.

Sambucus Ebulus.—On reading your interesting article on Sambucus Ebulus, it occurred to me that it might interest those of your readers who investigate the pollination of flowers to mention the way in which it is secured in that plant, as it is by a method I do not remember to have seen alluded to in the literature of the subject. The flowers, like those of its relative the common Elder, are densely crowded, and the corollas also wheel-like, with epipetalous stamens, and anthers bursting outwards; the filaments, however, are remarkably thick, wrinkled and clustered together so as to completely conceal the stigma. As soon as the pollen is shed the corolla and stamens are thrown off together, thus exposing the stigma, which now becomes viscid; so that it is ready to receive the pollen from the next flower whose anthers are mature. This is conveyed to them probably by the wind, or by the corollas themselves falling on the exposed stigmas. *George Henslow.*

Rubus arcticus.—Your correspondent "G. S.," at p. 530, enquires how he can obtain the preserve made from the fruit of the true arctic Raspberry (Rubus arcticus), so highly spoken of by Linnæus; and no one who has ever tasted it but will at once endorse all that Linnæus said about it. It is beyond all question the most delightfully aromatic preserve that is made, or, in my opinion, can be made. It may appear somewhat tantalising to offer this opinion and not be able to solve the mystery whereby your correspondent may be placed in a position to judge for himself, but I must premise in the first place that it is considered even a delicacy in the countries that constitute its northern home, viz., Norway, Sweden, and Finland, and I question much if it is to be obtained unless through some special friend in one of those countries. I will, however, state with pleasure the source from whence my very agreeable experience of its quality was derived. Some two years ago, according to promise, I received half-a-dozen jars of the preserve from my valued friend and correspondent, Dr. Limberg, the Botanical Professor at Helsingfors, to be distributed amongst his correspondents, which I did; and the testimony I have already borne I have no doubt those correspondents will fully endorse. I must admit that when the Doctor spoke of the preserve and the highly-appreciative value that ought to be placed on the gift, I was a little dubious; my feeling was that in those extreme northern regions any offering of Nature in the way of preserves would possess in the eyes of the residents a value far beyond what it was intrinsically entitled to. I freely admit my first surmise was wrong, and, as I said before, it realised everything the Doctor said and a great deal more. Possibly your correspondent may have some friend at Helsingfors or in any part of Finland, or, indeed, Sweden or Norway as well—for the plant is indigenous to all—who would send him a pot of the preserve, or, failing that, he might apply to Dr. Limberg himself, whose genial and hearty liberality would not by such an application be taxed beyond what it could bear; nay, more, if your correspondent will give me his name and address, I shall have to communicate with the Doctor on another matter in a week or two and possibly my endorsement of his application might have some effect. Seeing that our friend, the arctic Raspberry, produces such a delicious preserve, and grows so abundantly in the northern regions, the question naturally suggests itself, why should it be so scarce? Possibly not one in 100,000 of the inhabitants of Britain have ever tasted it. This, I believe, is to be accounted for rather by the labour in collecting the fruit than by the scarcity of the plant. In our garden Raspberry every drupel is perfect, and thus with each fruit some thirty or forty drupels are gathered, but in my experience of the arctic plant it is rare to find more than three drupels to a fruit, and more frequently only one; and my impression is that my more southern experience was endorsed by Dr. Limberg when he was here: and further, seeing that the plant grows about 2 inches high, the labour of collecting the fruit is so serious an item that the preserve is considered a luxury even in its native country. When I say its native country I am not forgetful that it claims to be indigenous to the northern section of our island; I have myself explored two of its localities, but without success. Not that I would for a moment wish it to be inferred that because I did not find it, it does not grow in those localities; what was my misfortune may be somebody else's good fortune. It may, however, surprise some of your correspondents, and at the same time show that it is perfectly amenable to culture, when I say that I not only grow it but flower it yearly, and fruit it occasionally here at an altitude that must be reckoned, not at hundreds of feet above the sea level, but rather at a few feet below the same, our level being about 6 feet below high water, the surroundings being bricks and mortar, and the usually highly carbonised condition of the atmosphere attendant thereon. Our wonder ought to be that plants will grow under such conditions, rather than that they will not grow, and they but confirm the constitutional elasticity that Nature has given to the majority of her children. *James C. Niven, Hull Botanic Garden.*

Carpet Bedding.—I have just been told that the original carpet beds were formed with hardy evergreen shrubs; that the present system was copied from it, and that there is one place somewhere in England where it is to be seen in its original form. If any of your readers can tell me if the information is correct, I shall be obliged, as I do not remember ever seeing them so formed or reading any account of them. *J. C.*

Couve Tronchuda, or Portugal Cabbage.—This is the most tender and delicious of all the Brassica tribe, excepting, perhaps, the Cauliflower, and it is a little surprising that a vegetable of such excellence is not in more general cultivation than it appears to be, as it is seldom one sees it, even in large gardens. Any one having once made its acquaintance is sure not to be without it again. I look on it as standing in the same position among Cabbages as the Marrow or choice garden Peas occupy as compared with the field varieties, and the above may as truly be described as "Marrow Cabbage," for they are of the tenderest and most delicate description, and almost appear to dissolve in the mouth. Savoys, Kale, Coleworts, and such-like things in general use in the autumn are mere usurpers of the ground, and in no way to be compared with the mild rich-flavoured Couve Tronchuda. Besides delicacy of flavour they are very profitable to grow, as they produce heads of enormous size, so that the same extent of ground will produce almost an equal weight of these as it would if planted with Savoys or any other large variety of Cabbage. The heart of the Couve Tronchuda is the most tender and delicate, although there is very little of the head that is uneatable, as even the outer leaves boil tender, and the large midribs may be cooked and eaten as a substitute for Seakale. The seed should be sown thinly in beds about the middle of April, and when up and large enough to handle they should be pricked out to be nursed on till they become sufficiently large to plant out on a sheltered border, or in the open vegetable quarters. Like all the Brassica tribe it requires very liberal cultivation to induce large succulent heads, and, therefore, the land intended for its reception should be in good heart. There is no fear of over-manuring for such a gross-feeding plant as this is, provided the manure is not too rank. This, if at all fresh, should be laid in heaps, that it may become sweetened and decomposed before using it. The ground should then have a liberal dressing, and be either trenched or dug very deeply, so as to afford the roots a chance of getting below in search of moisture. This will render them comparatively independent of the weather as regards rainfall, for as soon as they have exhausted the moisture within reach the roots are able to penetrate lower down, where they find the necessary supply. In planting drills should be drawn 2 feet apart, and the plants should be dibbled in at the same distance apart in the rows. After planting give sufficient water to settle the soil at the roots, and if extra fine heads are required, an occasional watering with liquid manure during the early part of the growing season will greatly tend to that end. The Couve Tronchuda is unfortunately too tender to stand very severe weather, and even moderate frosts deteriorate the flavour, and on this account they should not be depended on for a late supply, but should be used by the end of November, when they can be easily succeeded by full-grown Brussels Sprouts. *J. Sheppard, Woolverstone.*

Permanent Labels.—There is not a gentleman amateur or a good gardener but who would willingly pay a trifle more for any hardy plants or trees that they buy if our nurserymen could but be induced to send out with their trees, &c., permanent labels, instead of the too often badly written parchment and card labels now in use. The Shakspearian labels I have had in use here for nearly two years are always legible and ornamental. Then there is Maw's imperishable labels, which can be recommended with the same confidence. Why cannot these be substituted for the cardboard, and the cost charged to the purchaser, which is so trifling that I forbear to name the price? *J. Clarke, Cothelstone, Somerset.* [A very good and useful suggestion. EDS.]

Hooper's Potato Competition. — In our announcement respecting the above competition, it is requested that the Potatos may be delivered at South Kensington by November 9 (the exhibition being on the 10th). In conferring, however, with the Royal Horticultural Society upon the subject, it has been decided that it will be necessary to have the crops delivered at an earlier date, in order to allow the necessary time for the weighings, &c. We have, therefore, to request those of your readers who intend to compete to have their crop delivered at South Kensington by November 3, proximo. *Hooper & Co.*

The Potato Crops in Yorkshire. — Now the Potato crops have been lifted, I find they are lighter and more diseased than my worst fears led me to anticipate. I had hoped that the fine weather we had during the latter part of August and the greater part of September, would have arrested the disease, which no doubt it did to a certain extent, otherwise, had the weather continued wet, the greater part of the crops would have been destroyed; as it is the loss is very serious. In general those grown on light soils have suffered least from disease, and those on heavy soils most. The quality of Potatos is also very inferior this season, owing to the haulm being cut down so early by the disease; there is none of that mealy quality which makes Potatos wholesome, but, on the contrary, they boil "sad," and are very unpalatable. Owing to the leaves and stems being blighted so early, the crops have in general turned up very light, and where the bulk proves sound there is scarcely half a crop, whilst those that have suffered from disease are not a third of a crop. Potatos are rising in price, but as there are large quantities in the markets from the Continent they are not likely at present to get much higher, as if it pays them to send Potatos at the present prices, we may expect them in such quantities as will keep them from rising much higher in price. The crops of early Potatos were much better this season than they have been for the last two or three years, having escaped the spring frosts. In general the crops of early Potatos were very good. Early rounds are not much thought of in this neighbourhood, kidneys are much preferred, consequently very few of

the former are grown. Myatt's Prolific is now the most extensively planted for an early crop, it is driving the Ashleaved out of cultivation, as people find it a so much better cropper, and only a few days later in coming into use. Many cottagers grow no other but Myatt's, as they are generally to be depended on, being ripe and fit for lifting before the disease is developed; they can then crop the land for winter. They also find good samples of Myatt's usable until Christmas. They have so often lost the entire crop of late Potatos that they prefer cropping the land with something that can be depended on, and by selling part of which they will be able to buy what Potatos they may want in spring. When the land is suitable, Celery, Onions, and Carrots are found to be safe and paying crops. The Potato crops in general were very promising this season until the rains in July and August, when the disease became rapidly developed. The crops in the gardens soon went very bad, in many places three-fourths or more rotted in a very short time. The rains continuing for some time the crops in the fields soon showed the disease, but dry weather setting in about the middle of August and continuing for several weeks led to the hope that the crops when lifted would turn out pretty well, but they have not, but are on the contrary much diseased, especially on heavy stift soils. On light soils the crops are better, but even on these they are light and of inferior quality. In general the crops have turned out best from off dry light soils that had been deeply cultivated, whilst on strong rich lands the crops have been very much diseased. On strong lands, well drained and highly enriched with manure, the crops will in favourable seasons be much heavier than on light lands, but in seasons like the present they suffer to a much greater extent from disease. The whole of my experience confirms me in this opinion, and that to insure certain crops (always excepting very unfavourable seasons), of good quality, we must always plant on light soils deeply cultivated, and if newly broken up the better, and to procure a frequent change of seed. *M. Saul, Stourton.*

Celosia pyramidalis.—I have sent for your inspection some spikes of Celosia pyramidalis plumosa, grown here from seed, as advertised by me last spring. They may be struck from cuttings, and in that way make pretty little plants, but never gorgeous ones. *Richard S. Yates, Sale, Cheshire.* [A very good selection. Eds.]

Plum Raised from Seed taken Out of the Jam Pot.—In the early part of the present year, a lady friend of the writer's gave the servants of her household some Plum jam for their use, and after partaking of some of it, one of the Plum stones was placed in a flowerpot containing some garden earth, and stood in the kitchen window. Out of this treasure store sprung up a fine healthy young plant of the Plum species. The circumstance being explained to me, and after expressing my astonishment, my friend took one out of the same jar, and planted it with her own hands, in order to prove that there was no mistake as to the plant being raised out of the preserved jam. In due course hers also made its appearance, and both plants have continued to grow in good health throughout the season. Upon asking some questions as to the time the jam was in a boiling state, &c., the reply was that the whole had been subjected to the time usually given for such preserves, and the proof of its being perfectly made was the fact of its good preservation during the period it had kept. It seems very astonishing that the vegetative power of the kernel was not destroyed during the long time the fruit stones were in a boiling state. If any vacuum existed between the kernel and its water-tight casing, it possibly might act as a non-conducting medium, and thus prevent the former receiving injury. *J. Webster.*

Orobanche Picridis.—According to the third edition of *English Botany* (ed. Prof. Syme), this plant is known to exist at Freshwater Cliffs, Isle of Wight; Undercliff; between St. Margaret's Bay and Kingsdown, South Kent; Comberton and Caxton, Cambs; Tenby. It is not recorded for Dorset in the *Cybele Britannica.* Probably O. minor (of which some consider it a variety) has been mistaken for it. *R.*

Anthurium Scherzerianum.—I have a young plant of Anthurium Scherzerianum in a stove, and its leaves have a great many brown spots on them. The young leaves are worse than the old ones. Would syringing with water too hot or too cold cause it. Please say at what temperature the water ought to be for use in syringing in a stove. *J. W. M.* ["J. W. M." omits to state the temperature of the house in which his Anthurium Scherzerianum is. It should at this time of the year and through the winter be kept in the night at 55°, more especially if the plant has been grown in a house that was hot earlier in the season. From the description given of the condition the leaves are in, it looks as if it might have been too cold during the recent chilly nights, or the state described would be produced by a bad condition of the roots, brought about through the soil having been sour and unsuitable—a complaint under which this plant very often suffers. It cannot endure anything approaching a close, retentive soil; to grow it well it requires something like a mixture of Orchid compost: the fibrous portion out of good peat with all the earthy matter sifted out two parts; Sphagnum chopped, but not made too fine, two parts; add to this a good sprinkling of broken crocks or charcoal about the size of Hazel-nuts, with a little sand, the whole well mixed together. Material of this description will not for two or three years get sour, or unfit to keep the roots in a healthy state, even with the large amount of water this Anthurium requires. The plant should be turned out of the pot, and if the soil is found in a wet soapy state take a bucket of water, at a temperature of 70°, and plunge the ball in it, and with the fingers carefully work all the soil from amongst the roots, leaving them quite clean; this is much better than the ordinary process of shaking out, as it does not break the roots. Pot at once in soil such as above described, at the same time giving a moderate watering, and place the plant in a house with a night heat of 60°; this higher temperature is necessary to induce the speedy formation of roots after potting. Little syringing is required in the stove at this time of the year, unless with plants especially subject to insects; 80° is a good temperature at which to use the water for syringing, except in the height of the growing season, when it may, with advantage, be used 10° higher. It is good practice to apply it both at the roots and overhead considerably warmer than the atmosphere of the house. *T. Baines.*]

Celery Fly.—The unusually severe attack of the Tephritis onopordinis (Celery fly) on some of the Celery crops just lately, points to some other remedy besides the usual one of pinching the grub in the blistered leaf, being much needed. Where the crushing of the larva can be thoroughly done, it is certainly the best remedy possible, as completely destroying the pest; but where the crops are on a large scale, and, as at present, the leaflets of entire plants (save the little green tips coming up in the middle) have been totally perishing, some more easily applied cure or preservative is needed. During the last few weeks I have been trying the effect of lime powder, and also of a mixture of lime, soot, and wood ashes, thrown or sprinkled over the plants unsparingly, but at the same time gently and carefully, so as to lie on the leaflets. The mixture does not injure such grubs as are in the leaves, but it appears to me to keep off further deposit of eggs by the fly to a great extent. The various rows of Celery on which it was tried soon appeared more thriving, and the plants, where part of one of the trenches was re-opened to give the centre leaves air and light to induce fresh growth, are now recovering themselves. *O.*

Yeast or Barm as a Manure.—I should be glad to know if any of your correspondents have used yeast or barm as a manure. I hear it has become a mere drug in the market, and at large breweries, for want of a ready sale, it is run down the drains, and so a really very useful article becomes an utter waste from want of knowledge amongst our farmers and gardeners. 1. For what garden crops is it suitable? 2. Ought it to be thinly spread on grass land? 3. In what quantity, and how, may it be given to pigs—for I believe it has very fattening properties? *J. E. C.*

The Aberdeen Show.—I read with surprise in your issue of the 16th inst. an observation anent the thirty-six stove and greenhouse plants shown at the last show of the Royal Aberdeenshire Horticultural Society, Aberdeen, by Messrs. Cocker & Sons, by one signing himself "Gardener," who must have been thoroughly ignorant of what had been shown in Aberdeen at former shows. Cocos Weddelliana was shown in the first prize group of four Palms for dinner-table decoration, July, 1874, and again in the first prize group, July, 1875. I would also add that Messrs. B. Reid & Co. showed more than one fine collection of thirty-six stove and greenhouse plants, in which were staged very fine plants of the Phormium. *J. N. O.* [We can insert no more letters on this subject. Eds.]

Reports of Societies.

The Wimbledon Gardeners' Improvement Society: *Oct.* 25.—This Society held its second meeting on Monday evening, when twenty-one gardeners were present. After partaking of the refreshments liberally provided by Sir Henry W. Peek, Bart., M.P., Mr. Ollerhead took the chair, and read a paper on the construction of vineries, formation of borders, the planting of Vines, and artificial manures for Vine borders. The Chairman treated on vineries of various descriptions, and advocated the elevation of such houses and borders in low-lying situations, or where there is a cold subsoil to be raised as much above the ground level as circumstances will admit, and gave a description of some structures in various parts of the country in which some of our best examples of Grapes have been produced. He then treated very fully the formation of borders, and referred to those at Glammis Castle, Trentham, Garston, and the Quinta, after which he dealt at some length on artificial manures used in the formation and applied to Vine borders, and recommended these to be applied "in all cases" near the surface, so that the nutriment contained in these manures may be carried down the border by the application of water, and presented to the roots in a soluble state, which is a thing not to be lost sight of. The construction of vineries and formation of borders was so practically dealt with that the after discussion was totally confined to the merits and application of artificial manures. At the conclusion of the meeting it was proposed and carried by a majority of members that Mr. Norman, of Coombe Bank, should prepare and read an essay on the culture of Roses in pots at the ensuing meeting. (*From a Correspondent.*)

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
For the Week ending Wednesday, Oct. 27, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
	In.	In.	°	°	°	°	°	°			In
Oct. 21	29.36	−0.35	63.0	45.7	17.3	53.2	+ 4.2	50.4	90	S.S.E.: S.	0.12
22	29.34	−0.38	57.8	44.0	13.8	50.3	+ 1.6	47.6	91	S.	0.21
23	29.30	−0.41	52.4	42.9	9.5	46.9	− 1.4	44.8	93	S.E.: E.S.E.	0.42
24	29.87	+0.16	52.5	44.0	8.5	47.4	− 0.5	44.5	90	N.: N.N.E.	0.00
25	30.01	+0.29	56.2	35.8	20.4	44.5	− 3.0	41.7	90	S.E.: S.	0.00
26	29.87	+0.15	53.7	36.3	17.4	43.6	− 3.6	36.8	77	S.E.	0.00
27	29.56	−0.17	46.8	37.2	9.6	40.8	− 6.1	37.7	89	E.: S.E.	0.27
Mean	29.62	−0.10	54.6	40.8	13.8	46.7	− 1.3	43.4	89	S.E.	sum 1.02

Oct. 21.—Fine and bright till 4 P.M. Overcast, and heavy rain fell at 4.15 P.M. A vivid flash of lightning was seen at 4.25 P.M., and thunder immediately followed. Frequent lightning seen in evening.
— 22.—A fine dull day. Frequent rain.
— 23.—Overcast, dull, misty, and wet day.
— 24.—A fine day. Cloudy and dull at times.
— 25.—A fine day. Cloudy and cold.
— 26.—Cloudy and dull day. Very fine at intervals.
— 27.—Overcast, dull, cold day. Frequent rain in morning.

—— During the week ending October 23, 1875, in the vicinity of the metropolis, the reading of the barometer at the level of the sea increased from 29.78 inches, at the beginning of the week, to 29.86 inches by the evening of the 17th; decreased to 29.41 inches by the afternoon of the 20th; increased to 29.59 inches by the evening of the 21st, decreased to 29.38 inches by the morning of the 23d, and increased to 29.71 inches by the end of the week. The mean reading for the week was 29.62 inches, being 0.17 inches above that of the preceding week, and 0.27 inches below the average for the same week.

The highest temperatures of the air at the height of 4 feet above the ground ranged from 63° on the 21st, to 52½° on the 23d; the mean value for the week was 57½°. The lowest temperatures of the air varied between 38° on the 17th and 45¾° both on the 20th and 21st; the mean for the week was 43½°. The mean daily range of temperature in the week was 14°, the greatest daily range being 23° on the 17th, and the least 7½° on the 20th. The mean daily temperatures of the air and the departures from their respective averages were as follows:—Oct. 17, 50°.6, + 0°.8; 18th, 50°.2, + 0°.5; 19th, 47°.7, − 1°.8; 20th, 48°.6, − 0°.7; 21st, 53°.2, + 4°.2; 22d, 50°.3, + 1°.6; and 23d, 46°.9, − 1°.4. The mean temperature for the week was 49½°, being ½° above the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 110° on the 17th, and 84° on the 21st. The lowest readings of a thermometer on grass with its bulb exposed to the sky were 33° on the 17th, and 39¾° on the 18th; the mean for the seven low readings was 40¾°.

The weather during the week was very dull, with heavy rains on five days, and the sky was generally very cloudy.

The amount of rain measured during the week was rather more than 2 inches.

In England the highest temperature of the air by day, at the height of 4 feet above the ground, was 64° at Truro, at Newcastle-on-Tyne the highest temperature in the week was 53°; the mean for all stations was 58¾°. The lowest temperatures of the air by night were 31¾° both at Nottingham and Cambridge, at Liverpool 44¼° was the lowest temperature in the week; the mean value from all stations was 37½°. The largest mean range of temperature in the week was 31½°, at Cambridge, and the smallest was 13°, at Liverpool; the mean from all stations was 21¼°. The mean of the seven high day temperatures was the greatest at Truro, 59¾°, and the least at Newcastle-on-Tyne, 51¼°, the general average value from all stations was 54½°. The mean of the seven low night temperatures was the smallest at Newcastle-on-Tyne, 41¼°, and the largest at Truro and Sunderland, both 45¾°; the mean value from all stations was 44°. The mean daily range of temperature in the week from all stations was 10½°, the greatest daily range was at Cambridge, 15¾°, and the least at Liverpool and Bradford, both 7¼°.

The mean temperature of the air for the week from all stations was 48½°, being ½° higher than the value for the corresponding week in 1874. The highest in the week was 51¾°, at Truro, and the lowest 45¼°, at Newcastle-on-Tyne.

The fall of rain during the week was exceedingly large everywhere, and caused great floods, and loss of life in several cases. The following are the falls on every day during the week at several stations:—

Names of Stations.	17th	18th	19th	20th	21st	22d	23d	Total.
	In.	In.	In.	In.	In.	In.	In.	In.
Truro	0.03	0.57	0.01	0.06	..	0.37	0.01	1.05
Bristol	0.02	0.43	0.42	0.08	0.47	0.91	0.28	2.62
London	..	..	0.55	0.76	0.12	0.21	0.42	2.06
Birmingham	0.04	..	0.50	2.08	0.94	0.27	0.37	4.20
Cambridge	..	..	0.30	0.04	0.65	0.15	0.05	1.19
Wolverhampton ..	..	0 64	1.36	1.00	0.30	0.39	..	3.69
Norwich	0.02	0.02	0.15	0.05	0.18	0.12	0.38	0.92
Nottingham	0.01	..	0.73	0.31	1.17	0.18	0.14	2.54
Sheffield	..	0.78	1.48	1.62	0.26	0.34	0.08	4.56
Liverpool	0.14	0.30	0.54	0.83	0.34	0.08	..	2.23
Manchester	..	0.10	0.90	0.83	0.31	0.14	..	2.28
Eccles	..	0.25	1.16	0.88	0.33	0.15	..	2.76
Bradford	..	0.01	0.34	1.09	1.14	0.19	0.29	3.06
Leeds	..	..	0.33	0.87	1.30	0.17	0.31	2.98
Hull	0.06	0.09	0.38	0.98	0.13	0.57	0.26	2.47
Sunderland	0.09	..	..	0.40	0.72	0.10	0.40	1.71
Newcastle-on-Tyne .	..	0.20	0.40	..	1.33	0.10	0.75	2.78

It would seem from the above Table that the fall of rain was not large in Cornwall (it was in Devonshire), neither was it large in Norwich or Cambridge; at Birmingham and Sheffield it was very large, the fall in the week exceeded 4 inches at both places. The average of all was 2½° inches.

These falls have caused more destructive floods than I have ever known; the counties which seem to have suffered the most are the south of Yorkshire, the midland counties, and south-westerly, extending to Gloucester and Devonshire. At Nottingham it is stated that 3000 houses were inundated, and many workshops and factories have ceased work; roads were impassable, and several lives have been lost. Burton-on-Trent was literally under water, and the railway between Sheffield and Retford was almost under water In many parts of the country the water was to the depth of several feet, a large number of cattle and sheep have been drowned; it is impossible to detail the wide-spread suffering which has been caused by these disastrous floods.

The weather during the week was generally very cloudy and dull, with heavy rains. Lightning was general over the country on the 21st, with great darkness at some places. There were heavy gales of wind on Monday, Tuesday, and Wednesday, on the North-East coast, causing a great many wrecks. The week has been one of a very destructive character.

In Scotland the highest temperatures of the air by day varied between 56° at Edinburgh and 52¾° at Glasgow. The mean average value for the week was 54°. The lowest temperatures of the air at night ranged from 44° at Dundee and Aberdeen to 40° at Paisley, the general average being 42½°. The mean range of temperature in the week was 11½°. The mean temperature of the air for the week was 48°, being 1° higher than the value for the corresponding value in 1874.

At Dundee the mean temperature was 49°, and Paisley was but 46¾°.

The heaviest falls of rain in the week were at Greenock, 3¼ inches, and Glasgow, 2½ inches. The least falls were at Aberdeen, 1¾ inch, and at Leith half an inch only. The average fall over the country was 2 inches nearly.

At Dublin the highest temperature was 62¼°, the lowest 35¼°, the mean 51°, and the fall of rain 1¾ inches.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

SOFT-WOODED GREENHOUSE PLANTS. — *Calceolarias*, sown some time ago, will now be large enough for pricking out into seed-pans; it is better to treat them thus, so as to get them larger before they are placed in small pots, as they thrive better so managed, and are less likely to suffer for want of water. They like a rich, moderately light soil. With three parts loam mix one part of leaf-mould and one of thoroughly rotten dung, sifted so that no worms can escape detection; add as much sand as will keep the whole porous. They should be kept near the light, and not where they will be exposed to a draughty dry atmosphere. *Chrysanthemums*, in common with most autumn flowering things, are generally late this season, and every means should be taken to get them on whilst out-of-doors without loss of time, as if the flowers are not well advanced before the plants are put indoors they are liable to become drawn and weakly, as also to get affected with mildew. When the bloom-buds are large enough to handle they should at once be thinned out, removing all at one operation that are over and above what is deemed sufficient for the plants to carry; it is of no use letting them grow for a time and afterwards taking off the shoots, as that is so much strength wasted. Supply them liberally with strong manure-water and keep them tied up so as not to get broken with the wind. *Hydrangea* cuttings from plants grown out-of-doors will now be in a condition for taking off and striking; they should be placed in a gentle heat in 3-inch pots until rooted, and after this kept for a time in a greenhouse temperature. *T. Baines.*

FLOWER GARDEN, &c.

THE PARTERRE AND MIXED GARDEN.—The late frosts will have settled matters in a most decided manner as to whether the summer occupants of the flower garden should longer remain to display what little was left to them of their former beauty. With us Coleus, Iresines, Alternantheras, Heliotropes, and most tender things were completely destroyed on the 13th, while such things as variegated Pelargoniums and others of a like nature suffered in proportion. A general clearance ere this will therefore have taken place in most gardens, and where it is desirable to refurnish the beds, either with dwarf evergreens for the winter, or to attempt the more pretentious system of spring gardening now becoming so popular, no time should be lost in getting in the plants, in order that they may have time to get a little hold of the ground before winter sets in. Spring gardening, when carried out as at Belvoir, Cliveden, and other places, is very charming and attractive. Although such a galaxy of beauty cannot be got together in every garden, still much may be done, even by the use of very common and cheap material, to brighten and enliven what would otherwise be the cold, cheerless appearance of bare beds. The materials in general use for spring gardening have much to recommend them, in that they require no glass-room or costly preparation to raise or propagate them. A few pounds expended on bulbs, such as *Hyacinths*, *Narcissus*, *Crocus*, *Tulips*, *Anemones*, &c., will give a start to a fair sized garden, while *Snowdrops*, *Primroses*, *Cowslips*, and *Bluebells* may be had for the seeking. These, and a few packets of seed of *Forget-me-Nots*, *Nemophilas*, *Daisies*, *Violas*, *Pansies*, *Wallflowers*, and a few other hardy early blooming annuals and perennials, sown at the right time, will go far to make a place gay and inviting when it would otherwise be bare of flowers. To the above may be added the *Alyssum saxatile*, so free of bloom as to be all aglow with yellow, and the lovely soft purple *Aubrietias*, so dense in growth and bloom, as to form a perfect cushion. Then for edgings or marginal lines, to use in combination with the above, what more effective than *Cerastium tomentosum*, *Arabis albida fol. variegatis*, *Veronica incana*, *Golden Feather Pyrethrum*, *Stachys lanata*, and *Golden Thyme*. These and others of a like nature, that will readily occur to those intent on making a little display in the spring, may easily be increased, either by division or cuttings, to almost any extent, and therefore, when once obtained, there is little fear of losing them, as they may be propagated and grown till required in almost any out-of-the-way place. Before digging the beds, preparatory to planting the above, it may be necessary to give a good dressing of manure, as when they are made to do double duty in this way it soon leads to exhaustion of the soil; and such things as Pansies, and most of the hardy annuals, pay for liberal cultivation. If in any case it is intended to forego furnishing the beds, they should be dug over as neatly as possible, and the edges of the same kept closely shorn and well defined. Noxious weeds, such as Crowfoot, Daisies, Plantain, &c., now that the lawn-mower is not in such frequent requisition, are fast rearing their heads. These should be extirpated at once, in order that the places made bare by their removal may become filled up by the natural grass before growth ceases. Rich velvety lawns are the pride of English gardens, and such weeds should on no account be allowed to establish themselves, or they will be found to spread at such a rate as to become a serious disfigurement. The heavy autumnal rains have already brought legions of worms to the surface, which they greatly disfigure by the soil they cast up; advantage should be taken of their close proximity to give them a dose of lime-water, which soon turns them out, when they may be swept up and destroyed. A few repetitions of the same treatment just after heavy rains will greatly diminish their numbers and save much time and labour in sweeping and rolling. Any inequalities in the lawn's surface should now be rectified by removing the turf and raising the low parts to their proper level, or depressing by the use of a heavy rammer and roll any portion of the same that may be in the reverse position. Most lawns are just now in a very soft, spongy state, which will render the latter operation one of comparative ease. Herbaceous borders, like every other department of the garden, are fast assuming their winter garb, and there will be little in the flower way at all attractive till the *Chrysanthemums* and *Christmas Roses* come in. The tops of any varieties that are sufficiently ripened off should be at once removed, and the surface of the soil made neat and clean by frequent stirring. Anything that may be considered of doubtful hardiness should have the necessary protection before sharp frosts set in, and nothing is better for this purpose than half-rotten leaves, with a sprinkling of coal ashes on them to prevent them from blowing away. Choice *Hollyhocks* are not safe in severe winters, unless some sort of protection is afforded them, and, to make sure, it is better to winter them in pots, when they can be easily divided and increased. *J. Sheppard*, *Woolverstone Park.*

HARDY FRUIT GARDEN.

Planting of fruit trees should now be followed up as fast as the present uncertain weather will permit. Although we have had as yet but slight frosts, rain has been superabundant, and strong soils of a retentive nature, if not well drained, scarcely admit of planting to advantage. Pyramidal trees, which were alluded to in the last Calendar, should now be selected. Where new plantations are to be made, the following will be found a suitable collection for a garden of moderate extent, ripening much in the order named, viz.:—*Dessert Apples*: Red Astrachan, Devonshire Quarrenden, Irish Peach Apple, King of the Pippins, Ribston Pippin, Margil, Cox's Orange Pippin, Court of Wick, Carraway Russet, Court-Pendu-Plat, Scarlet Nonpareil, and Sturmer Pippin. Of *Kitchen Apples*: Lord Suffield, Hawthornden, Cox's Pomona, Cellini, Stirling Castle, Warner's King, Reinette du Canada, Dutch Mignonne, Alfriston, Golden Noble, Mère de Ménage, and Dumelow's Seedling. Of *Pears*: Citron des Carmes, Jargonelle, Williams' Bon Chrétien, Gratioli (of Jersey), Louise Bonne (of Jersey), Beurré d'Amanlis, Van Mons' Léon le Clerc, Marie Louise, Beurré Superfin, Beurré Bachelier, Napoléon, Pitmaston Duchess d'Angoulême, are kinds ripening from August to November. Of later kinds, Winter Nelis, Beurré Diel, Glou Morçeau, Knight's Monarch, Conseiller à la Cour, Inconnu Vans Mons, Huyshe's Victoria, Joséphine de Malines, Vicar of Winkfield, Beurré d'Aremberg, Beurré Rance, and Easter Beurré, are all free bearing and do well here, but in the more northern districts would require the assistance of a wall to bring them to perfection. *Plums* also are very productive as pyramids: amongst the best for this purpose are Early Prolific, Victoria, Goliath, Pond's Seedling, Black Diamond, Kirke's Purple, Magnum Bonum, Washington, Jefferson's Green Gage, Cox's Emperor, and Goliath; for very late kinds Cooper's Late Red, Coe's Late Red, and Ickworth Impèratrice are the best, but hanging so late are best grown on a wall, as the autumn rains frequently destroy a considerable portion in the process of ripening. Pyramidal fruit trees, being now so generally grown in most good nursery establishments, there is no difficulty in obtaining young trees suitably prepared. Some diversity of opinion exists as to the best stock for dwarf trees. Apples on the Paradise and Pears on the Quince undoubtedly come quicker into bearing, but are not so durable as when worked on the seedling Crab or Pear stock. As regards growth, the latter, by judicious root pruning when required, may be kept of moderate size for many years. Old trees which have been here considerably over twenty years are still uniform in size, and equally healthy and fruitful as a larger number planted some eight years ago. Continue to brush the leaves gently from the earlier ripening stone fruits on walls, so as to have the trees exposed as soon as possible.

Strawberries in pots should now be well matured, and if space is not ready to get them under cover the pots should be laid on their sides for a few days, if necessary, to prevent over-drenching by excessive

rains. Slight frosts will not do any serious damage, provided the soil is not over-charged with moisture, heavy rains being most prejudicial at this time. *W. Cox.*

FRUIT HOUSES.

Pines.—In the close and damp structures which are the most suitable places for Pine-apple cultivation condensed moisture will abound considerably at this season, and from the absence of sunshine and ventilation combined, it quickly accumulates and clings as it were to the under surface of the glass, which very much interferes with its transparency, and thereby prevents the free access to ihe plants of those gleams and rays of sunshine and light which at this period of the year are even more than ever essential to their well-being. Whenever necessary let this matter have immediate attention, and any obstruction in this way should be removed by washing the lights. Continue as before advised to ventilate liberally those houses or pits which contain young stock whenever the weather is temperate and suitable for so doing. Until fire-heat is extensively employed in maintaining the requisite degree of heat, avoid keeping the places constantly saturated, as this condition now is more detrimental than beneficial. It will not be necessary to apply water at the roots of the plants so frequently now as when the force of natural circumstances tended to increase absorption and evaporation. Nevertheless due regard should be paid to this important matter by regularly examining the state of the plants at least once every fortnight, in order to prevent an intense state of aridity of the soil, which is one of the most fatal consequences which attends the cultivation of Pine-apples in pots.

In the fruiting department daily attention will be requisite, in order to keep a satisfactory condition about the plants. Embrace every existing opportunity to close the house early in the afternoon, with sun-heat at 85°, and, excepting under adverse conditions, keep the night temperature at about 70°. *G. T. Miles, Wycombe Abbey.*

Enquiries.

He that questioneth much shall learn much.—Bacon.

72. Air in Conservatory.—I am anxious to put a question as to the salubrity or otherwise of the air in a conservatory in the morning before ventilating it. I have an idea some correspondence took place in your columns on this subject, but I do not know where to find it. The house is heated by the usual hot-water pipes. Can any of your correspondents kindly furnish me with this information? *A. B.*

73. Cypella cœrulea.—Is this plant in commerce? If so, I should be glad to know where. *T. T.*

74. Fernery.—I wish to build a glass fernery with brick sides on ground not my own freehold. Can I remove this brickwork if I lay down a stone for foundation, and not cement or otherwise fix the walls to the stone? *F. W. G.*

Answers to Correspondents.

Arum italicum: *A.* For the word *flowers*, as applied to this plant, read *fruits*, and the sentence will stand correct. It was, of course, a slip.

Fungi: *W. D.* Your fungi belong to the Horse Mushroom (Agaricus arvensis). The species is edible, but not generally held in such high estimation as the true Meadow Mushroom (Agaricus campestris).—*P. F., Addington.* Your Starry Puff-ball is Geaster Bryantii. You will find it described and illustrated in the *Gardeners' Chronicle* for April 12, 1873.

Names of Fruits: *Samuel Allaway.* 1, Fondante d'Automne; 2, Beurré Sterkmans; 3, Gloria Mundi.—*F. E. H., Finchley.* 1, Beurré Clairgeau; 2, Joséphine de Malines; 3, Golden Noble.—*L. Hardy.* 1, Napoléon; 2, Duchesse d'Angoulême; 3, ditto; 4, Beurré Rance; 5, Easter Beurré; 6, Beurré Bosc; 7, La Juive.—*S. Skinner.* 1, Mannington's Pearmain; 2, Winter Pearmain; 3, Bedfordshire Foundling; 4, Duchesse d'Angoulême; 5, Beurré Clairgeau; 6, Glou Morçeau.—*F. Vine.* 1, Bezi d'Heri; 2, Catillac; 3, Prince Albert (of Scott); 4, Henkel d'Hiver; 5 and 6, smashed.—*F. G. S.* 1, Beurré Diel; 2, Glou Morçeau; 3, Forelle; 4, too much decayed; 5, Dr. Andry; 6, Stamford Pippin; 7, Blenheim Pippin; 8, Bezi d'Esperen.—*G. W. S.* 1, Easter Bergamot; 2, Winter Nelis; 3, Beurré d'Aremberg; 4, Passe Colmar; 5, Beurré Diel; 6, Beurré Vert Tardif.—*G. K.* 1, Monarch; 2, decayed on arrival; 3, Marie Louise; 4, Swan's Egg; 5, Bezi d'Heri; 6, Bezi d'Esperen; 7, Syke House Russet; 8, Scarlet Pearmain; 9, Sam Young.—*A. Austin.* 1, *Peach:* Walburton Admirable,—very good, so late; 2, *Fig:* Brown Turkey.—*C. W. N.* 1, Baronne de Mulo; 2, Beurré de Rance; 3, Prince Albert; 4, Deux Sœurs; 5, Armand Prévost.—*Harrison & Sons.* B, Norfolk Paradise; C, Green Nonpareil; D, Winter Greening; E, Bromley; F, Cox's Orange Pippin; G, Nonpareil Russet; L, Winter Nelis; M, Althorp Crassane; N, Summer Thorn; O, Beurré Clairgeau; P, Swan's Egg; Q, Vicar of Winkfield.

Names of Plants: *A. Austin.* The Begonia is a garden hybrid, which we cannot pretend to name. The Croton is no doubt C. spirale, and your third plant is a Gasteria, but we cannot say which without flowers. —*B. & S.* Stevia ovata.—*W. Miller.* Leptosyne maritima. Leptosyne is made a sub-genus of Coreopsis by Mr. Bentham in the *Genera Plantarum*, where it is placed next before Dahlia. The plant is cultivated at Kew.—*L. T. D.* Cratægus coccinea.—*J. Cocker & Sons.* A variety of Quercus rubra.—*R. M., Ireland.* Veronica elliptica.

Pickling Onions: *A Subscriber's Daughter.* The following, from the *American Farm Journal*, will perhaps suit you:—"To each quart of vinegar two teaspoonfuls of whole black pepper, and the same of allspice. Mode: Gather the Onions when quite dry and ripe, and with the fingers take off the thin outside skin. With a silver knife (steel discolours them) remove one more skin, when the Onions will look clear. Have ready some very dry bottles with wide mouths, or glass jars, and as fast as they are peeled put them in. Pour over cold vinegar to cover them, with pepper and allspice in the above proportions. Tie down with bladders, and in a fortnight they will be ready for use. This is a most simple recipe and very delicious, the Onions being very nice and crisp. If kept longer than six or eight months, pickled Onions are liable to become soft."

Potatos: *Hooper & Co.* The sample of Alpha is very good indeed.—*G. and W. Yates.* The seed tuber has developed a new tuber in its centre, instead of making the usual growth. Such cases are not infrequent. A similar kind of development has been figured by us at p. 247 of our vol. i. for 1875. As to the cause, it can only be assigned to what is usually called a freak of Nature.

Trifolium: *J. W.* It matters not which; one-year-old seed is generally recommended, on account of its being obtainable for sowing sooner than new samples.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

Catalogues Received.—Lévêque & Sons (26, Rue du Liegat, Ivry-sur-Seine, pres Paris), Catalogue of New Roses, Gladiolus, Phloxes, Camellias, Fruit Trees, &c.—Guiseppe Sada (Via Principe Umberto, No. 18, à Milan, Italy), Catalogue of Fruit and Ornamental Trees, Seeds, &c.—Geo. Cooling (Broad Street, Bath), Catalogue of Roses, &c., also Catalogue of Hyacinths and other Bulbs, Seeds, &c.—Louis Van Houtte (Royal Nurseries, Ghent, Belgium), Catalogue of Herbaceous and Alpine Plants, Bulbs, Chrysanthemums, &c.

Communications Received:—J. F. (thanks).—A. D.—S. H.—A. B.—S. & S.—S. (next week).—J. R. J.—H. J. V.—W. J.—F. S. S.—W. S C.—W. J. B.—G. G.—F. C.—W. P. R.—H. & Son.—A. B.—Hortus.—J. F. R.—W. R.—B.—T. B.—J. R.—H.—T. T.—H. O.—J. D.—S. W.

Markets.

COVENT GARDEN, *October* 28.

Trade still keeps dull, though there is a better demand for good samples of fruit. There is still a large supply of common hothouse Grapes, a good many having been cut in consequence of the late moist weather. English Pines find their way into the market in fair quantities, prices not being affected by a cargo from St. Michael's, which has arrived in anything but good condition. English Pears consist of Marie Louise, Duchesse d'Angoulême, Crassanne, and Callebasse; also Glou Morçeau, from France. Kentish Cobbs would sell well if they could be quoted at a slight reduction. *James Webber, Wholesale Apple Market.*

Fruit.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 6	Oranges, p. 100	20 0	..
Cobbs and Filbts., lb.	0 6	0 9	Peaches, per doz.	2 6	12 0
Damsons, per bushel	2 0	4 0	Pears, per doz.	1 0	4 0
Figs, per doz.	0 9	3 0	Pine-apples, p. lb.	4 0	7 0
Grapes, per lb.	0 9	5 0	Plums, per bushel	2 0	6 0
Lemons, per 100	8 0	12 0	— per punnet	0 6	1 6
Melons, each	2 0	5 0	Walnuts, p. bush.	8 0	12 0

Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Leeks, per bunch	0 2	0 4
— Jerusalem, p. lb.	0 3	..	Lettuces, per score	2 0	..
Beans, Scarlet Runners, per lb.	5 0	..	Mint, per bundle	0 4	..
Beet, per doz.	1 0	2 0	Mushrooms, per pott.	1 0	2 0
Brussels Sprouts, lb.	0 4	..	Onions, young, bun.	0 4	0 6
Cabbages, per doz.	1 0	2 0	Parsley, per bunch	0 4	..
Carrots, do.	0 6	..	Radishes, per bunch	0 2	0 4
Cauliflowers, p. doz.	4 0	..	— Spanish, doz.	1 0	..
Celery, per bundle	1 6	2 0	Salsafy, per bundle	0 9	..
Cucumbers, each	1 0	1 6	Seakale, per punnet	2 0	3 0
Endive, per doz.	1 0	2 0	Shallots, per lb.	0 3	..
— Batavian, p. doz.	2 0	3 0	Tomatos, per doz.	1 0	2 0
Herbs, per bunch	0 2	0 4	Turnips, per bundle	0 4	..
Horse Radish, p. bun.	3 0	5 0	Veg. Marrows, doz.	1 0	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

Plants in Pots.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0	12 0	Heliotrope, per doz.	6 0	12 0
Bouvardias, do.	12 0	18 0	Lilium auratum	12 0	36 0
Chrysanthemum, do.	4 0	9 0	Mignonette, do.	3 0	6 0
Coleus, do.	4 0	6 0	Myrtles do.	3 0	9 0
Cyclamen, do.	12 0	24 0	Pelargoniums, dble., per doz.	4 0	12 0
Cyperus, do.	6 0	12 0	— Scarlet, do.	3 0	9 0
Dracæna terminalis	30 0	60 0	Primula sinensis, do.	4 0	12 0
— viridis, per doz.	12 0	24 0	Solanums, do.	6 0	24 0
Ficus elastica	1 6	7 6	Veronica, do.	4 0	12 0
Fuchsia, per doz.	6 0	12 0			
Heaths, in var., doz.	12 0	30 0			

Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Camellias	4 0	12 0	Pelargoniums, 12 spr.	1 0	2 0
Carnations, 12 blooms	1 6	4 0	— Zonal, do.	0 4	1 0
Chrysanthem., 12 bl.	3 0	6 0	Primula, dbl., p. bun.	1 0	1 6
Cornflower, p. doz. bun.	3 0	6 0	Roman Hyacinths, 12 sprays	4 0	6 0
Cyclamen, 12 blooms	0 3	0 6	Roses, indoor, p. doz.	2 0	6 0
Epiphyllum, p. doz.	1 0	3 0	— outdoor, 12 bun.	9 0	12 0
Eucharis, per doz.	4 0	12 0	Spiræa, 12 sprays	1 0	3 0
Gardenia, per doz.	3 0	6 0	Stephanotis, 12 sprays	4 0	9 0
Heliotropes, 12 spr.	0 6	1 0	Tuberoses, per doz.	2 0	4 0
Mignonette, 12 bun.	3 0	6 0	Violets, 12 bunches	1 0	3 0
Narcissus, per dozen	3 0	6 0			

SEEDS.

London: *Oct.* 28.—During the past week we have had more inquiry for Clovers, and several parcels of seed have changed hands. Higher quotations are reported from France, and more offers are now being made from America. Of new home-grown seed only a few samples have as yet put in an appearance in Mark Lane. In Trefoils the tendency of prices is upward. Alsike and white Clover are held with firmness. Of winter Vetches the supply seems now nearly exhausted; for the few left the demand will, it is thought, be livelier in a week or so, as many farmers elect to sow late (as well as early), so as to have a succession of feed. Trifolium incarnatum is now in very small request. Canary seed is steady at the late advance; real scarcity, a certain amount of speculation, and the fact of considerable shipping orders for the article (mainly from the United States) having come to hand, have combined to force up values. During the last few days we have had rather an improved supply of English Canary seed. Hemp seed is dearer. On account of its scarcity fine Rape seed realises more money. There is a good sale for Haricot Beans and blue boiling Peas. For white and brown Mustard seed the trade keeps slow. Feeding Linseed shows no change. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday a further advance of 1*s.* per quarter was demanded for Wheat, but owing, it would seem, to the heavy foreign importations and accumulating stocks in granary, this was invariably not given. For Barley rates were somewhat higher for both grinding and malting sorts; malt remained without alteration in value. All sorts of Oats—the better corn of course more easily—made an advance of 6*d.* per quarter. Maize was quiet, and prices were in few instances lower than on Monday last. For Beans and Peas full rates were realised. Last week's prices may be quoted for all descriptions of flour, any upward movement in American being checked by the decline at New York.—The market on Wednesday was firm, and the sales effected in Wheat were at the rates of last Monday. Barley, of which there was not a great deal offered, had a tendency to improve; and malt was a degree stronger. Oats were in better supply, and late prices were not generally exceeded. Maize was without alteration, and the same rates as on last day were asked for Beans and Peas. Flour was rather dull, but no lower.—Average prices of corn for the week ending Oct. 23:—Wheat, 46*s.* 8*d.*; Barley, 37*s.* 7*d.*; Oats, 24*s.* 4*d.* For the corresponding week last year:—Wheat, 44*s.* 1*d.*; Barley, 42*s.* 10*d.*; Oats, 27*s.* 9*d.*

CATTLE.

At the Metropolitan Market on Monday there were a few more English beasts than on that day se'nnight, but the number of foreign was very much smaller, the total being considerably less. There was a very scanty supply of choicest qualities; these, therefore, in some instances exceeded the top quotation. The number of sheep was unusually small, but trade was very dull, and prices continued high. Choice calves were scarce and dear. Quotations:—Beasts, 4*s.* to 5*s.*, and 5*s.* 8*d.* to 6*s.* 4*d.*; calves, 4*s.* 8*d.* to 6*s.* 8*d.*; sheep, 5*s.* 6*d.* to 6*s.*, and 6*s.* 8*d.* to 7*s.* 4*d.*; pigs, 4*s.* 6*d.* to 5*s.* 8*d.*—The average quality of beasts at Thursday's market was middling; trade was dull, and prices lower for all kinds. Business in sheep was dull, at Monday's prices. Trade was good for choice English calves, and there was an improvement in the demand for milch cows.

HAY.

Whitechapel reports the demand for fodder as rather active, and the fair supply brought forward as very soon cleared at the recent reduction. Prime Clover, 100*s.* to 148*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 132*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 35*s.* to 50*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 132*s.* to 140*s.*; inferior, 98*s.* to 110*s.*; superior Clover, 150*s.* to 160*s.*; inferior, 110*s.* to 130*s.*; and straw, 45*s.* to 50*s.* per load.

POTATOS.

We learn from the Borough and Spitalfields Potato Market that supplies of home grown come to hand in bad condition, in consequence of the rains, and sales are thus checked, whilst the few really well-conditioned samples offering bring higher prices.—Quotations:—Regents, prime, 140*s.* to 160*s.*; inferior, 90*s.* to 100*s.*; rocks, 70*s.* to 85*s.*; French, 70*s.* to 80*s.*; Dutch rocks, 70*s.* to 80*s.*; Belgian kidneys, 80*s.* to 90*s.*; middlings, 45*s.* to 55*s.*; chats, 30*s.* per ton. The imports of foreign Potatos into London last week consisted of 10,421 bags from Antwerp; 764 tons 4553 bags from Dunkirk; 4583 bags 60 baskets from Rotterdam; 3499 bags from Harlingen; 41 tons from Dahouet; 584 bags from Bremen; 6 bags 20 baskets from Dordt; 263 bags from Hamburgh; 2 sacks from Emden; 86 bags from Brussels; 100 sacks from Le Trepost; 371 bags from St. Nazaire; 170 bags from Amsterdam; 96 tons from St. Malo; 155 bags from Rouen; and 81 tons from Barfleur.

MR. WILLIAM BULL

IS NOW SENDING OUT THE

NEW REGAL PELARGONIUM

"BEAUTY OF OXTON,"

Price One Guinea each.

A Drawing of the above, by MACFARLANE, *can be had on application, price 2s. 6d.*

ESTABLISHMENT for NEW and RARE PLANTS,
King's Road, Chelsea, London, S.W.

DUTCH BULBS.

B. S. WILLIAMS

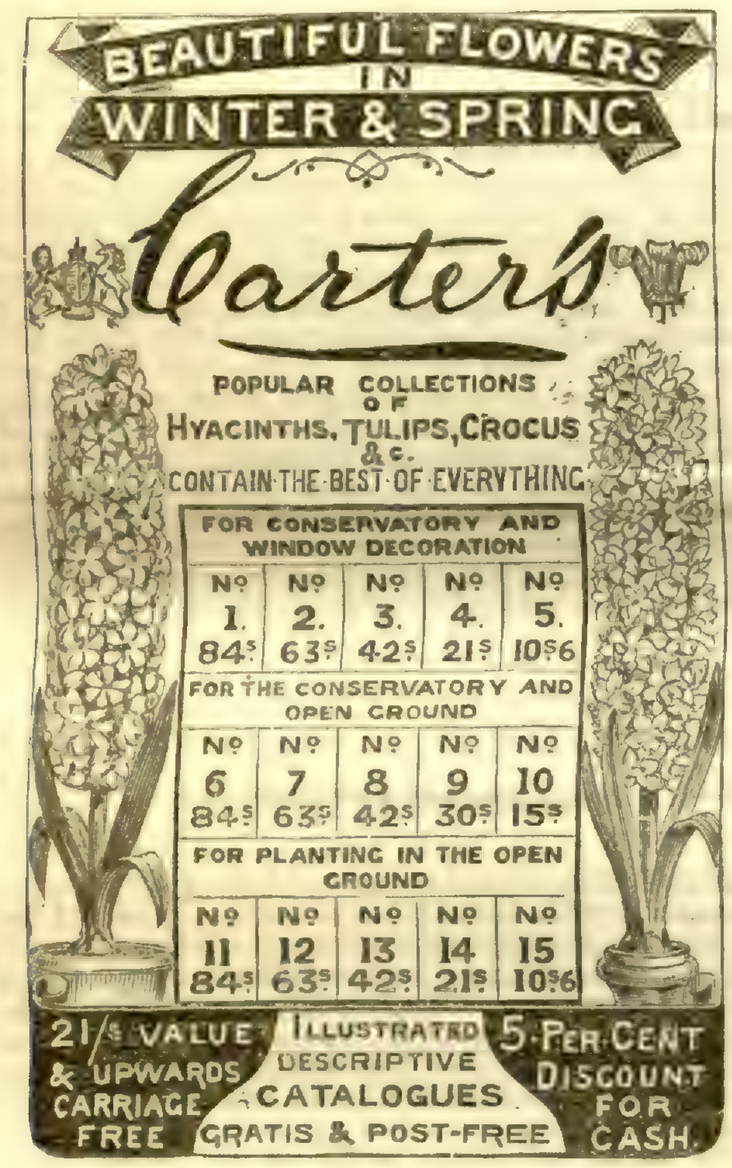
begs to announce that he has received his

ANNUAL SUPPLY OF HYACINTHS,

TULIPS, NARCISSI, CROCUS, &c.,
in splendid condition.

CATALOGUE Gratis on application;
also of New Plants, Fruit Trees, Roses, &c.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.



From FRED. WALTON, Esq.
"*October* 15, 1874.
"The Collection of Bulbs is truly a wonderful one for money."

Early Orders ensure the Best Roots.

Carter's

The Queen's Seedsmen,
237 & 238, HIGH HOLBORN, LONDON, W.C.

THE KNAP HILL CYPRESS,

Cupressus Lawsoniana erecta viridis.

ANTHONY WATERER

Will be happy to supply beautiful specimens of this famous hardy Evergreen, at the following prices:—

3 feet high, 2½ feet in circumference, 30s. per doz.
4 feet high, 3 to 4 feet do., 42s. to 60s. per doz.
5 feet high, 4, 5 and 6 ft. do., 10s. 6d., 15s. to 21s. each.
6 and 7 feet high, 6 to 7 and 8 ft. do., 21s. to 31s. 6d. each.

No cuttings have been taken from the plants here referred to, which are simply perfect in growth and splendidly rooted.

KNAP HILL NURSERY, WOKING, SURREY.

Cinerarias—Champion Strain.

H. J. HARDY begs to offer strong, clean, healthy plants of his fine strain of CINERARIAS at 20s. per 100, less by the 1000, Package and Carriage Free to any railway station in England.

SEED of the above carefully saved this season by H. J. H. may be had in 1s. and 2s. 6d. packets, or 40s. per oz. Cash or reference. A liberal allowance to the Trade.

H. J. HARDY, Stour Valley Seed Grounds, Bures, Essex.

Superb Double Hollyhocks.

WILLIAM CHATER begs to announce that he can supply fine Seedlings with colours named, from 9s. to 12s. per dozen.

Unbloomed Seelings, from 6s. to 9s. per dozen. Named Varieties, once bloomed, from 18s. per dozen.

W. C. strongly recommends Autumn Planting.
The Nurseries, Saffron Walden.

Caution.

MR. PORTER, Old Meldrum, N.B., hereby Cautions Parties intending to Purchase Seed of his "EXCELSIOR" POTATO of the danger of being deceived, unless they buy from himself direct, or from Seedsmen buying from or selling for him; as other Potatos—pretty like in general appearance—are grown, and may be offered under the name of Porter's "Excelsior" for the sake of gain.

Turf.

J. CHEAL AND SONS, of the Lowfield Nurseries, Crawley, Sussex, can supply first-class TURF for Lawns, at 3d. per square yard, on rail, at Crawley Station. Special prices for large quantities.

Priced CATALOGUES of their extensive stock of TREES and SHRUBS free by post.

Venn's Black Muscat.

JOHN KEYNES has a few first-rate Fruiting Canes of this magnificent variety. It is unquestionably the finest Black Grape in cultivation for growth and flavour: 21s. each. No Planting Canes. J. K. can also supply a few other kinds grown from last year's eyes, for which he is so celebrated. Fine fruiting well-ripened Canes, 10s. 6d. each. None left for the Trade.

ROSES.—Fine well-ripened not overgrown plants as usual. These Roses, not having been forced, will grow on any soil.

CATALOGUES now ready. Amateurs, try them.
Castle Street, Salisbury.

W. JACKSON AND CO., NURSERYMEN and SEED MERCHANTS, Bedale, Yorkshire, offer the following well transplanted NURSERY STOCK, of strong useful quality:—

GOOSEBERRY TREES, standard, best bearing kinds, such as Crown Bob, Whitesmith, Rifleman, Red Ashton, &c., 2, 3 and 4-yr. old, cheap.
APPLE, PLUM and PEAR TREES, very strong, cheap.
CURRANT TREES, Red and Black, very strong, cheap.
LARCH, very strong, well transplanted, 2 to 3 feet; and all other Forest Trees, and Game Cover Plants. Ornamental Trees and Shrubs in the greatest perfection.
Prices on application. All free on rail.

FINE TREES

at moderate prices:—

APPLES and PEARS, horizontal cordon trained, 9s. per dozen.
FILBERTS, half standards (red and white), strong, 10s. per dozen.
PLUMS, dwarf-trained, 2 and 3-yr., extra strong, 14s. 5d. to 16s. 2d. per dozen.
CHERRIES, Morello, dwarf-trained, 2-yr., fine, 90s. per 100.
PEACHES and APRICOTS, dwarf-trained, 1-yr., strong and fine, 20s. per dozen; ditto, 2 yr., strong and fine, 30s. per dozen.
ACER NEGUNDO VARIEGATA, fine pyramids, 3 to 5 feet, 7s. 3d. per dozen.
ALMONDS, dwarf, red, strong, 36s. per 100.
" dwarf, white, strong, 45s. per 100.
ARISTOLOCHIA SIPHO, strong and fine, 7 to 8 feet, 12s. 7d. per dozen.
AUCUBA JAPONICA, 3 feet high, 2 to 2½ feet diameter, 3s. each.
BEECH, Purple, grafted, large leaved, 5 to 7 feet, 115s. per 100, fine pyramids; ditto, 7 to 10 feet, 160s. p. 100.
BERBERIS ATROPURPUREA, strong, 3 feet, 45s. per 100.
CATALPA SYRINGÆFOLIA AUREA, pyramids and half standards, 1s. 6d.; standards, 2s. 3d.
CORNUS MASCULA VARIEGATA, 3 to 5 feet, 12s. per dozen; SIBIRICA VARIEGATA, strong, 75s. p. 100.
CORYLUS ATROPURPUREA, 2½ to 3 feet, strong, 45s. per 100.
CYDONIA JAPONICA RUBRA, red, transplanted, 2 to 3 feet, 30s. per 100.
" JAPONICA ALBA, white, transplanted, 2½ to 4½ feet, 54s. per 100.
CYTISUS NIGRICANS FLORE-ALBO and PURPUREIS, 3 to 4 feet stems, 90s. per 100.
HYDRANGEA PANICULATA GRANDIFLORA, 2½ to 3 feet, strong, 9s. per dozen.
HOLLY, green sorts, 2 to 4 feet, 120s. per 100; 4 to 6 feet, 2s. 3d. each; 6 to 7 feet, 3s.; 7 to 8 feet, 6s.; 8 to 10 feet, 9s. each.
" Gold and Silver sorts, 2 to 3 feet, 135s. per 100; 3 to 4 feet, 2s.; 4 to 5 feet, 3s.; 5 to 6 feet, 6s.; 6 to 8 feet, 9s. each.
The whole of the Hollies have recently been transplanted.
HOLLY, Weeping, green (Aquifolium pendula), fine, 4 to 5½ feet stems, 3s. each.
" Weeping, Silver (Aquifolium argentea-marginata pendula, fine, 4 to 5½ feet stems, 3s. 9d. each.
" Weeping, new Gold (Aquifolium aureo-marginata pendula), fine, 4 to 5½ feet stems, 9s. each.
" Weeping, new Gold (Aquifolium aureo-pictum pendula), fine, 4 to 5½ feet stems, 9s. each.
LIME, Layers, 5 to 7 feet, 45s.; 7 to 9 feet, 75s. per 100.
" Layers, fine straight trees, 210s. to 375s. per 100.
OAK (Golden), CONCORDIA, pyramids, 4 to 5 feet, 1s. 3d. each.
LANE, OCCIDENTAL, pyramids, 8 to 10 feet, 105s. per 100; fine straight trees, 3s. to 4s. 6d. each.
PRUNUS TRILOBA, strong, 2 to 2½ feet, 45s. per 100.
RIBES SANGUINEUM, 36s.; FLORE-ALBO and FLORE-PLENA, 39s. per 100; pyramids, 3 to 5 feet.
ROSES, finest Hybrid Perpetual, &c., dwarfs, strong, 24s. per 100.
WISTARIA (GLYCINE) CHINENSIS, strong, 7 to 8 feet, 105s. per 100.

TRADE LIST free. Cash or reference. All goods free to Rotterdam. Steamers sail weekly from Rotterdam to London, &c.

G. J. ALBERTS, the Nurseries, Boskoop, near Gouda, the Netherlands.

Rose Trees in Fine Condition.

F. W. COOPER is now prepared to receive Orders for the above on the following terms:—
Standards, 15s. to 18s. per dozen, £5 per 100; Half-standards, 12s. to 15s. per dozen, £4 per 100; Dwarfs on Manetti, 9s. to 12s. per dozen, £2 10s. per 100. All first-class sorts, with fine heads. List of names on application. Cash with order.
F. W. COOPER, Florist, Huntingdon.

CATALOGUES

OF

Trees, Shrubs, Roses and Fruit Trees,

ALSO

CLEMATIS, &c., for 1875-76,

Free by Post on application to

GEORGE JACKMAN AND SON,
WOKING NURSERY, SURREY.

HOLLIES.

Twenty Thousand of the Finest Varieties of GREEN AND VARIEGATED HOLLIES,
4, 5, 6, 7, 8, and 10 feet.

The Plants are all handsomely Grown and properly Rooted.

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

THE HANDSOMEST AUTUMN APPLE

IN CULTIVATION,

PEASGOOD'S NONESUCH,

Exhibited at the Alexandra Palace and Edinburgh Fruit Shows, September, 1875.

W. & J. BROWN

Are now prepared to supply strong Maidens, at 3s. 6d. each.

Trade Terms on application.

THE NURSERIES,
STAMFORD AND OAKHAM.

FIRST PRIZE ROSES,

FROM

CRANSTON'S NURSERIES, HEREFORD.

Try our One Guinea, Two Guinea, and Three Guinea Collections.

ONE GUINEA COLLECTION contains Thirty Selected First-class Show Roses.

TWO GUINEA COLLECTION contains Sixty Selected, Distinct, and all First-class Show Roses.

THREE GUINEA COLLECTION contains One Hundred of the Finest Roses, New or Old, in cultivation, Selected from upwards of 600 Varieties.

Either of the above Collections will be carefully packed and forwarded, on receipt of Cheque or Post Office Order payable to

CRANSTON and MAYOS,
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CRANSTON'S NURSERIES

(ESTABLISHED 1785).

TO THE TRADE.

CRANSTON AND MAYOS beg to offer very fine—

Dwarf-trained PEARS.
Dwarf-trained APPLES.
Dwarf-trained PLUMS.
Dwarf-trained CHERRIES.
Dwarf-trained PEACHES.
Dwarf-trained NECTARINES.
Pyramid APPLES.
Pyramid PEARS.
Pyramid PLUMS.
Pyramid CHERRIES.

The Largest Stock of DWARF ROSES in the Trade.

PRICED LISTS ON APPLICATION.

THE NURSERIES, HEREFORD

WORCESTER PEARMAIN APPLE.

Awarded a First-class Certificate by the Royal Horticultural Society, October 6, 1875.

Fruit 2¾ inches wide, and same in height, conical; skin smooth, brilliant red, with minute fawn-coloured dots; flesh very tender, crisp, juicy, and sweet, with a very pleasant flavour, perhaps the most valuable of all for market. The tree is as productive as Lord Suffield Apple, and one of the handsomest fruits in cultivation. Ripe end of August, and will keep till Christmas.

Maiden Trees, 10s. 6d. each; Pyramid or Trained Trees, 21s. each. Coloured Plates, 6d. each.

RED HAWTHORNDEN APPLE.—Dr. Hogg describes this as large, oblate, and angular; skin smooth, greenish yellow, with a red blush next the sun; flesh white, tender and juicy, with a sprightly and agreeable acidity. A very early and valuable culinary Apple; ripe August and September. Maiden trees, 7s. 6d. each; Pyramid or trained trees, 10s. 6d.

YORKSHIRE BEAUTY APPLE.—Dr. Hogg, in his *Manual*, says this fruit is 3½ inches wide and 3 inches high, roundish, flattened, and angular; skin bright yellow, with a bright red blush on the sunny side; flesh tender and juicy, with an agreeable acidity. A first-rate culinary Apple for August and September, the great size and excellent quality ought to commend it as a good orchard fruit for the market. Maiden trees, 5s. each; Pyramid or trained trees, 7s. 6d.

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Standard and Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, very fine trees for walls.

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All the above of superior quality, perfect in form, roots, and health, and true to name.
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,, Round-leaved, extra fine ..	2 to 3 feet, 70s.	TREE IVIES, full of flower ..	1 to 1½ foot, 75s.
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	Per doz.		Per doz.
JUNIPER, Chinese	4 to 5 feet, 36s.	CRYPTOMERIA ELEGANS ..	2 to 2½ feet, 21s.
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OAK, Austrian Evergreen	2½ to 3 feet, 30s.	,, PINSAPO	2½ to 3 feet, 42s.
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	Per 100.		Per 100.
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BIANCHI.—Bright salmon-pink, changing to nearly white, large blotch of brown spots on the upper petals; splendid truss; foliage large and good.

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1st size, nice plants .. .. £4 4s. the set.
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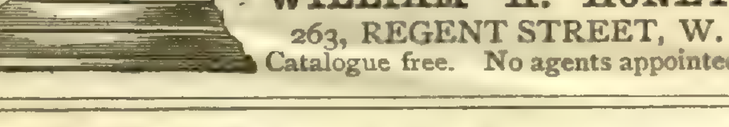

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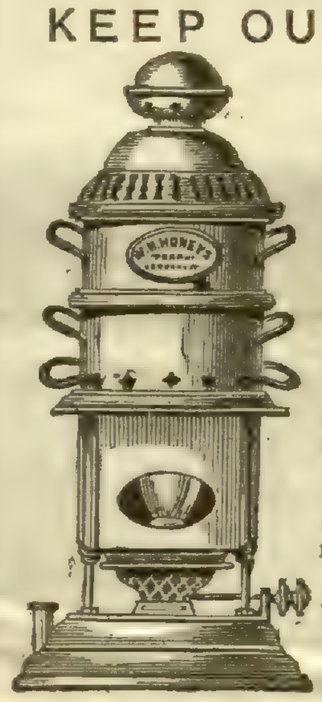

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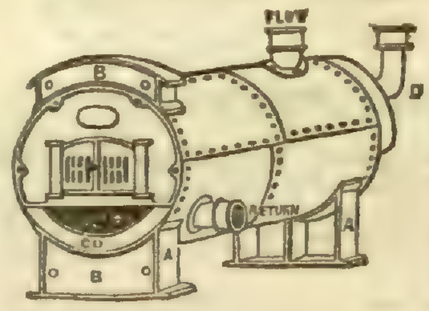

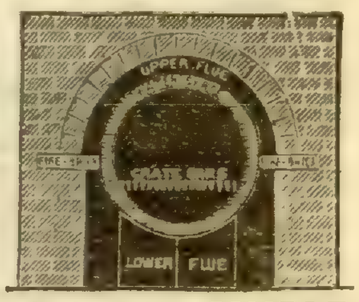

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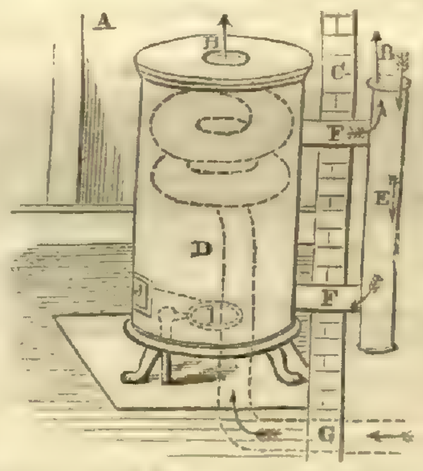

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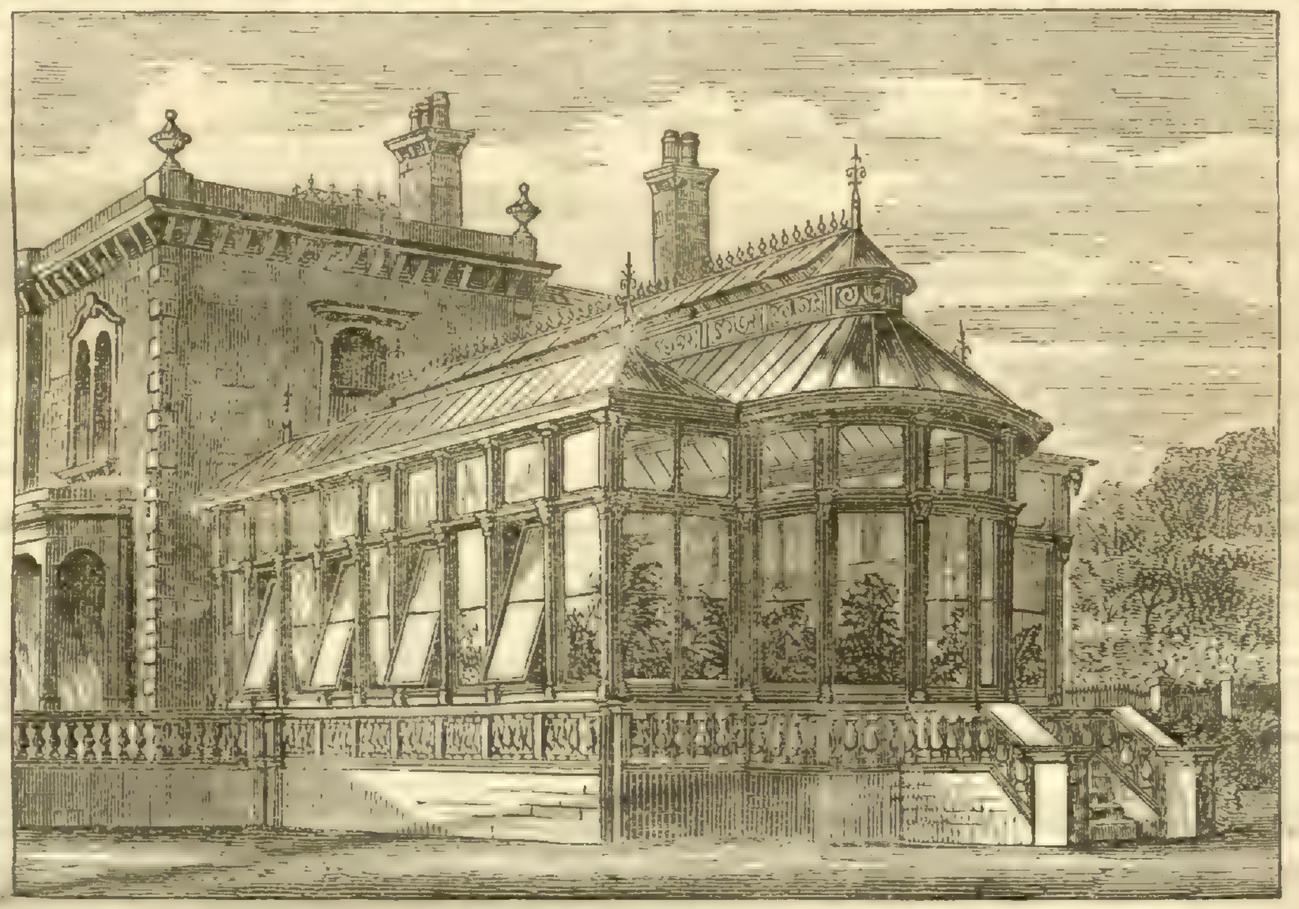

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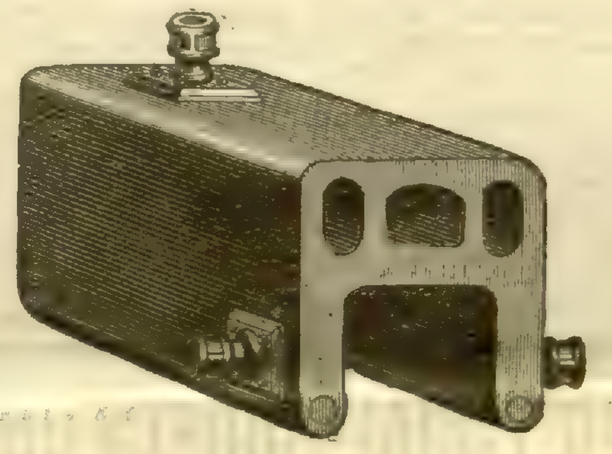

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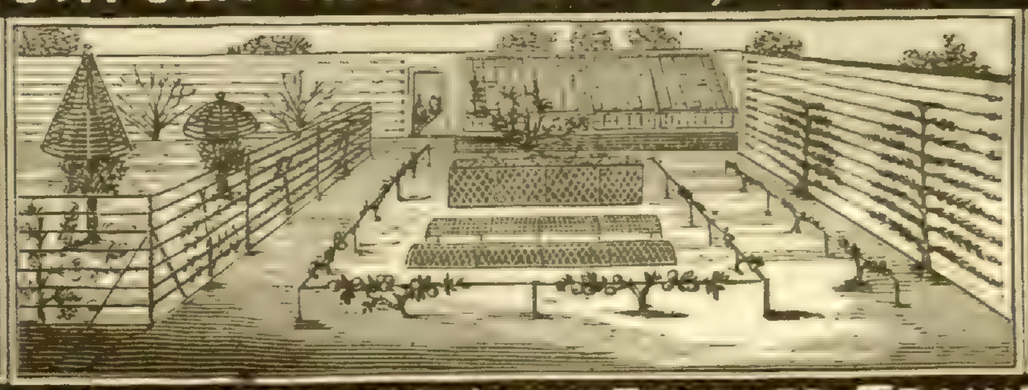

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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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To Secretaries of Agricultural Societies, Farmers' CLUBS, HORSE, POULTRY, and DOG SHOWS.

THE PUBLISHER of the AGRICULTURAL GAZETTE ALMANAC will be obliged to Secretaries of Societies named above if they will kindly furnish him with the dates fixed for holding their Exhibitions in 1876.
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The NEXT QUARTERLY MEETING of the Club will take place at Simpson's, 103, Strand, W.C., on WEDNESDAY, November 10. At 4 P.M. a Conference will be held, at which a paper on "Suggestions for Forming a National or United Kingdom Horticultural Society," will be read by Mr. D. T. Fish, Hardwicke Hall, Bury St. Edmunds, and a discussion will follow. The presence of those interested in this subject is respectfully invited. At 6 P.M. the members of the Club and their friends will dine together as usual.

Ealing, W.—November 3. RICHARD DEAN, Sec.

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On view the morning of Sale, and Catalogues had.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 11, at half-past 12 o'Clock precisely, 900 Lots of choice HYACINTHS, TULIPS, CROSUSES, NARCISSUS, IRIS, ANEMONES, LILIUMS, GLADIOLI, and other Bulbs, just arrived from well known Farms in Hollands, in Lots to suit the Trade and Private Buyers.

On view the morning of Sale, and Catalogues had.

Champion Hill, S.E.

IMPORTANT SALE of GREENHOUSE PLANTS.

MR. J. C. STEVENS has received instructions from J. C. Im Thurn, Esq., to SELL by AUCTION (in conjunction with Messrs. Ellis & Son), on the Premises, Champion Hill, S.E., on FRIDAY, November 12, at 12 o'Clock precisely, his entire Collection of STOVE and GREENHOUSE PLANTS, consisting of magnificent specimen Palms, in tubs, and mostly in pairs; Camellias and Azaleas of the finest varieties, a beautiful assortment of plants for table decoration, such as Cocos Weddelliana, Aralia Veitchii, Croton Weismanni, &c.; a choice collection of Ferns, Heaths, Epacris, Amaryllis, &c.; a few good Orchids, a quantity of the best sorts of Standard and Dwarf Roses, also some fine ORNAMENTAL VASES, the LAWN MOWER, HANDLIGHTS, GARDEN IMPLEMENTS, &c.

May be viewed by Catalogues the day before and morning of Sale, and Catalogues had of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.; and of Messrs. ELLIS AND SON, 49, Fenchurch Street, E.C.

Specimen Camellias.

MR. J. C. STEVENS begs to announce that he will INCLUDE in his SALE at Champion Hill, Dulwich, S.E., on FRIDAY, November 12, a few very fine SPECIMEN CAMELLIAS, from 6 to 11 feet high, and covered with bloom-buds, consisting of—

	High.	Wide.
CARYOPHYLLOIDES	8 feet	4 feet.
DUCHESS of ORLEANS	7 feet	5 feet.
FLORIDA	11 feet	6 feet.
IMBRICATA	10 feet	4½ feet.
LEEANA SUPERBA, or BEALII	8 feet	3½ feet.
MARCHIONESS of EXETER	9 feet	5 feet.
MATHOTIANA	6 feet	5 feet.
MRS. COPE	5½ feet	4 feet.
TRICOLOR IMBRICATA PLENO	8 feet	4 feet.

On view the day prior and morning of Sale, and Catalogues had.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Consignment of Greenhouse Plants from Ghent and BULBS from HOLLAND.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 13, at half-past 12 o'Clock precisely, a Consignment of choice INDIAN AZALEAS and well-shaped CAMELLIAS with buds, all true to name, and comprising some of the best varieties, just received from one of the most renowned Nurseries in Ghent; also a Consignment of choice HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, GLADIOLI, and other Bulbs, just arrived from Holland, in Lots to suit large and small Growers.

On view the morning of Sale, and Catalogues had.

Shipston-on-Stour.—Furze Hill and Stratford Road NURSERIES.

HIGHLY IMPORTANT SALE of NURSERY STOCK, &c.

MESSRS. BULL AND SON are instructed by the Representatives of the late Mr. John Jennings, Sen., to SELL by AUCTION at the above Nurseries, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, November 16, 17, 18, and 19, commencing each day at 10 o'Clock, the NURSERY STOCK, consisting of choice Ornamental Trees and Flowering Shrubs, a quantity of Pyramid and Standard Fruit Trees in Fruiting condition, &c.; upwards of 1000 Standard and 500 Dwarf Roses in nearly every variety, a collection of Valuable Greenhouse and Bedding-out Plants, &c., together with the Greenhouses, Conservatory and Vinery; also the Household Furniture, Rick of well-ended Hay, and other Effects.

☞ The Auctioneers beg to call special attention to this Valuable Nursery Stock, which was grown with great care by the late Mr. Jennings, Sen. (who was a successful exhibitor at all the local shows). The English and Irish Yews, Arbor-vitæs, Laurels, Laurustinus, Spruce and Scotch Firs; the collection of Dwarf and Standard Roses, Fruit and Forest Trees, &c., are well worthy the attention of purchasers, as it is seldom so good a lot of Nursery Stock is brought before the public.

To view apply to Mr. HAWCUTT at the Nurseries.

Catalogues may be had at the Offices of the Auctioneers, Shipston-on-Stour and Great Wolford.

Dutch Bulbs.—Extensive Consignment of the finest

named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, GLADIOLUS, &c., for absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY next, at 11 for half-past 11 o'Clock precisely, about 800 lots of the above, the whole being of a very superior quality.

On view morning of Sale.

Streatham, Surrey, S.W.—Expiration of Lease.

To Noblemen, Gentlemen, Nurserymen and Others.

IMPORTANT CLEARANCE SALE of 30 ACRES of NURSERY STOCK, the Ground being required for Building purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. George Clarke to SELL by AUCTION, on the Premises, Streatham Place Nursery, Brixton Hill, Surrey, S.W., on MONDAY, November 8, and five following days, at 11 for 12 o'Clock precisely, the whole of the Valuable NURSERY STOCK, consisting of many thousands of well-grown specimens carefully prepared for removal, including handsomely grown Cedrus Deodara, 5 to 15 feet; Wellingtonia gigantea, 1500 Arbor-vitæ, Araucaria imbricata, Thujas, Pinus, Junipers, fine Evergreen and Deciduous Shrubs, comprising 4000 Rhododendrons in variety, 4000 Acubas, Green and Variegated Hollies, English and Irish Yews, Berberis, Forsythias; 20,000 Common Laurels, 3 to 12 feet; 2000 fine Limes, Scarlet and Horse Chestnuts, and other Ornamental Trees, fine Standard and Pyramidal Fruit Trees, comprising Pears, Apples, and Plums in bearing condition; 2000 Gooseberry and Currant Trees, 20,000 fine Standard and Dwarf Roses in all the leading varieties.

On view prior to Sale.

Atherstone.

IMPORTANT SALE of SURPLUS NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have been favoured with instructions from Mr. H. Baker to SELL by AUCTION, without reserve, on the Premises, the Nursery, Atherstone, Warwickshire, half a mile from the Railway Station, on TUESDAY, November 9, at half-past 11 o'Clock precisely, a considerable quantity of NURSERY STOCK, consisting chiefly of Coniferæ and Evergreens, including many fine specimens, amongst which will be found Aucubas, Cupressus, Cedrus Deodara and Libani, Araucarias, Thujas of sorts, Laurels, Gold and Silver Hollies, Rhododendrons, &c.

Now on view. Catalogues had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Beddington.

IMPORTANT SALE of CHOICE AMERICAN PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Rollisson & Sons to SELL by AUCTION, without reserve, at their Branch Nursery, Beddington, Surrey, close to the station, on THURSDAY, November 11, at 11 for 12 o'Clock precisely, a large quantity of Choice AMERICAN PLANTS, consisting of 7000 Rhododendrons, including fine named Hybrid and Pontica varieties, Andromedas, Hardy Azaleas, 1200 Kalmia latifolia, 5000 Border SHRUBS in beautiful variety, together with a quantity of FOREST and ORNAMENTAL TREES and Hardy CLIMBERS in pots.

May be viewed prior to Sale. Catalogues may be had on the Premises, at the Exotic Nurseries, Tooting, and of the Auctioneers.

Caterham.

CLEARANCE SALE of Valuable NURSERY STOCK, consisting of 5000 Evergreens and Coniferæ, comprising Thujas, Cupressus, Cedars, Pines, Piceas, Firs, Box, Laurels, Cotoneaster, Arbor-vitæ, Thujopsis; 7000 Forest and Ornamental Trees, including Birch, Maples, Sycamores, Acacias, Almonds, Thorns, Laburnums, Elms of sorts, Poplars, also a quantity of Deciduous Flowering Shrubs; 2500 Fruit Trees; 500 Hardy Climbers in pots, Ivies, Clematis, &c.; together with 2000 Standard and Dwarf Roses, in fine assortment.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, as above, on the Premises, adjoining the Home Nursery (possession of which will shortly be required, the Term having expired), and situate opposite Caterham Railway Station, Surrey, on TUESDAY, Nov. 16, at 11 for 12 o'Clock precisely, by order of Mr. G. J. Woollett, without reserve.

The Stock may be viewed at any time. Catalogues may be had of Mr. WOOLLETT, at the Home Nursery; and of the Auctioneers and Valuers.

Teddington.

IMPORTANT SALE of Beautifully-grown NURSERY STOCK, consisting of a large and varied assortment of fine Evergreens and Coniferæ Shrubs, including 1000 fine large Thuja Warreana, 3 to 6 feet, 1500 Aucubas, 2000 bushy Box, 1000 Portugal Laurels and Arbutus, Green Hollies, English Yews, 600 Laurustinus, Berberis, 4000 Spruce Firs, Cedrus Deodara, Thuja Lobbii, Taxodiums, Junipers; a considerable quantity of Ornamental Trees, including 2000 Horse Chestnuts, Poplars of sorts, Acacias, Laburnums, Thorns, Weeping and Mountain Ash, 4000 fine Limes, 7 to 9 feet; a quantity of clean-grown Fruit Trees, 2000 Standard and Dwarf Roses, Ivies, and other Hardy Climbers, Asparagus, Seakale, &c.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Laing, who is about giving up this branch Nursery, to SELL by AUCTION as above, without reserve, on the Premises, the Fulwell Nursery, Stanley and Waldegrove Roads, Teddington, close to the Fulwell Station, on TUESDAY, November 16, and two following days, at 11 for 12 o'Clock precisely.

Now on view, and Catalogues had of Mr. LAING, Twickenham, and of the Auctioneers.

Brixton Road, S.W.

CLEARANCE SALE, the Lease having Expired.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. J. Fowle, to SELL by AUCTION, on the Premises, The Nursery, Mostyn Road, Brixton Road, Surrey, S.W., on WEDNESDAY, November 17, at 12 o'Clock precisely, without reserve, a large quantity of EVERGREEN and DECIDUOUS SHRUBS, ORNAMENTAL and FOREST TREES, STANDARD and DWARF ROSES, CLIMBING IVIES in pots, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.

Holloway, N.

CLEARANCE SALE, in consequence of the Expiration of Lease.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Craslin to SELL by AUCTION, on the Premises, The Nursery, Seven Sister's Road, Holloway, N., on FRIDAY, November 19, at 11 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, consisting of a fine assortment of Evergreen, Coniferæ, and Deciduous Shrubs, choice hardy American Plants, Standard and Dwarf Roses. Also the entire Collection of STOVE and GREENHOUSE PLANTS, and the whole of the Glass Erections and Fittings thereto.

May be viewed the day prior. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.

Lewisham, S.E.

Near the old church, six minutes from Ladywell and Catford Stations on the Mid-Kent line.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, by order of the Executors, on the Premises as above, on FRIDAY and SATURDAY, November 19 and 20, at 1 o'Clock precisely, the whole of the valuable NURSERY STOCK, comprising 40,000 Evergreen Shrubs, 5000 beautifully-grown specimens, viz., Cedrus Deodara, Libani, and alantica; large Golden English and Irish Yews; Thujas of sorts, Arbutus, Thujopsis, Araucarias, Weymouth Pines, &c.; 4000 Hollies, 4000 Golden and Green Euonymus, 1800 Ivies of sorts in pots, 1000 fine Chinese Arbor-vitæ, from 2 to 13 feet, 3000 Berberis, Box, Portugal and common Laurels, 1000 Laurustinus, Ligustrum, 4000 Aucubas, Lilacs, a quantity of Rhododendrons, &c.; Standard and Dwarf Roses, thousands of Ornamental and Forest Trees, Fruit Trees, Vines; a quantity of Stove and Greenhouse Plants, viz., extra large specimen White and other Azaleas, strong Deutzia gracilis in pots, Hives of Bees, &c.

Now on view.

Exeter.

HIGHLY IMPORTANT SALE of probably the largest and most unique COLLECTION of SPECIMEN CONIFERÆ ever yet submitted to public competition, comprising thousands of unusually handsome examples of all the choicest and most approved kinds in cultivation, and for which these Nurseries have obtained the highest reputation, including skilfully trained pyramidal English, Irish, and Golden Yews, Thujopsis borealis and borealis pendula, dolabrata; Thuja gigantea, Lobbii, sibirica, chinensis, and aurea; Chinese and other Junipers, Cedrus Deodara and atlantica, Araucaria imbricata, Retinosporas, and many others remarkable for their perfectly symmetrical form and great beauty, also immense quantities of smaller stock, more detailed particulars of which will shortly appear.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Lucombe, Pince & Co. to SELL the above by AUCTION, without reserve, at their Exeter Nurseries, on TUESDAY, November 23, and several successive days, in consequence of a branch nursery being required for farming purposes.

The stock may be viewed any day prior to the Sale. Catalogues, when ready, may be had (6d. each, returnable to purchasers), and of the Actioneers.

GREAT SALE of NURSERY STOCK, November 23 and nine following days.—By order of the Executors of the late Mr. John Standish.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to submit for unreserved SALE by AUCTION, on the Premises, the Royal Nurseries, Ascot, Berks, opposite Ascot Grand Stand, the Valuable NURSERY STOCK, ranging over 80 Acres, consisting of the extensive and extraordinary rich assortment of Evergreen, Coniferæ, and Deciduous Shrubs, varying all sizes, including many thousands of specimens which have been transplanted within the last eight months, and are adapted for immediate effective purposes; also millions of smaller stock too numerous to specify; 100,000 choice named Hybrid and Pontica Rhododendrons, 18,000 Apples, Pears, Plums, and other Fruit Trees, 7000 Gooseberries and Currants, 40,000 Spruce and other Firs, 10,000 Roses, collection of Clematis and other Climbers, &c.

Sale to commence punctually at 12 o'Clock each day, luncheon for intending purchasers at 11.30. Goods may be transmitted from Ascot Railway Stations to all parts without change of truck.

Now on view. Catalogues had on the Premises; at the "London," 22, St. George's Place, Knightsbridge; and of the Auctioneers.

Hare Hill Nursery, near Chertsey, Surrey.

IMPORTANT CLEARANCE SALE of NURSERY STOCK.

MESSRS. WATERER AND SONS have been instructed by Mr. G. Chapman, to SELL by AUCTION, on TUESDAY, November 9, at 12 o'Clock, and following days, upon the Premises, the whole of the very valuable NURSERY STOCK, comprising 7500 Common Laurel, from 2 to 5 feet; 1500 Portugal Laurel, from 1 to 3 feet; 11,000 green Hollies, from 1 to 3 feet; 12,000 variegated Hollies, from 1 to 3 feet; 7500 common Yews, from 1 to 5 feet; 1000 Rhododendron ponticum; 1200 Aucuba japonica, 1 to 2 feet; 1600 Tree Box; 2000 Cupressus Lawsoniana, 1 to 5 feet; 1000 Pinus austriaca; 700 Weymouth Pine, 2 to 4 feet; 1500 American Arbor-vitæ, 3 to 6 feet; 600 Thuja Lobbii, 300 Cedrus Deodara, 1 to 2 feet; Picea Nordmanniana, Red Cedars, Irish and variegated Yews, Chinese Arbor-vitæ, &c.; ten very fine specimen plants of Thuja aurea, 4 by 3 feet; 2500 Standard, Half-standard, and Dwarf Roses, of the most choice sorts, which will be sold in Lots suitable to the private purchaser and the Trade; 3000 Gooseberry and Currants, of sorts; 2000 Maiden Apples, Pears, Plums, Peaches, &c.; 100 Standard Paul's Scarlet Thorn; large quantity of fine Forest Trees, including 5000 Poplars, of sorts, from 4 to 10 feet; 4000 Norway Maple and Sycamore, from 4 to 12 feet; 10,000 Birch, from 2 to 5 feet; 1000 Mountain Ash, 6 to 10 feet; 2000 Spanish Chestnuts, 2 to 3 feet; 2000 Horse Chestnuts, 4 to 12 feet; 2000 Limes, from 3 to 10 feet; 200 Acacias, 1500 Scotch Firs, 2 to 4 feet; 2500 Spruce Firs, 2 to 3 feet; 10,000 2-yr. Seedling Quick, and a variety of other Plants. Also two very valuable and useful Cart Horses.

The Auctioneers can confidently invite the attention of purchasers to this stock, the whole being young, thriving, well-rooted, and in fine condition for removal. The Nursery is most conveniently situate for railway carriage, being within 1 mile of the Addlestone, 2 miles of the Chertsey and Woking Stations, on the London and South-Western Railway, with communication to all parts of England.

May be viewed seven days prior to the day of Sale, and Catalogues had upon the Premises, and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, Surrey.

Newton Moor Nurseries, Wakefield.
PLANTING SEASON, 1875 and 1876.

MESSRS. HARDWICK, BEST, AND YOUNG have received instructions to SELL by AUCTION, on MONDAY, November 8, and following days of business, at eleven o'Clock each day, at Newton Moor Nurseries, Wakefield, all the Valuable FRUIT, ORNAMENTAL, and FOREST TREES and SHRUBS, comprising Standard, Half-standard, Dwarf, Trained and Pyramid Apple, Pear, Plum, Cherry, Peach, Nectarine, and Apricot Trees; fine strong, healthy VINES, in pots; Alder, Ash, Beech, Chestnut, Fir, Oak, Maple, Poplar, and Sycamore Trees. The Ornamental, Evergreen Trees and Shrubs consist of Acacia, Weeping Ash, Birch, Thorns, Box, Elm, Laburnums, Oak, Plane, Hollies, Laurels, Privets, with other varieties too numerous to mention, and of the best description. The Deciduous Shrubs comprise American Plants, Climbing Plants, Greenhouse Plants, Roses, together with the usual Plants, Trees, Shrubs, &c., to be found in an extensive Nursery.

On view at all hours of business. Catalogues will be ready one week previous to the Sale, and may be had at the Auctioneers' Offices, Bradford and Leeds.

Potter's Bar, N.

MR. KEMP is instructed by Mr. James Butterfield to SELL by AUCTION, on SATURDAY, November 13, at 11 for half-past 11 o'Clock, at the Osborne Nursery, 10,000 TREES and SHRUBS, of the most approved kinds and in great variety, including a large number of specimens—the cream of the immense stock—all in thorough condition for removal. There are 400 Lots.

See Handbills, or Catalogues, to be had on application to Mr. KEMP, Barnet, N.; or on the Premises.

Batheaston Nursery.
HIGHLY IMPORTANT NOTICE to GENTLEMEN, NURSERYMEN, and OTHERS ABOUT to PLANT.

MR. W. ABRAHAM is instructed by Mr. J. Scott, of the above Nursery, to SELL by AUCTION, without the least reserve (in consequence of his giving up the Nursery portion of the business), on MONDAY and TUESDAY, November 22 and 23, at 12 o'Clock punctually each day, a quantity of beautifully grown NURSERY STOCK, large Lean-to Vinery, Hot-water Piping, &c. The stock consists of many splendid and unequalled specimen Coniferæ, including Picea Pinsapo, P. Nordmanniana, Thuja aurea, Thujopsis borealis, Chinese Juniper, Arbor-vitæ, also fine Euonymus, English and Irish Yews, Berberis, Tree Box, 4000 Common Laurel, 20,000 Quick, &c. Also a fine collection of Pyramidal and Bush Fruit Trees in bearing condition.

The stock has all been removed within the last two years, and is in the best possible state for removal.

May be viewed ten days prior to the Sale, and Catalogues obtained of Mr. SCOTT, Bathford Nursery, or (post free) of Mr. W. ABRAHAM, Auctioneer and Valuer, Goldworth Nurseries, Woking, Surrey.

MESSRS. FRASER AND BENTON, HORTICULTURAL AND AGRICULTURAL AUCTIONEERS AND VALUERS, Romford and Grays, Essex.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

Bradford-on-Avon, Wilts.
To NURSERYMEN, MARKET GARDENERS, &c.

TO BE LET, a SMALL but COMPACT NURSERY, with Dwelling-house, Shop, and Outbuildings; with immediate possession. Incoming about £130.

Apply to Messrs. FOLEY AND SON, Manvers Street, Trowbridge, Wilts.

SMALL FARM TO LET.—Tithe free, with the right of Sporting: 116 Acres of heavy Land with Homestead, in the Parish of Everton, near Sandy, Beds. For particulars apply to
SMITH AND ROBINSON, Estate Agents, Hemel Hempstead.

TO BE LET, a compact FLORIST'S BUSINESS, consisting of Six Houses, heated with Hot-water; one large Camellia-house, planted, with thousands of buds just coming into flower; also large Stephantis-house, very forward, and a large quantity of Azaleas, &c. For particulars apply
FLORIST, 53, Loughborough Road, Brixton, S.E.

Great Ilford, Essex.
VALUABLE MARKET GARDEN GROUND.

TO BE LET, from Michaelmas, 1875, from year to year, VALUABLE MARKET GARDEN GROUND, situate near the "Cauliflower Inn," Great Ilford, in the Parish of Barking, containing, in the whole, 82a. or. 28p., or thereabouts, late in the occupation of Mr. Wm. Perry.

Further particulars may be known on application to Mr. JOHN GREEN, Clement's Farm, Ilford; or to Messrs. ANDREWS, BARRETT, AND ANDREWS, Solicitors, Weymouth.

VINES, VINES, VINES.—2000 strong Canes of all the leading sorts. Planting Canes from 2s. to 3s. 6d.; Fruiting, from 5s. to 7s. 6d. each.
F. AND A. SMITH, Nurserymen, &c., West Dulwich, S.E.

T. VANDER SWAELMEN, NURSERYMAN, Gendbrugge, Ghent, Belgium, offers, at the lowest price, a nice collection of the finest LILIES, from California, Caucasus, and Japan; also a large quantity of SPIRÆA JAPONICA, at 12s. per 100.
Priced CATALOGUE post free upon application.

Special Culture of Fruit Trees and Roses.

THE DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS (by THOMAS RIVERS) is now ready; also CATALOGUE of Select ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

CROCUS, large Dutch, yellow, blue, white, striped, or mixed, 1s. 6d. per 100, 15s. per 1000. Good named HYACINTHS, twelve distinct varieties, selected roots, for 6s. CATALOGUES free.
W. HOOPER, 88, Oxford Street, London, W.

Spring Flowers.

THOMAS S. WARE'S new A. B. C. BULB GUIDE (now ready, free on application) contains a selection of all the best Spring-flowering Perennials and Bulbs in cultivation.
Hale Farm Nursery, Tottenham, London.
N.B.—See Cheap Collections of the above.

CABBAGE PLANTS for SALE.—Good strong Plants of Early Battersea, Enfield Market, Improved Nonpareil, and Robinson's Champion Cattle Cabbage, can be supplied at 3s. per 1000. Package free for cash with order.
The above are all well-rooted stuff, growing on red sand, and cannot fail to give satisfaction.
S. BIDE, Alma Nursery, Farnham, Surrey.

"TELEGRAPH" CUCUMBER SEED (true).—New Seed, just saved. Six Seeds post free for 12 stamps.
A. WATKINS, Nursery, Bishops Stortford.

Mangel and Swede.

JOHN SHARPE can furnish, on application, his quotations for the choicest Stocks of the above, selected and grown by himself.
Bardney Manor, Lincoln.

Evergreen Hedges.—Box, Green Hollies, and LIGUSTRUM OVALIFOLIUM.

R. NEAL, having a very large Stock of the above, can offer the same by the 100 or 1000 at a very low rate. Also 10,000 ACER CAMPESTRIS, from 5 to 8 feet in height, clean-grown stuff. Price on application.
The Nurseries, Wandsworth Common, S.W.

THE MILE ASH ROSES are recommended as specially hardy and healthy. The plants are superb this season. LIST free on application.
EDWIN COOLING, Mile Ash Nurseries, Derby.

YEWS.—For Sale 2000, from 3¼ to 4¼ feet, well-rooted and grown, well adapted for Hedges or Ornamental Trees, of first-rate quality, 90s. per 100.
JOSEPH SPOONER, Goldworth, Woking, Surrey.

ORCHIDS.—W. F. BOFF'S Orchid Houses having become too crowded, he has again a few to offer at one Guinea per dozen. No objection to taking CHOICE FRUIT in EXCHANGE.
The Conservatories, Holloway, Islington, N.

Caution.

MR. PORTER, Old Meldrum, N.B., hereby Cautions Parties intending to Purchase Seed of his "EXCELSIOR" POTATO of the danger of being deceived, unless they buy from himself direct, or from Seedsmen buying from or selling for him; as other Potatos—pretty like in general appearance—are grown, and may be offered under the name of Porter's "Excelsior" for the sake of gain.

Trade.—Autumn, 1875.

SEAKALE for Forcing, 100,000, extra strong, 80s. per 1000; strong, 60s. per 1000.
Dwarf ROSES on Manetti, 25s. per 100, £10 10s. per 1000, my selection. As good as money can procure. A remittance must accompany all orders, by cheque or post-office order.
RICHARD LOCKE, Alexandra Nurseries, Red Hill, Surrey.

BOX EDGING—10,000 nursery yards, at 2½d. per yard, or £9 per 1000; 100,000 CABBAGE PLANTS, at 2s. 6d. per 1000. Cash with order.
J. B. YOUNG, Landscape Gardener, Bridge of Allan.

SPRUCE FIR, very fine, for Christmas Trees, from 4 to 7 feet high.
PINUS AUSTRIACA, fine, 5 to 6 feet.
IRISH YEWS, fine specimens, 8 feet.
THUJA LOBBII, very fine, 10 feet.
SIBERIAN ARBOR-VITÆ, magnificent specimens, 8 feet.
The above are well-grown and finely rooted. Prices on application.
ELCOMBE AND SON, The Nurseries, Romsey,

To Noblemen, Gentlemen, and Others who are REPLANTING this AUTUMN.

R. NEAL begs respectfully to call the attention of the above to his large and varied stock of Hardy SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS, CLIMBING PLANTS, &c., which are now in fine condition for removal. An early inspection invited. CATALOGUES may be had on application.
The Nurseries, Wandsworth Common, S.W.

Australian Seeds and Plants.

SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.
SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

TO LARGE PLANTERS and the Trade.
Some thousands of good English YEWS, 2½ to 3½ feet; and LIMES, 6 to 8 feet; also a quantity of SYCAMORES, 10 to 14 feet; and LAURELS, 2 to 3 feet; WELLINGTONIA, 9 feet. Special prices given on application to
GODWIN AND SON, Ashborne, Derby.

To the Trade.
BILLING ROAD NURSERIES, NORTHAMPTON.

JOHN PERKINS AND SON beg to call particular attention to their large stock of Standard and Dwarf-trained FRUIT TREES, APPLES, PEARS, PLUMS, PEACHES, NECTARINES, and APRICOTS, strong GOOSEBERRIES and CURRANTS, EVERGREEN SHRUBS, CONIFERÆ, and FOREST TREES. Trade LIST upon application to
52, Market Square, Northampton.

Cinerarias—Champion Strain.

H. J. HARDY begs to offer strong, clean, healthy plants of his fine strain of CINERARIAS at 20s. per 100, less by the 1000, Package and Carriage Free to any railway station in England.

SEED of the above carefully saved this season by H. J. H. may be had in 1s. and 2s. 6d. packets, or 40s. per oz. Cash or reference. A liberal allowance to the Trade.
H. J. HARDY, Stour Valley Seed Grounds, Bures, Essex.

Superb Double Hollyhocks.

WILLIAM CHATER begs to announce that he can supply fine Seedlings with colours named, from 9s. to 12s. per dozen.

Unbloomed Seelings, from 6s. to 9s. per dozen. Named Varieties, once bloomed, from 18s. per dozen.

W. C. strongly recommends Autumn Planting.
The Nurseries, Saffron Walden.

Turf.

J. CHEAL AND SONS, of the Lowfield Nurseries, Crawley, Sussex, can supply first-class TURF for Lawns, at 3d. per square yard, on rail, at Crawley Station. Special prices for large quantities.

Priced CATALOGUES of their extensive stock of TREES and SHRUBS free by post.

Mulberries.—Important to the Trade.

SALTMARSH AND SON'S stock of the above consists of several thousand fine, healthy, well-grown Standards of various sizes, and may fairly be said to be unsurpassed, if equalled, in the Trade. The system adopted in their cultivation prevents the ugly knotty stems so frequently seen. Prices per dozen or per 100 on application.

N.B.—A few fruit-bearing trees with good heads can be supplied. The Nurseries, Chelmsford, Essex.

HEATH NURSERY, Moortown, Leeds.

The Executors of the late W. L. RIDER beg to inform the Nobility, Gentry, and Public that the NURSERY STOCK of Plants, consisting of Azaleas, Camellias, Rhododendrons, Fruit, Forest, and Ornamental Trees, Roses, and Evergreen and Deciduous Shrubs, is now in the finest condition. An inspection is invited.

Priced CATALOGUES post free on application.

NURSERY STOCK to be Sold, cheap, as the ground must be cleared:—
SPRUCE FIRS, from 3 to 10 feet.
SCOTCH FIRS, from 3 to 5 feet.
PINUS AUSTRIACA, from 3 to 5 feet.
NORWAY MAPLE, from 10 to 12 feet.
SPANISH CHESTNUT, from 12 to 14 feet.
Prices on application to
HENRY MINCHIN, The Nurseries, Hook Norton, Oxon.

Cranston's Nurseries.—Established 1785.

THE FOLLOWING CATALOGUES are now Published:—
Descriptive CATALOGUE of ROSES, 1875—1876.
Descriptive CATALOGUE of FRUIT TREES.
Descriptive CATALOGUE of CONIFER TREES and SHRUBS.
Descriptive CATALOGUE of BULBS.
Descriptive CATALOGUE of GREENHOUSE and HERBACEOUS PLANTS.
Descriptive CATALOGUE of SEEDS. Address,
CRANSTON AND MAYOS, King's Acre, near Hereford.

VINES, VINES, EPIPHYLLUMS, TREE CARNATIONS, and CYCLAMENS.

VINES.—Strong, well-ripened, and short-jointed fruiting and planting Canes of the following varieties, 2s. 6d. to 5s. each:—Buckland's Sweetwater, Black Hamburgh, Black Alicante, Foster's Seedling, Gros Colman, Lady Downe's, Muscat Hamburgh, Madresfield Court, Dr. Hogg, Mrs. Pince, Muscat of Alexandria, Seacliffe Black, Trentham Black, White Lady Downe's, West St. Peter's; a few of Waltham Cross, 7s. 6d. to 15s. each.

EPIPHYLLUMS.—Strong grafted plants, 6 to 15 inch stems, heads 6 to 9 inches in diameter, 9s. per dozen, 60s. per 100; larger plants, 12s. per dozen, 90s. per 100.

TREE CARNATIONS and CYCLAMENS, fine for this season's blooming, 9s. and 12s. per dozen, 70s. and 90s. per 100.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Stephanotis floribunda.—A Rare Bargain.

WM. KNIGHT, Floral Nurseries, Hailsham, Sussex, offers to the Trade, for cash, 100 healthy plants of the above, best variety, for £5, in 60-sized pots; also a few dozen extra strong flowering plants, for 30s. per dozen. Also TWENTY ACRES of GENERAL NURSERY STOCK, in excellent condition. CATALOGUES on application.

Richmond Nurseries, Richmond, Surrey.
To GENTLEMEN, NURSERYMEN, LARGE CONTRACTORS, LANDSCAPE GARDENERS, and OTHERS.

G. AND W. STEELL beg to call the attention of all Planters to their very extensive and fine grown NURSERY STOCK, consisting of an excellent selection of Ornamental Evergreen and Deciduous Shrubs and Trees, Standard and Dwarf Rose Trees, Standard and Dwarf Variegated and Green Hollies of the newest and best varieties, Standard and Dwarf Fruit Trees, &c., which they can highly recommend for their fine growth and moving qualities.

N.B.—Where large quantities are required they can be supplied at very low prices.

AVENUE TREES.

	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 ,,
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 ,,
CHESTNUTS, Horse, 10 to 14 feet high	8 to 10 ,,
,, Scarlet, 10 to 14 feet high	8 to 10 ,,
,, Double, 10 to 14 feet high	8 to 10 ,,
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 ,,
ELMS, 15 to 18 feet	7 to 9 ,,

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots. They are unquestionably the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.

Knap Hill Nursery, Woking, Surrey.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.

Highgate Nurseries, London, N.

To the Trade.

Home-grown GARDEN and AGRICULTURAL SEEDS.

H. AND F. SHARPE'S Wholesale Special Priced LIST of the above Seeds of 1875 growth is now ready; it comprises all the best sorts in cultivation. The quality is very fine, and the prices will compare favourably with those of other growers.

Seed Growing Establishment, Wisbech.

Vines, Vines, Vines.

B. S. WILLIAMS begs to announce that his stock of VINES is now in fine condition, and ready for sending out. It comprises all the leading kinds, strong Canes of Pearson's Golden Queen.

For prices and description see BULB CATALOGUE.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

GRAPE VINES.—A fine stock of Black Hamburgh and other popular sorts, including the new varieties—Venn's Black Muscat, Waltham Cross, and Duke of Buccleuch—in strong, well ripened Fruiting and Planting Canes. Prices on application to

FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

THE NEW PLANT AND BULB COMPANY beg to call attention to their unrivalled collection of LILIUMS, the present being a most suitable time for planting. Their Bulbs are this season remarkably fine.

For further particulars see CATALOGUE, sent free on application, which also contains Bulbs of all kinds, rare Terrestrial Orchids, and other plants from North America; Tropical Orchids, Tree and other Ferns, all at very low prices.

Lion Walk, Colchester.

Rhubarb Roots.

W. FROMOW, having lately taken some ground of a Market Gardener, has a large quantity of extra strong Roots of LINNÆUS to Dispose of, the ground being wanted for nursery stock. Excellent for forcing. Price to Trade and others on application. Low price for quantity.

Sutton Court Nursery, Turnham Green, W.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, have to offer to the Trade the finest varieties of PANSIES and VIOLAS in cultivation, at the following moderate prices:—

100 Finest Show Pansies, in 40 sorts, 25s. per 100.
100 Finest Fancy Pansies, in 30 sorts, 30s. per 100.
100 Violas, in 20 sorts .. .. .. 20s. per 100.

Selection left to us.

Larch, Limes, Mulberries, &c.

J. DYER has to offer to the Trade, for Cash, LARCH, 2 to 2½ and 2½ to 3 feet, very fine and clean grown; LIMES, 6 to 7 and 8 to 10 feet, with good heads; Standard MULBERRIES, all well rooted, with strong stems and well headed; also a quantity of GOOSEBERRIES and CURRANTS. Prices on application.

The Nurseries, Bridgwater.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS Florist Flower, and GIANT COWSLIP SEEDS also Plants of all the varieties, with Double PRIMROSES o different colours; AURICULAS, both Single and Double with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

General Nursery Stock.

WOOD AND INGRAM'S General Descriptive CATALOGUE of the above, including FRUIT TREES, Hardy CONIFEROUS and TAXACEOUS PLANTS, EVERGREENS, ORNAMENTAL TREES and SHRUBS, HARDY CLIMBERS, FOREST TREES, ROSES, &c., is now ready, and will be sent free on application.

The Nurseries, Huntingdon.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON, Whips Cross and Orford Road Nurseries, Wood Street, Walthamstowe, Essex, N.E., offer the above. Part of their Nurseries being required for building purposes, it must be cleared. Trains from Liverpool Street Station, Great Eastern Railway, to Wood Street Station, which adjoins their Whips Cross Nursery, down and up, every half hour.

LOUIS LEROY, NURSERYMAN, Angers, France.

FRUIT and ORNAMENTAL TREES and SHRUBS.—Roses, Camellias, Rhododendrons, Azaleas, Gardenias, Magnolias. Speciality for Nursery Stocks, Pear Seedlings, Quinces, Plum Seedlings, Mahaleb Cherries, Paradise, Doucin, and other Stocks. CATALOGUES sent on demand.

Fruits.—Roses.

A. M. C. JONGKINDT CONINCK'S Wholesale TRADE LIST of FRUITS and ROSES is now ready, free on application.

Large quantity of home-grown, very sound bulbs of LILIUM AURATUM.

Tottenham Nursuries, Dedemsvaart, near Zwolle, Netherlands.

To the Trade.

ROSES, ROSES, ROSES.—Standard Roses. large heads, strong Stocks, and well rooted, £5 per 100; Dwarf, on Manetti Stocks, very fine, 40s. per 100; all the best Show Varieties. CATALOGUES on application.

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

TO THE TRADE. *Carter's* TO THE TRADE.

LIST of VEGETABLE and FLORAL NOVELTIES FOR 1876,

Is now in the Press, and will be forwarded to their Trade Customers, on Monday, November 8.

237 & 238, HIGH HOLBORN, LONDON, W.C.

SWEET-SCENTED HYBRID RHODODENDRONS

RAISED BY

ISAAC DAVIES,

BROOK LANE NURSERY, ORMSKIRK.

RHODODENDRON COUNTESS OF DERBY.

This beautiful Hybrid is the result of a cross between the best variety of my R. multiflorum and R. Edgworthii, its habit of growth being intermediate between the two parents. The flower, which is of great substance, and measuring from 3 to 4 inches in diameter, is pure white, bell-shaped, and most deliciously fragrant; so free-blooming is the plant that the smallest cuttings bear a truss of flowers. The parent plant, and a number of smaller ones in flower, exhibited at the Manchester Botanical and Horticultural Society's Exhibition, held in the Town Hall, Manchester, on April 27, 1875, were awarded a First-class Certificate of Merit. Plants are now offered for the first time. Price, 21s., 42s. and 63s. each.

RHODODENDRON DUCHESS OF SUTHERLAND

Differs from R. Mrs. J. Shawe in being a more robust grower, the flower larger, pure white, with beautifully fringed margin.

Price of strong plants, 10s. 6d. and 21s. each.

RHODODENDRON COUNTESS OF SEFTON.

This was raised from the same parent as R. Countess of Derby, and possesses many of its good qualities, the plant being of a bushy compact habit, the flower fragrant, large, cup-shaped, white, with a band of rosy purple on each side of the corolla, which is beautifully fringed on the margin.

Price of nice plants, 7s. 6d., 10s. 6d., 21s. and 42s. each.

RHODODENDRON LADY SKELMERSDALE

Differs from the above in the flower being pure white and more trumpet-shaped, with beautiful even edge; the form is very handsome. Price, 7s. 6d., 10s. 6d., 21s. and 42s. each.

RHODODENDRON MRS. JAMES SHAWE.

A pure white cup-shaped flower of great substance. The plant is of a very bushy habit, bearing bloom in great profusion on the smallest plants.

Price, 7s. 6d., 10s. 6d., 21s. and 42s. each.

☞ I. D. can confidently recommend the above. They are the best he has raised of this class, and far superior to any yet sent out by other raisers, their bushy-growing and free-blooming habit, their handsome, sweet-scented flowers and their being so easily cultivated, make them invaluable for greenhouse decoration. Having been grown in cold frames during last winter without injury, it is very probable they will endure the winter in the open ground in favourable situations. These are certainly the finest Rhododendrons that have ever been offered to the public.—N.B. A full List of other Novelties raised by me post free on application.

THE CORINIUM GUINEA COLLECTION OF BULBS

WILL PLEASE EVERYBODY.

THESE COLLECTIONS, which gave so much satisfaction last season, are suitable for Outdoor, also Conservatory and Greenhouse. They contain great variety, and are the best and cheapest ever offered.

H. I., Market Harborough, says:—"The Bulbs from your firm have turned out very good.
W. P. B., Bridport, says:—"It gives me great pleasure to say the Collection of Bulbs you sent last year gave great satisfaction."

25 HYACINTHS, choice for borders.	200 CROCUS, assorted.
6 Ditto, choice for pots or water.	100 SNOWDROPS.
12 NARCISSUS, for pots.	50 ANEMONES.
12 Ditto, for borders.	4 IXIAS.
12 JONQUILS.	6 SCILLAS.
25 TULIPS, assorted.	6 TRITELEIA ODORATA.
25 RANUNCULUS.	50 WINTER ACONITES.

Carriage Paid to any Railway Station in England.

Jno. Jefferies & Sons,

SEED MERCHANTS AND NURSERYMEN, CIRENCESTER.

NEW, RARE, and CHOICE LILIES.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 9, at half-past 12 o'Clock precisely,

Many thousands of the Best and Choicest Known Lilies,

in good Flowering Bulbs, comprising some hundreds of the handsomest CALIFORNIAN LILIES, just received by express, overland, including a number of the rare L. purpureum, L. californicum, L. Washingtonianum, and L. Humboldtii. Also, a quantity of other CALIFORNIAM BULBS, such as Cyclobothras, Bloomerias, and Brodiæas; and a quantity of Bulbs of the rare and beautiful Lilium Krameri, L. callosum, L. tigrinum flore-pleno, L. Thunbergianum splendens, L. superbum, L. canadense, and some good Bulbs of the rare L. Wallichianum. Also, a great quantity of AMARYLLIS, and some magnificent extra-sized Bulbs of LILIUM AURATUM, with good Bulbs of the new and extremely handsome CRINUM ORNATUM RUBRO-VITTATUM—flowers white, striped with crimson, one of the most beautiful Crinums ever introduced.

In this Sale will be comprised a large quantity of a Lily, collected and sent from California as the new Lilium Bloomerianum Oscellatum, but the Bulbs are very unlike those imported last year of that variety; they are also unlike the bulbs of any of the other Californian Lilies with which we are acquainted, and therefore may prove a totally new kind. Also, some Bulbs of LILIUM TIGRINUM JUCUNDUM, a new Lily, which although belonging to the tigrinum section, has glabrous leaves and green stems, with an entire absence of bulbils in the leaf axils; flowers light cinnabar-red, marked in the lower half by black dots.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

WORCESTER PEARMAIN APPLE.

Awarded a First-class Certificate by the Royal Horticultural Society, October 6, 1875.

Fruit 2¾ inches wide, and same in height, conical; skin smooth, brilliant red, with minute fawn-coloured dots; flesh very tender, crisp, juicy, and sweet, with a very pleasant flavour, perhaps the most valuable of all for market. The tree is as productive as Lord Suffield Apple, and one of the handsomest fruits in cultivation. Ripe end of August, and will keep till Christmas.

Maiden Trees, 10s. 6d. each; Pyramid or Trained Trees, 21s. each. Coloured Plates, 6d. each.

RED HAWTHORNDEN APPLE.—Dr. Hogg describes this as large, oblate, and angular; skin smooth, greenish yellow, with a red blush next the sun; flesh white, tender and juicy, with a sprightly and agreeable acidity. A very early and valuable culinary Apple; ripe August and September. Maiden trees, *7s. 6d.* each; Pyramid or trained trees, *10s. 6d.*

YORKSHIRE BEAUTY APPLE.—Dr. Hogg, in his *Manual*, says this fruit is 3½ inches wide and 3 inches high, roundish, flattened, and angular; skin bright yellow, with a bright red blush on the sunny side; flesh tender and juicy, with an agreeable acidity. A first-rate culinary Apple for August and September, the great size and excellent quality ought to commend it as a good orchard fruit for the market. Maiden trees, *5s.* each; Pyramid or trained trees, *7s. 6d.*

NEW GOLDEN LABURNUM.—Unquestionably the finest hardy golden-leaved tree known, of immense value for park and garden scenery; it will take a foremost position among pictorial and garden trees; the foliage is a brighter golden-yellow than the flower of the ordinary Laburnum. First-class Certificate awarded by the Royal Horticultural Society, August 4, 1875. Price *10s. 6d.* each; Standard and extra strong trees, *21s.* Coloured plates, *6d.* each.

OTHERA JAPONICA.—A new and beautiful evergreen shrub. One of the most distinguished Japanese travellers says this is perhaps the prettiest evergreen they have in Japan; it grows about 20 feet high, has dark green leaves and a profusion of bright red fruit; it is very effective and perfectly hardy. Price *10s. 6d.* each; extra strong, *21s.*

CLIMBING ROSE, COUNTESS of OXFORD.—The old variety in all respects, except in being a free climber. *7s. 6d.* each.

FIFTY ACRES OF FRUIT TREES.

Standard and Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, very fine trees for walls.

Standard, Pyramid, Dwarf, Bush, and Cordon APPLES, PEARS, PLUMS, and CHERRIES.

ORCHARD HOUSE TREES, Established in Pots, for Immediate Fruiting.

PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, APPLES, FIGS, ORANGES, and MULBERRIES.

VINES, Planting Canes, 3*s.* 6*d.* to 5*s.* each; Extra Strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* each.

All the above of superior quality, perfect in form, roots, and health, and true to name.
See Descriptive Price List.

TWELVE ACRES OF ROSES,

Standards and Dwarfs, all the popular sorts; 80,000 choicest Tea-scented and Noisette Roses, in pots. Extra strong Hybrid Perpetual Roses, in pots for immediate forcing. Climbing Roses in great variety. *See Descriptive Price List.*

FOR SHRUBBERIES.

	Per 100.
LAUREL, Colchic, the best hardy variety	3 to 4 feet, 35*s.*
,, Portugal, very fine	1½ to 2 feet, 35*s.*
,, Portugal, very fine	2 to 2½ feet, 50*s.*
,, Caucasian, very fine	2 to 3 feet, 50*s.*
,, Round-leaved, extra fine	2 to 3 feet, 70*s.*
,, Six distinct and beautiful vars.	2 to 3 feet, 50*s.*
COTONEASTER SIMONSII, fine	3 to 4 feet, 35*s.*
PYRUS JAPONICA	2 to 3 feet, 50*s.*
EUONYMUS RADICANS VARIEGATA	1 foot, 40*s.*

	Per doz.
JUNIPER, Chinese	4 to 5 feet, 36*s.*
,, Chinese	5 to 6 feet, 42*s.*
OAK, Austrian Evergreen	2½ to 3 feet, 30*s.*
,, Austrian Evergreen	3 to 4 feet, 42*s.*
,, Ford's Evergreen	3 to 4 feet, 36*s.*

	Per 100.
IVY, strong, for climbing	3 to 4 feet, 40*s.*
VIRGINIAN CREEPER	3 to 4 feet, 40*s.*

	Per 100.
CISTUS LAURIFOLIA, in pots	1½ to 2 feet, 50*s.*
ARBUTUS (Strawberry tree)	1½ to 2 feet, 60*s.*
,, (Strawberry tree)	2 to 2½ feet, 75*s.*
CEPHALOTAXUS DRUPACEA	1½ foot, 60*s.*
TREE IVIES, full of flower	1 to 1½ foot, 75*s.*
LAURUSTINUS	1 to 1½ foot, 40*s.*
BROOMS, White and Yellow	2 to 3 feet, 30*s.*
YEW, English, bushy	1½ to 2 feet, 40*s.*
,, English, bushy	2 to 2½ feet, 60*s.*
,, English, bushy	2½ to 3 feet, 80*s.*
,, Golden, bushy	1 to 1½ foot, 90*s.*

	Per doz.
CRYPTOMERIA ELEGANS	2 to 2½ feet, 21*s.*
PICEA PINSAPO	2 to 2½ feet, 36*s.*
,, PINSAPO	2½ to 3 feet, 42*s.*
YUCCA GLORIOSA PENDULA	12 to 15 in., 12*s.*
,, GLORIOSA PENDULA	15 to 18 in., 18*s.*

	Per 100.
ROSES, Climbing, in variety	3 to 4 feet, 40*s.*
HONEYSUCKLES, in variety	3 to 4 feet, 40*s.*

JUNIPERUS CHINENSIS.—One of the hardiest and most ornamental Shrubs in cultivation, and especially valuable to the landscape gardener. In spring it is quite golden with its numerous flowers, which, when shaken with the wind, give off a cloud of yellow dust; and if the plant be kept closely pruned, the young growth becomes so luxuriant and leafy that it gives an entirely different, but equally pleasing effect in its silvery tinge and rigid outline. When left to its own growth it forms a noble green pillar, highly suitable to stand in pairs by a garden walk. Eight to 9 feet, 10*s.* each; £4 4*s.* per dozen.

PICEA PINSAPO.—A very handsome, densely branched tree. The branches are very thickly placed in whorls and spread horizontally, thus giving a singularly beautiful appearance. It is one of the most distinct and desirable trees for ornamental planting, especially for a lawn. Its perfect symmetry of form is so striking that it should have a place in every collection. Eight to 10 feet, 25*s.* each; £12 per dozen.

ABIES DOUGLASII.—This, the most noble of Evergreen Firs, is of rapid growth, hardy, produces valuable Timber, close, heavy, and free from knots, of the colour of Yew wood. It is a native of California, where it grows upwards of 300 feet high, with a trunk 10 feet through. The flagstaff at Kew is of this tree, and was, when growing, 309 feet high. There is at Dropmore (Bucks) a specimen measuring at the present time 100 feet high, and 90 feet through the branches, with a trunk 9 feet in circumference at 4 feet above the base. It was raised from seed sown by Mr. Frost, the present gardener, in 1828, and is now a model of beauty. 12 to 15 feet, 12*s. 6d.* each, £5 per doz.

THE SILVER CEDAR of MOUNT ATLAS.—Now is the time to plant this eminently beautiful tree, unsurpassed for majestic grace and picturesque grandeur even by the Cedar of Lebanon, which it much resembles; and many consider it a variety, but its leaf is more silvery, it grows twice as fast, and its timber is very valuable. Noble trees, 10 to 12 feet, 25*s.* each, £12 per dozen.

DECIDUOUS FLOWERING SHRUBS in 50 beautiful varieties, 30*s.* per 100.
AVENUE AND ORNAMENTAL TREES, many thousands in great variety. See Priced Lists.

STANDARD ORNAMENTAL TREES.

If less than Six of any kind are Ordered an increased Price will be charged.

	Per doz.—*s.*	*d.*
ACACIA, Decaisneana, pink	24	0
,, Bessoniana, crispa, hispida (Rose Acacia), monophylla, sophoræfolia, viscosa, weeping white	21	0
AILANTUS, glandulosa	18	0
,, glandulosa, extra strong	36	0
ALDER, cordata, incana, macrophylla, and quercifolia	12	0
ALMOND, fruit bearing	21	0
ASH, common, 10 to 12 feet, 60*s.* per 100	9	0
,, aucubæfolia, cucullatus, flowering	18	0
,, juglandifolia, monophylla, orange-barked	18	0
,, salicifolia, small twigged, spectabilis	18	0
,, Waterer's variegated	18	0
,, weeping, and gold-barked weeping	42	0
BEECH, purple-leaved, 8 to 10 feet	42	0
,, purple-leaved, 10 to 12 feet	60	0
,, crested-leaved, Chestnut-leaved, Fern-leaved	42	0
,, Oak-leaved, variegated	42	0
BIRCH, Fern-leaved, silver, weeping, 8 to 10 feet 300*s.* per 100	42	0
,, silver, weeping, 9 to 12 feet 90*s.* ,,	12	0
,, silver, weeping, 14 to 16 feet 125*s.* ,,	18	0
BIRD CHERRY, Virginian	12	0
BROOM, golden, yellow Spanish, white Portuguese	18	0
BROUSSONETTIA, papyrifera	48	0
CATALPA, syringæfolia, and Kæmpferi	42	0
CHERRY, double-blossomed	24	0
,, Mahaleb variegata	21	0
,, hortensis rosea, pendula, and latifolia pendula	30	0
CHESTNUT, Spanish	18	0
,, American, Fern-leaved and variegated	30	0
COLUTEA, red and yellow	12	0
CORNUS, mas variegata	21	0
COTONEASTER, Simonsii	21	0
CYTISUS, austriacus, elongatus, elongatus purpureus	24	0
,, nigricans, purpureus major, sessilifolius	24	0
,, stricta and Weldonii	24	0
ELM, Camperdown, weeping	42	0
,, campestris aurea variegata, Kaki (fine), montana pendula	36	0
,, elegantissima pendula 150*s.* per 100	24	0
,, English, 10 to 12 feet 100*s.* ,,	15	0
,, English, 14 to 16 feet 150*s.* ,,	21	0
,, Chichester, 10 to 12 feet 100*s.* ,,	15	0
,, Chichester, 14 to 16 feet 150*s.* ,,	21	0
,, Berardii, betulæfolia, emarginata, filicifolia	21	0
,, myrtifolia, monumentalis, purpurea	21	0
,, pyramidalis, Dampieri, plumosa, silver var.	21	0
,, suberosa microphylla, suberosa pendula	21	0
,, viminalis pendula, viminalis fol. variegatis, Webbiana, Wheatleyi	21	0
GENISTA, anxantica, præcox, and purgans	30	0
GUELDER ROSE	21	0
HORNBEAM, cut-leaved and weeping	24	0
HORSE CHESTNUT, scarlet, 7 to 8 feet	24	0
,, ,, scarlet, 10 to 12 feet	36	0
,, ,, scarlet, extra strong stems	60	0
,, ,, white, 9 to 10 feet	18	0
,, ,, discolor, double white, double red	30	0
,, ,, macrostachya, Memmingerii, ohioensis, rubicunda nana, variegated and yellow	30	0
JUDAS TREE, purple and white	42	0
KOLREUTERIA, paniculata, 5 to 6 feet	30	0
LABURNUM, Alkengerii, English, Scotch, purple, quercifolia	18	0
,, weeping	30	0
LARCH FIR, 8 to 10 feet	9	0
,, ,, 10 to 12 feet	12	0
,, weeping (true)	42	0
,, microcarpa and japonica	18	0
LILAC, Charles X., Persian red and white, Siberian and white	30	0
LIME, red twigged, 9 to 10 feet 140*s.* per 100	18	0
,, red twigged, 10 to 11 feet 175*s.* ,,	24	0
,, red twigged, 11 to 12 feet 200*s.* ,,	30	0
,, red twigged, 12 to 14 feet 250*s.* ,,	36	0
,, red twigged, extra strong stems 42*s.* to	60	0
,, weeping	42	0
,, latifolia alba, Beaumontea (weeping)	30	0
,, dasystyla, yellow-twigged, Fern-leaved and vitifolia	30	0
MAGNOLIA, acuminata, 5 to 6 feet	42	0
MAPLE, campestre punctata	42	0
,, colchicum rubrum	30	0
,, negundo, 5 to 6 feet 40*s.* per 100	6	0
,, ,, 8 to 10 feet 60*s.* ,,	10	0
,, ,, variegata, 5 to 6 feet stems 125*s.* ,,	18	0
,, ,, ,, 7 to 8 feet stems 175*s.* ,,	24	0
,, campestre, laciniatum, pennsylvanicum rubrum	18	0
,, rubrum, striatum, tataricum rubrum, virginicum rubrum	18	0
MOUNTAIN ASH, 9 to 10 feet 70*s.* per 100	10	0
,, ,, large-berried and yellow-berried	18	0
,, ,, weeping and variegated weeping	36	0
OAK, scarlet	30	0
,, Turkey	24	0
,, weeping	42	0
PEACH, double-blossomed	30	0
PEAR, weeping	30	0
POPLAR, grandidentata pendula	30	0
,, Black Italian, Lombardy, Ontario, and silver-leaved 84*s.* per 100	12	0
,, ,, ,, ,, extra strong 100*s.* ,,	18	0
PRIVET, golden variegated weeping, longifolium and weeping	30	0
PYRUS, Aria (White Beam), hybrida, tomentosa pendula	18	0
,, Malus floribunda, spectabilis	18	0
,, albo-plena, imperialis, Kaido, Riversii	18	0
,, spectabilis, Tenorei, carnea nervosa, Fontainebleau	18	0
SIBERIAN CRAB, scarlet and yellow-fruited	18	0
SNOWY MESPILUS, botryapium, florida, grandiflora, ovalis	18	0
SUMACH, typhina (Stag's-horn)	18	0
SYCAMORE, 10 to 12 feet 75*s.* per 100	12	0
,, extra strong 18*s.* to	30	0
,, purple-leaved and variegated	24	0
THORN, Paul's double crimson, double pink, 150*s.* p. 100	21	0
,, double white, single scarlet, and in great variety to name	21	0
TULIP TREES	42	0
WILLOW, caprea tricolor, Kilmarnock, weeping	30	0
,, Wolseyana, weeping	30	0
,, American weeping, Babylonian weeping	24	0
,, Solomon weeping, and Vitellini	24	0
,, extra strong, weeping 30*s.* to	60	0

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VEGETABLE SEEDS.

VEITCH'S SELF-PROTECTING AUTUMN BROCCOLI.

JAMES VEITCH & SONS have much pleasure in directing attention to this very valuable Broccoli for autumn and early winter use. The plant is of robust but upright growth, and the heads, which are beautifully white, firm, and compact, are thoroughly protected by the foliage, and remain a long time fit for use. It will be found extremely valuable as a succession to our Autumn Giant Cauliflower, which has met with so much approval, and is now an established favourite in all gardens.

Mr. WESTCOTT, Gardener, Raby Castle, writing November 11, says: "I am now commencing to cut some splendid heads of the new Broccoli you sent me for trial. It is evidently a variety distinct from any one I am acquainted with, and from its splendid protecting habit, short and immensely hard woody stem, I am under the impression it will withstand uninjured many degrees of frost, which will insure it to be a great acquisition as an early winter variety. The plants are of immense strength, and the heads, both in sixe, texture, and colour, all that can be desired."

In sending us some specimens of this Broccoli in the middle of January Mr. Westcott says: "I think they will be found marvellous specimens of self-preservation, having withstood six weeks of most severe weather, frequently having had 29° of frost; so that I think you will admit all I have said of it has fully been borne out."

Mr. PERKINS, Gardener to Lord Heniker, Thornhall Hall, says: "It comes in just as the Autumn Giant and other Cauliflowers are going out, and is, therefere, most invaluable. It is quite distinct, and also wonderfully self-protecting; some rows of it at this place withstood 13° of frost last night—November 23, 1874. Wherever a long succession of Cauliflower is required this must be the one for late use."

Extract from *Journal of Horticulture*, November 26, 1874:—"We have had brought to our notice one of the most perfect self-protecting Broccolis it has ever been our fortune to meet with. So thoroughly self-protecting is it that the beautiful white head is hidden as completely in a mass of foliage as the proverbial needle was in a bundle of hay. One has literally to hunt for the head, and when it is found it is the model of what a head of Broccoli ought to be—even and solid, of perfect colour, and not more than 4 to 5 inches in diameter—just such an object as families of refinement would like to see on their table. We hope that Messrs. Veitch will, in other vegetables, as they have in this, take the lead in the introduction of a class which shall serve more as an ornament to a gentleman's table than many of the novelties which have been offered to the public of late years."

Price 2s. 6d. per Packet.

PREMIER RUNNER BEAN.

A very distinct Runner Bean, growing from 4½ to 5 feet high, and producing continuously a large number of pods, in appearance like those of a dwarf French Bean; very tender, and invaluable for table purposes.

We extract the following description of this variety from the *Garden*, of March 14, 1874, p. 230:—"Premier is really a Runner form of the dwarf French Bean, and, when grown with a large number of other kinds at Chiswick, it was considered sufficiently meritorious to receive a First-class Certificate, and since then, in its peculiar form, it has not been excelled. The plant grows to a height of about 5 feet, and does best on ordinary Pea sticks. It commences to crop close to the ground, and continues to bear heavily until the winter. The green pods are very tender and delicious when cooked, and it is altogether a really useful garden Vegetable."

Price 2s. 6d. per Quart.

CUCUMBER, TENDER AND TRUE.

This splendid new Cucumber is a seedling from Telegraph and Blue Gown, combining the good qualities of both these fine kinds. It is very symmetrical in shape, with scarcely any neck, and grows to a length of about 24 to 30 inches. The colour is of a beautiful deep green shade, and the flavour is excellent. It is a free-bearing variety of very strong constitution, and is equally suitable both for winter and summer use. It received a First-class Certificate from the Royal Horticultural Society on May 3, 1871, and was awarded First Prize at each of the Spring Shows for the past three seasons. It also gained First honours at Birmingham on July 7, 1874, in competition with twenty-one other kinds.

Price 2s. 6d. per Packet.

CULVERWELL'S PROLIFIC MARROW PEA.

This remarkably fine late Pea is of strong and robust growth, from 5 to 6 feet in height. It bears pods from within a short distance of the ground to the top of the haulm, and thus the crop lasts a long while. The pods are straight, pale green, and contain from five to six exceedingly large Peas of excellent quality.

We have letters from Mr. WESTCOTT, Raby Castle, Darlington, and Mr. SAUL, Stourton Park, Knaresborough (to whom it was sent for trial), speaking of its wonderful quality. The former says:—"There is not the slightest doubt in my mind of its being the greatest acquisition among Peas that we have had for many years past, and truly deserving the term 'new and distinct,' the flavour quite equalling, and, if possible, surpassing the world-wide famed variety, Veitch's Perfection." Mr. SAUL speaks of it as follows:—"It is a most deliciously flavoured Pea, and its great merits, when known, must soon cause it to become a standard variety of the very first-class.

Price 2s. 6d. per Quart.

CAULIFLOWER, VEITCH'S AUTUMN GIANT.

This extremely valuable variety is perfectly distinct from any other sort. The heads are magnificent, beautifully white, large, firm, and compact, and being thoroughly protected by the foliage, remain longer fit for use than any other kind.

Price 1s. 6d. per Packet.

EASTNOR CASTLE GREEN-FLESH MELON.

This splendid Melon, a hybrid between Beechwood and Victory of Bath, was raised by Mr. Coleman, Eastnor Castle, Ledbury. It has been exhibited at several of the principal shows during the past season, and has been universally admired. It takes its netting, colour, and depth of flesh from Beechwood, and ripens off pale yellow. It is a free grower, free setter, and bears a profusion of fruit, generally averaging about 3 or 4 lb. in weight. When exhibited at the Royal Botanic Society, where it gained the First Prize on June 24, 1874, it was acknowledged to be the deepest green-fleshed and best flavoured Melon ever shown.

Price 1s. 6d. per Packet.

MELON, READ'S SCARLET-FLESH.

A beautifully netted variety, very solid, and of medium size. The flesh is scarlet, melting, and of most delicious flavour. It received a First-class Certificate from the Royal Horticultural Society. It also gained First, Second, and Third Prizes at Birmingham, July 7 to 10, 1874.

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RICINUS GIBSONII.

A very fine dark-leaved variety of this useful group of sub-tropical plants. It grows from 4 to 5 feet high, has a fine branching habit, and particularly distinguishes itself from every other variety by the intense deep red colour of its foliage, reminding one of some of the dark-leaved varieties of Amaranthus, which are so much grown for the purpose of giving colouring and effect to groups and masses. It will undoubtedly take a high position in the sub-tropical garden on account of its bright hue, which is retained during the whole of the season. It is in every way so distinct and fine a kind that we have considered it worthy of being named after Mr. Gibson, late of Hyde Park, who has done so much for the advancement of sub-tropical gardening in this country. It was imported by us from the Philippine Islands.

1s. per packet.

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These beautiful plants are well worthy of cultivation for the decoration of the conservatory during the autumn months. They are of pyramidal habit, branching, and about 2½ to 3½ feet in height. Some of the varieties are beautifully feathered from top to bottom, others tasselled, and others again have small combs at the tip of each branch. They vary considerably in colour, and there will be found among them pinks of various shades: scarlet and crimson, yellow-orange and orange-scarlet, and many others. We have for many years selected with great care the most beautiful varieties, and we believe the strain cannot be surpassed for beauty of form and colour.

Price, 1s. per packet.

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January 28.—"I am very pleased to say the Hyacinths are blooming very well indeed, in fact, the best we ever had."

From the Rev. C. J. SALE, *Holt Rectory, Worcester.*

October 12.—The Hyacinths you sent me last autumn were very much admired. I never had a finer bed."

From F. R. BARKWAY, Esq., *Grove House, Lavenham.*

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SATURDAY, NOVEMBER 6, 1875.

LANDSCAPE GARDENING IN DEVONSHIRE.

HAVING been born in the very prettiest part of quite the prettiest of counties, a ramble lately in Devonshire occasioned a momentary pang, by creating an unpleasant doubt as to the superiority of Surrey. I had been an emigrant some years in Essex. Ugh! how ugly is a fertile flat, how inconvenient the ague! I had been a visitant in most counties, but had never seen Devonshire, and now, having done so, it seems to me to be desirable to see Surrey again to ascertain if it be not incomparable. Above all I must revisit that picturesque land of little hills and corresponding dells and vales, between Dorking and Guildford, and especially "St. Martha's Hill," where you can perch and pic-nic, if you please, upon a mound from which you will see Surrey. There is a bewitching influence attaching to birthplaces which leads swallows back to their chimneys, and men to their villages. Not very far from St. Martha's Hill the earth was laid lately on the head of a stranger who had returned to his birthplace in his coffin, forgotten, but unable to forget while memory held. But in spite of this common love of our early home, many of us perhaps who had the misfortune to be born, even near St. Martha's Hill, a little too long ago, would have no objection to being reproduced in Devonshire, say at Buckfastleigh, under the embowered hill on which the church stands, a beacon for miles, while the Dart glides below among the trees.

The peculiar beauties of Devonshire are as widely spread around this hill and church as those of Surrey are around St. Martha's Chapel, and the same effective agents—fire and water—were employed by Nature in shaping the surface of the two districts. It may be usually observed that when fire has taken a preliminary share in the landscape gardening of a country, the result is striking, as in the Highlands or around Dolgelly, where Cader Idris wears a Plutonic crown, and many of the mountains are capped with intrusive trap and serpentine. The tricks of any mortal professing the landscape gardening art are not to be compared to those of fire, which has thrown up the edges of Dartmoor in a disorder so picturesque that all must admire it, though agriculturists would prefer the country flat for the sake of the farming. It was the molten granite of Dartmoor that thrust up the strip of limestone which surrounds it, and which enriches the corn land and pasturage of Drewsteignton, and, in fact, of every parish that lies thereon. Asking at Exeter as to the most delectable districts in the land of cream and junket, the places which were particularly recommended were Oakhampton, Chagford, Moreton Hampstead, and Ashburton; and I observed that all these places are marked, in my geological map, upon the blue strip of limestone ouside the patch of pink which represents the granite of Dartmoor. Beauty in landscapes is often moored to granite, or anchored in its immediate neighbourhood, as it is here. It is here, too, that the prettiest lanes are found. There is one winding up the hill to the church at Buckfastleigh, a path through a pasture, over a stone stile of many tons and between banks of earth and stone, with Hazel hedge above and a fernery below, with glimpses of orchards to remind you that this parish only yields the palm for cider to the celebrated Staverton, a few miles lower down the Dart. Limestone, the best of rocks for grass, is not a bad one for Apples, which find here convenient nooks for shelter, and proper depth and drainage. The church on the hill stands in the eye of a fair portion of the country. Dartmoor bounds the view on the north with its highest hills, which are generally on its outskirts, enclosing a heathy, boggy, barren waste, which is generally bare and not unlike a rolling sea turned to stone, like the giant on Mount Atlas, and carpeted with vegetation to the tops of those brown heaving billows of granite crested with tors.

The resemblance to the deep furrows of a troubled ocean can easily enough be imagined in the valleys of Dartmoor, which run irregularly, but tend southward to the gap by which the Dart escapes from the hills and enters the woods of Buckland. This rugged forest, devoid of timber, forms a capital foil to the smoother beauties of the surrounding country, where the towns just named—built of limestone and granite—shine white in their respective hollows, with hills at back and front and others outside. The most distinctive features of this landscape were formed by fire and water, and, perhaps, when the sexton, working several hundred feet above the river at Buckfastleigh, leans, meditating, upon the side of one of those shapely pits of his, he listens to the noisy Dart, sometimes called the darting Dart, and ponders on its share in creating the surrounding landscape. In Surrey the work of water—*i.e.*, of the Wealden Lake—consisted in washing the faces of the little hills during their upheaval. Around Dartmoor the streams and rivulets performed the primary work of scoring the country with deep channels, which, by the way, could hardly have been begun and finished by rivers of the size that now run therein. Water often runs or rests in the depressions formed by the force of subterranean fire. Elevation of surface on an extensive scale is supposed to have formed the cavities occupied now by several seas and a string of lakes in Northern Europe.

The after-effects of water are annually renewed, and were seen to advantage last August in a landscape of exceptional green, from exceptional showers. Speaking of water as an agent in finishing a landscape, it was the river and rich pastures at Buckfastleigh which drew to its side the great Cistercian abbey that inspired a picture of Turner's. The river, too, drives the machinery of a large factory that enlivens a lonely spot, and if it did not rend those limestone cliffs above its opposite banks, it gave them foliage, draped the steep hanger higher up the stream, painted the meadows on its margin, and the foliage of hedge and tree, and covered limestone walls with an overgrowth of Ferns. Nature is not often penurious in this country in regard to the expenditure of water. In the West of England she has been particularly liberal, and in the parish of Buckfastleigh there is often rain, and always a river, and hence there are pastures mixed with cornfields and dotted with red cattle, running up the pleasant slopes and along the valley to Ashburton. The river is seen to advantage from the church. There it is winding down from Dartmoor, and swaying from side to side among the Buckland Woods, and away to the south and the sea, through as sweet a country as the eye can anywhere delight in.

All this district is celebrated for Ferns. Perhaps Ashburton is head-quarters for them. In alliance with Hazel and other common plants they hide the materials of the field fences, convert a stonewall country (the fences being of stones and earth) into a green country, and do not disdain cottages or pig-styes. I observed a wall at Ashburton literally green with Asplenium Trichomanes. Next to Ferns perhaps green

hills are the most abundant objects. We know how they came about, and how the land has been tumbled up and toppled over by the irresistible agent below; but in spite of one's information one often wonders upon the declivities, whether it was really for the sake of the picturesque that the hills should so often and so suddenly slope the other way, and why new hills should have been commenced instead of the old ones having been continued. And then again, why do the lanes wind and sidle up and down, high and low, curved and crooked and always several feet beneath the general level of the land, each being based upon a Fernery and over-arched with Hazel? As I have so often said and shall never forget, here are reasons for the pecularity of the lanes, which bring me to another branch of this essay.

Having touched on fire and water it remains to be said that an equally unconscious landscape gardener, a busybody of some few hundred years' standing in Devonshire, has been very much occupied upon the surface, and is solely responsible for the making of lanes. The work was performed, no doubt, for purposes that were obvious at the time when it was effected, but it is impossible now to comprehend all the turnings, twistings, and contortions, always accompanied by Hazels and nutting in the season, of the very numerous lanes. Their great depth of from 20 to 30 feet sometimes on the sides of hills may be attributed to the washing of water, which has gradually carried the materials of soft roads or lanes down the slope to lower levels; but the rest is a mystery. There is no reason to suppose that our predecessors were more romantic in their ideas, or naturally more queer than ourselves. They knew the way out of a wood as well as we do, and yet we have those wonderful and quite inexplicable lanes about Ashburton and other places. The Hazels and incessant windings, and consequent obscurity opening into partial view as you pass along, are quite a puzzle. If the object of these hedge-nut passages and Hazel routes had been to secure access from farm to farm and from village to town, and carriage to and fro of Strawberries and cream, and Green Gage Plums for tarts, and other agricultural products, there would still appear to have been no sufficient reason why their construction should not have been straighter in some cases. There is no disputing their picturesque appearance at the present time. Formed as they were, no doubt, by spades and pickaxes, they must have been as ugly when new as fresh earthworks always are; but Time mellows raw landscapes as it also does new wine, and whatever the lanes might once have been, we now have them in full perfection, but we have no adequate explanation of their number and direction. As riddles they remain unanswered; as lanes they would be grubbed up and removed if farmers could work their will.

Devonshire bears witness to the perfect landscape gardening of Nature, aided by the enchanter, Time, and, with the opportunity of working bit by bit without the necessity of hiding blemishes immediately. She should, however, be imitated with caution. The proprietor who permits a natural growth before his windows, or cuts off his pleasant prospects with a plantation, is in error, and equally so when he makes "Nature" responsible for hedges and plantations which Nature never planted, and which might be made much more ornamental.

Nature is a bugbear with some timid persons, who are dominated by false ideas, forgetting that in some of her forms she is very properly excluded from drawing-rooms, and that in the form of a weed she ought not to be allowed in the parterre. And if she takes the form of Brambles and a "natural growth" of Hemlock, or other unseemly plant, in a park, "Nature" should be banished and Art should be introduced to improve upon her proceedings. The same rule holds in plantations, and, in fact, in every part of that small patch of country round a man's dwelling, which may be lost in a wider landscape, but may soon be found unsightly within itself, unless "Nature," already fenced by park paling, be replaced with taste and skill. A wide prospect is not marred by a railway, a mere thread drawn across it, but its intrusion would be awkward in a pleasure ground. It is the same with many an uncouth copse or hedgerow, which is allowed to stand too near an elegant home on a false plea of imitating "Nature." All is harmony among the hills around Dartmoor, and, not to read a long lecture here, all should be made fitting and harmonious in smaller domains by Art. *H. Evershed.*

New Garden Plants.

MASDEVALLIA MELANOXANTHA, *Rchb. f.**

This is a rare species, which I have not seen for several years. It is a discovery of Louis Schlim, Director Linden's most assiduous half-brother, who favoured me a short time before his death with invaluable documents about the products of his most astonishing activity. He found it at Ocaña. Later it was gathered at the same place by M. Herrman Wagener. If I remember well, Director Linden's living plants came from both those excellent travellers, this species having been one of the first Masdevallias which flowered in Europe. Consul Schiller possessed a large mass obtained from M. Linden. Lately I received from Mr. Bull a flower gathered once more at Ocaña by my most energetic countryman [we regret to add—the late], M. Bruchmüller. Finally, and most probably from M. Bruchmüller's sales, arranged by Mr. Bull, the plant has flowered once more in Europe. I have just been favoured with a flower by Mr. H. E. Canty, 44, Catherine Street, Liverpool.

The wild plant has leaves upwards of 1 foot high, much attenuated at their base, then widened, ligulate, bilobed at their point. The peduncle is nearly equal to the leaves, ancipitous, well winged on one side, sharp on the other. Whether it occurs also partly trigonous, as is the case in M. ephippium, Rchb. f. (Trochilus, Linden), I cannot say. It does not seem to among my rich materials. There are finally several —five to seven—involute bracts, no doubt developing one after the other, as is the case in M. tovarensis (candida), M. nycterina and numerous other species. The flowers reach the length of an English inch, or even surpass it in their native place. They are most remarkably two-lipped. The yellow tube is very short, rather prismatic, with a very small chin. The superior lip is linear acuminate, yellowish inside, whitish greenish outside, usually erect, and is greatly varied, now being very narrow, now rather broad. The inferior lip is much broader, usually a little shorter, bifid in two triangular acuminate laminæ at its anterior third, and covered with an immense quantity of small acute brownish dark warts on its inner surface, which appear even to be more abundant on the six nerves. The outer surface is pallid whitish green, without any rough surface, which, however, is also, though much less, to be seen on the inside of the superior sepal. If it would not be regarded disrespectful, when speaking of a Masdevallia, I would rather like to compare the inferior sepal to a jack. The flower-stalks used to stand very long in the plants observed by me. There are varieties some of a more reddish, and others of a blackish colour inside the inferior sepals, the latter of course much preferable. Though the plant is not a remarkable beauty, it may, however, be regarded as one of the better Masdevallias of second-class beauty. It is far too big to have any claim to enter amidst "the gems" which form a peculiar tribe for the amateur. This saving expression, used in good time, very often makes valuable a tiny little thing. But let us not lift too high the veil of trade politics. *H. G. Rchb. f.*

* *Masdevallia melanoxantha*, Rchb. f. — Nulli propius affinis; pedunculo ancipiti pedali; apice tandem plurifloro; bracteis vaginantibus triangulis acutis appressis; floribus heterochronicis; tubo brevissimo, mento angulato parvulo; sepalo superiori lineari triangulo acuto arrecto intus plus minus scabrulo; sepalo inferiori latiusculo, antice bifido laciniis triangulis, tota superficie interna aspero muriculata; tepalis ligulatis apiculatis, supra basin anticam obtuse semihastatis; labelli portione postica cordata lineari, duobus lobulis impositis in portione antica ovali acuta antice papulosa.—Folia a basi cuneata oblongo-spatulata, apice obtuse acuta. Perigonii hiantis subcarnosi extus viridiflavi labium superius intus flavum, imo aureum inferius atrobrunneum seu rufobrunneum. — *Masdevallia melanoxantha*, Rchb. f., Bonplandia, ii., 283; Walp. Annal. vi. 190.—In Nova Granata juxta Ocaflam.

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THE RESIDENCE OF G. B. CRAWLEY, ESQ.

THIS place is situated in a beautiful part of Sutherland, on the southern slope of Tressady Hill, and about 2 miles from Rogart Station on the Highland Railway.

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"A land of brown heath and shaggy wood,
A land of mountain and of flood."

The hill, from the mansion house upwards, is tolerably well wooded nearly to the summit, while the undergrowth is principally Heather; beyond this, in a north and north-westerly direction, are immense tracts of deer forests. To the south-east is a high, rocky, wooded hill, named Dalmore Rock. Under our feet, looking south, is a pretty valley, studded with old-fashioned Highland cottages, each about the centre of a small patch of cultivated ground, and each also invariably accompanied by a stack of peats cut from the moors and stored up for fuel.

The rising ground on the opposite side of the valley is named Tarral Side—a tract of moorland, with a few huts and cottages in the foreground. Looking westward the pretty valley under our feet merges into a series of Heather-clad hills, on the other side of which, by Loch Shin, the Duke of Sutherland is carrying on his reclamation of land by steam machinery. Up to about eighteen months ago, when Mr. Crawley determined to have Tressady remodelled, the only flower gardening attempted was a few annuals in a border round the basement of the house; and, with the exception of some plantations to the south-east by the carriage drive from Rogart, the surroundings were wood and rough moorland. A considerable addition has been built to the mansion, while the laying-out of the grounds and flower garden was entrusted to Mr. Downie, of the firm of Downie & Laird, Edinburgh—a gentleman well known to most of your readers, and, judging from the transformation he has effected at Tressady, an excellent landscape gardener.

In the course of excavating for the new buildings a great quantity of soil had to be removed; this has been well utilised in the formation of broad walks and terraced slopes on the south and west side of the mansion, whereby greater breadth is obtained. Passing round to the north of the house and ascending a flight of granite steps we come to the flower garden, which is in shape a parallelogram and has partly the appearance of a sunk panel, as on the east and partly on the north side, where the ground had to be moved to a considerable depth, the sides are formed by a terraced slope. On the west side a border is carried the whole length of the garden, and is backed with shrubs so arranged as to form a background and a break between the garden and the rougher wooded ground beyond. In front of the shrubs a quantity of choice Roses has been planted, and were, at the time of my visit, in splendid bloom. Showy herbaceous plants, such as Phloxes, Pentstemons, &c., are grown among the Roses, while the front is ribboned with several lines of bedding plants. A line of a white Viola, named White Perfection, was a grand mass of bloom, and, if it can be depended upon to bloom well late into the autumn, this Viola will prove a valuable acquisition to our hardy bedding Violas.

The groundwork of the flower garden being cool green turf the flowers are seen to the best advantage. The beds are cut out principally of irregular shapes, but with easy curves, which effectually do away with any appearance of stiffness or formality. Some of the large beds have been partly planted with masses of choice evergreens, and brightened up round the edge with flowering plants, while the smaller beds are filled with Pelargoniums, Calceolarias, and the usual variety of bedding plants, the whole forming a charming picture. The introduction of a few masses of choice evergreens in the larger beds has an excellent effect in keeping the garden in tone with the surroundings.

During the progress of the alterations a quantity of old trees had to be cut down; the old gnarled roots of these have been preserved and arranged in a semicircular form at the north-west corner of the garden, forming a rootery—hardy Ferns and various creeping plants being planted in the interstices. The upper end of the flower garden, from the rootery eastward, is nicely merged into the wood by a series of rockeries. Some large pieces of the natural rock jutting out at various points here have been skilfuly taken advantage of, and in some places supplemented by many tons of large boulders and lichen-covered stones found in the vicinity. Quantities of hardy Ferns, rock and trailing plants have been planted in the crevices. Several sideways and footpaths wind through among the rocks and boulders, giving access to the plants; while a central walk leads us through into the wooded

heights beyond. Walks are to be continued, and are staked out from this point up round the west side of the hill towards the summit, seats being placed at points where striking views of the surrounding country are obtained. Alterations are still going on to the east of the flower garden—the ground being cleared and sown down into lawn to give increased breadth to the dressed grounds, and to make way for some clumps and belts of Rhododendrons and other evergreens, to shut out the stables and outbuildings without interfering with the view of the rugged hill-tops beyond. South of the stables and offices the necessary glass has been put up, principally for growing plants for house decoration, Cucumbers, &c., and for wintering bedding plants.

Mr. Crawley has evidently a genuine love of gardening, and he has persevered with the beautifying of Tressady amid considerable obstacles, owing to the rocky irregular nature of the ground. While agricultural improvements and land reclamations are being carried on with vigour in Sutherland, it is gratifying to be able to chronicle something in the way of horticultural reclamation. Let us hope Mr. Crawley's example will be contagious. *M.*

ORANGES AND CITRONS.

THERE are no plants more interesting at this time of the year than the Orange and Citron family, and it is to be regretted that collections of them in large gardens are not more common than they are. There is an erroneous impression that the Orange, Citron, Lime, and Lemon are slow-growing plants, while, on the contrary, they are fast-growing when given liberal treatment. The Lime, for instance, will make growths 2 or 3 feet long or more in a season, when planted in a good free loam. Walls might be covered in a short space of time by planting young healthy trees in good soil, giving plenty of water during the spring and summer, and keeping the trees thoroughly clean; and cleanliness can at no time be better secured than at the present moment, when time is not so valuable as earlier in the season. We find wretched starved trees so very frequently in gardens that one can only fancy that their culture is but indifferently understood; or else the plants, naturally standing any amount of harsh treatment, are not easily killed, and are stowed aside to give place for more tender plants. Like Camellias, it takes a year or two's bad treatment to undermine their constitution, but it takes a longer time to get them back to healthy vigour again, if ever they were in that condition. Those contemplating planting a set of the Citron family against walls, in vineries, or elsewhere, will find no better opportunity for doing it than the present. They are, moreover, easily transplanted from nursery to garden, bearing, as they will, a coldish journey without flinching. Vines are often planted against vinery walls, whereas more satisfaction would be derived from a collection of Oranges, &c., even for the sake of ornament; for what can we see more handsome than a well covered wall of Limes and Oranges laden with their handsome leaves and fruit, and in spring covered with their delicious flowers? One flower of the Lime and Shaddock in spring is about as delicious as a Tuberose is at this time. All the Citrus family thrive best in a heavyish loam, made free with plenty of river sand. It is far preferable to give manure-water than to put rotten dung in the soil. One has such an abhorrence to fungi in soils that even with dung it may be introduced, and it is much the best way to give stimulants in a clear liquid form. Young grafted unstopped plants should be chosen in preference to those headed over for walls—those partaking of the espalier shape, or those that will easily acquire that shape. Walls wired in the ordinary manner, as for Peaches or any other tree, a foot apart or so, will answer. Limes and Shaddocks should have more room allowed them than some of the smaller Oranges, 12 feet square of wall is not too much for them. It is best to plant the Orange alternate with the other stronger family, and train the shoots horizontally along the wires after they have made a year or two's growth. The border in which they are planted should be well drained, and not less than 2 feet deep and 4 feet wide. In any garden where there is any pretension at vineries there should be collections of the Citrus; if span-roofed, pot plants of the dwarf kinds are very pretty, ranged up and down the sides, each stood on a couple of bricks. The same cool treatment as for Vines also suits the Orange at this season, and when the early vinery is started they can be put there, and transferred to the others as they are started in spring, so that the growth of one and the growth of the other is carried on simultaneously. In cool, dry conservatories—that is to say, conservatories that are kept strictly for flowering plants—we frequently find Oranges, &c., in a very so-and-so condition, owing to the dry state of the atmosphere in the growing season, which is a lesson that quite the opposite is the treatment most needful to this handsome family of evergreens. *K.*

BRITISH GARDENERS.—XXIX.

CHARLES EDMONDS.

THE subject of our present memoir and illustration, Mr. Charles Edmonds, has for a long period occupied a prominent position amongst the horticulturists of the metropolis, having for thirty-seven years had charge of the gardens at Chiswick, formerly as gardener to the late Duke of Devonshire, to whom horticulture and horticulturists owe so much, and latterly to H.R.H. the Prince of Wales, by whom Chiswick House is now held. Mr. Edmonds was born on December 7, 1811, at North Aston, a little village in Oxfordshire, and at the age of thirteen entered, as house-serving boy, the garden of the Earl of Clonmell in the same village. There were three men kept in the garden, and here Mr. Edmonds remained for three years, when, to make room for another lad, he was put to work with the men, and soon became promoted to the post of foreman.

"I left this situation," writes Mr. Edmonds, "in 1830, to try my fortune in the neighbourhood of London, when, through the intercession of a friend, I got employment in these gardens. For one year I worked in the pleasure grounds with the ordinary men, the two following years I spent in the glasshouses, and I was afterwards made foreman of the kitchen garden. At that time, although there was nothing remarkable done here in the way of gardening, the range of glasshouses was extensive of its kind, and was devoted to all the usual objects of indoor culture. The whole, however, has long since been converted into one great plant-house or conservatory, with a small division at one end for stove plants.

"Somehow its proximity to the Horticultural Gardens, and the great reputation of the late Duke of Devonshire as a patron of horticulture, rendered this place, as it then was, a much frequented school of gardening; and Fish, Lumsden, Ford, Dick, Duncan, Cameron, Wilson, and many others whose names have since become familiar in the horticultural world, were among my contemporaries there.

"In 1835 I was fortunate enough to be taken on at Chatsworth under Mr. Paxton, who has since made himself so well known to the world as Sir Joseph Paxton. There I continued about three years, and took the management of the plants, more especially the Orchids, which afterwards became such a fine collection. In 1836, under the direction of my eminent master, Mr. Paxton, of whose great geniality and ability I shall always retain the pleasantest and most appreciative recollections, I arranged the great Arboretum which was then formed, and superintended the planting of each specimen. I afterwards prepared in clear white letters on black labels an epitome of the history of each plant, with its scientific and English name, native place and year of introduction, and placed one of these in the front of each; and, as the natural arrangement of classification and grouping was followed, large labels indicating the various classes, orders, and genera, were so placed by the sides of the principal walk that any one, in passing along, could easily see when he had arrived at each special family. It is a little strange that more has not since been heard of this somewhat extraordinary collection, for it comprised all the known species and varieties of hardy trees and shrubs that could then be procured; Messrs. Loddiges of Hackney, who then cultivated this class of plants so extensively, being the principal purveyors. The work of forming the Arboretum brought me into frequent contact with His Grace, who always, in the absence of Mr. Paxton, sent for me to walk round with him, and answer any questions he might wish to ask.

While at Chatsworth also, I had charge for two or three years of *Paxton's Magazine of Botany*, and had likewise the supervision of the enormous amount of work required in concocting the *Botanical Dictionary*.

"In May, 1838, the Duke appointed me to take the charge of these gardens, and in this position I have since remained. Those familiar with the glories of the old horticultural shows at Chiswick will long remember the graceful liberality of the Duke of Devonshire, as President of the Horticultural Society, in throwing open his grounds to the visitors to the exhibitions, and the kind feeling which often prompted him to be present himself on these occasions. Few places could be better adapted for a summer outdoor gathering, and the brilliancy of the private *fêtes* of which they had also been frequently the scenes, have of late been most happily revived in the garden parties given by H.R.H. the Prince of Wales."

Mr. Edmonds occupied for some years a seat at the Council of the Royal Horticultural Society, and was an active member of that body at the time the Society removed from Chiswick to South Kensington, under the enlightened presidency of H.R.H. Prince Albert—for at that time the wholesome rule of placing some practical gardeners on the Council Board, as a counterpoise to the horticultural ignorance of fashionable residents, was not yet abrogated. At that time, as we happen to know, the welfare of the Society engaged his most constant exertions and his most earnest attention. Mr. Edmonds was also, in conjunction with the late Mr. James Veitch, Dr. Hogg, Mr. Moore, and Mr. J. Lee, one of the original founders and promoters of the Fruit and Floral Committees of the Royal Horticultural Society, while he has been in almost constant requisition as a censor at the chief metropolitan shows.

A WAYSIDE DAINTY.

IN the *Gardeners' Chronicle* of September 4 there appeared an exhaustive article on Blackberries, in which allusion was made to the use of this fruit as a preserve. It is there stated that it (the Blackberry) is not so extensively employed for this purpose as it deserves to be. Few persons, we imagine, would deny to Blackberries the excellent qualities they possess, and, to fully appreciate them, it is only necessary to gather large, fully ripe specimens to which the autumn sun has imparted richness of flavour and sufficient warmth to do away with the cold, watery taste of Blackberries gathered before the day is sufficiently aired.

In most country places, where advanced agriculture has not improved the Bramble off the face of the earth, a very fair household jam is generally made each autumn of this fruit mixed with Apples; but so long as whole Blackberries are used, no matter whether alone or in company with other fruit, they will never receive that grateful recognition which their excellent flavour so well deserves. As a rule Blackberry jam and Rhubarb preserve are made in most households as a graceful concession to juvenile tastes. Aware that anything of the nature of fruit will be welcomed during the winter months in the nursery, cook boils up as much of either of these little appreciated fruits as she can obtain, with the very coarsest brown sugar, to form a *pièce de résistance* when more delicate conserves are apt to become scarce. But such treatment is not just to either subject: Rhubarb, by judicious blending with Lemon-peel and juice, may be made into excellent marmalade, and Blackberries, with the expenditure of a little time and care, may be converted into super-excellent jelly, as firm, as tasty, as delicious and as firm, with a peculiar luscious flavour of their own, as the much vaunted Damson cheese of our grandmothers.

Our seasons vary so greatly that it is impossible to fix upon an exact date for the gathering of Blackberries for making jelly, suffice it to say they should be obtained after a spell of dry weather, when the sun has had time to perfect their flavour, and neither long before nor long after noon, for during mid-day in sunny weather they will be dry and free from dew. Having obtained a supply of the largest and ripest fruit possible, it should be at once placed in a strong, clean, dry stone jar, a saucer put on the top, tied down with strong muslin, and the jar placed in an

oven sufficiently hot to dissolve the fruit. If there should not be an oven at hand the berries may be put into an enamelled preserving jar, and placed at the side of the fire to simmer gently, the fruit being stirred every now and again to prevent burning. Whichever plan is followed, when the whole of the berries have sunk and a large amount of juice has exuded from them, this latter must be extracted to the last drop by means of straining: for this purpose we employ new, coarse book muslin, from which all the dressing has been discharged by repeated rinsings in clear water. Those who like jelly bags may use them, but perhaps the best medium of all is a new hair sieve: under this latter a clean earthenware vessel must be placed to receive the juice as it passes through; the boiled fruit must be poured into the sieve and beaten and stirred with a silver or wooden spoon until all the juice is expressed and nothing remains in the sieve but a mass of pips. When the whole of the fruit has been treated add one pint and a half of crushed lump sugar to every quart of juice, turn into the preserving pan and simmer gently, stirring frequently, from half to three quarters of an hour. When sufficiently boiled the syrup will set immediately on a portion being poured on to a cold plate or saucer. During the process of boiling any scum which rises to the surface should be carefully skimmed off. When done pour the jelly into jam pots or moulds, leave until cold, and tie up as ordinary jam, with brandy paper and bladder.

Blackberry jelly prepared as above is quite as good as Damson; all the delicious flavour of the fruit is preserved and the whole of the pips are got rid of—so large and disagreeable an ingredient in Blackberry puddings and jams in general. *J. J.*

PLANTING ON CHALK

SOILS.—II.

IN continuation of a paper published in the *Gardeners' Chronicle* for September 25, on planting on chalk soils, I will now enumerate—

I. *The trees that have best succeeded.* I would, however, first point out that there are certain disturbing elements which may render deductions inaccurate as regards the suitability of trees to particular soils.

Impatience of transplantation is a constitutional characteristic of some trees, and many will die, or long remain in ill-health, from this cause, that are in no way inimical to the soil in which they are planted. Time and repeated plantings will correct this source of error.

Frost may at some particular spots destroy young trees, and lead to a supposition that the soil does not suit them; but wind, the greatest enemy to young trees, is more likely to lead to such a mistake. Many trees might be thus condemned after trial in exposed situations, or as specimens, which, if planted on the very same soil surrounded by others acting as nurses, or otherwise protected, would be found to flourish.

In the following enumeration I have endeavoured to avoid these sources of error, or to point them out in reference to particular trees. It is fair also to mention that in many cases the number of certain species and varieties has been small. Perhaps if planted in large numbers my inferences might have been modified.

I.—TREES THAT HAVE THOROUGHLY FLOURISHED ON MY CHALK SOIL.

Coniferæ.

Abies excelsa (common Spruce)
Cedrus atlantica
,, Deodara
Cupressus Lawsoniana
,, ,, erecta viridis
,, macrocarpa (? species)
Juniperus chinensis (male)
,, communis hibernica
,, virginiana
,, Sabina
Larix europæa
,, leptolepis
Picea magnifica
,, nobilis
,, Nordmanniana
,, Pinsapo
Pinus austriaca
,, excelsa
Pinus Laricio
,, Pinaster
,, sylvestris
,, Torreyana
Retinospora ericoides
,, filicoides
Salisburia adiantifolia
Taxus baccata
,, ,, fastigiata
Thuja Lobbii
,, occidentalis
,, orientalis
,, ,, aurea
,, ,, semper-aurea
,, tatarica
,, Warreana
Thujopsis borealis
Wellingtonia gigantea

Deciduous Trees.

Acer colchicum rubrum
,, dasycarpum
,, Negundo
,, platanoides
,, Pseudo-platanus
,, rubrum
,, saccharinum
,, striatum
,, tataricum
Æsculus Hippocastanum
,, ,, flore-pleno
,, rubicunda
Alnus glutinosa
,, ,, laciniata
,, ,, ,, imperialis
Amelanchier Botryapium
Amygdalus communis
,, ,, macrocarpa
Betula alba
Caragana arborescens
,, ,, pendula
Caragana Altagana *
,, Chamlagu *
,, spinosa
,, microphylla *
,, arenaria *
Castanea vesca
Catalpa syringæfolia
Cerasus Padus
,, vulgaris flore-pleno
Cratægus Oxyacantha—all varieties of colour
,, ,, pendula
,, Crus-galli
,, coccinea
,, Douglasii
,, macracantha
Cytisus Laburnum
,, alpinus
,, ,, purpurascens
,, ,, purpureus (grafted on Laburnum)

* Grafted on Caragana arborescens.

Deciduous Trees (continued).

Fagus sylvatica
,, ,, pendula
,, purpurea
Fraxinus excelsior
,, ,, aurea
,, ,, crispa
Gleditschia triacanthos
,, sinensis
Halimodendron argenteum *
Kolreuteria paniculata
Populus alba
,, balsamifera
,, canadensis
,, candicans
,, monilifera
,, tremula pendula
Pyrus Aria
,, Aucuparia
,, ,, pendula
,, ,, fructu-luteo
,, hybrida
,, Malus floribunda
,, salicifolia pendula
,, spectabilis
,, ,, flore-pleno
Quercus Ilex
,, Mirbeckii
,, Robur heterophylla
,, Turneri
Robinia Pseud-Acacia
,, ,, Bessoniana
,, ,, Decaisneana
Salix † alba
,, ,, pendula
,, Basfordiana
,, fragilis
,, acuminata
,, gigantea
,, sanguinea
,, pentandra
,, triandra
,, Boweriana
,, attenuatifolia
,, vitellina
,, daphnoides
,, rosmarinifolia
,, Russelliana
,, purpurea pendula‡
,, fusca§
,, Salamonii
Tilia europæa
Ulmus americana
,, ,, pendula
,, montana purpurea
,, glabra vegeta
,, plumosa
,, ? "Kidbarked Elm"
Virgilia lutea

Shrubs.

Amorpha fruticosa
Aralia Sieboldii
,, canescens
Berberis Aquifolium
,, aristata
,, Darwinii
,, Nubertii
,, vulgaris
,, ,, purpurea
Buddlea globosa
Calycanthus floridus
Ceanothus azureus
Cerasus Laurocerasus
,, ,, caucasica
,, ,, colchica
,, lusitanica
,, vulgaris flore-pleno
Cercis Siliquastrum
Cistus ladaniferus
,, incanus
,, laurifolius
Colutea arborescens
,, ,, cruenta
Cornus alba
,, mascula
Corylus Avellana purpurea
Cotoneaster microphylla
,, Simonsii
Cratægus Pyracantha
Deutzia crenata flore-pleno
,, Fortunei
,, gracilis
,, scabra
Dimorphanthus mandchuricus
Elæagnus japonica
Escallonia macrantha
Euonymus japonicus
,, ,, albo-variegatus
,, ,, aureo-variegatus
Garrya elliptica
Hamamelis virginica
Hypericum calycinum
Ilex Aquifolium—several green varieties
Kerria japonica
,, ,, flore-pleno
Lavandula spica
Leycesteria formosa
Ligustrum coriaceum
,, japonicum
,, lucidum
,, vulgare ovalifolium
Magnolia glauca
Myrica cerifera
Philadelphus coronarius
,, Gordonianus
,, grandiflorus
Phillyrea ilicifolia
,, buxifolia
Pyrus japonica
Raphiolepis ovata
Rhus Cotinus
,, elegans
,, typhina
,, glabra
,, ,, laciniata
Ribes aureum
,, sanguineum
Rosa rubiginosa
Spartium junceum
Spiræa ariæfolia
,, callosa
,, bella
,, Lindleyana
,, japonica
Tamarix germanica
,, japonica
Viburnum Opulus
,, Tinus
Weigela amabilis
,, rosea
Yucca filamentosa
,, gloriosa
,, recurvifolia

To these may be added some climbing plants:—

Ampelopsis Veitchii
Bignonia radicans lutea
,, ,, major
Clematis Flammula
,, Jackmanni
Hedera Helix
Jasminum nudiflorum
Jasminum officinale
Lonicera brachypoda
,, aureo-reticulata
,, Periclymenum
,, sempervirens
,, Standishii

Roses of all kinds flourish in this soil.

I believe that the plants named in the foregoing list may be safely relied upon to flourish on the typical chalk soils which constitute so large an area in the south-western parts of this country. But, while the list may look long to the inexperienced planter, any one with a knowledge of the now known resources of varied planting which the climate of this country allows will not fail to perceive how numerous and important are the omissions which my list displays. The great majority of these omissions, however, refer to plants which do not grow satisfactorily upon the chalk, rather than to those which are absolutely killed by its contiguity; the latter are comparatively few.

Some of the trees and shrubs that flourish on this soil deserve special remark. Among the larger Coniferæ the common Spruce ranks first; scarcely one dies, and in a short time they grow with great vigour and rapidity. Pinus Laricio comes next; few of them die, and they grow with singular rapidity and strength. Many of my young trees have this year made leading shoots nearly 3 feet long, with laterals in proportion. Pinus austriaca grows well after the second year, but a larger proportion die than with P. Laricio. The Scotch Fir grows well, but some die. These four species are the best of the large common sorts for block planting, and may be thoroughly depended upon.

Cedrus atlantica and C. Deodara do very well; the former will stand in exposed situations, but the latter grows best in protection. The Deodar is apt to become pale and yellowish where the chalk is very abundant in the soil, or is superficial.

Picea Nordmanniana flourishes, but the colour of the foliage rather degenerates; on the other hand Picea Pinsapo retains its rich deep green, while its growth is most free and healthy; indeed, this beautiful Conifer evidently revels in a cretaceous soil, and from its character of growth it flourishes perfectly in the most exposed situations. It is so rigid that the wind never damages its branches.

Every Yew tree that I have planted on the chalk has grown well.

Of the Arbor-vitæ class I can most strongly recommend Thuja Lobbii and Thujopsis borealis. There is little to choose between them; they evidently delight in the soil, and they grow most luxuriantly; but with me Thujopsis best retains its green colour in hard frosts.

It is a curious fact that all the Irish Junipers (merely a fastigiate variety of Juniperus communis) grow healthily on the most chalky parts of my land, while every specimen of the original form has died—the more remarkable as the common Juniper is a natural inhabitant upon chalk downs.

The Wellingtonia is a complete success with me.

Of large deciduous trees I would especially recommend Acer platanoides and A. colchicum rubrum, Populus monilifera, P. alba, P. canadensis, the common Lime, the Beech, the American and Huntingdon Elm. These nine species are especially useful for large and massive plantings upon the chalk, but others of smaller size have also done extremely well; for example, the several kinds of Alder, the Almond, both common and large-fruited; the latter is a most desirable tree, with its immense blossoms. As regards the Birch, imperfect observation might lead to error; a large number of the trees die directly they are planted, and the soil might be thought inimical to them, but this is not so; they die from that quality which is inherent in so many trees—impatience of transplantation. When once established they grow with remarkable vigour on chalk soil.

The double Cherry, Pyrus Aria, P. Malus floribunda, Mountain Ash, Cotoneaster Simonsii, Garrya elliptica, all the Sumachs, and the various Thorns grow with such exceptional strength that they evidently revel in chalk soil.

I might perhaps add more particulars respecting some other trees; but this part of my communication is already long enough, and I will conclude by assuring any intending planter upon chalk that if he will adopt my list and have his land properly trenched, the result of his plantings will not disappoint him. *James Salter.*

* Grafted on Caragana arborescens.

† A large collection of species and varieties, of which the species here named have grown with the most conspicuous vigour.

‡ Grafted on Salix caprea; "American Weeping" Willow.

§ Grafted on Salix caprea; "Woolsey's Weeping" Willow.

NOTES FROM A SOUTH SHROPSHIRE GARDEN.

FROM time to time I have sent you notes of this garden in spring and again in summer, and now, late in autumn, I return to a subject that is always full of interest and pleasure. Of all occupations gardening is the most brimful of hope, and be the season what it may—the full flush of spring or the crowning glory of summer, the ripe fruition of autumn or the sternest chill of winter—there is always some anticipation, some preparation, some joyful discovery to cheer the labourer in his work. In spring we have the opening buds that, like the picture of Guido's Aurora, seem a wreath of joys welcoming the coming summer, though, like the brightest prospects of youth, they are too often withered or dwarfed by the cold practical blasts of the world. Then in summer we have the almost innumerable crowd of beauties following so closely and blending so completely one with the other that it is difficult to say which is the time of greatest perfection; and now in autumn we have still traces of both spring and summer beauties, with one of its own, suffusing all. Sheltered so well from the north and east as we are here, we still have many of our early friends surviving—Noisette Roses that peep out from the dense tangle growing around the Poplars, or over and about one of the masses of rock that crop out on the lawn; Verbenas, Scarlet Pelargoniums, Phloxes, and Fuchsias, our summer friends, still hold their own among the Michaelmas Daisies, the Laurustinus, Arbutus, the tall tufts of the Pampas-grass, and others, the true children of autumn, about which more numerous than usual flit the pretty tribe of Vanessa butterflies—V. Urtica, Atalanta and Grapta Calbum, with thoughtless drone bees and large blue-bottle flies, whenever the sun shines warm enough to tempt them out to taste the last drops of nectar secreted in the wonderful laboratories of these children of the earth and sunlight. The woods around have been most glorious for the last few days, that is, from the 20th to the 26th. The change from deep green to the richest yellows, brown, orange, crimson, and scarlet was very sudden, and as it occurred before any fall of the leaf has taken place, the mass of colour has been denser and richer than usual.

Few people who live in less wooded parts of England are aware of the surprising beauties that a favourable autumn presents to the eye—of the infinite shades of colour to be found, ranging from the brightest yellow, gold, ruddy brown, orange-crimson to scarlet, mixed up with the brightest green. Last week we saw all this to perfection. The Sycamores, some still wearing their summer garb, others bright yellow mixed with green, and some more sombre with dusky brown; the Maples, some bright yellow, and some almost crimson; Oaks, ranging through deep green, yellows of every tint, to ruddy brown; the Wych Elm, that abounds in Shropshire, from green to yellow; Beeches green, in every shade of yellow to deep brown red; Horse Chestnuts, green, yellow, brown, and scarlet; here and there a tree, otherwise green, will bear a great chevron-like stain of red of the deepest dye: all these, mixed up with or surrounding the Pines, Yews, Cedars, and Cypress, that stud our garden, make a picture of indescribable beauty when lit up with sunshine.

I have alluded to the blending of summer beauties with those of autumn; I may also describe how those of the coming spring reveal themselves amid the rich tints of autumn. Violets and Primroses are already putting forth their lovely blooms in sheltered nooks; Daises sparkle on the lawn whenever the ruthless rake is at rest for a few days. Here and there a wild Strawberry presents a bloom that is either a lingerer or a forerunner. The Horse Chestnuts are preparing large buds for the next summer's foliage; Rhododendrons and Azaleas the same; and if we put a spade below the surface we turn up Crocus bulbs, already pushing out long white shoots that will be above the ground before Christmas; in fact, there is no such state as absolute rest in Nature; incessant movement, incessant preparation for the future, is the actual condition of all things. In the orchard our Apples have been most abundant of all kinds—so have Pears; and our neighbours all around almost complain of the bounty of Providence, in consequence of the small market value their produce commands.

In our greenhouse the Fuchsias are passing away; Zonal Pelargoniums, however, keep as gay, and the splendid Tacsonia Van Volxemi is crowded with crimson tassel-like stars. A Brugmansia hasgiven us three successive bursts of its beautiful trumpet-shaped white flowers, and the noble Hedychium Gardneri has never been without a spike of flowers since July. Wherever space allows, the three plants above named should be tenants of every house.

We have not suffered with floods in the Severn as we know has been the case in other parts of England; last week it rose nearly 9 feet above its lowest summer level and then it swept by in a fine torrent, but we should not consider the height excessive till it rose 3 or 4 feet above this. The rainfall has been great, but less than elsewhere throughout the basin of the Severn, and we have never witnessed any of those deluges recorded in the southern parts of the country; but the wet season may yet come to us, and while I write "Horrida tempestas cœlum contravit et imbres nives que deducunt Jovem;" and the trees around wave with the wind, scattering their leaves and finding vexatious work for the gardeners. Still we must be thankful for the many fine days we have enjoyed during the past summer, and console ourselves with the thought that:

> "Non semper imbres nubibus hispidos
> Manant in agros;"

and with returning spring we shall hope for even greater enjoyment and pleasure in our gardens than what has been permitted to us in the past. *S.*

THE ECONOMIC USES OF WILD FRUITS.

Attention has recently been drawn to some of the uses of our wild fruits, but the value and commerce of many foreign and indigenous wild fruits is more general and extensive than might be supposed; hence a few notes upon them may prove interesting and suggestive. Blackberries have already been touched upon, but they are less used than they ought to be. On the Continent they are sometimes dried, and used medicinally from their astringency, and a syrup and a rob are prepared from them which are considered cordial and refreshing.

In the food collection at the London International Exhibition in 1871, among the dried fruits shown by Russia were wild Strawberries, Raspberries, and Whortleberries; and in the United States the Grape, the Cranberry, Raspberry, and Strawberry are also dried entire for keeping, by rapid evaporation with artificial heat. Most succulent fruits being very perishable in their natural state, this method, when the market is over-supplied, enables the fruit to be kept till the next season.

Elderberries (Sambucus nigra), which ripen in September, are in many parts of the country made into a home-made wine, which is much drank mulled in the winter. The inspissated juice of the fruit is mildly aperient and diuretic. It is extensively used for colouring port wine, and mixed with water forms a cooling beverage in fevers. Experiments made by a M. Wehole, of Vienna, proved that the berries produce a great quantity of good spirit by treating the juice in the same way as the must of the Grape, and afterwards distilling it. In France Elder wine is made by placing about 40 lb. of crushed berries in a tub, with 4 lb. of honey, as much sugar, or 4 lb. of glucose, first dissolved in about 10 gall. of warm water. It is left to ferment in a warm temperature, and withdrawn from the lees into a cask, and after a slow fermentation of a few months a pleasant and agreeable wine is obtained.

Sloes, the fruit of Prunus spinosa, are well known, and though acid, astringent, and very austere in flavour, they are eaten baked or boiled with a large proportion of sugar, and a very pleasant home-made liqueur is prepared with them by steeping them in gin or other spirit. It is said that Sloe juice is used for adulterating port wine.

The Arbutus grows abundantly in poor soils in Provence and Cevennes, and is often raised in gardens. From the fruit a good spirit and an excellent preserve have been made. In the county of Kerry, near the Lake of Killarney, it grows spontaneously, and the fruit is eaten by the peasants. A wine is made from the fruit in Corsica, but according to Lindley it is reported to be narcotic if taken in quantity. The fruit grown in the South of France are considered very good, having a pleasant sweetish-acidulous flavour.

Bilberries are the fruit of Vaccinium Myrtillus, Whortleberries of V. uliginosum and V. Vitis Idæa, Cranberries of the Oxycoccus palustris and macrocarpa. Many American species are substitutes for these.

The people of Pasta make wine from the fruit of Thibaudia macrophylla; that from our Whortleberries is said to be narcotic, and to be sometimes put into beer and other liquors to make them heady. When fermented it yields an intoxicating liquor.

The black Crowberry or Crakeberry (Empetrum nigrum) has brownish-black clustered berries, like those of the common Juniper. They are eaten by the Scotch and Russian peasants. According to Gaudichaud, the red berries of the Crowberry of South America, the Cranberry of Staten Island (Empetrum rubrum), are pleasant to eat.

The delicate Whortleberry (Vaccinium tenellum) extends from New England to Virginia, the large bluish and black berries are extremely sweet and pleasant.

V. corymbosum grows from Canada to Carolina and Georgia, in swamps and wet woods. The black berries are insipid, but are used in tarts like those of the Cranberry.

The Bear's Grape Whortleberry, a native of the coast of the Black Sea, produces fruit in great abundance, which is agreeable to the taste, and makes excellent tarts.

The blood-red berries of the Mount Ida Whortleberry or Cowberry (V. Vitis Idæa) are scarcely to be eaten raw, but they are made into pies in Derbyshire, and in Sweden a rob or jelly is made from them, which is eaten with all kinds of roast meat. This preserve is also considered an excellent medicine in colds, sore throats, and all irritations of the mouth or fauces.

Cranberries are abundant in the United States, Canada, Newfoundland, and the northern parts of Russia, and we import annually from 40,000 to 50,000 gallons. They are brought in kegs and barrels containing from 8 to 20 gallons each. The berries have a sharp, agreeable, acid taste, and are highly grateful to most persons when made into tarts, jelly, or other preparations flavoured with sugar.

The marsh or common European Cranberry (Oxycoccus palustris), has pear-shaped globular berries, often spotted with crimson, of a peculiar flavour, with a strong grateful acidity. The large fruited or American Cranberry (O. macrocarpus) has spherical red berries, which are better flavoured than the European ones. The erect Cranberry, another species, has scarlet or purple berries, quite transparent, and of an exquisite taste.

We have no recent returns of the imports of Cranberries, as the Board of Trade do not now enumerate small articles; but the following were the imports a few years ago:—

	Quantity.	Value.
	Gallons.	£
1868..	39,594	3044
1869..	34,054	2869
1870..	48,472	4780

Canada exports to the United States, through the port of Oswego, from 1500 to 2000 barrels of Cranberries. The River David produces and ships large quantities, which are a source of considerable profit to the owners of the wild lands on which they grow.

The American Cranberries are of a slightly oval shape and a bright red colour. They somewhat resemble Currants, but are more than twice as large, and have no remains of the calyx at the top of the berry. The berries are mostly picked by the Indian squaws, though Cranberry rakes are now much used. Cranberry dealers go to the marshes with whatever supplies are suited to the wants of the Indians, and exchange their goods by barter with the squaws, as they bring in their sacks of Cranberries. This business commences in September, and may continue until the marshes are frozen. In some years more than 10,000 bushels of Cranberries are shipped from St. Paul, which find a market all the way down the coast of the Mississippi river to its mouth, and in the West India Islands. An agricultural journal—*The Practical Farmer*—thus alludes to the profits made from collecting this wild fruit:—

"A Cranberry field in Burlington county, containing 100 acres, has employed 300 hands, who picked by the bushel, clean, as they go, making good wages. Fifty acres picked over yielded 7000 bushels, 4 acres of which produced, what seemed to us enormous, 1000 bushels. Twenty acres more gave only 3000 bushels, and the remainder made up the quantity to over 7000 bushels, yet the owners complain of the shortness of the crop. They hope, however, to improve their prospects by gathering from the remaining 50 acres 10,000 bushels more, and expect to sell all to one dealer at 4 dollars per bushel."

In 1869 British Columbia exported Cranberries of the value of £2500.

In North America Whortleberries and Blackberries are preserved by boiling for five or six minutes in cans, adding 4 to 6 oz. of sugar to the quart. Wild Crab-apples and sour Pears and Apples are also similarly preserved, but with the addition of a greater quantity of sugar.

The value of the Blueberry crop in Washington County, Maine, is estimated at £2000. At Boston one firm canned, in 1874, 20,000 cans of Blueberries, valued at £600; and three firms at Portland 50,000 cans of Blueberries, giving employment to 220 hands.

The common Bilberry, or Blaeberry (Vaccinium Myrtillus), which is very generally diffused over the northern countries, is plentiful in Britain and Ireland. The bluish-black berries, about the size of Currants, covered with a mealy bloom, ripen in October. The berries are eaten in tarts, or with cream, or made into jelly, in the northern and western counties of England and Scotland; and in other parts of the country they are made into pies and puddings. Their juice has been employed to stain paper and linen purple.

The large juicy black berries of the great or bog Whortleberry (V. uliginosum) are agreeable, but inferior in flavour to the Bilberry. In France they are used to colour wines red, and in Siberia and Sweden they furnish an ardent spirit, that is highly volatile and intoxicating.

The large globose blackish-purple berries of V. angustifolium are highly esteemed by the inhabitants of the northern parts of America, where the plant is indigenous. In Siberia the berries are macerated during the autumn and part of the winter in water; and afterwards they are eaten in a raw state, and fermented along with Barley or Rye, and a spirit distilled from them; or with honey, and a wine produced. Sweetmeats are also made of them with honey or sugar, which are much used in Russia at balls and masquerades. The fruits of several other species of Vaccinium are edible.

The berries of the succulent fruited kinds of Gaultheria are usually grateful, and sometimes used as food. The purple fleshy berries of G. procumbens and G. Shallon, Arctostaphylos alpina, and Brossæa coccinea (Epigæa cordifolia) are examples of this. They are much esteemed by the natives of North America on account of their agreeable flavour. In Tasmania the G. hispida or Wax-cluster bears snow-white berries, with a flavour by no means unpleasant; in taste it is said to resemble the Gooseberry, but it is somewhat bitter. The G. antipoda is said to have more merit as a fruit.

The red fruit of the Viburnum Oxycoccus of North America is of an agreeable acid, resembling that of Cranberries, for which they are a very good subsitute. Other species of Guelder Rose have edible fruit more or less agreeable to the taste, which are frequently employed as a substitute for Cranberries.

The snowy flowered currant-like Gooseberry (R. niveum) of the north-west coast of America has deep rich purple fruit about the size of the black Currant, which ripen in July and August. The flavour according to Lindley is entirely destitute of the flatness which is more or less perceptible in even the best Gooseberries; in lieu of which it has a rich, subacid, vinous, rather perfumed flavour, which is extremely agreeable. The fruit is rather too acid to be eaten raw; but when ripe it makes delicious tarts.

The fruits of the common Juniper are much used in the manufacture of the alcoholic spirit called Hollands, which is much esteemed in the North of Europe. In certain parts of Asia Minor the natives eat the fruits of J. drupacea, which are, however, not very agreeable in flavour. In certain localities the

inhabitants collect the Juniper berries, let them ferment, and, adding sugar and water, obtain a beverage which, though not very pleasant, is healthy and strengthening; it is also diuretic. In parts of the Southern States of America they also prepare with the fruits a kind of spirit. Some tons of Juniper berries are imported annually into London and Hull from Holland, Italy, &c., being used in the distillation of gin.

From the unripe Juniper berries an oil is distilled which is officinal in the British Pharmacopœia, and is also used to flavour English gin and Hollands. Turpentine is, however, very commonly employed for the former on account of its cheapness. Haarlem oil, so long esteemed in Holland as a remedy for affections of the bladder, and the preparation of which has been kept a secret, is found to be of variable composition, containing admixtures of turpentine, sulphur, &c., with Juniper oil. Dr. Arnal's "genuine Haarlem oil" contains equal parts of Juniper wood oil and Juniper berry oil. The mode of distillation is not stated. The berries are collected in October and November.

Averrhoa Carambola and Bilimbi are two well-known pleasant-tasted fruits of the East, resembling strongly in flavour unripe Gooseberries. The fruit is a five-celled berry, a green, fleshy, oblong fruit, the thickness of the finger, filled with a grateful acid juice; the substance and seeds are not unlike those of the Cucumber. The fruit of Cicca disticha is also used as an acid tart fruit in the East.

The fruit of Elæagnus arborea and of E. conferta is eaten in Nepal, and in Persia the fruit of E. orientalis is used as a dessert under the name of Zinzeyd.

The Malays are very fond of acid as well as sweet things; hence, the wild Lime, which is sour and astringent, is used by them.

The Salak, the fruit of the Calamus Zalacca, is pleasantly subacid. The fruit is about the size of a Walnut, and covered with scales like those of a lizard; within these scales are two or three sweet yellow kernels. A preserve is made of the fruit. The Papaw fruit (Carica Papaya) is used as a vegetable before ripening. The acid juice of the rind of this fruit will dissolve a buffalo hide.

The Tampoonee is a fruit in external appearance like a small Jack-fruit, and like it also containing rows of seeds, but without kernels. The delicate pulp, of a yellowish colour, is of an agreeably subacid taste, and is highly prized both by natives and Europeans.

The Risdau is a small almond-shaped, dark red, and acid fruit. The Trampang, a sour fruit like a large Strawberry, is used for making chutnies and curry. The dark purple-coloured fruit of the Myrtus tomentosa, about the size of a hip, is pleasant in taste either raw or preserved.

The red fruit of the Mountain Ash, Pyrus Aucuparia, Gaertner, which ripens in September, is dry, and abounds in malic acid. In Sweden and the North of Europe a spirit is made from the berries, and in times of scarcity they have also been dried and ground as a substitute for flour. [In Scotland the fruit is made into a jelly, which is eaten with venison. EDS.]

The fruit of the several species of Amelanchier is soft and eatable. The berries of A. canadensis, Torr. and Gr., are the finest wild fruit of Canada, and are used by the Cree Indians, both in a fresh and dried state. The tree is common in the Northern States, in Nova Scotia, Newfoundland, and Labrador. The purple fruit, which ripens in July, is about the size of a pea, is well tasted, dries well, and in that state is mixed with pemmican, or used for making puddings, for which purpose it nearly equals the Zante Currant.

The fruit of the Choke Cherry (Cerasus virginiana) can scarcely be said to be edible in itself, but Sir J. Richardson tells us that it is often pounded, stones and all, and mixed with pemmican. The fruit of the Bird Cherry (C. Padus), though nauseous in itself, is used to give flavour to some kinds of brandy. The principal food of some of the Indians of North America consists of small wild fruit, such as Cherries, the Service berry, &c., which they dry and make into cakes.

Besides some few cultivated species there are several wild fruits of the Ebenaceous family which are eaten in different countries. The Persimon, the fruit of Diospyros virginiana, is eaten by the negros. In Virginia, Carolina, and the Western States the fruit is gathered, kneaded with bran, made into cakes, and baked. These cakes, mixed with tepid water, serve to make beer, with the addition of Hops and yeast to ensure fermentation. The fleshy, glaucous, brownish fruit of Euclea pseud-ebenus, the size of a Pea, being sweet and slightly astringent, are eaten by the natives of South Africa, under the name of Embolo. The flavour of the globose black fruit of E. ovata of the same locality is pleasant, with a little astringency.

In the Eastern Archipelago the small, greenish, acidulous fruits of Vitis trifolia, which are known under the name of Langounie, are said to be excellent in cakes. Another wild fruit largely eaten there is the capsules of the Silk Cotton Tree—Bombax pentandrum, or Eriodendron anfractuosum—which are stated to have a mild flavour, and the seeds are also edible.

These are but a few instances of many that might be selected in ranging over this wild field of inquiry. *P. L. S.*

INTERNATIONAL HORTICULTURAL EXHIBITION IN 1877 AT AMSTERDAM.

THE following is the concluding portion (from p. 560) of the project of programme for the International Horticultural Exhibition in 1877 :—

VEGETABLE PRODUCTIONS.

7.—FATS (INCLUDING FATTY OILS).

Required :—1. Fats of the family of the Musaceæ (Ravenala amazonica, Guiana).

2. Fats of the family of Palms (Euterpe oleracea, Para; Œnocarpus Bacaba, Para; O. Patawa, Patawa; Oreodoxa oleracea and regia, Northern South America; Areca oleracea, Réunion; Manicaria saccifera, French Guiana; Livistona sinensis, Northern South America; Acrocomia sclerocarpa, Guiana; Astrocaryum vulgare, Guiana, Brazil; A. acaule, Guiana; Scheelia Maripa, Guiana; Attalea Cohune, Guiana; Mauritia flexuosa, Guiana; M. vinifera, Brazil; Sagus tedigera, Brazil; Elæis guineensis, West Africa; Cocos nucifera, India).

3. Fats of the family of the Corylaceæ (Corylus Avellana, Fagus sylvatica, both of Europe).

4. Fats of the family of the Cannabineæ (Cannabis sativa, Europe).

5. Fats of the family of the Antidesmeæ (Putranjiva Roxburghii, West India).

6. Fats of the family of the Lauraceæ (Tetranthera laurifolia, Java; Laurus nobilis, South of Europe; Litsæa sebifera, Java).

7. Fats of the family of the Compositæ (Helianthus annuus, Europe, and H. perennis, India; Guizotia oleifera, India; Madia sativa, Chili; Carduus pycnocephalus, Réunion; Carthamus tinctorius, Asia; Arctium Lappa, Europe, Asia).

8. Fats of the family of the Oleaceæ (Olea europæa, South of Europe).

9. Fats of the family of the Apocyneæ (Cerbera Thevetia, East and West India, South America; Wrightia antidysenterica, India).

10. Fats of the family of the Gentianeæ (Chironia cabrida, East India).

11. Fats of the family of the Labiatæ (Ocimum basilicum, Java; Ballota nigra, Europe).

12. Fats of the family of the Solaneæ (Nicotiana Tabacum, Atropa Belladonna, Wurtemberg).

13. Fats of the family of the Bignoniaceæ (Sesamum indicum and S. orientale, Asia, Africa; Paulownia imperialis, Japan).

14. Fats of the family of the Sapotaceæ (Argania Sideroxylon, Marocco; Lucuma mammosum, Tropic America; Bassia Parkii, South Africa; B. longifolia, India; B. latifolia, Bengal; B. butyracea, India; B. Djavé, Gabon; B. Njoungou, Gabon; Mimusops Elengi, Java; &c.).

15. Fats of the family of the Ampeliaceæ (Vitis vinifera, South of Europe).

16. Fats of the family of the Cornaceæ (Cornus mascula, Europe).

17. Fats of the family of the Myristicaceæ (Virola sebifera, Guiana; Myristica species, Gabon, Brazil, West Africa, the Moluccas; &c.).

18. Fats of the family of the Anonaceæ (Monodora grandiflora, Gabon).

19. Fats of the family of the Ranunculaceæ (Nigella sativa, India, Egypt).

20. Fats of the family of the Papaveraceæ (Papaver somniferum, Europe; Argemone mexicana, Bengal, East India, America; Glaucium luteum, Europe).

21. Fats of the family of the Cruciferæ (Brassica campestris, Europe; B. Napus, Europe; B. sinensis, China; sorts of Sinapis, Europe, India; sorts of Thlaspi, Europe; Myagrum sativum, Europe).

22. Fats of the family of the Capparidaceæ (Cleome viscosa, India).

23. Fats of the family of the Bixaceæ (Gynocardia odorata, India).

24. Fats of the family of the Cucurbitaceæ (Cucumis Citrullus and other sorts, Africa, East India, Brazil; Telfairea pedata, South-east and South-west Africa; sorts of Mormodica, America; sorts of Luffa, Asia; &c.).

25. Fats of the family of the Nhandirobeæ (Fevillea Marcgravii, Brazil; F. cordifolia, Venezuela, and other sorts).

26. Fats of the family of the Malvaceæ (Hibiscus cannabinus, East India, Africa, America; Thespesia populnea, East India, Ceylon, Tahiti; species of Gossypium, Europe, Egypt, United States; Apeiba Titourbon, Venezuela).

27. Fats of the family of the Sterculiaceæ (Pachira aquatica, Guiana, Antilles; Eriodendron anfractuosum, Tropical Asia; sorts of Bombax, India; Sterculia fœtida, Cape Verd Islands, and other sorts; Heritiera littoralis, Antilles; and other sorts, West Africa).

28. Fats of the family of the Buttneriaceæ (Theobroma Cacao, South America).

29. Fats of the family of the Ternströmiaceæ (Cochliospermum Gossypium, India; Camellia oleifera, China).

30. Fats of the family of the Dipterocarpeæ (sorts of Dryobalanops, Gabon; sorts of Hopea, Borneo).

31. Fats of the family of the Clusiaceæ (sorts of Garcinia, India; Mesua ferrea, India, Java; Calophyllum Calaba, Antilles; Calophyllum Inophyllum, East India, Java, Tahiti; Calophyllum spurium, Goa).

32. Fats of the family of the Olacineæ (Ximena gabonensis, Gabon; and others; Balanitis ægyptiaca, Senegal, India).

33. Fats of the family of the Aurantiaceæ (Feronia elephantum, India, Java).

34. Fats of the family of the Guttiferæ (Pentadesma butyracea, Sierra Leone).

35. Fats of the family of the Meliaceæ (Melia Azedarach, India, Ceylon; Azedarachta indica, India; Amoora Rohituka, East India; Carapa guianensis (= Persoonia guaroides), Guiana; Carapa Toloucoona, West Africa).

36. Fats of the family of the Sapindaceæ (Sapindus Saponaria, East India, Northern South America; emarginatus, East India; &c.)

37. Fats of the family of the Rhizoboleæ (Caryocar brasiliensis, Brazil; Caryocar tomentosum (= Pekea guianensis), Guiana; Pekea ternatea, Antilles.)

38. Fats of the family of the Euphorbiaceæ (kinds of Ricinus, Tropical Asia, Africa, America; Jatropha glauca, East India; Curcas purgans, Tropical Asia, Africa, America; Anda Gomesii, Brazil; Siphonia elastica, Brazil; Elæococca verrucosa, Japan; Aleurites triloba, A. moluccensis, A. gabonensis, Oceania, East India, Africa, &c.; Aleurites cordata, China; Croton Tiglium, and others, India; Croton sebiferum (= Stillingia sebifera), China; Rottleria tinctoria, East India).

39. Fats of the family of the Anacardiaceæ (Anacardium occidentale = Cassuvium pomiferum, East and West India; Pistacia Lentiscus, Italy).

40. Fats of the family of the Burseraceæ (Irvingia Barteri, Gabon).

41. Fats of the family of the Lineæ (Linum usitatissimum, Europe).

42. Fats of the family of the Combretaceæ (Terminalia Catappa, East and West India).

43. Fats of the family of the Rosaceæ (Prunus domestica, Wurtemberg; Amygdalus communis, South Europe; Chrysobalanus Icaco, Tropic America, Senegal).

44. Fats of the family of Lecythideæ (Bertholletia excelsa, Brazil; Lecythis ollaria, Brazil, Guiana).

45. Fats of the family of the Leguminosæ (Arachis hypogæa, Tropical Asia, Africa and America; Butea frondosa, East India; Dolichos Soya, China; Pongamia glabra (= Dalbergia arborea), East India; Parkia biglandulosa, East India; Dipterix odorata, Brazil; Bauhinia candida, India; Pentaclethra macrophylla, Gabon; Moringa pterygosperma, Syria, West India; Moringa aptera, Egypt; and others).

46. Fats (or fatty oils) of plants or families, not mentioned above.

47. Materials of vegetable origin from which fats can be obtained.

48. Plants, dried or otherwise preserved, yielding fat-producing materials.

49. Writings upon the manufacturing processes by which fats are prepared.

8.—ÆTHERIAL OILS.

Required :—1. A collection of ætherial oils, indifferently, whether used for any special purpose or not.

2. A collection of ætherial oils, used for perfumes.

3. A collection of ætherial oils, serving for other purposes than the preparing of perfumes.

9.—VEGETABLE SUBSTANCES FOR PAPER.

The plants, or vegetable matters from which specimens of paper are desired, are :—

Straw; Wood; Esparto or Sparte fibre (Lygeum Spartum); Alfa-fibre (Stipa tenacissima); Reed (Psamma arenaria), grown on Dutch or foreign downs or sandhills; Bamboo; Paper-Mulberry-tree (Broussonetia papyrifera); Kapok (seed-down of Eriodendron anfractuosum); New Zealand Flax (Phormium tenax); stems and refuse of Pisangs or Bananas (Musa); Pine-apple fibre; Agave fibre; refuse of Cotton and Flax spinneries; Paper Daphne (Daphne papyrifera); Rice-paper plant (Aralia papyrifera). Moreover, any other vegetable matters, not mentioned here, provided they be of plants capable of being cultivated and reaped on a large scale.

To be sent in :—1. Dried specimens of the plants from which the paper is made.

2. Samples of the raw paper material, and of the paper manufactured therefrom.

3. A statement of the manner of rearing and managing the plants, of the cost of operation, and the prospects of the paper manufacture from the different substances.

4. Models and drawings illustrating the process of manufacture.

Further is desired :—5. A collection of samples of vegetable substances, employed from the remotest period to the present time for writing purposes, forming collectively a complete series, from which an historical and ethnographical view of paper industry can be obtained.

6. Collection of writings on paper and paper manufacture.

7. A complete catalogue of such; also of such as occur in periodicals.

8. A statistical review of the paper manufacture, with observations and deductions of its prospects.

9. Coloured drawings of the plants yielding substances for paper making.

10.—CEREALS.

Required :—A bundle of ears of all cereals cultivated in Netherland, accompanied by a sample of ½ kilo. of grain, in a white glass, of each of the bundles exhibited. Further, a statement of the place where, and the description of soil on which, the cereals were reared.

11.—CATECHU (CACHOU).

Required :—1. Catechu from Acacia Catechu, as occurring in commerce.

2. Catechu from Areca Catechu, as occurring in commerce.

3. Catechu from Uncaria Gambir, as occurring in commerce.

4. Other vegetable productions containing tannic acid, which are or might be made available for technic purposes.

N.B. It is desirable to exhibit all these kinds of Catechu with the substances from which they are obtained, and the plants yielding those substances.

12.—VANILLA.

Required :—1. Mexican Vanilla. *a*, of spontaneous growth (Cimarona); *b*, obtained by culture (Corriente).

2. Vanilla from the Dutch East India Possessions.

3. Vanilla from the Dutch West India Possession, with statement on each sample of the species of Vanilla from which it was obtained, and a blossoming sprig of the plants, either dried or preserved in spirits.

4. American Vanilla, derived from other plants than the Vanilla planifolia, with a statement on each sample of the species of Vanilla which produced it, and a sprig, dried or preserved in spirits, of the plants from which it was produced.

5. Vanilla grown in Europe.

13.—RHUBARB.

The derivation of genuine Chinese Rhubarb has been successively referred to various species of the genus Rheum. The latest researches claim the Rheum officinale as the parent. It is therefore desirable that a thoroughly well-grown root be exhibited, showing the distinctive marks of good Chinese Rhubarb, and to which must be attached a sufficient portion of the parent plant to determine it satisfactorily.

14.—SARSAPARILLA.

Required :—Well-prepared (either dried or otherwise prepared) specimens of plants yielding Sarsaparilla for commerce, with the proviso that there be attached one or more sound roots, adapted for a comparative research.

The objects are required to be in a blossoming or fruit-bearing condition.

Attention will be paid equally to objects of spontaneous growth and those obtained from culture.

Thus drawn up by the organising committee, Amsterdam, August 14, 1875—

J. H. KRELAGE, Chairman.
F. W. VAN EEDEN.
C. GLIJM.
H. F. R. HUBRECHT.
C. A. J. A. OUDEMANS.
C. J. VAN DER OUDERMEULEN.
W. F. R. SURINGAR.
G. F. WESTERMAN.
H. GROENEWEGEN, Secretary.

The committee will gratefully receive any proposals or observations concerning their labours, as marks of interest in their scheme. *R. Groenewegen, Secretary, 5, Oetewalerweg, Amsterdam.*

WOODS SUITABLE FOR WOOD ENGRAVING.

BY the kindness of Mr. John R. Jackson, of Kew, we have from time to time been supplied with various woods from the Kew Museum for experimenting upon in the way of wood engraving. Most of these woods have, however, turned out to be far inferior to Turkey Box for engraving purposes, as the woods tried have been, as a rule, too hard and brittle, and not sufficiently tough.

Camellia japonica.—This wood is very hard, and unsuitable for *fac simile* work or curves; it is only good for straight lines, as the grain resists the turn of the graver. From its hardness it takes twice as long to clear down as Box, but still it is a good wood.

Ternströmia japonica.—This is a soft wood, and not sufficiently tough for good engraving; though the dark colour is somewhat against it, it is far better than the Ebonies, and takes the drawing better.

Cleyera japonica.—This is a good wood, but it will not admit of thin lines being engraved upon it; the colour is good, and it takes the drawing well, and is suitable for common work.

Daguetia quitarensis.—At the time of writing my previous report on woods suitable for wood engraving, I had no lance-wood (Daguetia quitarensis) to experiment upon. More recently, however, I have had two blocks of this wood prepared, but I cannot report well of the wood. It is very brittle and as hard as iron; it has none of the admirable toughness of Box, and it takes the edge off the tools, even the large tools used in clearing down. Its hardness and crumbly nature causes an expenditure of double the time ordinarily consumed over engraving on Box.

Green Ebony.—This appears to be as good as common Box, but it has several bad points; its dark colour is bad both for drawing and engraving, as its deep olive-brown colour makes it difficult to see the lines of the drawing, and even to know when the lines are cut; the surface of the block is moreover always very greasy, and this makes its preparation difficult for drawing, as the white surface colour will not dry flat, and no alterations can be made to the drawing, as the touch of a moist brush brings the white tint and drawing all off together. This is, however, of secondary importance, as no one who knows how to draw ever makes alterations. Green Ebony is very brittle, and consequently liable to split and crack. This brittleness constantly takes the fine point off the graver, which is never the case with the toughest Box. It is also greasy, and resists glue, so that the wood preparers cannot conveniently make it up, and when made up the glue is very apt to give.

Black Ebony (*Diospyros Ebenus*).—This is an extremely hard and very superior wood, and one suitable for fine and good outlines. It is much harder than Box, but not harder, if so hard, as green Ebony (Brya Ebenus). It is a little inclined to be brittle, which is a serious defect, as this brittleness is likely to not only injure the lines but to snap off the points of the gravers. Its most serious defect, however, is its black colour, as it is difficult to get the prepared surface white enough to draw black lines upon (grey when hard pencils are used); and when the white surface is cut away, and the black wood becomes exposed under the graver, this is very confusing, as it makes the drawing appear to be covered all over with black blots and scratches.

Lignum-vitæ (*Guaiacum officinale*).—The dark brown colour of the heart of this wood makes it difficult to get a white or light surface for drawing upon. Lignum-vitæ is about as good as bad Box, and better than green Ebony; it is not so brittle as the latter, and not so tough as the former. It, however, comes under the class of brittle woods, and takes the fine points off the gravers, though not to such an extent as in some other woods tried and previously referred to. The wood next the exterior is pale in colour, like Box, and the best part of the wood—the heart-wood is very dark, brittle, and powdery.

Illustrations engraved on the above woods have been published in the *Gardeners' Chrouicle* from time to time, and the eight cuts that are printed on pp. 194, 195, 196, 197, of the number for August 15, 1874, are solely on the woods above enumerated. In former numbers of the *Gardeners' Chronicle* (in the reports of the meetings of the Scientific Committee of the Royal Horticultural Society and elsewhere) will be found descriptions of many other woods tried for wood engraving, as Hawthorn, Yew, &c.

W. G. Smith.

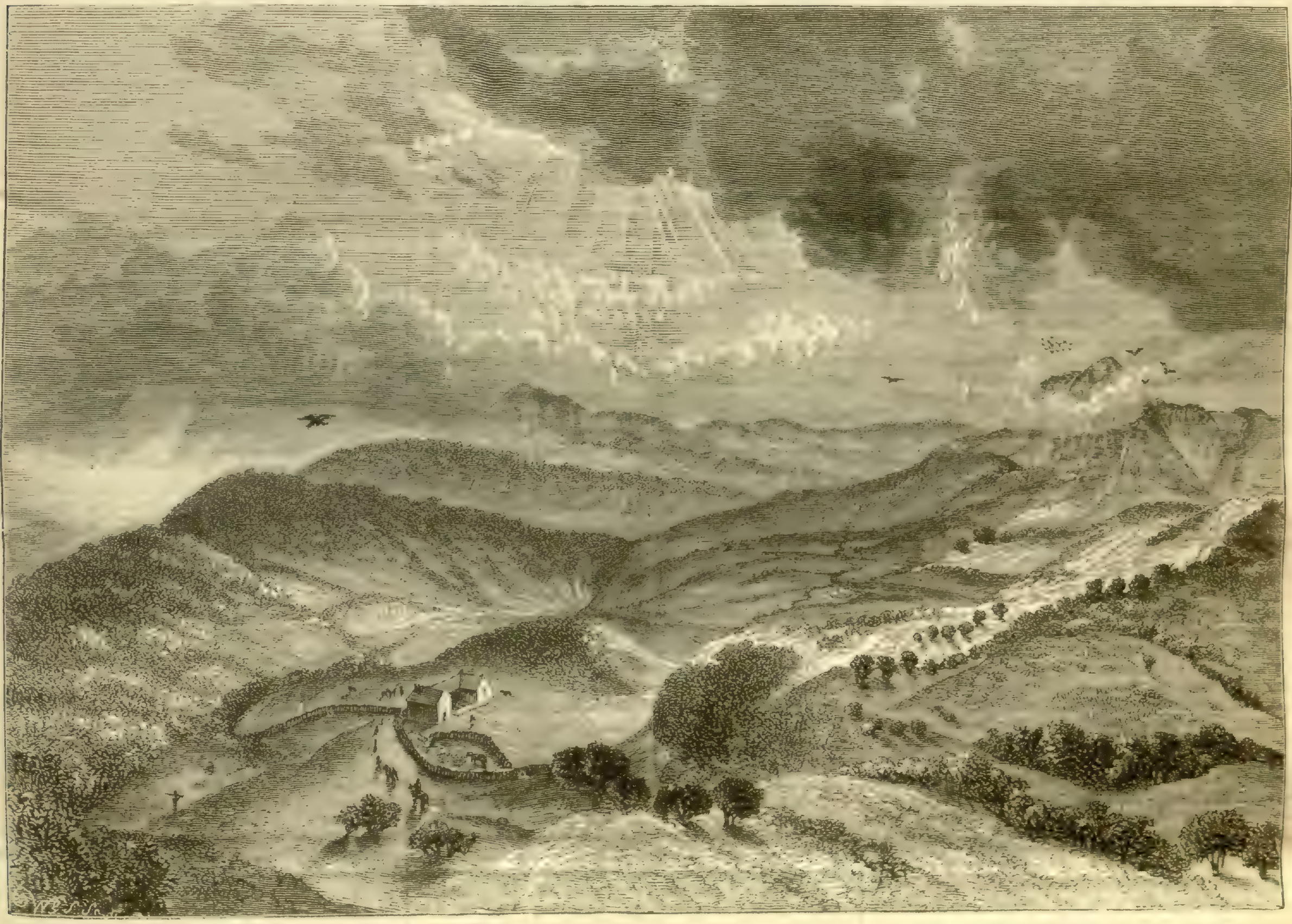

FIG. 124.—VIEW OF THE OCAÑA HILLS, THE HOME OF THE COOL ODONTOGLOSSUMS. (SKETCHED BY THE LATE ALBERT BRUCHMÜLLER.)

Florists' Flowers.

THE HERBACEOUS LOBELIA.—The fine varieties of the herbaceous Lobelia that one occasionally meets with no doubt were bred up from the Mexican L. fulgens, but as they are sometimes termed varieties of L. cardinalis, that probably has been used as a seed parent also.

Forty years ago Lobelia fulgens, and indeed the leading representatives of the genus, such as L. cardinalis, L. siphilitica, L. salicifolia, L. Tupa, &c., were generally cultivated, but especially the two first named, though in all probability that generation of gardeners little imagined what fine and especially delicately coloured forms would be bred up from L. fulgens in the course of time. That was an active and enterprising age in matters floricultural, however, and good work was done in time past as in the time present. In the present day, Mr. Bull, Mr. Ware, and others have raised new varieties with great success.

Among the leading flowers of late production may be placed Charles Landseer, brilliant crimson shaded with dark maroon, very fine spike; Annihilator, deep rose, shaded with lively violet, novel and very pretty; Distinction, rosy cerise, lit up with a pink lustre, a very pleasing flower; Victor Hugo, bright rosy crimson, flowers large and of good form, excellent spike; Excellent, bright magenta, with white centre, striking and most attractive; Grand Duchess Marie, pure pale pink, with large well formed flowers; Carminata, pleasing rosy carmine, very pretty; Nonsuch, violet rose, margined with vermilion, very showy; Peach-blossom, beautiful peach colour, with fine broadly shaped stout segments; one of the most attractive varieties yet raised; Ringleader, light purple, shaded with a deeper tint, handsome and good; Ruby, a beautiful shade of rich ruby, novel and distinct; Roi des Bleus, lavender-blue, very pretty; and Victoria,

rich scarlet, very showy. This is but a limited selection, but it serves to indicate the varied hues to be found in the flowers. Continental as well as English raisers are busy as producers; and every year sees the importation of some new forms from beyond the Channel.

The herbaceous Lobelia can be used as a decorative agent in various ways—in beds, in pits, or dotted here and there in the mixed borders. A bed of L. fulgens, or what is now grown as fulgens, is an attractive feature in a flower garden, supplying a glowing hue of crimson scarcely found in any other plant so easily cultivated. One of these beds used to be a striking feature in the flower garden at the Royal Nursery, Slough, which skirts the north side of the old Bath coach road, and visitors to the nursery used always to be attracted by its brilliant appearance. A bed of varieties where the pale forms are mingled with the high-coloured ones is a very pleasing feature; and such a bed not only remains a considerable time in bloom, but yields a large quantity of flower.

These Lobelias thrive well in a garden where there is a moist bottom, and it has been recommended, in order to secure this, that they should be planted near a pond. A soil made up of sandy loam, leaf-mould, some rough peat, and well decayed manure, suits the plants well; there should be some drainage, and a good depth of soil; and the plants then make a vigorous growth, and throw out side branches in addition to the main spike, and thus bushy plants quite laden with blossoms are secured.

Then as conservatory plants grown in pots, these Lobelias are well worthy attention. They should be grown in large-sized pots (only strong plants should be potted up), with good drainage, and such a compost as that named above. The plants should be put in smaller pots early in the season, and be shifted into their blooming pots about the beginning of June, and the pots stood out-of-doors plunged up to their rims in cinder ashes, Cocoa-nut fibre, or spent Hops, to keep the soil in the pots cool and moist, till such time as, having thrown up their flowering stems, the plants are taken into the conservatory to bloom. They must on no account be suffered to want for water.

The herbaceous Lobelias can be propagated by offsets, cuttings, and seed. The suckers which come up about the base of the stem should be taken off in October, and put singly in small pots, in a light sandy compost, protecting them in a dung frame during the winter, or forcing them gently in a little bottom-heat, in a mild stove; and when rooted, shifting the plants into larger sized pots at various times as they require it up to the time when they are put into their blooming pots. They should have three or four shifts between February and March and May.

Propagation by cuttings is also adopted, and in this instance it is done in June, by taking a stalk or shoot, and dividing it into lengths of 5 or 6 inches each, and putting them into pots, or in a piece of prepared ground under a handglass. This piece of ground should be on a border open to the east, so as to have a portion of the sunshine during the day. Cuttings made in this way strike with remarkable facility, and will be well furnished with roots in a month or so, and then they should be either potted off or planted out in beds as desired.

Most of the varieties yield seed, and it should be sown in pots or pans immediately after it is ripe, using a light sandy compost. The surface of the soil should be pressed down a little firmly, the seeds thinly sprinkled over it, and then the barest possible layer of fine soil. The compost should be sufficiently moist as not to require watering till it has settled down, or there is great danger of the seeds being washed away. The pans and pots should be placed in a frame, and covered with hand-glasses. In spring the seeds will begin to vegetate, and the plants appear, and they should then be pricked off into other pots or pans, and potted on as required during the summer, and by the following spring they will be strong plants to flower well in July. Let me conclude with a caution given by an old cultivator:—"The suckers should be taken off every autumn; for, if these be neglected, the plant will very likely be lost, as the stem will die down and rot, thereby weakening, if not destroying, the growing plants." *R. D.*

Forestry.

TURF DYKES are often erected by preference, on account of the materials of which they are constructed being convenient, and at hand. On old hill and pasture lands the turf is generally so thick, tough, and fibry that it constitutes a very useful material for such fences. Although they are amongst the oldest description of fences, and have been extensively in use for centuries, there are yet some very important things to be learned respecting their construction. In erecting turf dykes only such turf can be used as is conveniently at hand, for it will neither pay the expense, nor endure being roughly handled or carted from a distance. The work of erecting the fence is begun by setting a row of poles along the centre, from which the basement of the dyke is marked off on both sides. The base of the dyke itself is 4 feet wide, and a scarpment of 8 inches additional beyond it on both sides. The height of the dyke from the surface of the solid ground is also 4 feet, and width on cope 20 inches.

The ditch in front is specified to be 4 feet wide at top, 2 feet wide at bottom, and 2½ feet deep. The turves are cut 8 inches broad, and as deep as the soil will admit, and are set on edge with the sward outward and in a position corresponding with the slope of the dyke. After the first row is set up, as much earth is excavated from the ditch and thrown into the centre of the dyke as to level the surface up to and a little higher than the turves on each side. After the central part is all firmly packed and levelled, another tier of turf is set up, and the same process repeated, observing, however, always to break band in placing the turves, so as not to have two joints coming opposite one another.

Another way of building turf dykes is to lay the turves flat on their back, with the grassy side down, and to build layer upon layer till the desired height is reached. This practice is objectionable on two considerations; first, it requires the baring of a great deal more ground to obtain the amount of turf requisite, and, second, the turf laid in that position very rapidly decays and crumbles down, bringing the packing or solid part of the dyke after it. The advantages, on the other hand, in building them upon the new principle, are firstly, the immense saving of turf, which is a great consideration when it is difficult to procure; secondly, the turf being placed on edge, with the grassy side out, immediately strikes root, and becomes firm and solid; thirdly, all crumbling and wasting is prevented, and cattle, sheep, &c., which usually do so much damage to them when built in the old way, do little or none in the new, the surface being so smooth, and the whole body of the dyke as firm as the solid ground; fourthly, dykes built in the former way do not bulge outwards, as they do in the latter, because there is nothing to give way at one point more than another, the whole being solid and firm in the centre, and the outer surface consisting merely of an inch or so of real surface turf, which admits of no wasting.

As there is a very common but false opinion entertained respecting turf itself, as used in the construction of dykes, a few words about it may be useful. It is very commonly believed, and acted upon, that the best and most durable turf is that which contains least solid earth and most fibry vegetable matter. Now the very opposite of this is the case, which the following practice illustrates. Gardeners, in preparing earth for potting their flowers, collect that which contains most vegetable fibre and least solid earth, and this after lying together for a time becomes a soft, pulpy, decomposed mass, the fibry roots being the first and most decayed parts of any. A corresponding change takes place with the turf in a dyke if laid horizontally, and in layers one above the other. Of two dykes built with the same description of turf, the one laid flat, and the other set on edge as recommended, the latter will be found good and substantial long after the other has fallen down, and probably two or three times renewed.

The cost of building a dyke of the dimensions given, and cutting ditch, &c., usually costs from 6*d.* to 7*d.* per lineal yard. If carefully and well built, and a single or double line of wire extended along it, erected upon Willow posts, which strike root and sustain the wire, at the same time producing shelter—a few cuttings being also stuck in along the earthy backing of a single faced dyke, or base of a double one, to grow up for shelter to the young plants on the margin—a cheap, good, and substantial fence is produced. *C. Y. Michie, Cullen House, Oct.* 25.

The Villa Garden.

SPRING FLOWERING BULBS.—It is now high time that steps should be taken to get some of these potted up, if they are to be used to give a little floral decoration in the spring. They are among the most pleasant of the flowers that can be grown, whether under glass or in the open ground, by way of bridging over the chasm between summer and winter. What we should comprehend under the general head of "spring flowering bulbs" are things of a thoroughly hardy character, that the rudest wintry weather cannot destroy. There is no difficulty in procuring them, nor are they as a general rule costly in price; and there is this added quality—and it is one that might well weigh with the Villa gardener, who, from the very nature of his opportunities, has to grow a few select rather than a general collection of plants—they are eminently satisfying, for they flower freely, they are striking and effective in hue, and sweetly fragrant, and last in bloom for some time. Besides all this, they can be grown within-doors, and some of them are especially fitted for indoor culture, as, for instance, Hyacinths, Polyanthus Narcissus, and Crocuses.

In commending these bulbs to the attention of Villa gardeners, both for cultivation in pots and also in borders, it may be stated that success in this case, as in all others, in a great measure depends on the care with which they are cultivated; but perhaps no flower better repays this care than a Hyacinth, and in order to have some charming flowers there is no necessity for going to a great expense, for good varieties of Hyacinths, Narcissi, Tulips, and Crocuses can be had at a moderate cost.

Hyacinths in Glasses.—This is one of the most pleasant features of indoor gardening, and it is attempted by a great many with varying success. There can scarcely be ill-success where a certain round of simple daily attentions are discharged. Unfortunately, judging from the appearance of Hyacinths in glasses as one often sees them in windows of suburban residences round London, these attentions are apt to become irksome, and poor, stunted, immature examples result. It is a great pity it is so, and indolence and inattention are very apt to find excuses, and blame the bulbs, and say they were not good.

The present is the best time to put Hyacinths in water, and onwards up to the beginning of December. In obtaining them, if the purchaser has no knowledge of the varieties himself, let him apply to some one capable of giving the necessary information. This is really an important matter, for some sorts of Hyacinths are much better adapted for cultivation in glasses than others; shopmen in seed-shops are often only imperfectly acquainted with these, and their business is to sell.

Here is a selection of good moderate-priced Hyacinths, which we know to be pretty certain to do well in glasses; and they are all single varieties, because they are very much to be preferred to the double kinds, both in respect to their suitability for growth in water, and their decorative value. Pink, red and rose:—Gigantea, Duchess of Richmond, Emmeline, Lord Wellington, Madame Hodson, Norma, Robert Steiger, and Sultan's Favourite. These are all robust-growing sorts, with good-sized handsome bulbs. Blush and white:—Alba superbissima, Grand Vainqueur, Grandeur à Merveille, Seraphine, Themistocles, and Victoria Regina. Lilac, violet, blue and purple:—Baron von Tuyll, Bleu Mourant, Charles Dickens, Emicus, Grand Lilas, Mimosa, Orondates, Regulus, and William the First. Yellow:—Anna Carolina, Alida Jacoba, Heroine, and Prince of Orange. Some of the varieties here enumerated are invariably among the finest Hyacinths shown in pots at our large Hyacinth exhibitions. If something less expensive than these are wanted, good picked bulbs out of the mixed Hyacinths used for bedding can be had at 3*s.* 6*d.* or so per dozen, and some good varieties are certain to be included. Single varieties should be asked for.

Hyacinth glasses are now produced in such handsome shapes, and of such charmingly designed patterns, as to be very acceptable as sitting-room ornaments, and they are useful for holding cut flowers during a good portion of the year, as well as for growing Hyacinths in winter, when cut flowers are scarce. It is high time the old, tall, ugly, Hyacinth glass was utterly banished from our homes, but for want of a better knowledge it is still much used. Apart from their common appearance, there are two great disadvantages attending on their use: one is, that no support can be employed to keep the flowers in an upright position; the second being that the flowers will often topple over, and capsize the contents. On the other hand, the newer types of glasses have flat, decanter-shaped bottoms.

The glasses and bulbs obtained, first drop into each glass three or four pieces of charcoal, about the size of a filbert, or at any rate sufficiently small to drop with ease into the glass. Then fill up with fresh clear rain-water, so that when the Hyacinths are placed in the glasses the water will just touch their base. They can be put away in any cool, dry place, such as a closet, cupboard, cellar, &c., where it is rather dark, and be kept there for a month or six weeks. This is done to induce the bulbs to root downwards into the water before they make any upward growth; but it is hardly necessary, as it appears to be a nicely adjusted natural law that the root will start before the leaves and flower-spike. It is an old custom, and so much recommended by the purveyors of Hyacinths, and it is perhaps as well to stand by it. We have grown fine Hyacinths in glasses without putting them in the dark, but just allowing them to remain on the mantelpiece or sideboard in an ordinary sitting-room.

Besides Hyacinths, we can scarcely recommend the cultivation of any other bulbs in water, except it be Polyanthus Narcissi. Tulips, Crocuses, Snowdrops, Scillas, &c., are much more or less unsatisfactory. On the other hand, glass or other vessels that can be filled with a mixture of silver sand and charcoal, or moss, or Cocoa-nut refuse, can be made to grow those bulbs we have just named; but if there is a chance of having them in soil in pots

or boxes, it is much the best plan. Pots of soil take up no more room than vessels filled with sand; but where there is but little space perhaps the vessels are the best, even if the floral result may not be so good, for the reason that drainage must flow from the pots, and that is objectionable. Common saucers, whether they be representatives of common pottery or the ordinary breakfast service, can be obtained cheaply, and the pots stood on them, on a thin layer of charcoal, broken to pieces about the size of split peas. Given a little good light soil, which should have fibry loam or decayed turf in it, and plenty of leaf-soil, so as to make it as porous as possible, and a mixture of fine charcoal, and broken pots, and Hyacinths, Crocuses, Scillas, Snowdrops, Narcissus, and Tulips might be well grown in ordinary sitting-rooms. The great thing would be to give the plants, when they begin to make an upward growth, as much light and air as possible, to keep them dwarf and vigorous. When bulbs of this character are allowed to become drawn in their growth the result is anything but satisfactory. During the time the plants are making their first growth but little water will be required, as it is made at a time of year when the weather is dull and damp; by-and-bye, when the days lengthen and the sun gains power, the growth will be more rapid, and a large amount of moisture at the roots will be required.

Of Polyanthus Narcissus, which we have recommended for cultivation in pots within-doors, there are several fine varieties quite moderate in price, such as Grand Monarque, Luna, Grand Prince, Soleil d'Or, and States-General. One or two bulbs can be placed in a 48-sized pot, for the Polyanthus Narcissus is an accommodating plant, and does not require a great amount of soil to grow in. It throws up a stout flower-stem, and a truss of charming white and orange or yellow and orange coloured flowers, that are richly fragrant, and in early spring quite anticipate the sweetness of summer flowers. Crocuses should be put into pots at the rate of four to six bulbs to each, according to their size, and the same of blue Scillas, which are very pretty and early to flower.

Bulbs grown in pots in this way within-doors should never be over-potted, they do much better when restricted somewhat at the roots, provided they are kept well supplied with water at the time they are making vigorous growth. When saucers with fine charcoal in them are used to stand the pots in, there will be a certain amount of moisture present in the saucer, which will greatly assist the plants in the dry atmosphere of a sitting-room; but the water in the saucer should not be allowed to rise above the level of the bottom of the pot which stands in it.

Notices of Books.

Notes on Forestry. By C. F. Amery, Deputy-Conservator, N.W. Provinces, India. London: Trübner & Co. Pp. 119.

The Indian forest reports have of late years become as bulky as most other Government reports or blue-books, and, like them, contain a mixture of matter sometimes of general and sometimes only of technical interest. The forests lying scattered over the face of our great Eastern empire are of so great value commercially that it is satisfactory to know their conservation is now placed under a system, and that they are in the hands of a widely-distributed and able staff of administrators. At this time, when so many young men are being trained for the positions of forest officers, everything bearing on the operations which they will have to perform or superintend must be of special interest; a handybook on the subject must therefore be considered a desideratum. It is with the view of providing the young forester with such a work that these *Notes on Forestry* have been written; it is essentially a practical book, and, though much condensed to bring it into a handy size, suitable even for the pocket, we have chapters on sowing, planting, thinning, felling, transport and measurement of timber, and other branches of forest work. "In connection with sowing," the author says, "it should always he borne in mind that, although most tree-seeds if kept dry will remain good for an indefinite length of time, if they are once moistened sufficiently to cause them to swell they will immediately rot, unless sufficient moisture is supplied to foster germination and growth." We do not agree with the statement that seeds if kept dry will retain their germinating powers "for an indefinite length of time"; experience has shown us that life in some seeds cannot be retained beyond a certain period, dryness will often shrivel them, while, on the other hand, moisture will rot them. A happy medium, however, will often prolong their vitality. We quite agree with the statement following, that "special seeds require special treatment." "Tun-seed (Cedrela Toona)," the author says, "must be collected before it is quite ripe, or the capsules will have opened and shed the seed; but it must not be sown until the capsules have burst and the seed separated from them. Sàl-seed (Shorea robusta) germinates on the tree, and, if it is required to sow it in ground not yet prepared, or to keep it until the soil be properly moistened, it may be kept for a few weeks spread out on sand in a shady place and well sprinkled with water twice a day; but it will require careful handling in removal. Teak seed (Tectona grandis) if collected and sown immediately will generally take a year or two to germinate, but if a pit be dug and the bottom filled to a foot deep with sand and the whole mass well watered, it will be found on opening it at the expiration of three or four weeks that germination has already commenced. If it now be taken out and sown it will spring up almost immediately, provided it be kept well watered." In the chapter on planting some practical illustrations are given, thus, for the removal of seedlings from the nursery, an implement is figured and described, which somewhat resembles a cheese-taster on a large principle; it is made wholly of iron, the blade being about 8 inches in the curve, and when required for use the blade is pressed straight down into the soil and then twisted round, which removes the earth the size of the circle in one piece, bringing up the young plant with a good compact mass of uubroken earth around its roots.

From our own remarks and from the extracts we have given our readers will be able to judge of the nature of the book, which is certainly a convenient pocket companion on the subject of forestry.

—— In *British Marine Algæ*, by W. H. Grattann (*Bazaar* Office), we have an entertaining popular account of the more interesting of the British sea-weeds, accompanied by 205 small figures in white on a black ground, and which generally are fairly characteristic of the species, some representing the entire plant on a reduced scale, and others magnified portions. It is quite the gossipy sort of book to excite interest in marine botany.

Publications Received.—The Movements and Habits of Climbing Plants. By Charles Darwin, M.A., F.R.S. (Murray).—Milk in Health and Disease. By A. Hutchinson Smee (Ed. Newman).—A Channel Steam Ferry. By Hugh A. Egerton, of Banbury.—Report of the Horticultural Society of Victoria for the Year ending June 30, 1875.—Tenth Report of the Quekett Microscopical Club, and List of Members.—Man's Best Food. By William Carpenter.

Obituary.

It is with extreme regret I make known to you the sad intelligence of the death of Herr Albert Bruchmüller, under very melancholy circumstances. As he was frequently a contributor to your columns, you will, I know, share my regret.

The only information I have at present is from Bogota, from Mr. Corder, one of my plant collectors. In a letter just to hand occurs this paragraph:—

"As you will probably get the news from no other source, it is my painful duty to inform you of the murder of poor Bruchmüller in Ocaña; he was killed the beginning part of August by a French criminal, who had been a soldier in the French army; very few other particulars are known in Bogota, but Mr. Bunch, the English Minister, who is acting for Germany, has written to Hamburgh and Paris on the subject."

My last letter from Herr A. Bruchmüller was dated June 21, and in that he intimated that he hoped shortly to succeed in collecting and sending me the rare Masdevallia elephanticeps and M. polyantha.

Unfortunately, a revolution has lately been going on in the United States of Colombia, and some parts of that country have been in a state of anarchy. The mails have not even been delivered there since June; and last August, with thousands of plants collected, all the intelligence I could get was, that it was impossible to send shipments, or get out of the country, all of which appears to have given an opportunity for rapine and murder internally. Truly, plant collectors may be said to sometimes "carry their lives in their hands." *William Bull.*

We can but join with Mr. Bull in regretting the untimely fate of poor Bruchmüller—one of the most enterprising and perhaps most successful collectors that ever entered South America. Notes of his travels and sketches from his pencil have frequently appeared in our columns, and so late as last spring he sent us two clever sketches—the one a view on the Rio Magdalena, which affords the only means of transit from Baranquilla to Honda, and the other a view in the Ocaña hills—the home of so many of the beautiful Odontoglossums and Masdevallias, both in the United States of Colombia. When sending the sketches Mr. Bruchmüller promised to supplement them at an early date with descriptions of the scenes pourtrayed and some notes on the districts which he had visited, and which we may be sure would have been of considerable interest to lovers of Orchids. But alas! we heard no more from him: the civil war broke out early in June, the letters sent to him, so far as we know, had not been delivered to him before he met with his death, as described by Mr. Corder. Of the view in the Ocaña hills (p. 585) we can say nothing, but of that on the Rio Magdalena (p. 589) we may mention the belief of Mr. Shuttleworth, who has been up that river, that it was taken on the side of the stream opposite to Banco, a small village some 200 miles or more from Baranquilla, where the river steamers stop to take in wood, the only fuel used. The steamer shown in the illustration is one of the ordinary river boats, which are flat-bottomed, and only draw about 3 feet of water. The Rio Magdalena is a very variable river in depth, and the rapids are so strong at times that the steamer's engines have to be worked at a pressure of 300 lb. to the square inch—a procedure which frequently leads to explosions and other disasters.

Mr. Bruchmüller was, we believe, a native of Magdeburg, in Prussia, but of his antecedents we know nothing prior to his entering the service of Messrs. Hugh Low & Co., of Clapton, and his subsequent departure to Ocaña, where he made his home some few years ago. As a plant collector he was eminently successful, sending home to the Messrs. Low, and subsequently to Mr. Bull, several fine new Orchids, and immense quantities of the best known sorts. His extensive consignments to Mr. Bull may be said to have done a great deal towards the great reduction in the price of Orchids which has taken place within the last few years.

Mr. Bull has been kind enough to show us the last letter which he received from Bruchmüller (dated June 21), and we have extracted the following passages, which have a melancholy interest:—

"It is now a month since the great earthquake, and not a day has passed in which two or three shocks have not been felt. The people are rather seriously troubled. Now what can be the cause?

"The Government has sent various scientific men out to take notice of the destruction procured by the earth quake, and to find out the cause.

"From Cucuta every day comes special news of the people who are still living. Many become mad, having lost their families and fortunes. Not a single house is kept upright, all are broken down, as well as the huts made of Palm leaves.

"The earth has been really ploughed up. In the cemeteries in the little places around the bodies were thrown on the surface. Near Bogota several lakes were raised high [above their ordinary level], and in some parts fountains were formed which threw up the water to a height of 200 feet. At the same moment the earth opened and threw out boiling and sulphureous water."

Writing at the last hour, before the departure of the mail, he says:—

"It is reported now from Cucuta that some small places have been submerged, and there are no signs of their previous existence. The earth has sunk down on account of the earthquake. It seems that all around the freshwater lake has been destroyed as far as Caraca. From that place we have no news yet, and it is rather strange, because those who are alive might be expected to write. Cucuta is entirely destroyed, and not a single house remains upright. The plague or fever has broken out, through the dead bodies of the human beings and animals, and no one can get nearer to the place than five or six miles. A place of sanitation has been established in the district, and those who have lost arms, feet, and legs, are assisted as much as possible. Five days after the catastrophe a lady amongst the ruins played on the piano to proclaim the fact of her existence. She was soon extricated: as she was nearly dead some wine was given to her, but it was too strong, and she died soon after."

It is with sincere regret we have to announce the death of William Plant, Esq., M.D., which event took place at his residence, Plantation, Monkstown, on the 23d inst. Few names were more familiar to florists than that of Dr. Plant, associated as it has been for more than half a century with the most successful cultivation of his three specialities—namely, Auriculas, Carnations, and Tulips. As a grower of the first-named, in particular, he had few, if any, equals, certainly no superior. To see his Auricula frames and, above all, his marvellous Tulip beds, in their flowering season, was a sight worth going a long way to see. Roses, also, he was fond of, and grew them successfully; but the Auricula, Carnation, and Tulip were his pets, and in the few leisure hours which he could snatch from a large and successful professional practice he found his most agreeable relaxation in the companionship and culture of his favourite flowers. Dr. Plant was, we believe, at his death the oldest member of the Royal Horticultural Society of Ireland, and was for more than forty-five years a member of its Council. He had arrived at the ripe age of 85 years, and until towards the close of last year, when his health began to fail, he looked more like a man who had a quarter of a century to bridge, before arriving at that age, than one who had touched the goal. *Irish Farmers' Gazette.*

HORTICULTURAL EXHIBITIONS, 1875.

NOVEMBER.

15 and 16.—Loughborough Chrysanthemum and Fruit Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.
16 and 17.—Borough of Hackney (late Stoke Newington) Chrysanthemum Society's Show, in the Town Hall, Hackney. Sec., J. Rainbow jun., London Road, Clapton, E.
25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Cheetham Hill Horticultural Society's Annual Exhibition of Chrysanthemums, Miscellaneous Plants, and Fruit.

THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 6, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 8—	Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Nov. 9	Sale of Californian Lilies, at Stevens' Rooms.
WEDNESDAY,	Nov. 10	Royal Horticultural Society: Meeting of the Fruit, Floral, and Scientific Committees. Chrysanthemum and Fruit Show. Bristol Chrysanthemum Show (two days). Sale of Roses, Fruit Trees, Bulbs, &c., at Stevens' Rooms.
THURSDAY,	Nov. 11—	Sale of Dutch Bulbs, at Stevens' Rooms.
FRIDAY,	Nov. 12	Sale of Stove and Greenhouse Plants at Champion Hill, Dulwich, by Messrs. Stevens.
SATURDAY,	Nov. 13	Sale of Camellias and Azaleas from Ghent, and Dutch Bulbs, at Stevens' Rooms.

THE frequent production of extraordinarily LARGE BUNCHES OF GRAPES of late, marks quite an epoch in the cultivation of this most prized of all fruits. From the time that SPEECHLEY'S big bunch astonished the Grape growers of his day down to the two enormous clusters shown at the recent Edinburgh exhibition, there have occasionally been weights reached much above the general run. At several places in the country there exists evidence that may be relied upon, of bunches that have been grown a dozen or fifteen pounds in weight, but nothing approaching the size attained of late years. The subject is interesting and important, both for the consideration of the individual who studies the different influences that certain conditions exert over different members of the vegetable kingdom, as also for the gardener who approaches the subject from a purely cultural point of view. In these big bunches of Grapes may be seen the immense influence that cultivation has over plants destined for the food of man, as compared with such as administer to his wants in other ways, but upon which he is less dependent. Many of the plants which contribute largely to the food of civilised man, and are easily traced back to their normal condition of mere weeds, have by careful and continued cultivation been brought to their present state, and without cultivation could never have assumed a condition of any importance. In the case of the Vine this is the more apparent; for though brought from its native sunny home to this country, where its cultivation may be said to be wholly artificial, yet nevertheless results are obtained such as in all probability would not be possible where it is indigenous. How different the effects of culture have been upon it, as compared with those mighty giants of the deep-soiled sheltered Californian valleys, which most probably will never in a cultivated state reach anything approaching the proportions they have in their self-selected habitat!

Those who believe in the wearing out or debility of cultivated plants have here a most decided point against them. In the Vine we find a plant that has been under cultivation in one shape or other for thousands of years, and with everything calculated to undermine its constitution so far as its culture in this country has been concerned for the last hundred years, especially the latter half of this time—since its growth has been so much extended under glass; and where it is, even at the hands of those who cherish it the most and produce its fruit in the finest possible condition, subjected to treatment that might be supposed to weaken and undermine its constitution, had there been a possibility to exhaust it by excessive and continuous forcing, by frequent premature cropping, as well as by over-cropping. The roots on the one hand have been planted in every conceivable material that is not suitable—from the disgusting unnatural mass of carrion (happily now out of fashion), to a wet ungenial soil in one place, or the opposite over-dry bed in another, where the roots have for years not got half the water they required, especially at those times when it was needed to support the continual drain upon them by the branches and leaves being placed under a covering of glass where the sun's parching rays intensified evaporation; all this, too, very often aided by the still further demand upon the roots made by an over-heavy crop of fruit. Year after year eyes are taken, often from Vines that are regularly made to submit to some extreme of treatment calculated to enfeeble the constitution, and yet there are no signs of decay; but when the conditions are present that furnish the plant with what is needful for its requirements, we see such evidences of strength and vigour as have not before been exemplified.

Those who croak over what they imagine to be a wearing out of species must, at all events, not call upon the Vine as evidence in support of their views, for it is found to bear up under the worst of treatment. If there is anything at the present day that might be supposed to indicate weakness in the constitution of the Vines it is shown in some of the seedlings that have been raised in recent times. Individuals amongst these show a want of ability to set freely, which may or may not be attributed to natural debility, and some of the more recently raised kinds show an evident inability to grow freely. But the more reasonable view to take of these conditions is that they are merely existent in individual seedlings, in the same way that we see evidences innumerable of some exceptionally weak offspring in animal life, even when there is no weakness traceable to the parentage. Here, again, the present condition of the old varieties of the Grape Vine goes far to upset another theory—that is, the views maintained by those who urge that to keep up the stamina of cultivated plants, especially of fruits, it is necessary to from time to time renew the stock from seeds, to supply the place of what they argue in time becomes enfeebled by cultivation; for there can be no disguising the fact that, so far as any evidence exists to the contrary, there is nothing to show that the oldest known varieties of the Grape Vine are not as healthy and vigorous at the present time as they ever were, and they are certainly as strong in constitution as the newer kinds raised from seeds.

The production of the large bunches above referred to opens up a wide field for the gardener's consideration. More has been written on the nature, requirements, and culture of the Vine, probably, than upon all other plants put together. Everything found conducive to its health and general well-being, has been carefully chronicled and laid before the gardening world in the shape of treatises on its management, with a view to the production of its fruit, early and late. The writings of by far the greater number are deserving of respect, as emanating from men who have been practically engaged in what they have written about; so different from the pirating hashed-up compilations on flowering plants, that are too often thrust before those who are engaged or take an interest in gardening matters. True, even amongst those who have written on the Vine there is considerable difference of opinion upon some important details, but this may be easily accounted for by the fact that the writers' practice has been confined to particular soils and localities, where the existence or non-existence, as the case may be, of some elements essential to success, rendered necessary a course of procedure widely different from what would be required in another place. But in all that has been said and written, or which has in any way transpired upon Vine culture, we find nothing that clearly points to the conditions, accidental or cultural, or both combined, that have brought about the extraordinary development of strength in these individual Vines, that has enabled them to develope bunches so far above the general size obtainable from others that, so far as appearance goes, would seem to be capable of producing bunches as large as is natural to the kind. We frequently see a Peach, Apricot, Pear, Plum, Cherry, or any other tree produce fruit slightly larger than others of the same variety. We have heard the large sized Jersey Pears, now often forthcoming, held up as similar extraordinary productions, but betwixt these and the large bunches of Grapes there can be no comparison, the Pears being evidently the result of hard thinning and liberal feeding, assisted by an exceptionally favourable climate; and after all they hold no proportion in size above quantities of others of the same sorts, to the Grapes in question.

Some growers dismiss the subject by attributing the production of these huge clusters to accidental conditions under which the Vines have been placed as to soil and climate, or to some accidental treatment the crop may have received during the season it is grown. From the latter view we record our unqualified dissent. The capability of the Vines to produce such bunches we hold to be altogether due to the conditions under which they existed prior to and up to the time of the leaf-fall the preceding season. No amount of cultural skill or attention could, as a rule, induce the production of a single berry more in any bunch than existed in embryo in the bud fully matured the autumn previous, and from which it was ultimately produced. As to the Grapes in question being the result of anything particular in the soil, we simply reply that we have little belief in any such influence from this source, and should be more inclined to believe they are produced by a combination of conditions that supply their several requirements, such as thoroughly genial soil, sufficient depth and extent of border, with a good porous subsoil, or the absence of this supplied by ample drainage, abundance of water, and liberal feeding, the manurial elements of which are presented in a state that can be most readily assimilated by the roots; such, for instance, as the immense quantity of guano-water which Mr. HUNTER gives to his Vines. No matter how great the strength and vigour of both roots and wood is, unless the latter is thoroughly matured it is useless to expect fine fruit; yet before we can mature such wood as will bear these immense bunches we must produce it, and its existence, we believe, is due to something supplied to the roots in greater quantities than Grape growers generally have been aware would be beneficial to the Vine. The actual means by which is produced the wood that bears these enormous clusters, is the very interesting problem which the majority of those who cultivate the Vine would like to solve, but which has not yet been solved.

In speaking on the subject of growing these large bunches of Grapes, we do not wish to be misunderstood. Those who can grow Vines in a way that will impart to them the extraordinary strength, combined with a disposition to fruit, necessary to enable them to produce such enormous bunches, accomplish something they have reason to be proud of, and are deserving of a very high meed of praise. But the encouragement of extraordinarily sized bunches in preference to such as are smaller and much more useful would be a mistake. There is a greater evidence of skill in the production of a 3½ lb. bunch of Black Hamburgh or Muscat thoroughly finished in every way, than in producing enormous bunches, unless, indeed, the latter were perfect as to finish—a condition that has not

yet been arrived at; and what is more, the better the variety of the Grape the more inferior usually is the finish, if the bunch is of extraordinary size.

—— WE are requested to state that on and after December 6 the *Agricultural Gazette* will be published on Monday (instead of Friday), in time for the evening mails.

—— The CHRYSANTHEMUMS IN THE TEMPLE GARDENS will be about in perfection when this notice is before our readers. In the Inner Temple the blooms are of a good average size and quality, and the show will amply repay the inspection of visitors. The buds were perfected very early this year; remarkably so, considering that we have had a dull, dark season. There has been considerable irregularity in the development of the flowers, and already some varieties are fading, while others are still unopened. We particularly noticed, among old acquaintances, that White Beverley, Mrs. George Rundle, Bronze Jardin des Plantes, Gloria Mundi, Prince Alfred and Vesta are beyond their usual size and beauty. George Glenny (a primrose sport of the lovely Mrs. George Rundle) is extremely beautiful, seems more vigorous, and is larger than its parent. Prince Alfred, as usual, is a grand flower, immense in size, and with perfect, incurved florets. The most remarkable single blossom in the show is one of Bismarck: it is bronzy yellow, very much incurved, after the manner of formosum; it is quite as exceptional as the bloom of Golden John Salter which we noticed last year. Among new flowers we were struck by Beauty of Stoke, a curious bronzy flower with long petals, distinct and characteristic. But the best new flower is Refulgence, a well-formed incurved bloom of the colour of Progne—a deep, rich maroon. The good old flower (Progne) whose colour it resembles, has many disadvantages which the new variety has not—the latter is early, free, and with good persistent foliage. Altogether Mr. NEWTON is to be congratulated on his flower show. The display in the Middle Temple is as yet undeveloped, but from the size of the buds it will doubtless be up to the mark. Certain changes going on in the Middle Temple Garden have disturbed the gardener in his work, and the plants have been shifted and knocked about so as to greatly injure them this year. It must not be forgotten, however, that the greatest Chrysanthemum triumphs have been won in the Middle Temple Garden. Year after year formerly, the smaller collection here has beaten the larger one close by, both in size of blooms and quality, and the largest blossom we ever saw—an Orlando, which we ourselves measured over 22 inches in circumference, was grown here by Mr. DALE, who will no doubt come to the fore again when circumstances allow him to resume his judicious and careful culture of the Chrysanthemum.

—— Our gardens owe much to the skilful hybridist. What a glorious acquisition for decorative purposes were those golden Coleuses, which Mr. BAUSÉ obtained while engaged at the Chiswick Gardens, and for which and other similar successes—the Caladiums to wit—he ought to have received, if he did not, a Lindley Medal at the hands of the Society. Many other valuable acquisitions have been gained in a similar way. We have lately met with a group of HYBRID DRACÆNAS (again Mr. BAUSÉ) which in beauty and variety, as well as utility, promise to eclipse even the golden Coleuses. They have been raised in the nursery of Mr. WILLS, at Anerley, and we believe Mr. WILLS intends showing a group of them at the next meeting at South Kensington. The variety is astonishing—broad-leaved, medium-leaved, and narrow-leaved, bronzy and green, crimson, rose, pink, violet and white variegations, drooping, spreading, and erect habits, are blended in all sorts of combinations, and it is not too much to say that some of the varieties are in advance of any yet introduced. The effect of a whole houseful of these grand novelties is something astonishing. We shall endeavour next week to describe a series of the most remarkable of them.

—— In consequence of the retirement, on account of ill-health, of Dr. R. VON TRAUTVETTER, Dr. EDWARD REGEL has been appointed Director of the Imperial garden at St. Petersburg.

—— We learn from the *Journal of Botany* of the death, at Angers, at the age of 72, of M. ALEXANDER BOREAU, best known as the author of the useful *Flore du Centre de la France*, of which three editions have been published. M. BOREAU was one of the school of "critical" botanists, and his numerous papers are chiefly upon segregate forms and their discrimination.

—— *Chambers' Journal* tells us that, from experiments made in Australia, the PEPPERMINT (Mentha piperita) can be grown with profit in many places. One acre of the plant will yield by distillation from 10 to 12 lb. of oil, and the best Peppermint oil is worth 40*s.* per lb. Price depends on quality, and quality on soil and culture. The best method is said to be to set the plants 6 inches from each other in rows, and the rows 15 inches apart. Thus with Peppermint as with Sunflowers, an additional resource is offered to enterprising colonists.

—— The Société Botanique de France has suffered a very severe loss by the death of M. W. DE SCHÖNEFELD, who has, says the *Journal of Botany*, filled with admirable ability and zeal the post of secretary since the foundation of the Society in 1854, and to whom, we may add, the Society and botanists in general are under special obligations for his services in reference to the publications of the Society.

—— Dr. H. HOFFMANN has been engaged upon a series of experiments on wild and cultivated forms and varieties of plants with the object of determining their CONSTANCY OR REVERSION, the results of which he has recently published in the *Botanische Zeitung*. These results are of so much interest to the gardener that we may give a summary of them in an early number; but we are bound to say that some of them are startling, and perhaps scarcely sufficient care was exercised in the choice of seed. However, we will

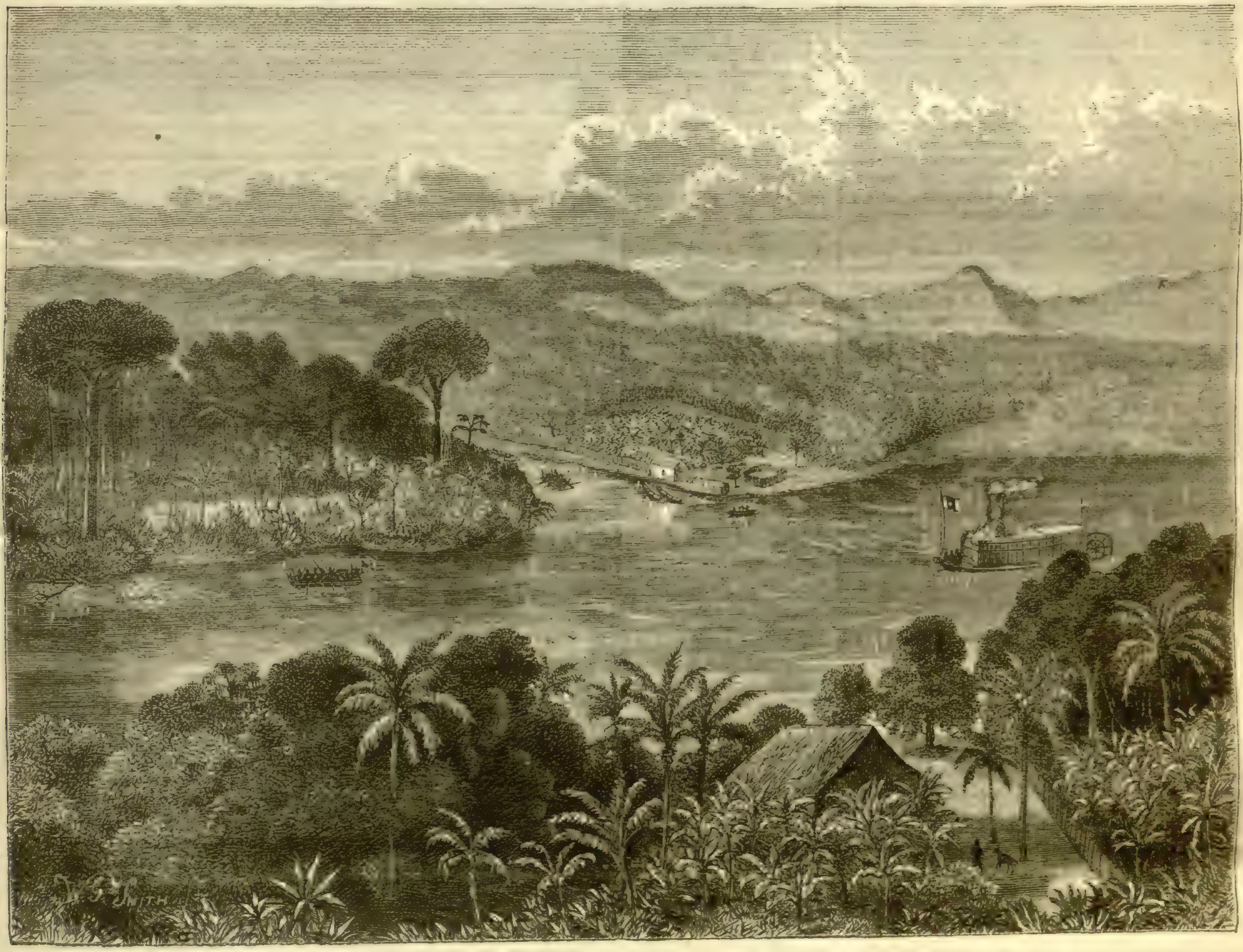

FIG. 125.—VIEW ON THE MAGDALENA RIVER. (SKETCHED BY THE LATE ALBERT BRUCHMÜLLER. SEE P. 587.)

not prejudge his labours, especially as the experiments embraced many questions independent of the source of the seed.

—— We understand that there is good promise of the great FRUIT AND CHRYSANTHEMUM SHOW, to be held at South Kensington on Wednesday and Thursday next, being a great success. The Council have determined to pay the prize-money in full, and in appealing to the public, by reducing the admission fee to 1*s.*, have certainly taken a step in the right direction. On Wednesday night the conservatory and arcades are to be lighted with gas until 10 P.M. This is the first time that an illuminated fruit and flower show has been held in the gardens, and we trust the public will show its appreciation of the efforts of the Council by attending in large numbers.

—— According to the *Presse* there are two gigantic PLANE TREES in the garden of Count GOZZE AT CANOSA in Dalmatia. They are growing in a sheltered situation, whence they were transplanted, it is reported, from Constantinople, 300 years ago—about the date of the introduction of the Plane into Britain. The size of these trees is so great that, as the *Presse* has it, a battalion of soldiers might comfortably encamp beneath the widely-spreading branches of one of them, which has a trunk 30 feet in circumference. Six of the biggest men could scarcely span the trunk with out-stretched arms.

—— It is surprising that so noble a tree as the COMMON FIG is not generally planted for ORNAMENTAL PURPOSES. Where it will not thrive as a tree it may be treated in the same manner as some gardeners grow Paulownia imperialis, and similar plants with fine foliage in the sub-tropical garden; that is, by cutting them down annually, when they will throw up strong shoots bearing enormous leaves. In its mode of branching, and in the shape of its ample leaves, the Fig tree stands alone among hardy subjects. Another quality in its favour is its capability of flourishing in paved yards and courts, and in town gardens. A writer in the *Gartenflora* says that it is beginning to replace the inevitable Oleander in the courts and front gardens of hotels in Germany.

—— The EASTBOURNE NATURAL HISTORY SOCIETY is one of the most active and practical associations in the provinces for the advancement of the study of natural history. Since the publication of Mr. ROPER'S *Flora* at the beginning of this year, fifty additional species have been discovered, bringing the total number of flowering plants and Ferns collected in this district by members of the Society, established only a few years ago, up to 785. A few of these, such as Thalictrum flavum, several forms of Fumaria, Lathyrus Aphaca, Comarum palustre, Pyrola minor, &c., had not, we believe, been previously recorded on good authority from the neighbourhood. Other branches have made equal progress, showing what may be effected by local societies led by an efficient and persevering President.

—— At the Richmond Bench, on Tuesday last, before Mr. E. C. DERMER, MARY ANN HURFORD, who described herself as a retired domestic servant, was charged with unlawfully and maliciously breaking pieces off plants of Phyllocactus, Rhipsalis, &c., in Kew Gardens. The Curator, Mr. SMITH, said they frequently lost pieces of plants, but did not in this case wish to press for penalties. The pieces might be propagated. The Magistrate said the prisoner, who bore a good character, must pay the damage, 5*s.*, and 10*s.* costs. Time was allowed for payment, and prisoner handed in an envelope with her address, at the back of which was an address of a nurseryman on the Continent.

—— Contrary to the usual custom of the committees of similar exhibitions, the management of the late INTERNATIONAL HORTICULTURAL EXHIBITION AT COLOGNE failed to do us the honour of forwarding us a prize list. Moreover, owing to the tardiness with which the judging was effected, and the general incompleteness of the arrangements, our reporter was obliged to quit the city before the final decisions of the jury were made known. In consequence of this we have been obliged to rely upon unofficial sources for our information as to the principal awards, and have unwittingly been led into a few minor errors, for which we venture to think the committee of management is more to blame than ourselves. Having at length secured, through the kindness of a friend, a copy of the official prize list, we hasten to enumerate the chief prize-takers, as follows:—Prize of Honour (*Ehrenpreis*) offered by H.M. the Empress of Germany and consisting of a vase of china, M. Linden, of Brussels, for his excellent contributions to stove plants in general (*für seine ausgezeichneten Leistungen im Gebiete der Treibhauspflanzen im allgemeinem*). A prize of honour, offered by H.M. the Empress of Germany, and consisting of a china service, to Messrs. Veitch & Sons, of London, for like excellence in the department of stove plants (*Warmhauspflanzen*). A similar prize, offered by their Imperial Highnesses the Crown Prince and Crown Princess of Germany, to Mr. B. S. Williams, of London, for his excellent contributions to the Exhibition generally. A large gold State medal (*Staats medaille*) was awarded to M. Lemonnier, of Brussels, for his collection of Palms and Cycads. A large silver *Staats medaille* was presented to Professor Begas, of Berlin, for his excellent labours in the department of garden decoration. A large silver State medal to M. F. J. C. Jürgens, of Oltensee, for his collection of Conifers. A large silver State medal to Messrs. Croux & Son, Vallée d'Aulnay, Sceaux, Paris, for excellence in fruit-tree culture. The Prize of Honour of the town of Hamburg, to M. Charles Van Geert, of Antwerp, for his collection of Conifers. The above constitute the principal special prizes in the horticultural department, in which our readers are likely to be interested. The great number of prizes for different classes precludes our doing more than mentioning those that fell to our own countrymen; thus we find that Mr. B. S. Williams secured a bronze medal for × Sarracenia Williamsii; a gold medal for his collection of Nepenthes, Sarracenias, &c.; a silver medal for a collection of new plants, a bronze medal for his collection of Crotons, a silver medal for Kentia Mooreana. Mr. John Laing, of Forest Hill, obtained a silver medal for bronze Zonal Pelargoniums, and a similar one for Tricolors. Messrs. W. Barron & Son, Borrowash, near Derby, received a bronze medal for Cupressus Lawsoniana elegantissima; a similar award for Araucaria imbricata, and silver medals for Abies amabilis, for A. nobilis, for Retinospora tetragona aurea, and for Cupressus macrocarpa and C. Lawsoniana elegantissima, &c., respectively; as well as a silver medal for a collection of Coniferæ. Messrs. Dennis & Co., of Chelmsford, received a gold medal for the Victoria-house erected by them, as also for their hot-water apparatus; and Messrs. John Weeks & Co., a similar award for their hot-water apparatus. To Messrs. Rollins & Co. a bronze medal was awarded for lawn mowing machines; M. J. H. Gwynne obtained a gold medal for a centrifugal pump; Messrs. Haynes & Sons a silver medal for garden syringes; Messrs. Samuelson & Co., of Banbury, received an award for their mowing machines. Mr. R. Warner's *Select Orchidaceous Plants* received the recognition of a silver medal, a bronze medal being assigned to Mr. B. S. Williams for his *Orchid Growers' Manual*. Lastly, Messrs. Carter & Co., of Holborn, were awarded a silver medal for grass seeds.

—— The usual monthly dinner of the HORTICULTURAL CLUB will take place at the Club-house, Adelphi Terrace, on Wednesday, November 10, at 6.15, the day on which the great Chrysanthemum and Fruit Show of the Royal Horticultural Society will be held.

—— What becomes of the DEAD LEAVES IN THE PUBLIC GARDENS OF PARIS? The sweepings of the Tuileries and Palais-Royal are, says a French paper, given to the horticulturists and growers of fruit and vegetables in the environs of Paris, in exchange for a few plants, and they use them for their hot-beds. They are at the cost of removing them, and the garden of the Tuileries furnishes about 100 loads. The leaves of the Champs-Elysées, of which the quantity is double, are utilised in the nursery of the City of Paris at Passy. Those of the Luxembourg remain there, and are used to protect the more tender plants from the cold. Those from the other squares and other promenades or plantations are sent to the horticultural establishment at Sêvres.

—— At the meeting of THE LINDLEY CLUB (late the Horticultural Club), to be held at Simpson's, 103, Strand, on Wednesday next, a conference will be held at 4 P.M., at which Mr. D. T. FISH will read a paper on "Suggestions for Forming a National or United Kingdom Horticultural Society," and a discussion is expected to ensue. At 6 P.M. the members of the Club and their friends will dine together as usual.

—— We are informed that the plan selected in open competition for the best design for laying out and planting the grounds for the CRYSTAL PALACE DISTRICT CEMETERY COMPANY was that prepared by Mr. DOLLAR, of Pall Mall, who was for some time assistant to the late Mr. MARKHAM NESFIELD.

—— The following proposed summary of the privileges of Fellows of the ROYAL HORTICULTURAL SOCIETY for the year 1876 has been sent to us for publication:—

The privileges of a Forty-Guinea Life Fellow and Fellows paying four guineas a year with two guineas admission fee, which fee will be remitted in favour of the wives or husbands of deceased Fellows being themselves elected Fellows:—1. To receive one ticket giving personal admission every day, and to all shows, *fêtes*, *conversazioni*, and promenades, both at Chiswick and South Kensington. 2. To receive two tickets, on which shall be inscribed the name of his or her nominees, which shall give personal admission to such nominees every day, and to all shows, *fêtes*, and promenades, except on such occasions as are specially reserved by the Council. 3. To purchase for members of his or her own household, at the price of £1 1*s.* each, non-transferable tickets, which entitle the persons whose names they bear to all the privileges of personal admission that Fellows themselves possess, except that of admission on specially reserved occasions. 4. To purchase for £2 2*s.* a garden ticket which will admit all the children of the Fellow who are under twelve years of age, and who must be accompanied by not more than one attendant to every three children. 5. To purchase for £1 1*s.* each books containing twenty-one orders of admission to the Saturday promenades (for admission to which no money shall, in future, be taken at the gates). 6. To admit, by personal introduction, two friends to the gardens at South Kensington on Sundays. 7. The power of admitting friends daily (Sundays excepted), by written order, to the garden at Chiswick. 8. The right of purchasing, previous to the day of the shows or promenades, tickets at reduced rates. 9. The right of obtaining upon application such seeds, plants and cuttings as the Society may have, in sufficient numbers to meet the Fellows' applications. 10. The right of purchasing the flowers, fruit, &c., grown at Chiswick which may not be required by the Council for scientific purposes. 11. To receive, on application in writing, a copy of the publications of the Society. 12. The right of voting at all meetings of the Society. 13. The right, on giving notice in writing, of being relieved from the yearly payments while resident abroad. 14. Free admission to the reading-room and Lindley Library.—The privileges of a Twenty-Guinea Life Fellow and Fellows paying two guineas a year with two guineas admission fee, which fee will be remitted in the case of the wives or husbands of deceased Fellows being themselves elected Fellows:—15. Entitled to one yearly ticket, not transferable, admitting the Fellow every day, and to all shows, *fetes*, *conversazioni*, and promenades, both at Chiswick and South Kensington. 16. Entitled to the privileges mentioned in Nos. 5, 7, 8, 10, 11, 12, 13, and 14. 17. To half the privileges mentioned in No. 9. 18. To admit, by personal introduction, one friend on Sundays to the gardens at South Kensington.—Tickets at £1 1*s.* per annum admitting to all shows, scientific meetings and lectures of the Society (but not to promenades) and to the Chiswick Gardens on week days, will be issued to *bonâ fide* gardeners recommended by two Fellows. All former Fellows of the Society who withdrew therefrom (after having paid all subscriptions due from them to it) will not be required to pay a fresh entrance fee if they shall be re-elected in the year 1876.

—— We understand that the CHRYSANTHEMUMS AT THE ROYAL NURSERIES, SLOUGH, are very good this season, and that Mr. TURNER intends showing a fine lot at South Kensington next Wednesday.

—— We are informed that we were in error in stating that the remarkably distinct and interesting species of ERYNGIUM, mentioned at p. 526, were unprotected during the winter, protection having really been afforded by a straw hood or cap. In one case a plant of E. bromeliæfolium, allowed to remain unprotected, perished, rather from wet and damp than from frost. In the garden of Prince TROUBETZKOI, at Intra, Lago Maggiore, these and other allied species thrive, as might have been anticipated, in such a way that they are likely to become highly important decorative plants.

—— Mr. E. ROWE, who is so well-known as the successful winner of many prizes for the production of large blooms at our principal Chrysanthemum exhibitions of late years, has removed from Roehampton, to undertake the charge of the gardens at Holdenby House, near Northampton.

—— An interesting feature in Messrs. T. BUNYARD & SON'S nursery, at Ashford, is presented in a number of standard plants of COTONEASTER SIMONSII worked on the common Thorn stock. The scion grows strongly and berries profusely, and makes a highly ornamental plant for mixing in a choice shrubbery border or standing singly on a lawn. C. microphylla and C. thymifolia are also grafted in this way, but the palm must be given to C. Simonsii, the berries of which are large, and are now taking on a fine orange-red hue.

—— The experience of the present season bears out to a great extent what has sometimes been stated respecting LONICERA BRACHYPODA AUREO-RETICULATA—viz., that it should be planted in a dry place and be somewhat checked, in order to bring out its peculiar and handsome golden variegation. We have seen it this season in several positions, shaded and otherwise, and while the growth, open to the wet of the summer, has been very vigorous, the variegated character is finely displayed. As a pillar plant covering supports to verandahs, &c., it is almost unequalled at this season of the year; showing a fine brilliancy of golden sheen amid the decay going on around.

—— One of the nicest of the EARLY BROCCOLIS for use at the present time is the Early Purple Cape. To some its colour is objectionable, but it is notwithstanding a delicious vegetable. If sown in May or June it continues in use from September till January, and as it is of a somewhat hardy character, it stands the weather well as a general rule.

Home Correspondence.

Autumnal Tints.—Never perhaps has this part of the country been more beautiful as regards the great diversity and richness of the autumnal tints than it is at the present time. Magnificent as the banks of the Orwell are in spring and early summer, I think I never saw them approaching their present perfection although I have had the opportunity of witnessing them in varied degrees of loveliness for the last nineteen years. This may in part be accounted for by the lateness of the spring and the excessive rainfall that followed, together with the exceptionally fine autumn we have since been enjoying, which has tended to ripen and mature the growth, and at the same time to paint those lovely rich colours in the leaf that most of us so much admire. The bright sun to-day lit up the bold mass of rich coloured foliage in the park and on the south bank most charmingly, and made the different groups of wild Cherry look almost crimson, while it greatly heightened the effect presented by the different shades of yellow of the Elm and Chestnut; and these were again thrown in rich contrast by the great warmth of colour the Beeches have assumed this season. The Oaks too, always magnificent and the pride of our English landscapes, are this year objects of great beauty; while the Thorns, Mountain Ash, and Hollies, are literally laden with their richly coloured berries; so that altogether the autumn of the present year will bear favourable comparison with any that have preceded it both for richness of foliage and the abundance of berries and fruit of all descriptions. Now is the time for the artist with palette and brush to depict the glowing beauties of autumn, while the planter who has need of an artist's eye may turn the present opportunity to profitable account in studying what and how to plant for effect. It is much to be regretted that the beauties of such rich autumnal landscapes are of such short duration, as a few sharp frosts and a breeze will strip most of the trees that are now resplendent in beauty and scatter all broadcast; but perhaps this like other pleasures is enjoyed the more on account of its fleeting nature. *J. Sheppard.*

Rooks and Walnuts.—I should be glad to know whether any of your correspondents have ever seen rooks taking Walnuts from their trees? We have here several trees from which they have been carrying off quantities for the past three weeks, but I have never seen them opening or eating them; such, however, must be their intentions, still I almost doubt their being able to "crack" them. *Bozz.* [Mr. Berkeley mentioned a similar instance at one of the meetings at South Kensington last year. Eds.]

Chrysanthemums.—The article in last week's issue on the history of its successive improvement, affords many facts which at this season are more than usually interesting—especially to those who pursue the culture of the flower as a special object; and is it not pleasing to watch the industry of such cultivators, and the contrivances to which they will resort (in the absence of glass erections) to protect or mature the plant or flower on which they have hitherto bestowed so much care. I have lately witnessed a striking illustration of the truth of my observation. Mr. Fraser, the resident manager of the Grand Junction Waterworks, Campden Hill, Kensington, is a patron of horticulture, and in that capacity has permitted his storekeeper (Mr. Gough) in his leisure hours to grow on his grounds upwards of 400 pot plants, embracing almost every known variety of the large flowering kinds; and by dint of perseverance in rising early and labouring at his favourite pastime after business hours, he has produced results of which the best cultivators in this country would be proud. Not having a glass building sufficiently large to shelter them, he has erected a long lean-to canvas house, which admits of openings in front when required; the said structure is situated on the top of the Grand Junction Waterworks, and the intention of Mr. Fraser, who is also Churchwarden of St. George's, Campden Hill, is to admit the public on the last three days of the ensuing week to view them, the proceeds of the admission to be devoted to a fund for the maintenance of the aged poor in connection with the said church. *J. F. M.*

Clematis Jackmanni and Aristolochia Sipho.—I was much struck by the beautiful effect created by these two climbers growing together over the front of Mr. Thomas Longman's residence at Farnborough, a grand house, and in a charming situation. Both creepers have reached a considerable height, and the rich blossoms of the Clematis stood out from the bright green ground colour of the Aristolochia foliage. Is Eranthemum Andersonii generally cultivated in gardens? I saw plants of it here in the Cucumber-house, and how beautiful it is, with a spike of white Orchid-like flowers richly spotted with maroon, and blooming freely. In the new kitchen garden, with an admirably arranged walls, a fine collection of fruits have been planted, and Mr. McLaurin speaks very highly of Mr. Rivers' Early Orange Nectarine, Early Rivers' Peach, Prince of Wales Peach, and Lord Palmerston Peach, all sent out from Sawbridgeworth. In the flower garden, a perfect bijou garden of its size, Ricinus Gibsoni was a very striking object. *D. W.*

The True Friend Lamp. — Messrs. Richard Schreiber & Co., 28, Red Cross Street, E.C., have submitted for our inspection one of their new True Friend Lamps, an illustration (fig. 126) of which is annexed. The novelty in its construction is its German Round Burner, by which means the air is heated in passing through the stove, without throwing off a burning smell, or emitting any unpleasant odour

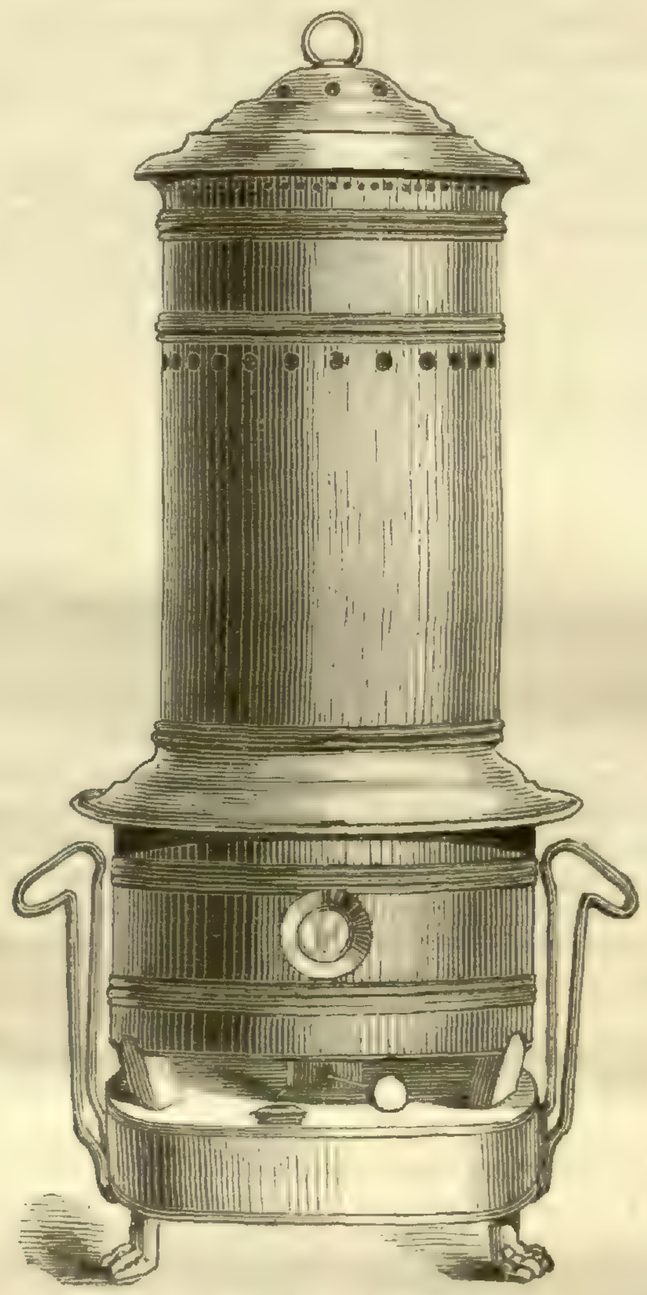

Fig. 126.—THE TRUE FRIEND LAMP.

from the oil. The manufacturers state that "it gives by a single burner more natural heat than four flat burners, or any other known petroleum stove. It can never get out of order, it is always cold on the oil well, and cannot explode; and the economy is obvious, as it can be kept at full burning power by using 1 quart of any mineral oil in thirty-six hours, and will effectually warm a space of 20 square feet." It certainly gives off a good heat without any unpleasant smell, and is a welcome addition to the list of such contrivances that amateurs have to select from. Eds.]

Stokeholes in Wet Situations.—Leaving the disputants on limekiln heating to settle the matter, which I have no doubt they will be able to accomplish in a way satisfactory to themselves if to no one else, allow me to say a word in reference to deep fire-holes in low wet ground. Mr. Bennett's unqualified advocacy of limekiln heating, and yet non-adopting the system at his own place, reminds me of an anecdote illustrated some years ago in *Punch*, entitled "Strong Evidence to the Contrary." It represented a vendor of some nostrum for producing hair, who has caught a green, beardless youth, and is assuring him it will by a few applications produce a luxuriant crop on any part of the body, whilst all the hair that he, the said vendor, has on his cranium is about five or six and twenty round the nape of his neck. Friend Bennett may excuse himself for not adopting lime-

Fig. 127.—WATERTIGHT STOKEHOLE.

kiln heating at his own place by trying to make it appear an impossible or difficult matter to keep water out of a stokehole, but, to express myself in nautical phraseology, "the story may be good enough for the marines, but it will not do for sailors." We are not going to let him slip out of the matter that way. At present I do not intend to say anything one way or the other on the merits of limekiln heating. But nothing tends to awaken suspicion so much as when those who have so loudly given any system such unqualified praise do not adopt it on their own account when they have the chance. To hang the omission upon the presence of water in the soil is about the lamest excuse that could possibly be invented. There are many places, no doubt, where difficulty has been found in making and keeping a stokehole dry, for the simple reason that the means taken have been wrong in principle; but if Mr. Bennett, or any one else having wet ground to deal with, will follow the following simple and inexpensive plan they may make, not one stokehole, but a hundred if required; and from the day they are finished up to the twenty years' end, or as much longer as they like, there will not a drop of water ever make its way inside. The accompanying simple sketch (fig. 127) shows the shape of the hole; the form of the latter is of primary importance to give the requisite power to resist the lateral pressure from the surrounding earth, for when the walls are built straight as a natural consequence they cannot possibly offer much resistance to the heavy pressure from without: they are forced inwards, and should this occur even to so slight an extent as to be imperceptible it cracks the work and of course lets in the water. In commencing mark out the hole two foot wider every way than the outside of the brickwork is required; when a sufficient depth has been reached lay in the bottom 15 inches of good concrete, the gravel to form the body of which must be clean washed, so as to have no loamy matter about it, and the sand used in the cement must be the same, not road scrapings or such like dirt. When the concrete bed has got quite hard lay on an inch of cement, which allow to harden and then put on another inch, in which lay the floor of either good hard burnt bricks or stone flags; the side walls should be a brick and a half thick, or, if the hole has to be made above 7 feet, two bricks or 18 inches in thickness, the whole set in good cement. As soon as the work has got quite hard lay on the outside three-quarters of an inch of cement, and, when this is dry, half an inch more, being careful that both these coats are properly laid on, and that the whole is made of good materials in the right proportions. After this, to make assurance doubly sure, fill up the surrounding two feet with well-worked clay puddle put in equally all round as the work proceeds. I have proved the thorough efficiency in the power to exclude water from fire-holes in ground as much waterlogged as it could be, necessitating a deeper hole being sunk in one corner outside where the wall was to be, in which was placed a pump going night and day till the work was finished, and this at a dry time of the year. Some will say it is no use setting the bricks in cement, as the water, if it gets to them, will come through the bricks; it is no wonder that those who reason thus should fail, as they lack sufficient knowledge of the work in hand to enable them to succeed. When a wall is set in good cement it becomes one solid mass, like a slab of stone, and, when built in the form shown in sketch, capable of resisting any amount of pressure, providing this is equal all round. Any one having wet ground to deal with, that cannot at slight cost be drained, will have no after trouble with water, provided that good materials are thus used, and reasonable care exercised in executing the work. By the way, could not those who have got those lime-kiln apparatus at work go a little farther and put a brick-kiln on the top of all? If they could manage to burn the bricks also free of cost, we might possibly get the much-to-be-desired reduction in house-rent. *T. Baines.*

Smith's Curly *versus* Hogg's Coldstream Early Potato.—Having been from home for some time I have not had an opportunity of perusing my *Chronicle* as usual; on my return, however, I observe Mr. Fenn's reply to my former letter, in which he says, "I take umbrage at the latter name" of this Potato, and I will leave it to your numerous readers whether I am not quite justified in doing so. Perhaps Mr. Fenn will be kind enough to say, seeing "he was the person who gave the name, Hogg's Early Coldstream," whether, when Mr. Hogg sent him this "precocious Potato," he sent it as a seedling or if he sent it under its own well known name? If the latter was the case why christen it anew, may I ask? as I can scarcely think it would be the former, as Mr. Hogg must have known it well, seeing it was raised not so very many miles from Coldstream and had been grown in his neighbourhood for upwards of thirty years. Had some one sent it from Peru as something distinct I would not have thought so much of it, as it is wonderful how Potatos and others vegetables get distributed; but I think Mr. Fenn himself would be inclined to "take

umbrage" if some one in his own neighbourhood sent out a new (?) Potato, and which (after he had grown) turned out to be nothing more nor less than Rector of Woodstock, with the exception that its re-christening had considerably enhanced its price. On looking over a seed catalogue now-a-days we have such a host of Potatos, Peas, &c., that I think each variety might be content with one name, and that, in my opinion, ought to be its own original one. Perhaps I ought to have stated in my former letter that in the south-east of Scotland, where this variety was raised, it is known as Smith's Early, and Smith's Curly, owing to its peculiar foliage, which is quite distinct from any other I have grown. *A Reader.*

Lasiandra macrantha.—In reply to the request of Mr. Baines respecting the above-named plant (see p. 497), I have to say, that if he will look back to September 26, 1874, p. 406, he will there find the following statement given by him :—"It frequently happens, by reason of some particular plant not conforming satisfactorily to the treatment it receives, that it gets condemned. This has been the case with Lasiandra macrantha. The first form of it that appeared was found of so straggling a habit, that it was at once discarded ; yet grown as a cool stove climber it is one of the most brilliant and profuse-flowering plants, producing at the points of every shoot bunches of its glorious purple flowers, that keep on continually opening for many weeks. So grown, no other Melastomad bears any comparison with it. The natural short-lived habit of the flowers, from the profusion it makes, is not noticed ; but it can only be done in a cool stove. Amongst such things as Ixoras, Dipladenias, and Allamandas, if they were well grown, the Lasiandra would grow too weakly to flower." From this statement I can come to only one conclusion, *i.e.*, that the writer has a decided opinion, should any one attempt to grow Lasiandra in a temperature above that of a cool stove they will be unsuccessful. Moreover, in the *Gardeners' Chronicle*, June 19, 1875, p. 782, is given an elaborate statement of Lasiandra as a greenhouse plant. The stove that I am growing it in is not a cool stove, and Lasiandra as well as the Allamanda is growing luxuriantly and blooming profusely with well-developed flowers ; the blooms previously sent will testify to the fact. Ixoras are growing in the same house—healthy and well blooming plants. I have a reason to know why Lasiandra is successful with the treatment I give it, which I think I fully reported in my first letter to the Editor. As a conservatory pillar plant Lasiandra fails to do with me, from the habit of its growth ; this impressed upon my mind that the stove was the only place to grow it to perfection. I do not pretend to dispute but that other growers may have succeeded with it as a greenhouse plant. Whatever has been said in its favour where it is successfully grown cannot be overrated. I have no desire to hold any further controversy upon the subject. I have grown the plant with success contrary to the rules laid down by your worthy contributor for its cultivation. I can send blooms of the three plants mentioned, for some time hence, for his inspection, should he request it, to attest the truth of what I have herein stated. *William Bishop, Bylaugh Park, East Dereham, October* 19.

The Celery Fly.—I used to have the attacks of the Celery fly here amongst the Celery crops nearly every autumn, but lately they have been free from this pest. The only reason I can give for this is that in dry weather the plants have been dusted over the foliage with soot before being earthed up in the summer, the rows being carefully gone over, so that no plant escaped its dressing. When rain came it of course washed the soot off, and I never found it did the plants any injury, but the reverse, for I always fancied they were of a deeper green than usual. After being earthed up I have generally given the plants another dusting of soot, always selecting a time when there was a chance of the weather keeping dry for a few days. This has been a capital time for Celery lately, owing to plenty of moisture, and I have seldom had it more solid and crisper to eat. I believe we cannot grow this plant to perfection without plenty of waterings in dry summers, and using the very rottenest manure to put in the bottom of the trenches to plant it in. I had the chance this September of seeing the famous Celery gardens at Retford, whence comes principally the supply of fine Celery which supplies the Sheffield market. The soil is quite black and alluvial, being nearly on a level with the River Idle, and looking something like peat soil. The growers use plenty of very rotten manure in the rows, and when I saw the gardens the plants were wonderfully fine, and all alike in size and solidity. Since then the rains of the third week in October have flooded the Idle so much that it overflowed its banks, and the lowest of these Celery gardens have been covered with water, and the Celery crops spoiled, which will be a great loss to the growers. *William Tillery.*

Fruit Exhibition at South Kensington.—I am pleased to notice the announcement made in the *Gardeners' Chronicle* that the Council of the Horticultural Society has consented to extend the fruit show for two days. I was very anxious for this extension, for in a letter to the *Gardeners' Chronicle* that was published last year, I stated, after all the trouble and expense, it seemed a pity the exhibition should be confined to three or four hours on a short November day, and more particularly the shilling public would be glad to see the finest fruit show of the year if they had the opportunity of the exhibition being opened two days instead of one. There is one matter I think scarcely fair to private growers—that the Jersey fruiterers and dealers should be allowed to exhibit in the same classes as amateurs and gentlemen's gardeners. At the late fruit exhibition held in Jersey the dealers bought up all the finest specimens of Apples and Pears they thought would do to exhibit in the various classes at South Kensington ; and although I intend to exhibit, the finest fruit I have will fail to take a leading prize in any class where these people are allowed to enter. Some years since there was a class for fruiterers, and some splendid collections were produced by the Covent Garden dealers, and so they would now if a class were made for them in the schedule. I suppose the intention in offering prizes for the various kinds of fruit is to encourage high-class cultivation, but I cannot see how that can be done if the exhibitor is allowed to purchase all the best fruit that can be had for money. *W.*

What is Frankincense?—I know it has been disputed, both in ancient and modern times, what the "Thus" of the classics was, and where it came from, but I am contented to believe that it was "the gum of a species of Boswellia, still imported from India under the name of Olibanum." But we are all taught to translate "Thus" by the word "Frankincense," and on looking out "Frankincense," in Knight's *National Cyclopædia*, I find that it is "the produce of the Abies excelsa, or common Spruce Fir," that the terms "Thus" and "Olibanum sylvestre" are applied to this produce, and that it is another form of "Burgundy pitch." Can any of your readers tell me how the confusion of name arises, and whether any incense is made from the Abies excelsa? The twigs of Abies Douglasii, when bruised, have a fragrance very like incense. *C. W. D.*

A Curious Orange.—Sent by post is a fruit of an Orange which is very irregular, and at the same time handsome at this season. It is from an espalier which is covered with its highly coloured fruit. All the fruits, more or less, are fingered like those sent. (Can you give it a name, please?) We have another curious Orange here with curly leaves, which I thought at one time was owing to ill-health. But since the leaves are double the size, and the tree, a standard, half as large again, its crumpled peculiar leaves are the same. It does not fruit very freely, like the rest, still it does fruit, and the fruit takes the crumpled shape of the leaves. *Chevalier, November* 1. [The irregular fingered fruit is what is sometimes called the Horned Orange. EDS.]

The Mistleto.—"H." seems to think that much wood and low situations, both of which keep the atmosphere moist, encourage the increase of the Mistleto ; and it is very true that the tree discovered a few years back by Sir George Cornewall, Bart., on his estate, with about fourteen roots on it, is so circumstanced ; but the young tree discovered by Mr. Forty on Darfold with two roots on it is on very high ground, and the Oak rises above the Apple trees in the orchard in which it grows. That would not tend to show that the Mistleto needs a very moist atmosphere. I think Mr. Worthington Smith had seen both those remarkable trees. The principal requisite seems to be soft wood and protection sufficient to keep the seed on the bough till it has germinated. *Vicar, Herefordshire.*

Scotch Fungi.—I see in your paper interesting reports on fungus shows, and to-day while shooting, walking through the woods and moor, saw many very good specimens. I should be glad to send to any person a few that I find on my rambles if I knew who cared for them, and how to take them up and pack them. *C. R. S.*

Limekiln Heating.—I should not have deigned to reply further to "Jonathan's" communication (see p. 529) had my reply to his former letter been printed *in extenso*, whilst I should imagine, by the tone of it, that his appeared in full. I think—and I am sure I have your readers on my side—that I am fully entitled to ask and know what "Jonathan" insinuates by using the following words (speaking of anonymous communications) :—"I have only to state that I consider them less objectionable than the communications of those having a monetary interest in the affair, for they cannot be expected to see the question in other than a favourable light." Allow me to state I have no interest in the affair, either monetary or otherwise : I speak of facts, and facts only—and these are stubborn things, and such "Jonathan" will find out in time. "Jonathan" still harps on puddling and offers his advice gratis, but this controversy has been the channel of bringing me so many letters on the subject so dead against "Jonathan's" puddle that I cannot accept his advice, even gratis. Indeed, the absurdity of calling it a trifling matter to make a stokehole water-tight by puddle above the water-line, for fifty years, is too ridiculous to be entertained for one moment. And I think the Cowan Company far too wise and experienced to cheerfully undertake this so-called trifling matter. "Jonathan" also states that Mr. Fish, who seems to realise the situation at Rabley, has stated that Mr. Cowan has succeeded in building the water out at Garston, and "Jonathan" thinks he could do the same for me : perhaps so, but not with puddle. When people get into a mess it is really astonishing how they try to draw other people to the same level. I am not aware that Mr. Fish knows anything of Rabley stokeholes ; I might have spoken of them at the dinner-table, but I think not, and I see no reason why his name should be brought into question here. But in this case it tells much in favour, for it will settle the question if it is really a trifling matter to puddle a limekiln stokehole. This the Cowan Company can decide by stating the cost of the one at Garston ; and after their statement we shall hear no more of trifling expenses, of stokehole puddling, railway cuttings, or even "Jonathan" himself. *Edward Bennett, Rabley Nursery, Herts.* [The remarks which we have omitted from Mr. Bennett's former and present letter are entirely irrelevant to the subject of limekiln heating, being, in fact, simply hints at "Jonathan's" identity, to which he has no right to allude in our columns. The correspondence must now cease. EDS.]

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, NOV. 3, 1875.

MONTH AND DAY.	BAROMETER. Mean Reading Reduced to 32° Fahr.	BAROMETER. Departure from Average of 18 Years.	TEMPERATURE OF THE AIR. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	WIND. Average Direction.	RAINFALL.
Oct.	In.	In.	°	°	°	°	°	°			In
28	29.74	+0.01	49.8	39.3	10.5	44.0	— 2.7	41.3	90	E.N.E.	0.00
29	29.88	+0.14	50.3	39.7	10.6	43.8	— 2.8	39.8	86	E. : E.N.E.	0.00
30	29.77	+0.03	45.3	38.7	6.6	41.0	— 5.5	36.0	82	S.E.	0.00
31	29.72	—0.03	47.1	40.9	6.2	42.7	— 3.7	39.0	86	E. : S.E.	0.00
Nov.											
1	29.72	—0.03	49.0	37.6	11.4	42.9	— 3.3	37.2	81	S.E.	0.00
2	29.70	—0.06	51.8	37.8	14.0	44.0	— 2.0	38.1	79	S.S.E. : S.	0.02
3	29.65	—0.12	53.2	44.8	8.4	48.4	+ 2.6	44.9	88	S.S.E. : S.	0.01
Mean	29.74	—0.01	49.5	39.8	9.7	43.8	— 2.5	39.5	85	S.E. : E.	sum 0.03

Oct. 28.—Overcast, dull, cold day.
— 29.—Overcast, dull, and cold throughout.
— 30.—Overcast, dull, and cold throughout.
— 31.—A fine day. Cloudy at times.
Nov. 1.—A cloudy and dull day. Cold.
— 2.—A fine morning. Overcast, and dull after. Slight rain fell at 2 P.M. and 8 P.M.
— 3.—Overcast and dull day. Slight rain fell at 9 A.M., and frequently during the evening.

—— During the week ending Saturday, October 30, in the neighbourhood of London, the reading of the barometer at the level of the sea increased from 29.71 inches at the beginning of the week to 30.22 inches by the morning of the 25th, decreased to 29.73 inches by the afternoon of the 27th, increased to 30.08 inches by the morning of the 29th, and decreased to 29.93 inches by the end of the week. The mean reading of the week was 29.99 inches, being 0.27 inch above that of the preceding week, and 0.09 inch above the average for the present week. The highest temperatures of the air day by day at the height of 4 feet above the ground ranged from 56¼° on the 25th to 45¼° on the 30th ; the mean value for the week was 50¾°. The lowest temperatures of the air night by night varied between 44° on the 24th and 35¾° on the 25th, with a mean weekly value of 38¾°. The mean daily range of temperature in the week was 12°, the greatest range in the day being 20½°, on the 25th, and the least, 6½°, on the 30th. The mean daily temperatures of the air were as follows :—24th, 47°.4 ; 25th, 44°.5 ; 26th, 43°.6 ; 27th, 40°.8 ; 28th, 44° ; 29th, 43°.8 ; 30th, 41° ; and the departures in defect of their respective averages were 0°.5, 3°, 3°.6, 6°.1, 2°.7, 2°.8, and 5°.5. The mean temperature of the air for the week was 43°.6, being 3°.5 below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's

rays, were 92½° and 93¾° on the 24th and 25th, the mean for the week was 68°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 32½° on the 25th, and 34° both on the 26th and 27th; the mean value for the week was 36°. The weather during the week was very dull, cloudy, and cold. The direction of the wind was mostly from the S.E., and its strength gentle.

Rain fell on one day, viz., Wednesday: the amount measured was 0.27 inch.

The mean reading of the barometer at the height of 160 feet above the level of the sea for the month of October, was 29.61 inches, being 0.09 inch below the average of the preceding 34 years.

The highest temperature of the air in the month was 70¾°. The lowest temperature of the air was 35½°. The mean range of temperature in the month was 35¼°.

The mean temperature of the air for the month was 49°, being 1°.1 below the average of sixty years' observations, and 11° lower than that of September. The average decrease from September to October is 7°.

Rain fell on seventeen days during the month, the amount collected was 3.98 inches, being 1.21 inch above the average of sixty years. The fall of rain from January 1 to the end of October is 23.79 inches. The average fall for the ten months is 20.8 inches. The prevalent winds during the month were the E. and S.E., but the S.W. winds were deficient in amount. The S.E. wind prevailed almost on every day during the latter half of the month.

In England, during the week ending October 30, the highest temperatures of the air observed by day at the height of 4 feet above the ground was 57¼° at Nottingham; at Newcastle-on-Tyne the highest temperature in the week was 49°; the mean value from all stations was 53¼°. The lowest temperatures of the air observed by night was 30° at Cambridge; at Truro and Leicester the lowest temperatures were both 39°; the average value from all stations was 36¾°. The mean range of temperature in the week was the largest at Cambridge, 25°, and the smallest at Wolverhampton, 12¾°; the mean range in the week from all stations was 16½°. The mean of the seven high day temperatures was the greatest at Truro, 55¼°, and the least at Wolverhampton, 46½°; the mean from all stations was 49°. The mean of the seven low night temperatures was the largest at Truro, 46¼°, and the smallest at Newcastle-on-Tyne, 36½°, the general average value from all stations was 40¾°. The mean daily range of temperature in the week was the greatest in the neighbourhood of London, 12°, and the least at Norwich, 6¼°; the mean from all stations was 8½°. The mean temperature of the air for the week was 44°, being 7¼° lower than the value for the corresponding week in 1874; at Truro the mean temperature was the highest, viz., 50°, and at Newcastle-on-Tyne it was the lowest, viz., 42¼°.

Rain fell on three or four days in the week at most stations; the largest fall was 2.6 inches at Truro, and the smallest was about a quarter of an inch at London, Sheffield, Manchester, Bradford, and Leeds; the average fall over the country was half an inch. The weather during the week was dull, cloudy, and cold.

In Scotland the highest temperatures of the air varied from 57½° at Aberdeen to 52° at Leith. The lowest temperatures of the air ranged from 38½° at Greenock to 37½° at Glasgow and Aberdeen, their respective averages being 53¾° and 38°. The mean range of temperature in the week was 15¾°. The mean temperature of the air for the week was 45½°, being 1° above the value for the corresponding week in 1874. The highest temperature was at Aberdeen, 46¼°, and the lowest at Glasgow, 44½°. Rain fell to the amount of eight-tenths of an inch at Greenock, and to the amount of six-tenths both at Dundee and Aberdeen, but at Leith three-hundredths of an inch only was measured. The average fall over the country was half an inch.

In Dublin the highest temperature was 56½°, the lowest 42½°, the mean was 48°, and the fall of rain 4.04 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—*Azaleas.*—To have Azaleas that are intended for exhibition late in the spring, in a condition to flower in the way they are capable of being brought out, it will not answer to have their growth completed too early in the autumn, for then as a consequence, they are inclined to flower before they are wanted. This entails a process of retarding all through the early spring, by keeping them too much shaded and too cool, for either the well-being of the plants, as far as their general health goes, or the production of blooms of a satisfactory character. This is one of the causes by which are produced the wretchedly poor-flowered examples of these plants that are so often seen in June. To have a succession of Azaleas for blooming over a considerable period during the spring months it is requisite that they be started into growth at different times; this, as a matter of course, applies equally to the far greater number of places where they are not exhibited, but where, nevertheless, it is desirable to have the Azalea flowering season lengthened as far as possible. Plants that have been thus the latest in making their growth will in many cases not yet have their buds fully matured, and it is a mistake to suppose that as soon as these are perceptible nothing more is required. Whether Azaleas are early or late in making growth they should always be kept in a growing temperature—early in the season by the agency of sun-heat, shutting up the houses in which they are grown soon enough in the afternoons; later in the autumn by the use of a little fire. This treatment ought in all cases to be continued until the buds are thoroughly well up, as large and plump as grains of Barley. In this matter a wrong impression often prevails in supposing that the plants will flower later by stopping the further growth of the buds as soon as they are perceptible, and which really is not the case; the difference being that plants which have not had their bloom-buds fully matured the season previous, never will produce flowers half equal in size and general condition to such as have been well-ripened, and have no disposition to bloom later.

Azaleas that are set apart for exhibition should now at once be tied into whatever shape they are intended to assume—a somewhat rounded cone, that is, so as not to form straight lines from the one side of the base to the top, but considerably rounded; for if too straight they have an ugly formal look. Neither should they be too high in proportion to the width; the height, measuring from the rim of the pot to the top of the plant, ought to be a little, not much, more than the diameter at the base, at which point they should always be the widest. The shape these plants are thus trained to, may at first sight be supposed to be of no further consequence than mere appearance, but in reality it has much to do with a very important matter in their flowering. When Azaleas get to a considerable size it often happens that they do not bloom regularly all over at once, frequently opening at the top first. This is always produced by one of two causes, or both combined—the base of the plants not being wide enough, and being consequently overhung by the upper branches, or by the strongest shoots being trained up to the top of the plant, instead of always being bent round and kept to the base. Where large specimens have got into the unsatisfactory condition of flowering irregularly in this way, they should be untied and the thickest branches brought well down, leaving the weak ones to form the head: this, and giving them sufficient breadth at the bottom, will have the desired effect. The tying should be got on with without delay.

China Roses that were cut back and potted in the spring after flowering, and since then have been plunged out-of-doors as advised at the time, will now be full of flower-buds, and if placed in a light house with a very little warmth will at once open their blooms. Before moving them inside they should be well washed with a weak solution of "Gishurst," to destroy any aphides or red-spider that may be upon them. If a considerable number of Roses are treated this way for autumn flowering, it is not advisable to bring them all on into bloom at once. They open their flowers quickly without being subjected to a temperature much higher than an ordinary greenhouse, consequently it is better to place a portion of the plants in a north house, or anywhere where they can be kept as cool as possible, but where they will not get the soil too much saturated with wet. *Roses* are always held in estimation, but at no season of the year more so than through the autumn; the Chinese varieties, from their continuous blooming habit, are the best for being used in this way, but to have them in condition to produce a full quantity of flowers after this time, they must not have been neglected through the summer. With the roots confined in pots, although plunged, they are dependent for water in dry weather upon the water-pot, and when they have not been sufficiently supplied, especially with liquid manure—of which, when the pots are full of roots, they can take a good deal—the number of blooms they will produce is limited. They must also during their season out-of-doors be kept clear from aphides and red-spider, &c., likewise free from mildew. Where the above essentials requisite to their vigorous condition have been carried out in the summer, these pot Roses will be found most useful for furnishing cut flowers up to the end of the year. *T. Baines.*

FRUIT HOUSES.

THE ORCHARD-HOUSE.—The time has now arrived when it is necessary to attend to the requirements of the various fruit trees in this structure, such as repotting, surface-dressing, lifting, and root-pruning, &c. But before doing this, it will be advisable in the first place to divest the trees of their ripened foliage, and this will be found to be easily accomplished by merely drawing the shoots gently through the hand, when the leaves, being quite ripe, will readily separate from the shoots and spurs, and fall to the ground. but being sheltered from wind and weather would still remain upon the trees long after they had ceased to be of any use. All trees in pots which may have for a time been placed in the open air should now be returned to the house, in order that the soil in which they are growing may become somewhat dry and in proper condition to admit of the plants being shifted into larger pots or surface-dressed, as may in their case be found necessary; while those planted out should be examined, and where necessary, lifted carefully root-pruned and then immediately replanted. At the same time the soil may be enriched by a portion of fresh turfy loam—a like portion of the old or effete soil being removed to make room for the new. Where trees of this description have been annually or repeatedly lifted and root-pruned, this operation, when properly performed, far from acting as an injurious check upon them, has, on the contrary, the effect of keeping them in a healthy and fruitful condition, the roots being prevented from going too deep into the soil, or penetrating the subsoil, the result of which is very frequently the production of gross, unripened, and consequently barren wood. As soon as the trees have been replanted they should receive one good watering in order to settle the soil among the roots, and to steady the plants; when this has been absorbed, and when the soil has again become moderately dry, it should be trodden down and made tolerably firm, and should at once have a good mulching of half-rotten manure applied, after which water will not be required for some time. Healthy young trees in comparatively small pots should now be shifted into larger or fruiting pots, some 15 or 18 inches in diameter. The compost used should consist principally of rich turfy loam, and the pots should be well drained, but the drainage should be so placed as not to altogether prevent a portion of the roots leaving the pots and entering the border or bed of prepared soil on which they may sometimes be placed for this purpose. Trees already in their fruiting pots, and to which larger shifts cannot be given, should have all roots which may have come from the bottoms of the pots, and penetrated the bed of soil on which they have been placed, cut clean off with a sharp knife. The soil from the surface of the pots should be removed to as great a depth as possible, the portion taken off being at once replaced by a rich compost, or one in accordance with the requirements of the various trees, but should generally be composed principally of rich turfy loam and well rotted manure of some sort, that of the pig being generally preferred; and to this may be added a portion of crushed bones, &c. This when well mixed and in a proper condition—that is, neither too wet nor too dry—should be placed in the pots and rammed down as firmly as possible; and then each should be well watered through the rose of a watering-pot: this it will not be necessary to repeat for some considerable time. The trees may now be pruned, if desired, but in most cases it is advisable to defer this operation until spring, as, should a mild winter occur after this has been done, such trees as the *Apricot*, the *Peach*, and even the *Pear*, might get so forward, and bloom at so early a period, that the protection of an unheated structure would hardly secure their safety. This is much less likely to be the case with unpruned trees, and the pruning can, moreover, be better performed when the buds are beginning to expand, when it will be more easy to distinguish wood and bloom buds from each other. Whenever it may be considered advisable to dress the whole or any portion of the trees for the prevention of mildew or the destruction of insects, this should always be done as soon as the trees are pruned. But if there is any appearance of the brown aphis, scale, red-spider, or other insect upon the young shoots or spurs of the *Peach*, *Plum*, or other trees, let them be at once washed off with a sponge dipped in tolerably strong tobacco-water, or the trees may be syringed with strong quassia-water, which may be made by boiling the chips for some ten or fifteen minutes in rain-water, after the rate of an ounce of chips to a quart of water, adding to it while cooling an ounce of soft soap. Some two or three hours after the trees have been well syringed and wetted with this solution, it may again be advisable to syringe and well wash them with pure rain-water. When they have become dry, the trees in pots should be placed close together in groups in the most convenient parts of the structure, and the pots should be covered up to a considerable depth, and entirely hid by littery manure, straw, Fern fronds, or any similar material. All unoccupied portions of the house will now be found to be useful for the purpose of standing ornamental evergreens in pots, Myrtles, Tea Roses, Chrysanthemums, &c., while Strawberry plants in pots may be placed upon the curbs and other convenient parts of the house which may be at liberty. Unless the weather is severe, the ventilators may be left open by night and by day, taking care, however, to close them during the prevalence of high wind and

anything like severe frost, otherwise it is desirable to keep the house as cool as possible for some time to come. *P. Grieve, Culford, Bury St. Edmunds.*

VINES.—If the earliest Grapes are taken from pot Vines, these should be started at once, when, if all goes well with them, they may be expected to be ripe some time in April. Bottom-heat is not essential to success, though, if compelled to force against time, they should be plunged in a bed of Oak leaves till the buds show fruit, and this will hasten them immensely. Even in large gardens where there are many established vineries, it is customary to take the first Grapes from pots, the reason given for doing this being that by forcing permanent Vines for a series of years unnaturally early, the Vines soon become decrepid, and doubtless there is a certain amount of truth in this, but as they can be so easily and quickly renewed, why should the culture of pot Vines on this account be so general? I think the real reason is that gardeners, like other mortals, are creatures of fashion, and that is why pot Vines are so generally grown. If they were always creditable, or as frequently so as early forced permanent Vines are, I should have nothing to say against its being thought the "right thing" to cut the fresh Grapes from pot Vines. I prefer permanent Vines and finer Grapes with less labour and anxiety. The early vinery may now be started; the border (if the roots are inside) should have a thorough soaking with water at a temperature of 90°; afterwards cover the border or floor with leaves and stable litter to a depth of 2 feet, and occasionally turn the whole or part over; the moist, ammonia-charged heat arising from this is in every way beneficial to the Vine. Syringe the canes on bright days, and maintain a mean temperature of 55° till the buds burst; then increase a few degrees. The outside border must have regular attention as to warmth, and coverings from cold rains. Prune succession-houses as soon as the Vines have shed their leaves; early pruning induces earlier and complete rest. From all ripe Grapes remove the dead and decaying foliage of the Vines, for if left they engender moisture, to the injury of the crop. If Vines that were planted late are not yet hard and brown in the wood, fire-heat should still be applied, and this with free ventilation will soon ripen them. *W. Wildsmith, Heckfield.*

CUCUMBERS.—The autumn fruiters are now in good bearing, and those plants which have been yielding the supplies all through the summer are being rooted out, to make room for the mid-winter and early spring fruiters to take their places. We are taking advantage of this nice dry weather to perform the necessary wheeling incidental to a fresh start. I have previously advised that everything should be made quite sweet and clean, for the advantages of a good start are manifold. Maintain a night temperature of 70° to 72°, and 80° to 86° by day, with sun-heat. Give a little air at the apex on every favourable opportunity, but this should not be done at this season of the year with a view to lowering the temperature, but rather to permit the escape of rank heat and steam, and thus secure a sweet and healthy atmosphere. Avoid as far as possible giving air on bright days when the winds are very cold; rather counteract the effect or power of the sun by shutting off the top-heat valve for a few hours at mid-day. Avoid at all times sudden fluctuations in the temperature, and at all times take care that the water and soil applied to the roots be of about the same temperature as the house. Cease to employ the syringe from henceforth, but keep the evaporating troughs regularly charged for the present. Damp the paths, walls, and pipes, morning and afternoon, in warm, clear weather, and employ a periodical dusting of flowers of sulphur amongst the foliage as an antidote to and preventive of red-spider and mildew. Expel worms, if any, by means of weak doses of lime or soot-water, and maintain a moderately firm condition of the roots. In getting in the fermenting material let it be fairly rammed down, and over it place a good coating of sods, grass downwards, then the soil in hillocks of about a bushel; afterwards earth-up as the necessity for it arises. *Thomas Simpson, Chelmsford, Nov. 2.*

Law Notes.

WILLIAMS *v.* LESLIE.—This case was commenced on Thursday in the Exchequer Division of the High Court of Justice, before Mr. Baron Bramwell and a special jury. Mr. Sergeant Parry and Mr. Kemp appeared for the plaintiff. Mr. Hawkins, Q.C., and Mr. Lumley Smith appeared for the defendant.

Mr. Kemp (in the absence of Mr. Sergeant Parry) in opening the case, stated that the plaintiff was a nurseryman carrying on a very large business at Holloway, and dealing in plants of great value. The defendant resided in Ireland, and had a fine property and gardens there. He came into possession of them about the year 1872. A man of the name of Hood was Mr. Leslie's head gardener, and he gave a variety of orders to the plaintiff. The price was discussed at the time the orders were given, and the goods were charged accordingly. Sometimes the orders were given to the plaintiff, sometimes to his traveller. The goods were placed in the defendant's grounds, and defendant must have known they were there. When Mr. Leslie was applied to for payment he wrote letters stating he had given no authority to his gardener to order anything whatever, and repudiated the whole transaction. The claim was for £428 8*s.* 6*d.* Strangely enough the defendant had paid into Court £328 8*s.* 6*d.*, but did not plead that which he stated in his letters—namely, entire repudiation. Unless the defendant intended to dispute the fairness of the charges his (Mr. Kemp's) case was that the matter was discussed, that there was a bargain made for the goods, that they were sold according to the catalogue, and that they were fair and ordinary charges. One plant was charged at 15 guineas. The plants, although of an expensive character, were only charged according to the bargain made at the time by Mr. Hood on the part of the defendant; and if they were fairly and reasonably charged, then the plaintiff would be entitled to the full amount claimed.

Mr. B. S. Williams, the plaintiff, was then called, and stated in reply to Mr. Kemp: I am a nurseryman carrying on business at Upper Holloway, and deal in plants of an expensive character. The defendant has very extensive gardens in Ireland. In September, 1872, I saw Hood at the flower show at Glasgow; my traveller sold Hood some goods, and I also sold him some goods in 1873. On September 23 I sold Hood a plant for £26 5*s.* which was an agreed price.

Mr. Hawkins objected, on the ground that a gardener has not his master's implied authority to go to a flower show and make a contract at any price.

Mr. Kemp: Do you carry on an extensive business?—Nearly all over the world. I have 7000 customers, and it is the customary thing for gardeners in the position of Mr. Leslie's gardener to order goods on their master's behalf, and I never see the principals. If my travellers call they get their orders from the gardeners.

By the Judge: I do sometimes see the principals.

Mr. Hawkins: I have a difficulty in seeing how any transaction between this gentleman and some other gentleman may affect a matter of contract between Mr. Leslie and the plaintiff.

The Judge: The object of the question is to show practically that persons who are gardeners to men of position and wealth like Mr. Leslie order things for the gardens in the same way that a Duke's cook orders his meat and things of that kind.

Mr. Hawkins: It may be for particular things. Suppose the Duke's cook had authority to order I do not know how many legs of mutton in the course of a day, and instead of ordering half-a-dozen legs of mutton he orders half a flock of sheep, all the legs to be sent to his master, he would have no authority to do that.

The Judge: He would have no jurisdiction to do that, because he had no authority to buy wool.

Mr. Hawkins: Assume them to be skinned.

The witness (in reply to further questions) said: On September 23 I received an order for a plant for £26 5*s.*, that was an agreed price with Hood. There were only two orders I received myself.

Cross-examined by Mr. Hawkins: I have supplied goods to Mr. Leslie's gardener for about four or five years, and I have been paid for some. I supplied his brother, Col. Charles Leslie, with goods before him. I think I first supplied the defendant with goods in 1870. Hood was gardener when the account was sent in to the defendant, but he is not now. I do not know who he is gardener to now. I have seen him here to-day: he has been subpœnaed by my lawyer to attend as a witness here to-day. Hood was dismissed by Mr. Leslie about last November or December: I know it was near Christmas, but I am not quite certain as to the date. I have received a letter from him (Hood) since he left, but my account was sent in before he left. Hood has been in a situation since, but I did not recommend him. I had nothing at all to do with it. I took a foreman into my service after he left. He came to me to get him a place. Colonel Leslie died about June, 1871, and Mr. John Leslie, his brother, who is the defendant, succeeded to the estate immediately after Colonel Leslie's death. Hood was the gardener in Colonel Leslie's time. The last account in Colonel Leslie's time amounted to £7 6*s.* 6*d.* First in order of date is £9 5*s.* 6*d.* in November, 1871. I have not got the invoice-book for the year 1870, because I was not asked for it. I am not sure whether, before the death of Colonel Leslie, I ever supplied a plant of any sort or kind which amounted to £1 in cost. During the Colonel's lifetime I supplied, on the order of Hood, common bedding plants and out-door shrubs. Referring to the second account, in November, 1871, it amounts to £9 5*s.* 6*d.*; there is not one thing there beyond the value of 15*s.* That was the first transaction with Mr. John Leslie. The account for £2 19*s.* 6*d.* had been paid before the £7 10*s.* and £9 5*s.* 6*d.*, making a total of £16 15*s.* 6*d.* They were paid on January 30, 1873. At that time I had furnished other accounts, not to Mr. Leslie, but to Mr. Hood.

The Judge: Had you headed the account to him?—It was headed to Leslie, but Hood was the gardener. I do not recollect what the accounts were.

By Mr. Hawkins: They were accounts for goods supplied on September 19, 1872, for £24 16*s.* 6*d.*, and December 30, 1872, for £34 13*s.* It was my custom to furnish accounts to the gardeners if they gave the orders, and if the gentlemen gave the orders the accounts were sent to the gentlemen. When we send the bill to the gardener we expect him to give us the money. When I received the £16 15*s.* 6*d.* in 1873 I did not make any inquiry why the two accounts for September and December were not paid. I knew Mr. Leslie was a man of property, that he was able to pay, otherwise I should not have sent the things. They sent the £16 up, and of course we receipted the bill. We send in our accounts regularly—that is to say, we send the invoices when the goods go, and we send the bills once in six months. We sent accounts for goods amounting to £72 6*s.* 6*d.* to Hood, in February, 1874. I received a letter from Hood, dated February 16, 1874:—"Your note to hand with accounts, which should have been looked at and settled long ago, but we have been electioneering for a long time back. As soon as our agent comes home, about the end of the week, it shall be forwarded." We were paid the £72 6*s.* 6*d.* on May 25, 1874, by a bank post bill which I received from Hood in a letter dated May 25, 1874. I had sent in another account to Hood, not to Mr. Leslie. When I received that bank post bill in May, 1874, for £72 6*s.* 6*d.*, there was £119 owing for goods supplied in December, 1872. I never made any personal application to Mr. Leslie on the subject for that until last autumn. On May 25 I received a letter from Hood enclosing a bank post bill for £72 6*s.* 6*d.* as payment of account. The letter went on to say, "My reason for sending you this is that I have rather exceeded my allowance for 1873. I will send you the balance, £119 odd, in a month or two, when I can draw on my next year's account. There is another account, of £70, which belongs to the 1874 account; as I told Outram when I ordered the things of him in July, it was to go to that, and some I ordered from you in December. When you send the receipt, put in 'Account rendered Christmas, 1873.' Hoping this will suit you, if not I will try and get the money at once for you, but it would put me to some trouble. I will take the Azalea at the price quoted—which was 31*s.*—and the other things had better come at once. Have you got lævis [?] to spare for me in the autumn?—if so, at what price? Hoping to see you over in August, as there will be a grand show, and hoping to hear from you shortly—Yours truly, W. Hood." The witness continued: I did not make any inquiries as to the meaning of the word "allowance." My cashier sent the receipt. By the words "I have exceeded my allowance for 1873" I thought he meant he wished to suit himself, or his employer—one of the two. I could not tell whether his employer wished to have credit for £119.

Mr. Hawkins: Be serious: do you mean to say it would be the least convenience to Mr. John Leslie that he should have one account for £119 standing over, and not paying it with the other account?—Quite so. Are you serious?—Yes, I am serious about it: there are plenty of gentlemen whose gardeners send the accounts in the same way. They cannot always pay the money.

The Judge: "I have exceeded my allowance for 1873" might mean that he had exceeded that sum of money which his employer allowed him to spend on plants.

The Witness: That is what I mean.

Mr. Hawkins: If a man knows that I limit my gardener, then he has express notice of a limited authority.

The Judge: He says, "I have been buying more plants than my employer allows me to do, but I can get the money if you want it."

Mr. Hawkins: Do you seriously mean, upon your oath, that you supposed it would be a convenience to Mr. John Leslie to have one account for goods supplied in 1872 standing over after May, 1874?—Yes, I do: When they write to us and want it to stand over we let it stand over: when a gardener tells me he has exceeded his allowance I understand by that he has spent all he dare spend that year. He has got our goods; and we do not send him our goods after that. It is true that after the date of the last letter, without any inquiry from Mr. Leslie or any communication from him, we did supply this man Hood with £196 of goods. We supplied Mr. Leslie with all his goods without inquiry. It is very likely we sent goods invoiced to Mr. Leslie at £194. We did not make any inquiries as to what the gardener was authorised to spend. I did not know what his allowance was. I understood by his letter that he had gone beyond his allowance, but I never knew before the letter that he had an allowance, and never made any inquiries what it was. Altogether it amounted to £234. The items making up that sum

were incurred in June, August, and September, 1874. In the second account an Azalea is charged £21, that is not the same plant for which I asked 15 guineas; that was the Azalea improved. I sent it to Mr. Leslie, and it was exhibited at some of their shows at Belfast.

The Judge: You sent this one for 15 guineas?—No; I sent the 20-guinea one; it was a larger specimen. I had no catalogue showing that I had one for 15 guineas and one for 20 guineas, because they are not catalogue plants. They are specimen plants for exhibition. They would be 3s. 6d. in the catalogue. He did not see the specimen, but he had a description of it—so many feet high, and so on; that is how my travellers describe plants in their journey. This plant was twenty years old.

Mr. Hawkins: I do not care about the age of it. Have you any letters showing that he ordered any different plant?—I do not know that I have any letter; we wrote to him telling him about it. I do not know what he meant by the expression in his letter, "Put in Account rendered, 1873." I suppose it was something to suit himself. I cannot recollect everything in my large business. I call this a trifling thing, because we sell plants at 100 guineas. I did not know that when he asked me to put in the receipt "account rendered to 1873," that that was intended to look as if it comprised all the accounts. I knew that other money was owing to me. I thought it was for his convenience. I supposed he and his master had some understanding together about this account. The master might think that everything up to 1873 was paid, but I cannot tell what he might think, having got that letter of the head-gardener's. I did not communicate with the gentleman himself. I did not inquire of the gentleman at all about the account for £119. I do not know that anything occurred to me about it as to giving a receipt which was false up to the end of the year 1873. I knew that he was dealing with other people besides me, and there was plenty owing too, according to what I have heard.

Do you happen to know that this gardener who had overrun his accounts had pledged his master's credit in one year to the extent of over £2000 for plants of this sort?—I do not know he did that.

You said there was plenty owing?—There are other people who have money owing; that I have heard lately. The first year my account was £20 odd, and in the last year it was between £200 and £300. I did not think that was an extraordinary increase. They were using the plants for exhibition and building new houses. They were not sent to Glasgow for exhibition. I exhibited them there myself, and they were bought at the Glasgow exhibition to go to Mr. Leslie. They were not to go to some other flower show. I did not supply any plants for the flower show. We packed them to go to Ireland. I did not receive from Mr. Hood any orders to pack and send plants to any exhibition. They were to be exhibited at a flower show, but we did not send them to an exhibition.—You knew Hood wanted them for an exhibition? He would not have wanted those high-priced plants except for exhibition, just the same as many other gentlemen buy plants.—To be shown as if Colonel Leslie had grown them? Yes; it has nothing to do wih me what they do with them.—Is that the general understanding, that when a plant is exhibited it is to be exhibited as if it is the product of the care and labour and attention of the head gardener? Yes.—You supplied him with these exhibition plants? Yes.—And charged the master? Yes: The master must know they were exhibited. He knew he could not grow them in that time. Some masters allow their gardeners to give unlimited orders, and some limit them. If Hood had ordered 200 20-guinea plants for exhibition I should have looked round.—Why did you not look round when he said he exceeded his allowance? What was I to look round for?

Mr. Baron Bramwell said that the defendant had the plants and had kept them.

Mr. Hawkins said the defendant knew nothing about it. He saw the greenhouse full but did not know one plant from another. He was not informed about it, except when the accounts came in from time to time. Then he saw they were very high prices, and he told his gardener he would have no more.

Mr. Baron Bramwell: That was when the accounts came in.

Mr. Hawkins said that Mr. Leslie had paid every sixpence up to May 25.

Mr. Baron Bramwell: When these accounts came in afterwards ought he not to have looked into his garden?

Mr. Hawkins said he did not know about it until long after Hood had left.

Mr. Baron Bramwell: But he does not return the goods.

Mr. Hawkins: He cannot identify them.

Mr. Baron Bramwell: He does not say, Come and take the plants, although he knows about it as soon as the invoices came in.

Mr. Leslie: I do not know that they are there now.

Mr. Baron Bramwell further observed that he wanted to point out what seemed a difficulty in the defendant's case. There were some grounds (though he would not say of what value) for saying that in this case the plaintiff knew that Hood was exceeding his authority, but as soon as the defendant knew that he had been exceeding his authority he should have said to Mr. Williams, "Here is a parcel of things ordered without authority, and you must fetch them away. I shall not pay you."

Mr. Hawkins: He did not know it. True the invoice came in, but Mr. Leslie, who only sees a plant here and there, has no knowledge on the subject.

Mr. Kemp said the gardener was there who would indentify them.

The Judge said his difficulty was that, as soon as he knew by the accounts coming in to him that the money was claimed from him, he ought to have said, "Fetch the things away."

Mr. Hawkins observed that Mr. Leslie wrote and said he had taken every means to protect himself against the numerous frauds practised upon the connivance of the horticultural trade and Hood, and denied that there was anything owing.

After some further argument the Judge said the difficulty he had mentioned might be met by evidence in the defendant's possession.

Cross-examination continued: I never communicated with Mr. Leslie at all. We sent in the accounts to Hood up to the time he left. He gave all the orders and we sent in all the accounts, as we always do. The receipt that was given was in these terms:—"Received of John Leslie, M.P., £72 6s. 6d., on account of goods supplied." That was sent to Mr. Hood, not to Mr. Leslie. There was no communication made to Mr. Leslie, saying that his servant was trying to get an invoice of this sort. I did not write to Mr. Leslie, because he would be offended with me, considering he had a gardener.

Offended if you told him that the gardener had been trying to get a false receipt?—I do not know about a false receipt. I do not think it is a false receipt.

The Judge: It would have been, would it not?—I do not think so. I do not know in whose name the bank post bill was sent. The invoices are made out to Mr. Leslie, with Hood's name at the bottom. That is how we make out all invoices ordered by gardeners. We sent in an account to the end of 1874, showing a balance of £428, I think. We give credit for £72 6s. 6d. under the date of May 27, 1872. That was the first account ever sent in to Mr. Leslie himself.

The Judge: Is it not 1873?

Mr. Hawkins: May, 1874, is the letter from Hood; the first communication from Mr. Leslie is after Hood had left.

The witness: We sent in the statement to Mr. Leslie when we heard Hood had left. That would be about the same day—about the 19th. Hood wrote to say when his master discharged him.

At this stage the case was adjourned to Friday morning at 10 o'clock.

Alleged Breach of Contract.—*Russell and Another* v. *Levies.*—This was an action brought on the 26th in the Bloomsbury County Court, before Mr. Judge Russell, in which the plaintiffs, described as gardeners, florists and seedsmen, carrying on business in Haverstock Hill, sought to recover the sum of £8 19s., in consequence of the defendant, a gentleman residing at 35, Belsize Park Gardens, not completing a yearly contract he entered into with the plaintiffs, who had contracted to find flowers for the flower garden, seeds for the kitchen garden, and plants for the balcony, at at the rate of £35 a-year, payable quarterly. The plaintiff, in stating his case at considerable length, said that he had supplied every requisite seed for the flower as well as the kitchen garden. The defendant had paid him in advance, and the action was brought to recover one quarter's payment in accordance with the contract, from March to June last. The plaintiff said when he entered upon his duty the defendant's garden was a complete wilderness. William Miles, in the plaintiff's employment, stated that in April last he took some plants to the defendant's, and was told by the defendant's wife to take them away, she stating that her husband would not employ the plaintiff again or receive any seeds or plants from him. In cross examination the witness said he had been twenty-five years a gardener, and when he first entered the plaintiff's service he found the defendant's garden a perfect wilderness. Another practical gardener was called, who said that two months ago he saw the defendant's garden, when everything was clean, neat, and well stocked. The plaintiff's son proved that everything was well stocked, and that all that was contracted for was done. This was the plaintiff's case. Upon the part of the defence it was urged that as the defendant had paid £3 into court he denied further liability, as the contract was for twelve months, and that the work not being done in accordance with the contract, the defendant refused to have any further transactions with the plaintiff. The learned Judge considered the plaintiff had been well paid for the services he had rendered, and therefore he should give judgment in favour of the defendant, to whom costs were allowed.

Variorum.

Acorn Coffee.—In Germany "acorn coffee" is used, and greatly liked, as a substitute for ordinary coffee, and is considered to be very strengthening for consumptive people and delicate children. The acorns are gathered in autumn, when they are ripe, shelled, and, after being cut into pieces of the size of coffee berries, they are thoroughly dried in front of the fire, or in a cool oven. They are then roasted like ordinary coffee, until they become a cinnamon-brown colour. Immediately after roasting the acorns are ground or pounded in a mortar, to prevent their becoming tough. Whilst the coffee is being ground or pounded a very little butter is added, and the coffee is then placed in air-tight bottles. For children: prepare in the same way as ordinary coffee, using a quarter of an ounce to a pint of water, adding milk and sugar to taste. Young children should take it with two or three parts of milk, For adults: half an ounce of the coffee may be used to a pint of water. Acorn coffee and ordinary coffee are frequently mixed, and the decoction is found very palatable. In their raw state acorns are known to be powerfully astringent, but they lose this quality in the process of roasting. In some respects acorn coffee is preferable to coffee proper, having none of the drying properties attributed to the later.—*Cassell's Dictionary of Cookery.*

Stanwick Nectarine.—This Nectarine was was raised at Stanwick Park, one of the seats of the Duke of Northumberland, from stones given to Lord Prudhoe by Mr. Barker, Her Majesty's Vice-Consul at Aleppo, and who afterwards resided at Suædia, in Syria. The seed was sown in March, 1843, and the buds were inserted the following autumn on a Bellegarde Peach, and the first fruit was produced in 1846. Lord Prudhoe, who had become Duke of Northumberland, placed the Stanwick Nectarine in the hands of Mr. Rivers, of Sawbridgeworth, for propagation, and on the 15th of May, 1850, the stock, consisting of twenty-four plants, was sold by auction, and realised £164 17s., which his Grace presented to the funds of the Gardeners' Benevolent Institution, such an amount never having been realised before for the same number of small Nectarine trees in pots. *Fruit Manual.*

Answers to Correspondents.

Books: *F. T. B. W.* We do not know of any book which contains "illustrations of all the colours." The best Botanical Dictionary is Paxton's, published by Bradbury, Agnew & Co.—*Liber.* We cannot tell; apply to some of the dealers in second-hand books.—*A Constant Reader.* Cuthill on *Market Gardening*, if obtainable; and Earley's *High-class Kitchen Gardening.*

Names of Fruits: *G. G.* 1, Glou Morçeau; 2, Beurré Sterkmans; 3, Bezi d'Esperen; 4, Van Mons.—*W. P. R.* 1, Boston Russet; 2, London Pippin.—*F. Clarkson, Bedale.* 1, Gansel's Bergamot; 2, Glou Morçeau; 3, Joséphine de Malines; 4, Beurré Rance; 5, Easter Beurré; 6, Figue d'Alençon; 7, Beurré Diel (small).—*W. P. Apples:* 1 and 2, Hanwell Souring; 3, Old Orange Pippin; 4 and 7, Golden Winter Pearmain; 5, Shepherd's Seedling; 6, Court of Wick; 8, Wellington. *Pears:* 1, Crassane; 2, Brough Bergamot; 3, rotten; 4, Passe Colmar; 5, Bezi d'Esperen; 6, Beurré Rance.—*M. N.* 1, much bruised, but apparently Dorothée Royale Nouvelle; 2, Van Mons' Leon le Clerc; 3, Winter Nelis; 4, Knight's Monarch; 5, Yorkshire Greening; 6, Hoary Morning.—*A. B.* 1, Golden Winter Pearmain; 2, King of the Pippins; 3, Reinette Vert; 4, Dumelow's Seedling; 5, Beurré Rance; 6, Fondante de Charneu; 7, Gravenstein; 8, Joséphine de Malines; 9, rotten; 10, Beurré Vert d'Hiver. Please only send six another time.

Names of Plants: *T. H. A.* Tropæolum tuberosum.—*G. M.* We cannot identify your plant, it is so much withered. *C. P. Nelson.* Urceolina pendula.—*Clarke.* 1, Begonia insignis; 3, B. Dregei; 4, B. foliosa; 6, B. nitida; 7, B. manicata; 2, 5, and 8, we are unable to identify, but we might be able to do so with good fruiting specimens if you can send them.—*M. J.* Parietaria officinalis; the fungus is Rhytisma acerinum.—*J. R. Haig.* Dendrobium japonicum.—*Hortus.* 1, Pyrus torminalis (edible), not poisonous. 2, Tacsonia mollissima; 3, Rhamnus Alaternus variegatus; 4, Abies Douglasii (?); 5, Picea Pinsapo; 6, Rosmarinus officinalis.

Seedling Pear: *J. Hart.* Your Pear has not shape to recommend it, being in fact very ugly, but the colour is quite unique, the whole of one side being a splendid crimson; the flesh is white, coarse grained, gritty at the core, but with a very melting and delicious flavour and plenty of juice. It is a Pear which ought not to go out of cultivation, but at the same time we can hardly recommend it for general distribution. If you submit it to the Fruit Committee of the Royal Horticultural Society when at its best, its intrinsic merit will soon be decided.

SLUGS: *A. D.* Dust the surface of the ground with quicklime and soot early in the morning while the plants are covered with dew, and also after a showery period. If this is repeated from time to time, as soon as the lime-dust loses its caustic properties from absorbing moisture, you will find the slugs diminish in numbers. Live edgings to the paths afford much shelter to pests such as these; and if you still use them we advise you to remove them, and use some of the edging tiles or bricks instead. That invented by Mr. Stevens, and figured at p. 892, 1870, is the best we know.

VINES: *A Subscriber.* 1. You may plant your Vines at about 3 feet apart. 2. Cut the canes down to say from 3 feet to 4 feet; or, if against a front wall, to a few inches above the level of the wall plate.

ZINNIAS: *Erfurt.* Flowers received, but no letter of advice.

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CATALOGUES RECEIVED.—Maurice Young (Milford Nurseries, near Godalming, Surrey), Catalogue of New and Rare Plants, Coniferæ, Rhododendrons, Roses, Trees, &c.—Ewing & Co. (Eaton and Cringleford, Norwich), Rose Catalogue, also their General Nursery Catalogue, &c.—Rush & Yeates (19, Foregate Street, Chester), Price List of Forest, Ornamental and Fruit Trees, Evergreens, Flowering Shrubs, Roses, &c.—Rodger, M'Clelland & Co. (64, Hill Street, Newry), General Catalogue of Conifers, Ornamental Trees and Shrubs, Fruit Trees, Herbaceous Plants, &c.

COMMUNICATIONS RECEIVED.—F. S. R.—W. S. C.—W. J. B.—A. B.—Mr. Newman.—W. P.—Agher.—Lattenbury.—J. Dimmick.—W. J. J.—A. H.—W. R. F.—C. P. E.—Mr. O.—W. S.—A. B. H. C.—E. A.—J. L.—J. A. H.—J. R. J.—W. B. H.—A. G.—J. S., Lyons.—H. H. D.—G. H.—E. F., Florence.—P. W.—W. S.—A. C. van Eeden & Co.—W. E.—W. G.—E. M.—W. S.—B. M.—G. L.—J. T. B.—D. M. (many thanks).—W. P.—J. T.—A. F.—W. K.

Markets.

COVENT GARDEN, *November* 4.

We have very little alteration to make from last week, prices remaining much the same, with a better demand for first-class goods. Among imported fruits, some American New Town Pippins have been offered, but not first-rate samples, though good prices have been realised. The demand for Kentish Cobbs has been quiet, buyers still holding back for a reduction. *James Webber, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 6	Oranges, p. 100	20 0	..
Cobbs and Filbts., lb.	0 6	0 9	Peaches, per doz.	2 6	12 0
Damsons, per bushel	2 0	4 0	Pears, per doz.	1 0	4 0
Figs, per doz.	0 9	3 0	Pine-apples, p. lb.	4 0	7 0
Grapes, per lb.	0 9	5 0	Plums, per bushel	2 0	6 0
Lemons, per 100	8 0	12 0	— per punnet	0 6	1 6
Melons, each	2 0	5 0	Walnuts, p. bush.	8 0	12 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Horse Radish, p. bun.	3 0	5 0
— Jerusalem, p. lb.	0 3	..	Leeks, per bunch	0 2	0 4
Beans, Scarlet Runners, per lb.	0 6	..	Lettuces, per score	2 0	..
Beet, per doz.	1 0	2 0	Mint, per bundle	0 4	..
Brussels Sprouts, lb.	0 4	..	Mushrooms, per pott.	1 0	2 0
Cabbages, per doz.	1 0	2 0	Onions, young, bun.	0 4	0 6
Carrots, do.	0 6	..	Parsley, per bunch	0 4	..
Cauliflowers, p. doz.	4 0	..	Radishes, per bunch	0 2	0 4
Celery, per bundle	1 6	2 0	— Spanish, doz.	1 0	..
Cucumbers, each	1 0	1 6	Salsafy, per bundle	0 9	..
Endive, per doz.	1 0	2 0	Seakale, per punnet	2 0	3 0
— Batavian, p. doz.	2 0	3 0	Shallots, per lb.	0 3	..
Herbs, per bunch	0 2	0 4	Tomatos, per doz.	1 0	2 0
			Turnips, per bundle.	0 4	..

Potatos—New: Kidneys, 5*s.* to 8*s.*; Rounds, 5*s.* to 7*s.* p. cwt.

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0	12 0	Heliotrope, per doz.	6 0	12 0
Bouvardias, do.	12 0	18 0	Lilium auratum	12 0	36 0
Chrysanthemum, do.	4 0	9 0	Mignonette, do.	3 0	6 0
Coleus, do.	4 0	6 0	Myrtles do.	3 0	9 0
Cyclamen, do.	12 0	24 0	Pelargoniums, dble., per doz.	4 0	12 0
Cyperus, do.	6 0	12 0	— Scarlet, do.	3 0	9 0
Dracæna terminalis	30 0	60 0	Primula sinensis, do.	4 0	12 0
— viridis, per doz.	12 0	24 0	Solanums, do.	6 0	24 0
Ficus elastica	1 6	7 6	Veronica, do.	4 0	12 0
Fuchsia, per doz.	6 0	12 0			
Heaths, in var., doz.	12 0	30 0			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Camellias	4 0	12 0	Pelargoniums, 12 spr.	1 0	2 0
Carnations, 12 blooms	1 6	4 0	— Zonal, do.	0 4	1 0
Chrysanthem., 12 bl.	3 0	6 0	Primula, dbl., p. bun.	1 0	1 6
Cornflower, p. doz. bun.	3 0	6 0	Roman Hyacinths, 12 sprays	4 0	6 0
Cyclamen, 12 blooms	0 3	0 6	Roses, indoor, p. doz.	2 0	6 0
Epiphyllum, p. doz.	1 0	3 0	— outdoor, 12 bun.	9 0	12 0
Eucharis, per doz.	4 0	12 0	Spiræa, 12 sprays	1 0	3 0
Gardenia, per doz.	3 0	6 0	Stephanotis, 12 sprays	4 0	9 0
Heliotropes, 12 spr.	0 6	1 0	Tuberoses, per doz.	2 0	4 0
Mignonette, 12 bun.	3 0	6 0	Violets, 12 bunches	1 0	3 0
Narcissus, per dozen	3 0	6 0			

SEEDS.

LONDON: *Nov.* 4.—More attention, as noted in our last, is now being given to Clover seeds, and present prices exhibit a decided advance on the opening quotations. A fair quantity of Bordeaux Red has been placed, but in American seed the transactions as yet have been insignificant. The reports received from the United States in regard to the new crop are too meagre for any accurate opinion to be yet formed; but it does not seem probable that the English market will this season be overwhelmed with shipments from that quarter. In Trefoils there is a marked tendency upwards. For Alsike and white Clover the trade keeps firm. Foreign Italian meets a small demand. Very little business is doing in either white or brown Mustard seed. Good black Rape seed is in active request at the late advance. With regard to Canary seed the profitable prices now realised by growers have brought forward a larger supply of home grown seed. Hemp and Millet seed keep scarce. A good business is passing in blue boiling Peas. Seeding Linseed, after a long period of depression, exhibits a rise of about 2*s.* per quarter. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday English Wheat was in small supply, and about as dear as on the previous Monday; but the arrivals of foreign Wheat were considerable, and to effect sales in any but the better descriptions holders had to make some slight concession. Barley was firm, but there was no activity in the demand. Malt was without change in price. Sound Oats were from 6*d.* to 1*s.* per quarter dearer; but there was little or no improvement in inferior corn. Maize was rather inclined to advance. Beans and Peas realised the extreme rates of last week without difficulty. American flour was moderately strong in tone, but new English, being of poor condition and not sought after, was offered at a little less money.—On Wednesday the quotations for Wheat varied to no important extent. Barley was inquired after, and all descriptions were quite as dear. Malt was without change. Oats were purchased at the enhanced rates of Monday. Maize also realised full terms, and the value of Beans had an upward tendency. Peas were steady. Flour was not much in demand, and inferior qualities of country were rather flat.—Average prices of corn for the week ending Oct. 30:—Wheat, 47*s.* 4*d.*; Barley, 38*s.* 1*d.*; Oats, 24*s.* 6*d.* For the corresponding week last year:—Wheat, 44*s.* 1*d.*; Barley, 42*s.* 11*d.*; Oats, 27*s.* 11*d.*

CATTLE.

At Copenhagen Fields on Monday there was a much larger supply of beasts than on that day se'nnight, but the increase was entirely in foreign. Trade was dull and prices on the average lower, but there was not much reduction in choicest qualities. The number of sheep, both foreign and English, was also largely increased. Prices were lower for all kinds, and several lots remained unsold. Calves were more plentiful; there was, however, a demand for them at slightly reduced rates. Quotations:—Beasts, 4*s.* to 4*s.* 10*d.*, and 5*s.* 6*d.* to 6*s.* 2*d.*; calves, 4*s.* 6*d.* to 6*s.* 6*d.*; sheep, 5*s.* 4*d.* to 5*s.* 10*d.*, and 6*s.* 6*d.* to 7*s.* 2*d.*; pigs, 4*s.* 6*d.* to 5*s.* 8*d.*—On Thursday the beasts on offer exceeded the demand. The few choice went at fully late rates, the others could not all be disposed of. Trade in sheep was exceedingly dull, and Monday's prices were not maintained. Choice calves were in demand, at high rates. For milch cows trade was dull.

HAY.

From Whitechapel we learn that, farmers being busy on the land, supplies of fodder are sent forward sparingly, and the trade was brisk, the late advance being fully supported. Quotations:—Clover, best, 120*s.* to 155*s.*; inferior, 85*s.* to 95*s.*; hay, best, 115*s.* to 138*s.*; inferior, 55*s.* to 75*s.*; straw, 38*s.* to 50*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 130*s.* to 140*s.*; inferior, 90*s.* to 110*s.*; superior Clover, 150*s.* to 160*s.*; inferior, 110*s.* to 130*s.*; and straw, 45*s.* to 52*s.* per load.

POTATOS.

At the Borough and Spitalfields Market the supplies of English are moderate, of foreign fair, and the condition improved by the finer weather. Trade good, and prices firm. Quotations:—English Regents, 130*s.* to 160*s.*; rocks, 90*s.* to 100*s.*; middlings, 60*s.*; French shaws, 75*s.* to 80*s.*; Dutch rocks, 75*s.* to 90*s.*; Belgian kidneys, 90*s.* to 100*s.*; chats, 30*s.* per ton.—Last week's imports into London consisted of 10,990 bags from Antwerp, 1258 bags 10 barrels Hamburg, 3784 bags Harlingen, 390 tons 162 hampers and 309 baskets Rotterdam, 46 bags Ghent, 108 bags 70 sacks Boulogne, 502 tons 4005 sacks and 141 bags Dunkirk, 203 tons St. Malo, 50 tons Roscoff, 1684 bags Bremen, 118 tons Caen, 210 tons Dieppe, 22 bags Havre, 60 bags Brussels, 91 sacks St. Nazaire, and 2 sacks Ostend.

COALS.

The market on Monday was steady, without any alteration in prices. On Wednesday house coals were unaltered, but Hartleys were 6*d.* per ton lower. Quotations:—Bebside West Hartley, 21*s.* 3*d.*; Hastings Hartley, 21*s.* 3*d.*; West Hartley, 21*s.* 3*d.* Walls Ends—Harton, 24*s.* 9*d.*; Hetton, 27*s.*; Hetton Lyons, 24*s.* 9*d.*; Lambton, 26*s.* 6*d.*; East Hartlepool, 26*s.* 9*d.*; Original Hartlepool, 27*s.*; Tees, 26*s.* 9*d.*

WELLINGTONIA GIGANTEA

AUREA VARIEGATA.

	Feet.	Inches.
Height	24	6
Circumference of Branches	32	6
" of Trunk	3	4
Season's Shoot	1	6

Originated at the Lough Nurseries, Cork.

They have been Planted by the following Royal and Noble Hands:—

His Royal Highness the Prince of Wales, at Sandringham.
Her Royal Highness the Princess of Wales, at Blenheim (to mark her visit).
His Royal Highness the Duke of Edinburgh, at the Vice-Regal Lodge.
His Excellency the Lord Lieutenant, at Althorpe.
His Grace the Duke of Devonshire, at The Castle, Lismore.
His Grace the Duke of Leeds, at Gog-Magog, Cambridge.
Her Grace the Duchess of Manchester, Belfast Botanic Gardens.
His Grace the Duke of Manchester, at Tangragee and Kimbolton Castle.
His Grace the Duke of Marlborough, at Blenheim. [House.
His Grace the Duke of Wellington, at Strathfieldsaye and Apsley
Most Noble the Marquis of Waterford, at Curraghmore.
Right Hon. the Earl of Abergavenny, at Eridge Castle, Tunbridge Wells.
Right Hon. the Earl of Annesly, at Castlewellan, County Down,
Right Hon. the Earl of Aylesford, at Packington Hall, Warwick.
Right Hon. the Earl of Bective, at Underly Hall, Westmor-
Right Hon. the Earl of Cork, at Marston Hall, Frome. [land.
Right Hon. the Earl of Clancarty, at Garbally, Ballinasloe.
Right Hon. the Earl of Devon, at Powderham Castle, Exeter.
Right Hon. the Earl of Ducie, at Sarsden House, Chipping-Norton.
Right Hon. the Earl of Dunraven, at Adare Manor, County Limerick.
Right Hon. the Earl of Harrowby, at Sandon Hall, Staffordshire.
Right Hon. the Earl of Powis, at Walcot Park, Dumbartonshire.
Right Hon. the Earl of Sefton, at Croxteth Hall, Liverpool.
Right Hon. the Earl of St. Germans, at St. Germans, Cornwall.
Right Hon. the Earl of Warwick, at The Castle, Warwick.
Right Hon. the Earl of Wicklow, at Shelton Abbey, Arklow.
Right Hon. the Countess of Kingston, at The Castle, Michelstown.
Right Hon. Lord Berwick, at Attingham Hall, Shrewsbury.
Right Hon. Lord Doneraile, at The Court, Doneraile.
Right Hon. Lord Otho Fitzgerald, at Oakley Park, Windsor.
Right Hon. Lord Hawkshaw, at Hollycombe, Hants.
Right Hon. Lord Huntingfield, at Heveningham, Suffolk.
Right Hon. Lord Kenlis, at Virginia Lodge, County Cavan.
Right Hon. Lord Poltimore, at Poltimare Park, Exeter.
Right Hon. Lord Powerscourt, at Powerscourt, County Dublin.
Right Hon. Lord Skelmersdale, at Lathom House, Ormskirk, Lancashire.
Right Hon. Lord Wrottesley, at The Hall, Staffordshire.
Right Hon. Lady Langdale, at Eyewood, Herefordshire.
Right Hon. Lady Russell, at Chequer's Court, Herts.
Right Hon. Lady Pollen, at Redenham Hall, Andover.
Right Hon. Lady Rolle, at Bicton, Exeter.
Right Hon. Lady Tennisson, Carrick-on-Shannon, County Long-
Sir Thomas Acland, Bart., at Killerton, Exeter. [ford.
Sir Henry Becher, Bart., at Ballygibben, Mallow.
Sir James Colquhoun, Bart., at Rosshhu, Dumbartonshire.
Sir C. Mills, Bart., at Hallingdon Court, Uxbridge.
Sir D. Norreys, Bart., at The Castle, Mallow.
Sir Richard Wallace, Bart., at Sudbourn Hall, Suffolk.

And by the leading Nobility and Gentry in the Kingdom.

The last-named had 40 *splendid Trees for Avenue planting.*

PRICES.

*1st Size—Grand Specimens	5 feet	£5	5	0
2d " Splendid Plants	4 "	3	3	0
3d " Very fine	3 "	2	2	0
5th " Stout and good	2 "	1	1	0
6th " Nice little Plants	1 "	0	10	6

* From the first set of plants, and same as those at Sandringham, Blenheim, Althorpe, and had by the Nobility chiefly.

All removed Spring 1875.

RICHARD HARTLAND,
LOUGH NURSERIES, CORK.

IMPORTANT NOTICE.

SUTTON & SONS

Will offer the following valuable PRIZES at the Royal Horticultural Society's Meeting, on November 10th next :—

For **Twelve Sutton's Improved Reading Onions**	1st Prize—Silver Medal and	£2 2 0
	2d Prize—Bronze Medal and	£1 1 0
For **Collections of Potatos,** Twelve Dishes, Twelve Specimens to comprise a Dish, distinct kinds, half Kidney and half Round, to include Sutton's Hundredfold Fluke and Sutton's Redskin Flourball ..	1st Prize—Gold Medal and	£3 3 0
	2d Prize—Silver Medal and	£2 2 0
	3d Prize—Bronze Medal and	£1 1 0
For **Six Specimens** of **Sutton's King of the Cauliflowers** ..	1st Prize—Silver Medal and	£2 2 0
	2d Prize—Bronze Medal and	£1 1 0

NO CHARGE FOR ENTRY.

For further particulars apply to Mr. A. F. BARRON, *Superintendent of Exhibitions, Royal Horticultural Society's Gardens, South Kensington, London.*

SUTTON & SONS will also offer, at the ROYAL BERKSHIRE ROOT SHOW, on November 20th next,

A SILVER CUP for the BEST COLLECTION of VEGETABLES, | A SILVER CUP for the BEST COLLECTION of POTATOS,

AND VALUABLE MONEY PRIZES.

No charge for entry. For further particulars apply to

SUTTON & SONS, The Queen's Seedsmen, READING.

EXHIBITION OF CHRYSANTHEMUMS.

MESSRS. JAMES VEITCH & SONS

BEGS TO ANNOUNCE THAT THEIR

ANNUAL DISPLAY OF CHRYSANTHEMUMS IS NOW IN GREAT BEAUTY,

And they invite all lovers of this flower to inspect the same at an early date.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

GRAPE VINES.

THOMAS METHVEN & SONS

HAVE AT PRESENT A

LARGE AND VERY FINE STOCK OF GRAPE VINES,

Thoroughly ripened, which they beg to offer at the following Prices :

First Size, 7s. 6d. ; Second Size, 5s. each.

T. M. & SONS had the honour of supplying to the Gardens at Glamis Castle the Vines which have succeeded so admirably under the management of Mr. Johnston ; and their present Stock is raised from eyes taken from these famous Vines.

LEITH WALK NURSERIES, EDINBURGH.—October 30.

NEW PEAR—"LUCY GRIEVE."

E. G. HENDERSON & SON

Have much pleasure in offering this really fine Pear as a most valuable addition to its class of fruits for the dessert. A First-class Certificate was awarded to its merit by the Royal Horticultural Society, and the following description of it is given by Dr. Hogg in his recently published "Fruit Manual," a Coloured Illustration of which will be forwarded for six postage stamps ; a double outline of the fruit, with Dr. Hogg's description, is also given in the "Gardeners' Year-Book" for 1874 :—

LUCY GRIEVE.—"Fruit large, above the average, upwards of 3 inches long, and 2½ wide, oval in outline, combining the features of Glou Morçeau and Swan's Egg. Its complexion lemon-yellow, with a red blush towards the sun, and the whole surfaced with cinnamon-coloured russet dots. Flesh white, very tender and melting, very juicy, and richly flavoured. It is a delicious Pear, having the texture of flesh found in Marie Louise, and ripens in October."

10s. 6d. each. Pyramids, 21s.

The seed of this Pear was sown in a flower-pot by the daughter and only child of Mr. Peter Grieve, gardener at Culford Hall, near Bury St. Edmunds, who carefully tended the plants till they were large enough to be planted out, but ere the first of them bore fruit, in 1873, the little maid was in her grave. The first-class qualities of this fruit will perpetuate her name, and as a living record become at once a professional *souvenir* and "forget-me-not."

The wholesale trade firms upon E. G. HENDERSON & SON'S books have each had a Coloured Illustration sent, with a List of New and other Plants, specially priced for October and November. Any other Firm can have a copy of their Priced List sent free, and the Illustration also, for six stamps.

A NEW AUTUMN CATALOGUE

Of Miscellaneous Hardy and Exotic Bulbs, Roses, Fruit Trees, Spring-flowering Bedding Plants, &c., sent free on application.

THE WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

THE KNAP HILL CYPRESS,

Cupressus Lawsoniana erecta viridis.

ANTHONY WATERER

Will be happy to supply beautiful specimens of this famous hardy Evergreen, at the following prices :—

3 feet high, 2½ feet in circumference, 30s. per doz.
4 feet high, 3 to 4 feet do., 42s. to 60s. per doz.
5 feet high, 4, 5 and 6 ft. do., 10s. 6d., 15s. to 21s. each.
6 and 7 feet high, 6 to 7 and 8 ft. do., 21s. to 31s. 6d. each.

No cuttings have been taken from the plants here referred to, which are simply perfect in growth and splendidly rooted.

KNAP HILL NURSERY, WOKING, SURREY.

TO THE TRADE.

JAS. GARAWAY & CO.

OFFER

ALMONDS, standards, fine, 15s. per dozen.
BAYS, 1 to 2 feet, 6s. per dozen ; 2 to 3 feet, 9s. per dozen.
CHESTNUTS, Scarlet, 6 to 8 feet, 10s. per dozen ; 8 to 10 feet, 15s. per dozen.
ELMS, Chichester, 3 to 4 feet, 20s. per 100 ; 4 to 6 feet, 30s. per 100 ; 6 to 8 feet, 50s. per 100.
" " extra fine, 8 to 10 feet, 75s. per 100 ; 10 to 12 feet, 100s. per 100 ; 12 to 16 feet, 120s. per 100.
ESCALLONIA MACRANTHA, in pots, 9s. per dozen.
LAUREL, Portugal, 2 to 3 feet, bushy, 10s. per dozen.
LIMES, 8 to 10 feet, 9s. per dozen ; 10 to 12 feet, 18s. per doz.
OAKS, Evergreen, in pots, 2 to 3 feet, 9s. per dozen, 60s. per 100 ; 3 to 4 feet, 12s. per dozen, 90s. per 100.
PÆONIES, Moutan, Tree, 12s. per dozen.
WILLOWS, Kilmarnock Weeping, 18s. per dozen.

Fruit Trees.

Leading sorts, good trees, our selection.

APPLES, dwarf-trained, 15s., 18s., and 21s. per dozen.
" standards, 15s. per dozen.
APRICOTS, Maidens, 9s. per dozen, 60s. per 100.
" dwarf-trained, 30s. and 36s. per dozen.
CHERRIES, Mayduke and Morello, dwarf-trained, 24s. per dozen.
NECTARINES, Maidens, 9s. per dozen, 60s. per 100.
" dwarf-trained, 30s. and 36s. per dozen.
PEACHES, Maidens, 9s. per dozen, 60s. per 100.
" dwarf-trained, 30s. and 36s. per dozen.
PEARS, dwarf-trained, 18s. and 21s. per dozen.
" pyramids, 3 to 4 feet, 12s. per dozen, 75s. per 100 ; 4 to 5 feet, 15s. per dozen, 100s. per 100.
" standards, 18s. per dozen, 125s. per 100.
PLUMS, dwarf-trained, 18s. and 21s. per dozen.
" pyramids, 4 to 5 feet, 12s. per dozen ; 5 to 6 feet, 15s. per dozen.
" standards, 15s. per dozen.

JAS. GARAWAY AND CO.,
Durdham Down Nurseries, Clifton, Bristol.

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

TO THE TRADE.

CRANSTON AND MAYOS beg to offer very fine—

Dwarf-trained PEARS.
Dwarf-trained APPLES.
Dwarf-trained PLUMS.
Dwarf-trained CHERRIES.
Dwarf-trained PEACHES.
Dwarf-trained NECTARINES.
Pyramid APPLES.
Pyramid PEARS.
Pyramid PLUMS.
Pyramid CHERRIES.

The Largest Stock of DWARF ROSES in the Trade.

PRICED LISTS ON APPLICATION.

THE NURSERIES, HEREFORD.

Hooper's — for Spring and Autumn blooming Bulbs.

Purchasers will find a REAL ADVANTAGE in procuring one or more of Hooper's assortments of Bulbs, which are prepared as under :—

For both INDOOR and OUTDOOR CULTURE.
No. 1, £4 4s. (containing 1345 bulbs) ; No. 2, £3 3s. ; No. 3, £2 2s. ; No. 4, £1 1s.

For CONSERVATORY and WINDOW CULTURE.
No. 5, £4 4s. (containing 446 bulbs) ; No. 6, £3 3s. ; No. 7, £2 2s. ; No. 8, £1 1s.

For OUTDOOR CULTURE only.
No. 10, £4 4s. (containing 1701 bulbs) ; No. 11, £3 3s. ; No. 12, £2 2s. ; No. 13, £1 1s.

All carriage free on receipt of remittance.
CATALOGUES may be had on application.
HOOPER AND CO., Covent Garden, London, W.C.

To the Members of the Royal National Tulip Society, and Others.

WILLISON'S CELEBRATED TULIPS for SALE.—In consequence of the decease of Wm. Willison, New Gardens, Whitby, I hereby offer to you the whole, or any part of his large, valuable, and celebrated stock of Tulips, including 1300 varieties, amongst which are many first-class Seedlings never sent out, and also a large quantity of old sorts by name. The above is now offered for Sale, and TENDERS for the whole or any part will be received by the subscriber.
ALEXANDER WILLISON, Esk Place, Whitby.

THE PLANTING SEASON.
Cheap Offer.
LAURELS, 2 feet, 80*s.* per 1000, transplanted last spring; 2 to 3 feet bushy, 100*s.* per 1000; fine plants, 3 to 5 feet, 25*s.* per 100. PORTUGAL LAURELS, specimens, all transplanted last spring, 2 to 3 feet, 60*s.* per 100; 3 to 3½ feet, 100*s.* per 100. TREE BOX, fine, 2 to 3 feet, 30*s.* per 100; variegated do., 2 to 3 feet, 40*s.* per 100. CEDRUS DEODARA, fine specimens, 3 to 4 feet, 30*s.* per dozen; 4 to 5 feet, 42*s.* per dozen. ENGLISH OAKS, 3 to 4 feet, 40*s.* per 1000; 4 to 6 feet, very strong, 60*s.* per 1000. HORSE CHESNUTS, strong, 3 to 4 feet, 50*s.* per 1000; 4 to 6 feet, very strong, 80*s.* per 1000. Put on rail for cash. A Priced CATALOGUE of General Nursery Stock on application.
R. TUCKER, The Nurseries, Faringdon, Berks.

SPRING FLOWERS: — 100,000 strong plants of Pansies, Violas, Primroses, Daisies, Aubrietias, Violets, and other Spring Bedding Plants, in best varieties; also a Select Importation of the very finest varieties of Hyacinths, Tulips, Narcissus, Crocus, Anemones, and other DUTCH BULBS, suitable for grouping or mixing with the above. Priced CATALOGUE free on application.
FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

WM. POTTEN has now to offer several thousands of Red Dutch, Scotch Red, and Black Naples CURRANTS, 2-yr. and 3-yr., strong. Price on application. Sample sent, if required.
LEE'S PROLIFIC, 1-yr., strong, 5*s.* per dozen, 35*s.* per 100.
Strong Standard ROSES, good sorts, W. P.'s selection, 10*s.* per dozen.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

CHOICE WINTER FLOWERS.

RHODODENDRON MULTIFLORUM, with 100 to 200 bloom-buds, 2*s.* 6*d.* to 3*s.* 6*d.* each.
,, PRÆCOX, 1*s.* 6*d.* to 2*s.* 6*d.* each.
AZALEA DAVIESI, 2*s.* 6*d.* to 5*s.* each.
,, HYBRIDA ODORATA, 2*s.* 6*d.* to 5*s.* each.
All nice bushy plants, covered with flower-buds.
A Descriptive PRICED LIST of these and other Novelties Free on application to
ISAAC DAVIES, Nurseryman, Ormskirk.

TO THE TRADE.

PRIMROSE, double yellow, 12*s.* 6*d.* per 100.
LIBONIA, floribunda, fine stuff, well set, 9*s.* per dozen.
,, Penrhosiensis, fine stuff, well set, 9*s.* per dozen.
CURRANTS, White, strong, 10*s.* per 100.
VIOLET, Czar, extra strong clumps, prepared for potting, 20*s.* per 100.
,, Neapolitan, extra strong clumps, prepared for potting, 25*s.* per 100.
CALLA, æthiopica, 6*s.* per dozen, 40*s.* per 100.
CLIANTHUS, puniceus, fine, 9*s.* per dozen, 60*s.* per 100.
GREVILLEA, robusta, fine plants, 12*s.* per dozen.
RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

SPRING-FLOWERING PERENNIALS, &c., for Spring Gardening, Carpet Bedding, and Herbaceous Borders:—

Ajuga reptans fol. var., Aubrietia purpurea fol. var., Campanula persicifolia and C. persicifolia alba, C. carpatica and C. carpatica alba, Cheiranthus Marshallii, C. alpina, Dianthus barbatus fl.-pl., D. barbatus nanus compactus, Seedling Delphinium, Helianthemums in named sorts, Lithospermum prostratum, Lychnis of sorts, Œnotheras in variety, Saxifrages in twelve kinds, Sedums in twelve sorts, Spiræa filipendula fl.-pl., Schizostylis coccinea, Violet Victoria Regina. All the above at 2*s.* 6*d.* per dozen.

Alyssum saxatile, Antennaria tomentosa, Aubrietia purpurea, Barbara præcox fol. var., Canterbury Bells, double and single, Iberis coriifolia, I. Tenoreana; Violas, alba, Enchantress, Magnificent, lutea, and grandiflora; Arabis albida, Phlox frondosa, P. verna, Armeria rosea, and Veronica incana. Any of the above at 1*s.* 6*d.* per dozen; 50 for 5*s.*; 100 for 9*s.*

Daisies, red, white, or rose; Wallflowers, double or single; Dactylis elegantissima, Golden Pyrethrum, Myosotis dissitiflora, M. sylvatica, M. sylvatica alba or rosea, Polyanthus, Sedum acre elegans, S. glaucum, S. lividum, Sempervivum tectorum, S. californicum, Stellaria graminea aurea, and Sweet Williams. Any at 1*s.* per dozen; 50 for 3*s.*; 100 for 5*s.*

For descriptions, &c., of above, and for Spring-flowering Bulbs to plant with above, see CATALOGUE, post free on application.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

MR. WILLIAM BULL
IS NOW SENDING OUT THE
NEW REGAL PELARGONIUM
"BEAUTY OF OXTON,"
Price One Guinea each.

A Drawing of the above, by MACFARLANE, *can be had on application, price* 2*s.* 6*d.*

ESTABLISHMENT for NEW and RARE PLANTS,
King's Road, Chelsea, London, S.W.

From FRED. WALTON, Esq.
"*October* 15, 1874.
"The Collection of Bulbs is truly a wonderful one for money."

Early Orders ensure the Best Roots.

Carter's
The Queen's Seedsmen,
237 & 238, HIGH HOLBORN, LONDON, W.C.

TO LAND PROPRIETORS and GENTLEMEN requiring FOREST TREES, HEDGE PLANTS, ORNAMENTAL TREES, SHRUBS, ROSES, FRUIT TREES, and UNDERWOOD,

For prices, and every information, apply to

JOSEPH TREMBLE AND SONS, Penrith.

SPECIAL OFFER
to the Trade.
40,000 GOOSEBERRIES, best sorts.
20,000 Northumberland Fillbasket RASPBERRY CANES.
10,000 Red and White CURRANTS.
100,000 EVERGREEN PRIVETS.
50,000 WYCH ELMS.
50,000 STRAWBERRY PLANTS.
Also a large quantity of HORNBEAM, LIMES, OAKS, POPLARS, SYCAMORE, MOUNTAIN ASH, ALDER, BIRCH, TREE BOX, LAURELS, ENGLISH YEWS, BROOM, HONEYSUCKLE, SWEET BRIARS, LILACS, and SYRINGAS of all sizes. Price on application to
JOSEPH GREEN, The Nurseries, Garforth, near Leeds.

THE HANDSOMEST AUTUMN APPLE
IN CULTIVATION,
PEASGOOD'S NONESUCH,
Exhibited at the Alexandra Palace and Edinburgh Fruit Shows, September, 1875.

W. & J. BROWN
Are now prepared to supply strong Maidens, at 3*s.* 6*d.* each.

Trade Terms on application.

THE NURSERIES,
STAMFORD AND OAKHAM.

HOLLIES.
Twenty Thousand of the Finest Varieties of GREEN AND VARIEGATED HOLLIES, 4, 5, 6, 7, 8, and 10 feet.

The Plants are all handsomely Grown and properly Rooted.

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

CATALOGUES
OF
Trees, Shrubs, Roses and Fruit Trees,
ALSO
CLEMATIS, &c., for 1875-76,
Free by Post on application to
GEORGE JACKMAN AND SON,
WOKING NURSERY, SURREY.

DUTCH BULBS.

B. S. WILLIAMS
begs to announce that he has received his
ANNUAL SUPPLY OF HYACINTHS,
TULIPS, NARCISSI, CROCUS, &c.,
in splendid condition.

CATALOGUE Gratis on application;
also of New Plants, Fruit Trees, Roses, &c.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

NEW APPLE, "LADY HENNIKER."

EWING & CO.,
THE ROYAL NORFOLK NURSERIES, NORWICH,

In reply to numerous inquiries, beg to state that they can now supply strong Maiden Plants of the above, at

3s. 6d. each, or 21s. for Seven; 2-year Plants, 5s. to 7s. 6d. each.

Every Gardener (Amateur or otherwise) should possess this splendid novelty. The stock of Maiden Plants is this year very large and fine.

☞ *The usual Discount will be allowed to the Trade.*

ANDRÉ LEROY'S Nurseries, at Angers, France, the largest in Europe.—NEW CATALOGUE of Fruit and Ornamental Trees, Shrubs, Camellias, Roses, Stocks, Seedlings, &c., sent on application.

Freight from Angers to London, *vid* Steamers from St. Nazaire, about 2*s.* per 100 lb., except for packages below 500 lb.

Office in London: Messrs. DIECHE AND SON, 150, Fenchurch Street, E.C.

TO THE TRADE.

WHITE ROMAN HYACINTHS, true, pure white early variety, price very low.
LEUCOJUM VERNUM—Spring Snowflake.
HELLEBORUS NIGER—Christmas Rose.
GLADIOLUS BYZANTINUS.

Snowdrops	Star of Bethlehem
Winter Aconites	Pancratium maritimum
Narcissus poeticus	Cyclamen persicum.
„ double Roman	Lilium bulbiferum
„ paper-white	„ excelsum
Dielytra spectabilis	„ martagon
Hepatica, single white	„ tigrinum
„ single blue	„ candidum, fol. var.
„ single red	„ chalcedonicum
„ double red	„ eximium
Iris pumila azurea	„ lancifolium roseum
„ germanica	„ Humboldtii
Hyacinth, blue grape	„ Washingtonianum
„ blue feathered	„ Szovitzianum
Cyclamen europæum	„ tenuifolium
Triteleia uniflora	„ pulchellum
Scilla campanulata	„ auratum
Jonquils, double	„ lancifolium rubrum
Dog's-tooth Violets	White Garden Lilies
Double Daffodils	St. Bruno Lilies.

All in extra fine bulbs. Prices very low. On application to SANDER AND CO., Seed Growers, St. Albans.

Ornamental and other Plants at Cheap Prices.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the FOLLOWING PLANTS, of which a good Stock is in hand, at the annexed cheap prices:—

12 Musa superba, stout plants, 36*s.*	12 Bromeliaceous plants, of sorts, 24*s.*
12 „ discolor and rosacea, strong, 24*s.*	12 Echeveria atropurpurea, 9*s.*
3 „ Ensete, stout, 30*s.*	24 Tropical Orchids, flowering plants, 60*s.*
12 Anthurium Scherzerianum, 48*s.*	100 fine named Gloxinias, 25*s.*
12 Doryanthes Palmeri, stout seedlings, 48*s.*	50 „ „ new Gloxinias, 36*s.*
12 Ficus elastica, 24*s.*	50 „ „ Achimenes, Tydæas, &c., 15*s.*
12 Coffea arabica, strong, 18*s.*	24 Bulbous Begonias, mixed varieties, 30*s.*
12 best varieties of Crotons, 24*s.*	12 named Ornamental-leaved Begonias, 6*s.*
6 Ficus Parcelli, 12*s.*	24 Selaginellas, 12*s.*
50 Gardenia florida, 25*s.*	100 Ferns, of sorts, 50*s.*
50 „ radicans, 25*s.*	100 Hardy Ferns, of sorts, 63*s.*
6 „ florida variegata, 12*s.*	12 Yucca aloifolia, strong, 20*s.*
12 Hibiscus sinensis, of sorts, 6*s.*	12 „ „ variegata, 36*s.*
12 Marantas, of sorts, 24*s.*	25 Aralia japonica, 18*s.*
6 Medinella magnifica, stout plants, 18*s.*	12 „ „ strong, 18*s.*
12 Passifloras, of sorts, 9*s.*	6 Cycas media, 30*s.*
6 Plumbago capensis, 6*s.*	6 „ revoluta, 30*s.*
6 Stephanotis floribunda, 9*s.*	12 sorts of choice Dracænas, 30*s.*

FERNS.

50 Cyathea dealbata, in small pots, 42*s.*	50 Pteris cretica lineata, 21*s.*
25 Balantium antarcticum, stout plants, 21*s.*	12 Asplenium Billangeri, 12*s.*
6 Cibotium Schiedei, strong plants, 30*s.*	12 „ vivipara, 12*s.*
100 Darea diversifolia, 42*s.*	6 Lomaria cycadæfolia, 1 foot stem, 105*s.*
	12 „ Zamiæfolia, 24*s.*

PALMS.

25 Latania borbonica, stout plants, 50*s.*	100 Phœnix reclinata, 3-yr. seedlings, 21*s.*
25 Corpyha australis, 50*s.*	25 Cocos coronata, strong, 63*s.*
25 Chamærops Fortunei, 50*s.*	12 Curculigo sumatrana, 18*s.*
25 „ humilis, 50*s.*	12 sorts of Choice Palms, 42*s.*
25 Livistonia humilis, 50*s.*	
25 Sabal Adansoni, 25*s.*	

VARIOUS GREENHOUSE PLANTS.

100 Indian Azaleas, with buds, 105*s.*
100 „ „ larger, 125*s.*, and upwards.
100 Camellias, with buds, 125*s.*, and upwards. } My own selection.
100 „ without buds, 84*s.*
100 „ „ strong plants, 125*s.*

100 Acacias, in varieties, 42*s.*	6 Orange trees, fine stems, 30*s.*, and upwards.
12 „ dealbata, strong, 9*s.*	25 Otaheite Oranges, 30*s.*, and upwards.
12 strong bulbs of Cyrtanthus, 24*s.*	6 Standard Oleanders, fine stems, 30*s.*
12 fine named varieties of Amaryllis, 36*s.*	6 Nerium Madoni, fl.-albo-pl., 9*s.*
24 sorts of Agave, 50*s.*	12 Pittosporum Tobira, 9*s.*
12 Agave filifera, 30*s.*	12 Primula sinensis fl.-alba-pl., strong plants, 12*s.*
12 „ americana, 18*s.*	6 Phormium Veitchii fol. var.
12 „ „ variegata, 18*s.*	25 sorts of choice Cannas, 7*s.* 6*d.*
12 „ xylinacantha, 18*s.*	
25 Dracæna Veitchii, fine young plants, 25*s.*	
12 „ australis, strong, 18*s.*	

HARDY PLANTS.

100 Spiræa japonica, strong clumps, 25*s.*	25 Asclepias tuberosa, 9*s.*
12 Helonias asphodeloides, 24*s.*	25 Ilex, of sorts, 21*s.*
12 Viola pedata, 6*s.*	12 Magnolia grandiflora, 12*s.*
25 Adonis vernalis, 6*s.*	2 „ „ large, in tubs, 30*s.*
12 choice varieties of Tree Pæonia, 24*s.*	12 „ purpurea, with buds, 15*s.*
12 Spiræa palmata, 9*s.*	100 Fine named Ghent Azaleas, with buds, 84*s.* and upwards
50 Euonymus, of sorts, 21*s.*	50 choice herbaceous plants, 18*s*
12 Skimmia japonica, 6*s.*	100 choice Standard Perpetual Roses, £4
100 fine mixed Gladiolus, 6*s.*	100 „ Half-standard Roses, 50*s.*
12 Hydrangea alba-rosea, 9*s.*	25 Choice Phloxes, 7*s.* 6*d.*
12 „ paniculata grandiflora, 9*s.*	

CONIFERS.

50 different sorts of Conifers, 40*s.*	12 Thuja semper-aurescens, fine, 30*s.*
25 Wellingtonia gigantea, 1 foot, 20*s.*	50 Araucaria imbricata, fine plants, 60*s.*
50 Thuja elegantissima, strong, 60*s.*	12 Larix Kæmpferi, seedlings, 3-yr., 60*s.*
25 „ Vervæneana, strong, [30*s.*	

Gladioli.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), has the honour to inform his numerous Friends and the Public that he will be prepared to supply them, on and after November 15 next, at the lowest possible price, with all they may require in Gladioli.

NEW VARIETIES for 1875-76 (Souchet's):—

Amaranth	Leandre
Camille	Miriam
Christophe Colomb	Niobe
Esther	Phœnix
Fiammetta	Rosita
Hecla	Titania.

The Twelve Varieties for £3 12*s.*, carriage free to London.

CATALOGUES will be forwarded on application, about the end of October.

Gladioli.—New Roses.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), will place in commerce, in November next, the following magnificent ROSES, obtained by him from seed, and which gained a Silver-gilt Medal at the Paris Exposition in June:—

HYBRID PERPETUALS.

Abel Carrière	Guillaume Koëlle
Dingee Conard	L'Etincelante
Duchesse de Chartres	Mme. Grandin-Monville
Edmund Wood	Mme. Prosper Langier
Général de Cissey	Mdlle. Berthe-Sacavin
Général Duc d'Aumâle	Mdlle. Emilie Verdier.

The Twelve Varieties for £10 16*s.*, carriage free to London.

IMMENSE STOCK of GLADIOLI.

CATALOGUES of Gladioli and of all the New Roses may be had on application, about the end of October.

EVERGREENS and AVENUE TREES.—Aucuba japonica, 1 to 3 feet; Laurustinus, 1 to 3 feet; Laurels, 3 to 8 feet; Yews, 2 to 6 feet; Hollies, 2 to 6 feet; Limes, Planes, Birch, Poplars, Chestnuts, 8 to 16 feet, of unsurpassed quality.

For prices per dozen or 100, see CATALOGUE, post free on application.

WM. RUMSEY, Joyning's Nurseries, Waltham Cross, N.

Bulbs, Bulbs.

THE HEATHERSIDE NURSERIES COMPANY (LIMITED), 59, Queen Victoria Street, London, E.C.; Nurseries—Bagshot, Surrey.

Illustrated CATALOGUES Gratis.

Our special Guinea Collection contains:—

9 Hyacinths, choice named.	12 Anemones, finest single.
9 do., in 3 colours for beds.	3 Lilies.
18 Daffodils, double.	25 Ranunculus.
18 Tulips, mixed, choicest double.	18 Narcissus, double, white.
18 do., mixed, choicest single.	18 do., Poeticus.
6 Jonquils.	18 Tulips, Duc Van Thol.
6 Triteleia uniflora.	6 Polyanthus Narcissus, choicest varieties.
50 Crocus, large blue.	9 Violets, Dog's-tooth.
25 do., large white.	9 Iris, English.
50 do., large yellow.	12 do., Spanish.
25 do., large striped.	25 Snowdrops.
12 Anemones, finest double.	

Packing and Carriage Free.

VENN'S BLACK MUSCAT.

JOHN KEYNES

Has a few first-rate Fruiting Canes of this magnificent variety. It is unquestionably the finest Black Grape in cultivation for growth and flavour: 21*s.* each. No Planting Canes. J. K. can also supply a few other kinds grown from last year's eyes, for which he is so celebrated. Fine fruiting well-ripened Canes, 10*s.* 6*d.* each. None left for the Trade.

ROSES.

Fine well-ripened not overgrown plants as usual. These Roses, not having been forced, will grow on any soil.

CATALOGUES now ready. Amateurs, try them.

Castle Street, Salisbury.

FIRST PRIZE ROSES,

FROM

CRANSTON'S NURSERIES, HEREFORD.

Try our One Guinea, Two Guinea, and Three Guinea Collections.

ONE GUINEA COLLECTION contains Thirty Selected First-class Show Roses.

TWO GUINEA COLLECTION contains Sixty Selected, Distinct, and all First-class Show Roses.

THREE GUINEA COLLECTION contains One Hundred of the Finest Roses, New or Old, in cultivation, Selected from upwards of 600 Varieties.

Either of the above Collections will be carefully packed and forwarded, on receipt of Cheque or Post Office Order payable to

CRANSTON and MAYOS,
HEREFORD.

To the Trade.—Seed Potatos.

H. AND F. SHARPE are prepared to make Special Offers of SEED POTATOS grown on their own Farms from the finest selected stocks. Their List this season comprises all the English and American varieties worthy of cultivation. The prices will be found very moderate.

Seed-growing Establishment, Wisbech.

J. SCOTT, Merriott, has to offer as under:—

110 AVENUE YEWS, clean stems, fine heads, 5*s.* each
also about 30 IRISH YEWS, 10 to 12 feet, handsome trees, 20*s.* each.
5000 BLACK NAPLES and 3000 RED GRAPE CURRANTS, 16*s.* per 100, 4 years old, clean stems.
Large stock of ASH, 4 to 5 feet, 35*s.* per 1000.
HAZEL, 4 to 5 feet, 30*s.* per 1000.
OAK, 6 to 8 feet, 8*s.* per 100.
AUSTRIAN PINE, 1½ to 2½ feet, 30*s.* per 1000.
ABIES DOUGLASII, 3 to 7 feet, 2*s.* 6*d.* to 5*s.* each.
Large sized LIMES, OAKS, ELMS, HORSE CHESTNUTS, BEECH, BIRCH and POPLARS.
CATALOGUES on application.

To Noblemen, Gentlemen, and Others Engaged in PLANTING.

JOHN PERKINS AND SON beg to call particular attention to their large Stock of the following, the whole of which are stout and well rooted:—

ASH, 2 to 3 feet.
BEECH, 2 to 3 feet.
BIRCH, 2 to 3 feet.
FIR, Balm of Gilead, 2 to 3 and 3 to 4 feet.
PINE, Austrian, 1½ to 2, 2 to 3, and 3 to 4 feet.
CHESTNUT, Spanish, 2 to 3, 3 to 4, and 4 to 5 feet.
ELM, Wych, 2 to 3, and 3 to 4 feet.
„ English, grafted, 3 to 4, and 6 to 8 feet.
„ stricta, grafted, 3 to 4, and 6 to 8 feet.
HAZEL, 2 to 3 feet.
HORNBEAM, 1½ to 2, and 3 to 4 feet.
LARCH FIR, 1½ to 2, and 2 to 3 feet.
OAKS, English, 3 to 4, and 4 to 5 feet.
SCOTCH FIR, 1½ to 2, and 2½ to 3 feet.
SPRUCE FIR, 1½ to 2, and 2 to 3 feet.
PINE, Weymouth, 2 to 3, 3 to 4, and 4 to 5 feet.

PLANTS SUITABLE FOR GAME COVERTS, &c.

BERBERIS AQUIFOLIA, 1 to 1½, and 1½ to 2 feet.
BLACKTHORNS, fine, 1½ to 2, and 2 to 3 feet.
BOX, Tree, 1½ to 2, and 2 to 3 feet.
GORSE, 1-yr.
HOLLY, Green, 1½ to 2, 2 to 3, and 3 to 4 feet.
LAURELS, common, 2 to 3, and 3 to 4 feet.
„ Portugal, 1½ to 2, 2 to 3, and 3 to 4 feet.
PRIVETS, Evergreen, 1½ to 2, 2 to 3, and 3 to 4 feet.
SNOWBERRY, 2 to 3 feet.
WHITETHORN or QUICKS, strong, 1½ to 2, and 2 to 3 feet.
YEWS, English, 1½ to 2, 2 to 3, and 3 to 4 feet.

Descriptive CATALOGUES of General Nursery Stock on application to

52, Market Square, Northampton.

PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17*s.* per ton. A small sample will be sent by Post, free.

W. TARRY, "Golden Farmer," Bagshot, Surrey.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.

BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.

FRESH SPHAGNUM, 10*s.* 6*d.* per sack.

WALKER AND CO., Farnborough Station, Hants.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1*s.* 6*d.* and 3*s.* per bottle—1*s.* 9*d.* and 3*s.* 4*d.* per bottle, if packed for travelling, of the Manufacturers,

EWING AND CO., Norwich.

BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass. Retail 1*s.* 6*d.* and 2*s.* 6*d.* per bottle, of the Sole Manufacturers,

BELL AND SON, 10 and 11, Exchange Street, Norwich.

SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6*s.* Supplied to Seedsmen and Chemists.

Prepared by JOHN KILINER, Wortley, near Sheffield.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

A DISCOVERY.—The secret of obtaining Bunches of Grapes of immense weight is TANTON'S IMPROVED ROLLER CRUSHED BONE, as exhibited at South Kensington, Manchester, Brighton, &c.
One inch, Half-inch, Dust, a Sample Peck for 30 stamps.
Mr. RANSLEY TANTON, Seed and Artificial Manure Warehouse, Borough End, London Bridge, S.E.

TRADE MARK.

F. STEVENSON'S ABYSSINIAN MIXTURE, Warranted to Destroy Mealy Bug, and all Insects infesting Plants. Unequalled as a Winter Dressing for Vines and Fruit Trees.
Sold by all Nurserymen and Seed Merchants, in Bottles, 1s. 6d., 3s., 4s. 6d. & 5s. 6d. each.
Inventor and Sole Manufacturer,
F. STEVENSON,
STAMFORD ST., ALTRINCHAM, CHESHIRE.
Entered at Stationers' Hall.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100s.; Petersburg, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; packing Mats, 20s., 30s., and 35s. per 100; and every other description of Mat at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

Russia Mat Merchants.

MARENDAZ AND FISHER, 9, James' Street, Covent Garden, W.C., IMPORTERS and MANUFACTURERS, have received a large consignment of New ARCHANGEL MATS; also Heavy, Close-woven, and Light ST. PETERSBURG MATS, for covering purposes; RAFFIA FIBRE, NETTING, CANVAS, TWINES, &c.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton; and the late Professor Lindley, &c.
MADE of PREPARED HAIR and WOOL.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 4d. and 1s. 10d. per yard.
"FRIGI DOMO" CANVAS.
2 yards wide .. .. 1s. 10d. per yard run.
3 yards wide .. .. 3s. per yard.
4 yards wide .. .. 3s. 10d. per yard.
ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.
NOTICE.—REMOVED from 3, CANNON STREET, CITY.

GOVERNMENT EMIGRATION.

SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.
NOTICE.—The next Ship, "Earl Dalhousie," will sail from Plymouth on the 15th of this month. For passages and further information apply to the AGENT-GENERAL, 3, Westminster Chambers, Victoria Street, S.W.

JOSEPH HAYWOOD & CO.,
MANUFACTURERS OF
CELEBRATED PRUNING AND VINE SCISSORS, ETC.

WARRANTED BUDDING KNIVES,

GLAMORGAN WORKS, SHEFFIELD.

Trade

Mark.
Branded on every Casting.

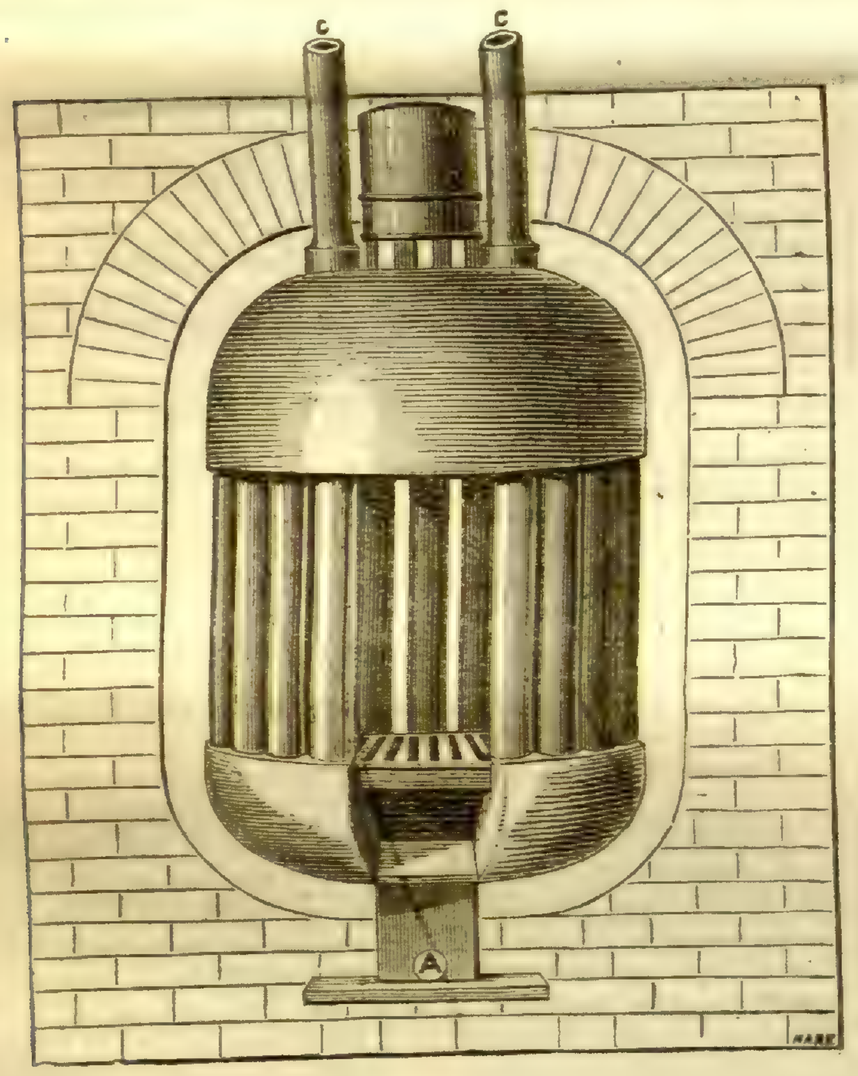
Macfarlane's Castings,
Architectural, Sanitary, and Artistic,
FOR ARCHITECTS, CIVIL AND MECHANICAL ENGINEERS,
Contractors, Builders, Joiners, Plumbers, &c.,

Railings; Balconies; Verandahs; Conservatories; Shop and Warehouse Fronts; Arcades; Winter Gardens; Covered Ways; Saloons; Semi-enclosed Airing Rooms, Smoking Divans, &c.; Waiting Rooms; Clock and Water Towers; Pavilions; Bandstands; Arbours, &c. Plain and Ornamental Castings of every description for Mansions, Halls, Schools, Barracks, Factories, Markets, Railway Stations, Bridges, Esplanades, Parks, Gardens, &c.

FOR HOME & EXPORT.

Illustrated CATALOGUE with Price List and Estimates for special Designs on application.

Possilpark, GLASGOW; and 84 Upper Thames St., LONDON.



ORMSON'S
PATENT UPRIGHT TUBULAR CORNISH BOILER
WILL BE EXHIBITED AT THE
ROYAL HORTICULTURAL SOCIETY'S SHOW on NOVEMBER 10.

REFERENCES.

C C. Flow Pipes. A. Sediment Pipe, to which a Tap is attached, communicating with a Drain in the Stokehole, and by giving the Tap a turn the whole of the Sediment can be instantly cleared out and the Boiler left perfectly clean.

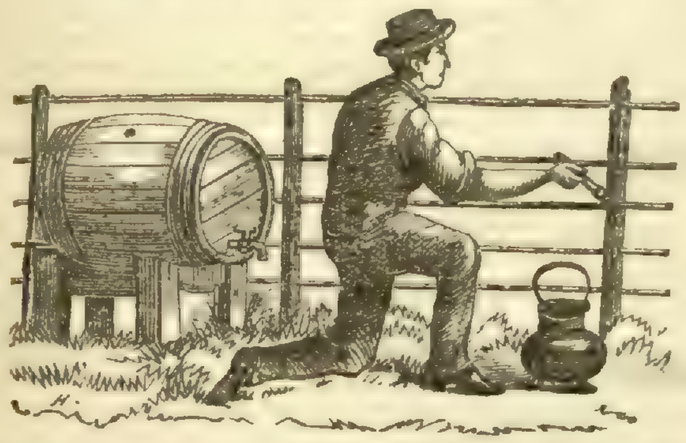
Hot-water Pipes, Boilers and Connections at Wholesale Prices.

ILLUSTRATED LISTS ON APPLICATION.

HENRY ORMSON,
HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

JOHN MATTHEWS, The Royal Pottery, Weston-super-Mare, Manufacturer of TERRA-COTTA VASES, FOUNTAINS, ITALIAN BASKETS, BORDER TILES, GARDEN POTS, of superior quality, from 1 to 30 inches diameter, stand the frost, and seldom turn green. ORCHID, FERN, SEED, and STRIKING PANS, RHUBARB and SEAKALE POTS, &c. Price Lists Post Free.
Sheet of Designs, 6*d*. Book of Designs, 1*s*.

Oil Paint No Longer Necessary.



HILL AND SMITH'S BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s*. 6*d*. per gallon, at the Manufactory, or 1*s*. 8*d*. per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.
"Mr. Lloyd Lloyd encloses cheque for £3 5*s*., amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierly Hill Ironworks, near Dudley; and 118, Queen Victoria Street, London, E.C., from whom only it can be obtained.

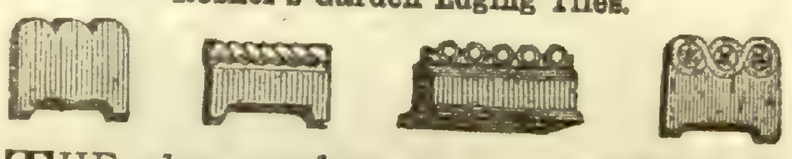
CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

Metallic Hothouse Builder to Her Majesty.

HENRY HOPE (late Clark & Hope, formerly Clark), HOTHOUSE BUILDER and HOT-WATER APPARATUS ENGINEER, 55, Lionel Street, Birmingham. Established A.D. 1818.
BOOKS of DESIGNS, 5*s*. each.

☞ The Extensive Ranges of Metallic Hothouses in the Royal Gardens, Windsor and Osborne, were executed at this Establishment.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s*. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries.
KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

WANTED, a NEST of SEED DRAWERS —for Vegetable Seeds, &c. State size, &c., with lowest price, to J. T. P., *Gardeners' Chronicle* Office. W.C.

Parish of Saint John, Hampstead.

To CONTRACTORS, NURSERYMEN, and OTHERS.
NOTICE is HEREBY GIVEN, that the HAMPSTEAD BURIAL BOARD intend to enter into a CONTRACT for the LAYING-OUT and PLANTING of their proposed BURIAL-GROUND at Fortune Green, Hampstead. Persons desirous of Tendering for the Work should apply to the Clerk to the Burial Board, at his Office, 10, New End, Hampstead, where the Plan of the Ground and Specification may be inspected, and further particulars obtained on and after Monday, November 15 next.
Sealed Tenders, addressed to the undersigned, and endorsed on the outside "Tender for Laying-Out and Planting Ground." should be delivered at the said Office of the Board not later than 4 o'Clock on MONDAY, November 22, next. The Board do not bind themselves to accept the lowest or any Tender.
By order, ALEX. WM. BAPTIE, Clerk to the Board.
10, New End, Hampstead, N.W., October 30.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens, sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

Labels—Secure Tree and Plant Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3*s*. 6*d*. per 1000, or 30*s*. per 10,000; if eyeleted, 4*s*. per 1000. Vellum Cartridge, 4 inches long, 3*s*. per 1000 for 10,000. Sample Labels sent on receipt of postage stamp. Orders delivered free in London.
JOHN FISHER AND CO., Label Works, Boston.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of
CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

Under the Patronage of the Queen.

J. SMITH'S IMPROVED METALLIC LABELS.

The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.
The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."
Samples and Price List free.
Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

LAWN SWEEPING, COLLECTING, and ROLLING MACHINE, Patented.—Worm-casts are Rising, Leaves are Falling, Sweeping and Rolling is now the order of the day, and working the above Saves the Labour of Three Men. Illustrated Price Lists on application.
SINCLAIR AND CLAYTON, Ripley, Leeds.

WATSON'S PATENT PORTABLE BOILER STOVES, also GAS STOVES for Small Greenhouses, Conservatories, Offices, Workrooms, &c. Prize Medals awarded, International Exhibition and Birmingham; First-class Certificates, Manchester, York and Leeds.
London Agents: HASKELL AND CO., 280, Oxford Street, London, W. Prospectus for stamp.
READ BROS., Sole Manufacturers, St. Albans, Herts.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d*. for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS'S Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,
THOMAS ROBERTS, 112, Victoria St., Westminster, S.W.

Limekiln Heating.

MR. COLLES, the original inventor of Limekiln Heating with Hot-water Boiler, begs to say that his system is the only one which keeps up an equal temperature, and that is not rendered useless by frosty weather. Grapes were cut last April in a house which contained much more than a ton weight. Plans and permission to erect Kilns, &c., will be sent on receipt of post-office order for 10*s*. 6*d*. to
ALEXANDER COLLES, Mill Mount, Kilkenny.

BARNARD, BISHOP & BARNARD'S
NORFOLK IRON WORKS, NORWICH.

GALVANIZED WROUGHT IRON ESPALIER TRAINERS,
ON THE FRENCH SYSTEM.
ILLUSTRATED PRICE LISTS FREE ON APPLICATION.
ALL ORDERS EXECUTED FROM STOCK ON RECEIPT.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

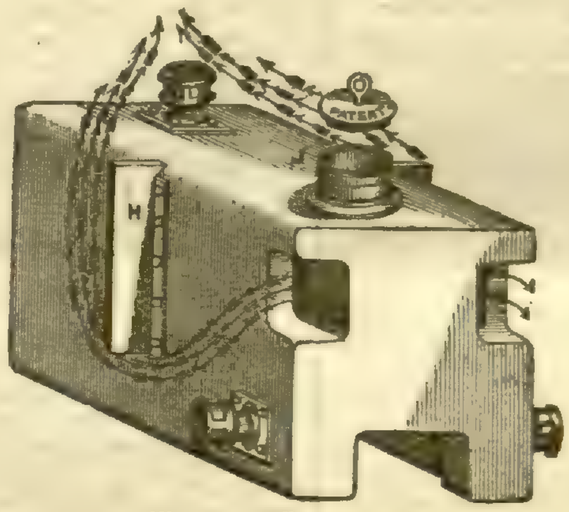
Old Barge Wharf, Upper Ground Street, London,

SURREY SIDE, BLACKFRIARS BRIDGE.

HOT-WATER BOILERS,

NEW PATENT "CLIMAX" BOILER (1874). See p. 666, 1874, *Gardeners' Chronicle*.
"GOLD MEDAL" BOILER (Birmingham, 1872).
PATENT "EXCELSIOR" BOILER (1871).

☞ *The largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.*



("CLIMAX" BOILER.)

PIPES, CONNECTIONS.

"WITLEY COURT" BOILER (Silver Medal 1872).
"TRENTHAM IMPROVED" BOILER, with Waterway End and Smoke Consumer.
"TUBULAR," and every other Boiler of known merit or excellence.

☞ *Prize Medal Awarded at the National Contest, Birmingham*, 1874.

HOT-WATER APPARATUS ERECTED COMPLETE.
PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

THE FRENCH SYSTEM
OF WIRING GARDEN WALLS, &c., FOR TRAINING FRUIT TREES.

GALVANISED EYED NAILS for Stretching Wires, one at each end of wall, 1*s.* 10*d.* per dozen. Smaller Size for supporting the wire, every 10 feet, 1*s.* per dozen. Small Wall Eyes, not recommended, 9*d.* and 6*d.* per dozen.

GALVANISED MALLEABLE IRON RAIDISSEURS, for Tightening Wires, one to the centre of each wire, 2*s.* 6*d.* per dozen.

GALVANISED KEY, for Winding Raidisseurs, to tighten the wire, 4*d.* each.

SMALL-EYED STRAINING SCREWS and NUTS, neater than Raidisseurs, for Tightening Wires, 3*s.* 6*d.* and 2*s.* 6*d.* per dozen.

No. 14 GALVANISED WIRE, placed 10 inches apart on the walls, 2*s.* per 100 yards.

"The system of wiring a wall is simple, cheap, almost everlasting, and excellent in every particular, and it must ere long be universally adopted."

MESSRS. J. B. BROWN & CO.,
90, CANNON STREET, LONDON, E.C.

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R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

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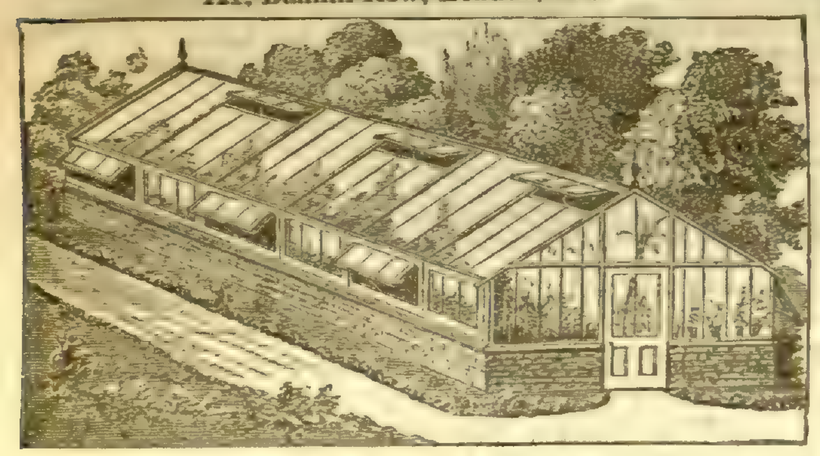

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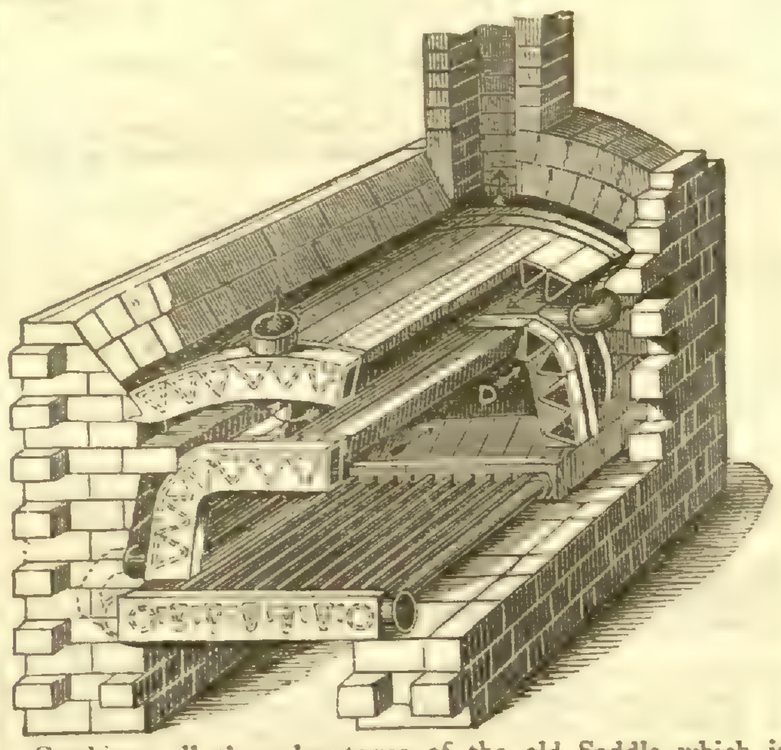

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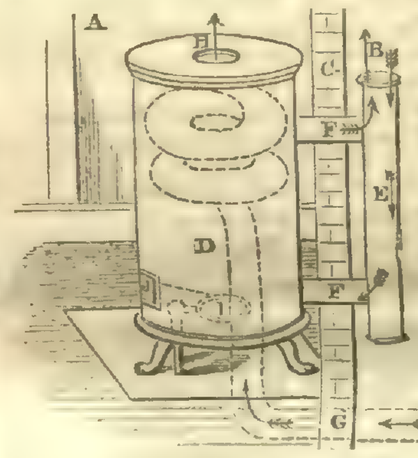

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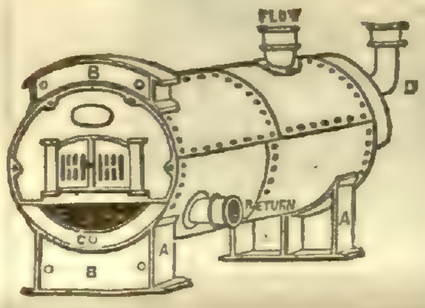

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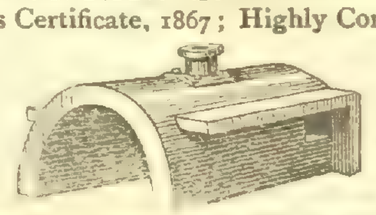

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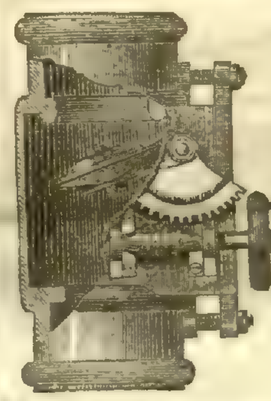

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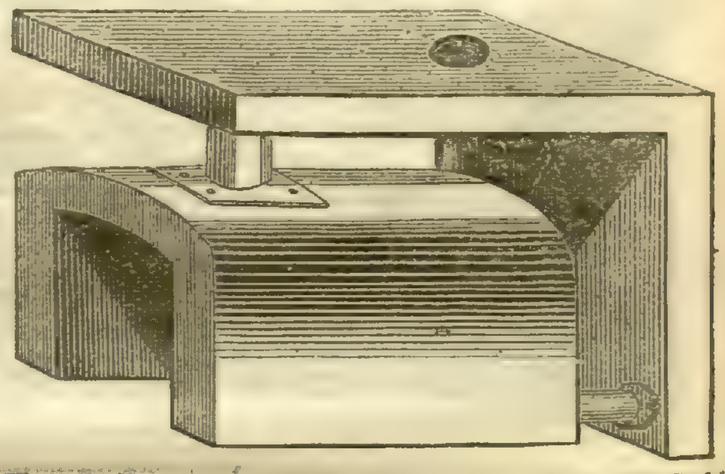

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hitherto occupied by Messrs. FRASER, GOAD, AND CO., Seed Merchants, whose business they have acquired; and they have much pleasure in stating that, in connection with this step, they have secured the valuable services of Mr. GOAD, Sole Partner of that Firm, as their LONDON REPRESENTATIVE.

It is thus hoped that Mr. Goad's long and well-known experience amongst FIELD, GARDEN, and FLOWER SEEDS will be a further guarantee that only the best and purest stocks procurable will be sent out, also that all orders will receive prompt and careful attention.

THE LAWSON COMPANY'S NURSERIES AT EDINBURGH,

Where personal inspection is respectfully invited, are thoroughly well stocked with

SEEDLING and TRANSPLANTED FOREST TREES,

ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, &c.,

Catalogues of which will be forwarded on application, and special offers made when desired.

☞ *Orders may be Addressed either to* 54, BISHOPSGATE STREET WITHIN, *or to* EDINBURGH, *and will be carefully attended to both in the Selection and Packing of the Plants.*

THE LAWSON SEED & NURSERY COMPANY (LIMITED), EDINBURGH AND LONDON.

BUSINESS ESTABLISHED, 1770.

London Address for Letters: 54, BISHOPSGATE STREET WITHIN, E.C.

Seed Warehouses: 106, SOUTHWARK STREET, S.E., and 5, COMMERCIAL STREET, E.C.

EDINBURGH:

1, GEORGE IV. BRIDGE, and the NURSERIES of BANGHOLM, GOLDEN ACRE, WARDIE, and WINDLESTRAWLEE.

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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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IMPORTANT NOTICE.

On and after the 6th of DECEMBER *the* AGRICULTURAL GAZETTE *will be* PUBLISHED *on* MONDAYS, *in time for the Evening Mails, containing a Full Report of the London Markets, and of all other Agricultural Intelligence up to the hour of going to press.*

To Secretaries of Agricultural Societies, Farmers' CLUBS, HORSE, POULTRY, and DOG SHOWS.

THE PUBLISHER of the AGRICULTURAL GAZETTE ALMANAC will be obliged to Secretaries of Societies named above if they will kindly furnish him with the dates fixed for holding their Exhibitions in 1876.
W. RICHARDS, 7, Catherine Street, Strand, London, W.C.

PALM SEEDS.—Fresh Seed of Corypha australis, just arrived; price per thousand, five, ten or twenty thousand, on application to
WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Dielytra spectabilis.

E. H. KRELAGE AND SON, Haarlem, Holland, have yet to spare a few thousand plants of DIELYTRA SPECTABILIS, fit for forcing.
Price on application.

T. VANDER SWAELMEN, NURSERYMAN, Gendbrugge, Ghent, Belgium, offers, at the lowest price, a nice collection of the finest LILIES, from California, Caucasus, and Japan; also a large quantity of SPIRÆA JAPONICA, at 12*s.* per 100.
Priced CATALOGUE post free upon application.

A. RIEMSCHNEIDER, SEEDSMAN, Bradenburg, Germany, has to offer the following, nett cash (exclusive of bags), free at Hamburg :—
SCARLET RUNNER BEANS, giant variety, 55*s.* per cwt.
STOCKS, finest German seed, mixed, 15*s.* per lb.
LILY of the VALLEY, for forcing, 35*s.* per 1000 buds.

TWO ARAUCARIA IMBRICATA, 20 feet high, for Sale. Too large for their present position. Handsome trees, branched to the ground. Apply by letter to
Mr. GEO. HAYWARD, Alberton Villa, South Norwood, S.

Walnut Trees for Sale.

TO BE DISPOSED OF, by Tender, about 500 young WALNUT TREES, ranging from about 5 to 7 feet in height, in healthy condition. To be taken up by the purchaser where growing—near Stamford.
Tenders to be forwarded to Mr. W. LANGLEY, Estate Agent, Stamford, N.

Mangel and Swede.

JOHN SHARPE can furnish, on application, his quotations for the choicest Stocks of the above, selected and grown by himself.
Bardney Manor, Lincoln.

RHUBARB.—Baldry's Scarlet Defiance, Linnæus and Prince Albert, extra fine stools, £1 per 100, £8 per 1000.
F. SANDER AND CO., Seed Growers, St. Albans.

To the Trade.

VICTORIA RHUBARB for Forcing.—A large quantity of 3-yr. stools, very strong, never having been pulled. Apply to
Mr. M. NEWMAN, The Elms, Harlington, Hounslow, W.

JOHN MOIR AND SON, Garthdee, Aberdeen have to offer 3000 Stools of MYATT'S LINNÆUS RHUBARB ROOTS, very strong, suitable for forcing; and 2000 FASTOLF RASP CANES. Price on application.

J. AND G. LOWE beg to offer AUCUBA JAPONICA, 1 to 1½ foot, bushy, 3*s.* per dozen, 24*s.* per 100; strong dwarf ROSES, on the Manetti, 6*s.* per dozen, 30*s.* per 100.
Kingston Lane Nursery, Uxbridge.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c. Free by post for one stamp.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

GRAPES THE FIRST YEAR.—Canes from 6 to 7 feet, 5*s.* each; ditto from 8 to 9 feet, 7*s.* 6*d.* each. 10 per cent. discount for cash.
Mr. R. TANTON, The Old Nurseries, Epsom.

Fruit Trees.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE for the present season is now ready, and may be had on application. The Trees are extra fine this season. The Royal Nurseries, Slough.

Splendid New Apple,

LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, 3*s.* 6*d.* each, 21*s.* for seven; 2-yr. plants, 5*s.* to 7*s.* 6*d.* each.

Pyramidal Pears.

H. LANE AND SON have a large stock of transplanted bearing Trees of all the leading kinds to offer at a reduced price, as the ground must be cleared by Christmas.
The Nurseries, Great Berkhamstead, Herts.

Hoteia (Spiræa) japonica.

E. H. KRELAGE AND SON, Haarlem, Holland, have a very fine Stock of the SPIRÆA JAPONICA, good plants for forcing, to offer to the Trade. The plants are remarkably well grown this year. Price per 100 and 1000 on application.

Phlox setacea.

W. MOFFAT, Botanic Nursery, Biggleswade, Beds, has an immense stock of this hardy and remarkably beautiful Spring Bedding Plant, 7*s.* 6*d.* per 100. Also all the best Hybrid Perpetual ROSES, dwarfs, 6*s.*; Standards, 10*s.* 6*d.* per dozen. Package included for cash.

ARTOCARPUS CANNONI.—The most distinct and striking New Ornamental Stove Plant sent out in 1875. *Vide* illustration and description in the *Florist and Pomologist* for last September. Price 10*s.* 6*d.* each.
WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Exhibition of Chrysanthemums.

CHARLES TURNER invites inspection of his large and varied Collection, which is now in great beauty. CATALOGUES of Plants and Trees may be had on application. The Royal Nurseries, Slough.

Carnations and Picotees.

CHARLES TURNER is now prepared to send out strong, healthy Plants of all the different classes of these popular flowers.
The Royal Nurseries, Slough.

A. STANSFIELD AND SON beg to say that their NEW CATALOGUE of FERNS, No. 10, for 1875-6, is now ready, and may be had for 3 stamps. It contains more than 1000 species and varieties, many of them new and rare, with Descriptive and Cultural Remarks.
Vale Nurseries, Todmorden.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.
Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Lilies of the Valley.

E. H. KRELAGE AND SON, Haarlem, Holland, have a splendid Stock of 3-yr. old Clumps of the best variety of LILY of the VALLEY at the disposal of the Trade. The plants are extra fine this year. Prices per 100 and 1000 on application.

Violas for Spring Bedding.

CHARLES TURNER has a large stock of fine plants, of various shades of colour, to make a good effect, at 3*s.* per dozen, or 20*s.* per 100.
The Royal Nurseries, Slough.

To the Trade.

OUR LIST of NOVELTIES of sterling merit only is now ready, and may be had on application to
F. SANDER AND CO., Seed Growers, St. Albans.

FOR SALE, or in EXCHANGE for overgrown CAMELLIAS, Cucumber, Strawberry, Cabbage, and Cauliflower Plants, Dwarf, Moss, and Cabbage Roses, Chestnut Trees, and large Laurels.
G. WALKLING, College Park Nursery, Lewisham, S.E.

WANTED, 500,000 1-yr. and 2-yr. seedling THORNS, and 500,000 2-yr. seedling LARCH.
Samples, with prices, addressed to
CRANSTON AND MAYOS, Cranston's Nurseries, Hereford.

WANTED, a Truckload of HOLLY, &c., for Christmas Decorations. Send particulars to
M. HUTCHINSON, Florist, &c., 3, Toward Rd., Sunderland.

THE MILE ASH ROSES are recommended as specially hardy and healthy. The plants are superb this season. LIST free on application.
EDWIN COOLING, Mile Ash Nurseries, Derby.

ROSE SHOWS, 1875.—50 First Prizes, 25 Guinea Silver Challenge Cup, and other Premier Prizes. See Cranston & Mayos' DESCRIPTIVE ROSE CATALOGUE for 1875. Address,
CRANSTON'S Nurseries, King's Acre, Hereford.

ROSES, Standard, fine Plants of the Newest and Best sorts, only £4 per 100.
H. JACKSON, Blakedown, Kidderminster.

Standard Roses.

H. LANE AND SON have a very large Stock to offer, Wholesale and Retail.
Priced CATALOGUE Free on application.
The Nurseries, Great Berkhamstead, Herts.

The Oxford Roses, on Cultivated Seedling Briar.

GEORGE PRINCE'S Priced and Descriptive CATALOGUE now ready. All Roses are grown exclusively on the above stock at this establishment.
14, Market Street, Oxford.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
The Ottershaw Nursery, Chertsey.

To the Trade.

LEWIS WOODTHORPE'S Wholesale CATALOGUE is now ready. Those requiring good ROSES at cheap rates should write for one.
Glazenwood Nursery, Braintree, Essex.

Roses.

CHARLES TURNER'S carefully prepared CATALOGUE is now ready, and may be had on application. The stock, of all heights, is very large and most healthy.
The Royal Nurseries, Slough.

Special Culture of Fruit Trees and Roses.

THE DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS (by THOMAS RIVERS) is now ready; also CATALOGUE of Select ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

To the Trade.

DUTCH BULBS at Dutch prices.
SANDER AND CO., Seed Growers, St. Albans.

Bulbs, Tubers, and Perennials.

THOMAS S. WARE'S A. B. C. Descriptive BULB CATALOGUE is now ready, free on application, containing one of the largest collections of Bulbs and Tubers in cultivation, to which is added a selection of Spring Flowering and other Perennials for Autumn Planting.
Hale Farm Nurseries, Tottenham, London.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., having a large stock of unusually fine and sound DUTCH BULBS, will be pleased to submit Special Prices to Buyers on application.

CROCUS, large Dutch, yellow, blue, white, striped, or mixed, 1*s.* 6*d.* per 100, 15*s.* per 1000. Good named HYACINTHS, twelve distinct varieties, selected roots, for 6*s.* CATALOGUES free.
W. HOOPER, 88, Oxford Street, London, W.

EVERGREENS to be Sold cheap.—A quantity of fine large Aucubas, Bays, Laurels, Hollies, Laurustinus, Yews, Portugal Laurels, Euonymus, Cupressus, Evergreen Oaks, &c. Lowest cash price on application to
D. SCOTT, Northgate Nursery, Chichester.

HOLLIES.—To Gentlemen wishing to plant with immediate effect, a quantity of magnificent Hollies of variegated and other kinds for Sale, from 10*s.* 6*d.* to £5 5*s.*
Apply at Bache Hall, Chester.

YEWS.—For Sale 2000, from 3½ to 4½ feet, well-rooted and grown, well adapted for Hedges or Ornamental Trees, of first-rate quality, 90*s.* per 100.
JOSEPH SPOONER, Goldworth, Woking, Surrey.

BEECH—3 to 3½ feet (well-rooted), 7*s.* 6*d.* per 1000. PORTUGAL LAURELS, AUCUBAS, LAURUSTINUS, HOLLIES, and other Shrubs to offer, cheap. Special Trade LIST upon application.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

BEECH, BEECH, BEECH—2 to 3 feet, and 3 to 3½ feet, well rooted, at 7*s.* 6*d.* per 1000.
LAURUSTINUS, splendid stuff, 2½ to 3 feet, bushy and well rooted, 25*s.* per 100.
SAMUEL BALE, Westacott Nursery, Barnstaple.

SALES BY AUCTION.

Dutch Bulbs.—Extensive Consignment of the finest named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, GLADIOLUS, &c., for absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY next, at 11 for half-past 11 o'Clock precisely, about 800 lots of the above, the whole being of a very superior quality.

On view morning of Sale.

Caterham.

CLEARANCE SALE of Valuable NURSERY STOCK, consisting of 5000 Evergreens and Coniferæ, comprising Thujas, Cupressus, Cedars, Pines, Piceas, Firs, Box, Laurels, Cotoneaster, Arbor-vitæ, Thujopsis; 7000 Forest and Ornamental Trees, including Birch, Maples, Sycamores, Acacias, Almonds, Thorns, Laburnums, Elms of sorts, Poplars, also a quantity of Deciduous Flowering Shrubs; 2500 Fruit Trees; 500 Hardy Climbers in pots, Ivies, Clematis, &c.; together with 2000 Standard and Dwarf Roses, in fine assortment.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, as above, on the Premises, adjoining the Home Nursery (possession of which will shortly be required, the Term having expired), and situate opposite Caterham Railway Station, Surrey, on TUESDAY, Nov. 16, at 11 for 12 o'Clock precisely, by order of Mr. G. J. Woollett, without reserve.

The Stock may be viewed at any time. Catalogues may be had of Mr. WOOLLETT, at the Home Nursery; and of the Auctioneers and Valuers.

Teddington.

IMPORTANT SALE of Beautifully-grown NURSERY STOCK, consisting of a large and varied assortment of fine Evergreens and Coniferæ Shrubs, including 1000 fine large Thuja Warreana, 3 to 6 feet, 1500 Aucubas, 2000 bushy Box, 1000 Portugal Laurels and Arbutus, Green Hollies, English Yews, 600 Laurustinus, Berberis, 4000 Spruce Firs, Cedrus Deodara, Thuja Lobbii, Taxodiums, Junipers; a considerable quantity of Ornamental Trees, including 2000 Horse Chestnuts, Poplars of sorts, Acacias, Laburnums, Thorns, Weeping and Mountain Ash, 4000 fine Limes, 7 to 9 feet; a quantity of clean-grown Fruit Trees, 2000 Standard and Dwarf Roses, Ivies, and other Hardy Climbers, Asparagus, Seakale, &c.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Laing, who is about giving up this branch Nursery, to SELL by AUCTION as above, without reserve, on the Premises, the Fulwell Nursery, Stanley and Waldegrove Roads, Teddington, close to the Fulwell Station, on TUESDAY, November 16, and two following days, at 11 for 12 o'Clock precisely.

Now on view, and Catalogues had of Mr. LAING, Twickenham, and of the Auctioneers.

Brixton Road, S.W.

CLEARANCE SALE, the Lease having Expired.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. J. Fowle, to SELL by AUCTION, on the Premises, The Nursery, Mostyn Road, Brixton Road, Surrey, S.W., on WEDNESDAY, November 17, at 12 o'Clock precisely, without reserve, a large quantity of EVERGREEN and DECIDUOUS SHRUBS, ORNAMENTAL and FOREST TREES, STANDARD and DWARF ROSES, CLIMBING IVIES in pots, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.

IMPORTANT SALE of a First-class Collection of DUTCH BULBS, 500 Standard and Dwarf ROSES with fine heads, Selected FRUIT TREES, Choice Hardy AMERICAN PLANTS, Coniferæ and Evergreen SHRUBS, ERICAS in Flower, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION the above at the City Auction Rooms, E.C., on THURSDAY, November 18, at half-past 12 o'Clock precisely.

On view the morning of Sale. Catalogues had at the Rooms and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Holloway, N.

CLEARANCE SALE, in consequence of the Expiration of Lease.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Crasfin to SELL by AUCTION, on the Premises, The Nursery, Seven Sister's Road, Holloway, N., on FRIDAY, November 19, at 11 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, consisting of a fine assortment of Evergreen, Coniferæ, and Deciduous Shrubs, choice hardy American Plants, Standard and Dwarf Roses. Also the entire Collection of STOVE and GREENHOUSE PLANTS, and the whole of the Glass Erections and Fittings thereto.

May be viewed the day prior. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.

Lewisham, S.E.

Near the old church, six minutes from Ladywell and Catford Stations on the Mid-Kent line.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, by order of the Executors, on the Premises as above, on FRIDAY and SATURDAY, November 19 and 20, at 1 o'Clock precisely, the whole of the valuable NURSERY STOCK, comprising 40,000 Evergreen Shrubs, 5000 beautifully-grown specimens, viz., Cedrus Deodara, Libani, and atlantica; large Golden English and Irish Yews; Thujas of sorts, Arbutus, Thujopsis, Araucarias, Weymouth Pines, &c.; 4000 Hollies, 4000 Golden and Green Euonymus, 1800 Ivies of sorts in pots, 1000 fine Chinese Arbor-vitæ, from 2 to 13 feet, 3000 Berberis, Box, Portugal and common Laurels, 1000 Laurustinus, Ligustrum, 4000 Aucubas, Lilacs, a quantity of Rhododendrons, &c.; Standard and Dwarf Roses, thousands of Ornamental and Forest Trees, Fruit Trees, Vines; a quantity of Stove and Greenhouse Plants, viz., extra large specimen White and other Azaleas, strong Deutzia gracilis in pots, Hives of Bees, &c.

Now on view.

EXTRAORDINARY GREAT SALE of NURSERY STOCK, November 23 and nine following days.—By order of the Executors of the late Mr. John Standish.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to submit for unreserved SALE by AUCTION, on the Premises, the Royal Nurseries, Ascot, Berks, opposite Ascot Grand Stand, the Valuable NURSERY STOCK, ranging over 80 Acres, consisting of the extensive and extraordinary rich assortment of Evergreen, Coniferæ, and Deciduous Shrubs, varying all sizes, including many thousands of specimens which have been transplanted within the last eight months, and are adapted for immediate effective purposes; also millions of smaller stock too numerous to specify; 20,000 Green and Variegated Hollies, 15,000 common and other Laurels, 4000 Aucubas, 20,000 Berberis, 1000 Euonymus, 1000 Cedars, 600 Yews, 3000 Ligustrum ovalifolium, 1000 Wellingtonias, 1000 Abies, 2000 Piceas, 17,000 Cupressus, 1500 Thujopsis borealis, 2000 Thujas, 2500 Junipers, 10,000 Retinosporas, 100,000 choice named Hybrid and Pontica Rhododendrons, 18,000 Apples, Pears, Plums, and other Fruit Trees, 7000 Gooseberries and Currants, 40,000 Spruce and other Firs, 10,000 Roses, collection of Clematis and other Climbers, &c.

Sale to commence punctually at 12 o'Clock each day, luncheon for intending purchasers at 11.30. Goods may be transmitted from Ascot Railway Stations to all parts without change of truck.

Now on view. Catalogues had on the Premises; at the "London," 22, St. George's Place, Knightsbridge; and of the Auctioneers.

Exeter.

HIGHLY IMPORTANT UNRESERVED SALE of 6000 unrivalled specimen CONIFERÆ and EVERGREENS, forming together the largest and most unique collection ever submitted to public competition, and in fine condition for removal, including 1000 unusually handsome pyramidal and other skilfully trained English, Irish, and Golden Yews; 1000 Thujopsis borealis, 5 to 15 feet; 6000 Picea Pinsapo, 3 to 10 feet; thousands of Picea Nordmanniana, nobilis, and lasiocarpa; Araucaria imbricata, 5 to 10 feet; Cupressus Lawsoniana in variety; magnificent Cedrus Deodara and Wellingtonia gigantea; choice Thujas, Abies, Pines, Podocarpus, &c. Also a considerable quantity of Quercus Fordii and other beautiful Evergreen Oaks, Standard Weeping Hollies, and Portugal Laurels, and numerous fine examples of other Stock remarkable for their perfectly symmetrical form and great beauty. Also 15,000 common Laurels, 5000 English and Irish Yews, 5000 Colchic and Caucasian Laurels, 4000 Portugal Laurels, 5000 Laurustinus and Aucubas, 2000 Biotas, 6000 Thujas, 5000 Box, thousands of Phillyreas, Hollies, Rhododendrons of all kinds, and quantities of other Stock too numerous to specify. Likewise 2000 Standard Cider Apple and Fruit Trees, a fine collection of Forest and Ornamental Trees in great variety.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Lucombe, Pince & Co. to SELL the above by AUCTION, on the Premises, the Nurseries, Exeter, and also at the Hill Side Nursery, Exminster, three miles from Exeter, on TUESDAY, November 23, and several successive days, at 11 for 12 o'Clock precisely each day.

The Stock may at any time be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E. Luncheon will be provided.

N.B.—Messrs. P. & M. beg to call special attention to the extensive Sale, and to the unprecedented opportunity offered thereby to Noblemen and Gentlemen improving their estates, to the Trade, and others largely engaged in Planting. The Proprietors will place their transplanting machine at the disposal of the purchasers, and will remove (at mere cost of labour and packing) where required.

Spring Flowering Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, Importations of first-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, GLADIOLI, and other BULBS, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

Lilium auratum.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 18, at half-past 12 o'Clock precisely, 4000 magnificent Bulbs of LILIUM AURATUM, just arrived from Japan in the finest possible condition. To be sold without the least reserve.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of Imported Orchids from BRAZIL.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 25, at half-past 12 o'Clock precisely, an importation of ORCHIDS just arrived from Brazil, consisting of a quantity of selected specimens of Lælia purpurata, L. elegans, Cattleya Leopoldii and C. amethystina; also a few fine plants of Oncidium sarcodes, O. crispum, O. concolor, Sophronites grandiflora, and Lælia cinnabarina (true). One of the Lælia elegans is most probably the finest mass ever imported; it consists of eighty very strong bulbs, in perfect health and foliage. The Lælia purpurata, Cattleya Leopoldii, and Cattleya amethystina are immense specimens, all in the best possible condition.

On view the morning of Sale, and Catalogues had.

Batheaston Nursery, near Bath.

HIGHLY IMPORTANT NOTICE to GENTLEMEN, NURSERYMEN, and OTHERS ABOUT to PLANT.

MR. W. ABRAHAM is instructed by Mr. J. Scott, of the above Nursery, to SELL by AUCTION, without the least reserve (in consequence of his giving up the Nursery portion of the business), on MONDAY and TUESDAY, November 22 and 23, at 12 o'Clock punctually each day, a quantity of beautifully grown NURSERY STOCK, large Lean-to Vinery, Hot-water Piping, &c. The stock consists of many splendid and unequalled specimen Coniferæ, including Picea Pinsapo, P. Nordmanniana, Thuja aurea, Thujopsis borealis, Chinese Juniper, Arbor-vitæ, also fine Euonymus, English and Irish Yews, Berberis, Tree Box, 4000 Common Laurel, 20,000 Quick, &c. Also a fine collection of Pyramidal and Bush Fruit Trees in bearing condition.

The stock has all been removed within the last two years, and is in the best possible condition.

May be viewed ten days prior to the Sale, and Catalogues obtained of Mr. SCOTT, Bathford Nursery, or (post free) of Mr. W. ABRAHAM, Auctioneer and Valuer, Goldworth Nurseries, Woking, Surrey.

1000 Choice Specimens of Domestic Poultry, Geese DUCKS, TURKEYS and PRIZE PIGEONS.

MESSRS. LUCAS AND CO. will SELL by AUCTION, on FRIDAY, November 19, at 11 o'Clock, at their Repository, Liverpool, 1000 Head of Domestic POULTRY, GEESE, DUCKS, &c., consisting of choice specimens of Brahmas, Dorkings, Cochins, Bantams, Polands, Toulouse Geese, Game, Guinea Fowl, Turkeys, Rouen Ducks and Pigeons. Seventy to eighty lots an hour sold if buyers will start them quickly.

On view on morning of Sale. Entry closed. Catalogues ready on Monday, the 15th instant.

Guilford Nursery, Whitfield, near Dover.

CLEARANCE SALE of Valuable NURSERY STOCK.

To Landowners, Builders, Nurserymen and Others.

MESSRS. WORSFOLD AND HAYWARD have received instructions to SELL by AUCTION, upon the Ground, on THURSDAY, December 2 (unless the Nursery shall in the meantime be let as a going concern, in which case due notice of the withdrawal of the Sale will be given), the whole of the valuable NURSERY STOCK, comprising 6000 healthy Standard, Pyramid and Trained Fruit Trees; over 20,000 Forest Trees, of sorts; 12,000 thriving Evergreen and Deciduous Shrubs and Coniferæ, of choice varieties; 3500 first-class Dwarf and Standard Roses, 6000 Fruit Bushes and Canes, several thousand Fruit and Manetti Stocks, &c.

May be viewed prior to the Sale, and Catalogues, or particulars as to hiring the Nursery, had of Messrs. WORSFOLD AND HAYWARD, Auctioneers and Surveyors, Market Square, Dover, and 11, Queen Victoria Street, London, E.C.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

FOR SALE (owing to want of room), STEPHANOTIS, GARDENIAS, ARALIAS HOYAS, and MARECHAL NIEL ROSES, all large specimen Plants, established in large pots and tubs. Apply W. HOWITT, Ilford, Essex.

BOX EDGING—10,000 nursery yards, at 2½*d.* per yard, or £9 per 1000; 100,000 CABBAGE PLANTS, at 2*s.* 6*d.* per 1000. Cash with order.

J. B. YOUNG, Landscape Gardener, Bridge of Allan.

Mulberries, Mulberries.

PONSFORD AND SON can supply the above by the dozen, 100, or 1000. Prices on application to Loughborough Park Nurseries, Brixton, Surrey.

Seakale.

MR. A. ATWOOD, of 5, Simpson Street, Battersea, S.W., can supply any quantity of SEAKALE at 80*s.* per 1000; single hundreds at 9*s.* ASPARAGUS ROOTS, 1, 2, and 3-yr.; also a large quantity of RHUBARB ROOTS and PÆONY ROOTS.

Prepaid Post Office Orders, payable at High Street, Battersea S.W., will receive the earliest attention.

Hyacinths.

W. F. BOFF offers named HYACINTHS, good Bulbs, leading varieties, at £1 per 100, 3*s.* per dozen. CROCUS, Yellow, Blue, White, and Striped, 1*s.* 6*d.* per 100. W. F. B. also offers, for want of room, a few dozen choice ORCHIDS, at 21*s.* per dozen.

203, Upper Street, Islington, N.

To the Trade.

STANDARD APPLES, STANDARD APPLES, By the Dozen, Hundred, or Thousand.

JOHN PERKINS AND SON beg to offer fine STANDARD APPLES, 5 to 6 feet stems, good heads, and all the best sorts, at 70*s.* per 100.

Address—52, Market Square, Northampton.

Cooling's Matchless Broccoli.

GEORGE COOLING, NURSERYMAN and SEEDSMAN, Bath, has to offer his usual supply of carefully saved SEED of this unequalled variety of SPRING BROCCOLI, and will be glad to quote price of the same to the Trade. Retail price, per packet, 1*s.* 6*d.*

Haws.

M. GRANT, NURSERYMAN, Newry, Ireland, has about 100 tons of clean, freshly-gathered HAWS for Sale, in lots to suit purchasers. Lowest price per ton on application.

Also, about 150,000 splendid 1-yr. CRAB, from 6 to 15 inches. Samples, &c., on application to above address.

To the Trade.

DEUTZIA GRACILIS, DEUTZIA GRACILIS.

JOHN PERKINS AND SON beg to offer fine strong plants of DEUTZIA GRACILIS, at 20*s.* per 100, fine for potting.

Address—52, Market Square, Northampton.

STUART AND CO., SEED GROWERS, Nice, France: London Offices—5, Tavistock Row, Covent Garden, W.C.

TRADE CATALOGUE, containing all the leading Novelties of the Season, and other choice Seeds, is now in the Press, and will be forwarded shortly, or sent post free on application.

LILIUM AURATUM.—Plump and sound English-grown bulbs at 30*s.*, 42*s.* and 60*s.* per dozen. Large importations from Japan are shortly expected, when they will be supplied at 18*s.*, 24*s.* and 30*s.* per dozen.

As Mr. WILLIAM BULL annually imports many thousands of Lilies direct from their native habitats in various parts of the world, he can supply all the choicest sorts at very moderate prices. Good and varied selections can be made by Mr. W. B. at 18*s.*, 30*s.* and 42*s.* per dozen.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

NURSERY STOCK to be Sold, cheap, as the ground must be cleared :—
SPRUCE FIRS, from 3 to 10 feet.
SCOTCH FIRS, from 3 to 5 feet.
PINUS AUSTRIACA, from 3 to 5 feet.
NORWAY MAPLE, from 10 to 12 feet.
SPANISH CHESTNUT, from 12 to 14 feet.
Prices on application to
HENRY MINCHIN, The Nurseries, Hook Norton, Oxon.

Superb Double Hollyhocks.

WILLIAM CHATER begs to announce that he can supply fine Seedlings with colours named, from 9*s.* to 12*s.* per dozen.
Unbloomed Seelings, from 6*s.* to 9*s.* per dozen. Named Varieties, once bloomed, from 18*s.* per dozen.
W. C. strongly recommends Autumn Planting.
The Nurseries, Saffron Walden.

To the Trade.

BILLING ROAD NURSERIES, NORTHAMPTON.
JOHN PERKINS AND SON beg to call particular attention to their large stock of Standard and Dwarf-trained FRUIT TREES, APPLES, PEARS, PLUMS, PEACHES, NECTARINES, and APRICOTS, strong GOOSEBERRIES and CURRANTS, EVERGREEN SHRUBS, CONIFERÆ, and FOREST TREES. Trade LIST upon application to
52, Market Square, Northampton.

CABBAGE PLANTS for SALE.—Good strong Plants of Early Battersea, Enfield Market, Improved Nonpareil, and Robinson's Champion Cattle Cabbage, can be supplied at 3*s.* per 1000. Package free for cash with order.
The above are all well-rooted stuff, growing on red sand, and cannot fail to give satisfaction.
S. BIDE, Alma Nursery, Farnham, Surrey.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

Planting Season.

CHARLES BURGESS begs to offer the following :—Strong Standard, Pyramid and Dwarf-trained FRUIT TREES, ROSES, Evergreen and Deciduous FLOWERING SHRUBS, English OAKS, ELMS, and LIMES, up to 10 feet; Larch, Spruce, and Scotch FIRS, and a general Nursery Stock. Prices on application.
The Nurseries, London Road, Cheltenham.

TO BE SOLD, by Private Contract, a COLLECTION of ORCHIDS, the property of a foreign Nobleman, and consisting of upwards of 220 plants, in various genera. The plants are in good health, and some of them are fine specimens, *e.g.*, Vanda Lowii, V. Batemanni, V. suavis, Phalænopsis, Saccolabium, Aerides, &c.
For further information address, in the first instance, to *Z., Gardeners' Chronicle.*

From Paris.—New Roses for 1875-1876.

LÉVÊQUE AND SON, NURSERYMEN, 26, Rue du Liégat, Ivry-sur-Seine, offer the following NEW ROSES :—H.P. Duc de Montpensier, Avocat Duvivier, Monseigneur Fournier, which are recommended. Also fifty others of other growers. One plant added for Discount if twelve plants or twelve sorts are taken.
LISTS and Prices on application.

STEPHEN BROWN, Weston-super-Mare, has much pleasure in offering fine roots of the following SUPERB LILIUMS :—

	Each—*s.* *d.*
AURATUM, fine bulbs	2*s.* 6*d.* to 7 6
BROWNII	.. .. 10 6
BUSCHIANUM	.. 7 6
CALLOSUM	.. 7 6
CANDIDUM FOL. AUREA STRIATA	
CARNIOLICUM	.. .. 2 6
COLCHICUM	2*s.* 6*d.* to 3 6
FULGENS INCOMPARABILE, splendid,	7*s.* 6*d.* p. doz. 0 9
„ SANGUINOLENTUM ..	.. .. 1 0
„ eight others, fine and distinct	.. 6*d.* to 0 9
HUMBOLDTII	3*s.* 6*d.* to 7 6
LEICHTLINII	7*s.* 6*d.* to 10 6
MARTAGON DALMATICUM ..	.. .. 10 6
„ white, scarce	.. .. 3 6
PARDALINUM	3*s.* 6*d.* to 7 6
PHILADELPHICUM	.. .. 3 6
PULCHELLUM	.. 5*s.* to 7 6
PUBERULUM	3*s.* 6*d.* to 7 6
PURPUREUM	7*s.* 6*d.* to 10 6
TENUIFOLIUM	.. .. 5 0
THUNBERGIANUM PLENO ..	3*s.* 6*d.* to 7 6
„ SPLENDENS	.. .. 5 0
„ five others, fine and distinct ..	.. 6*d.* to 5 0
TIGRINUM FLORE-PLENO ..	.. 5*s.* to 7 6
„ SPLENDENS	.. 5*s.* to 7 6
WALLICHIANUM	.. .. 21 0
WASHINGTONIANUM	3*s.* 6*d.* to 7 6
„ PURPUREUM	7*s.* 6*d.* to 10 6

Also an extensive collection of others, choice : selections, 5*s.*, 9*s.*, 12*s.*, 18*s.*, 24*s.*, and 36*s.* per dozen.

IXIAS, 12 beautiful named varieties, three of each, 6*s.*
SPARAXIS, 12 beautiful named varieties, three of each, 5*s.*
TRITONIAS, 6 beautiful named varieties, three of each, 3*s.* 6*d.*
GLADIOLI COLVILLII, The Bride, fine pure white, very early, 9*d.* each, 8*s.* per dozen.
„ 12 splendid dwarf varieties, flowering June, July, 7*s.*
„ 12 splendid ramosus hybrids, flowering July, August, 3*s.* 6*d.*
„ Gandavensis hybrids, extensive collection of newest and best; selections, 3*s.*, 5*s.*, 9*s.*, 12*s.*, 15*s.* 20*s.*, and 30*s.* per dozen; fine mixed, 12*s.* per 100.
ACHIMENES, 12 beautiful varieties, strong tubers, 6*s.*
IRIS RETICULATA, striking and brilliant dwarf bulb, 6 to 9 inches in height, flowering February and March, 1*s.* each, 10*s.* per dozen.
TRITELEIA UNIFLORA, a great favourite among spring bulbs, flowering February to May, pure white and blue tinge, 9*d.* per dozen, 5*s.* per 100.
Choice HYACINTHS, TULIPS, CROCUSES, ANEMONES, RANUNCULUSES, and very large collection of other bulbs.
DESCRIPTIVE CATALOGUE sent free on application.

New Cucumber.

COOLING'S KING of the CUCUMBERS, a cross between Long Gun and Telegraph, combining the best qualities of both varieties. Fruit 18 to 24 inches; colour deep glossy green, very smooth and handsome; flesh, crisp and solid, very free bearer. The best Cucumber ever sent out. Price, 2*s.* 6*d.* per packet. Trade terms on application.
Mile Ash Nurseries, Derby.

WM. POTTEN can still supply FRUIT TREES and ROSES, as advertised in the *Gardeners' Chronicle*, Nov. 6. W. P.'s LIST will be sent to all applicants.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

W. ROSSITER, Paignton, Devon, has for Sale several thousand fine-rooted and strong TREES and SHRUBS, very cheap, of the following sorts :—

Spanish Chestnuts, 10 to 12 ft.	Abies Douglasii, 6 to 8 feet
Horse Chestnuts, 10 to 12 feet	Cupressus Lawsoniana, 8 to 10 feet
Birch, 10 to 12 feet	„ macrocarpa, 5 to 6 feet
Elms, in sorts, 10 to 12 feet	Thuja Lobbii, 8 to 10 feet
Turkey Oaks, 10 to 12 feet	Thujopsis borealis, 6 to 8 feet
English Oaks, 10 to 12 feet	Cedrus Deodara, 6 to 8 feet
Lime trees, 8 to 10 feet	Irish Yew, 6 to 8 feet
Judas trees, 6 to 8 feet	Cypress, 4 to 5 feet
Poplars, in sorts, 10 to 12 feet	Arbor-vitæ, in sorts, 4 to 6 ft.
Beech, 5 to 6 feet	Portugal Laurels, 4 to 5 feet
Mountain Ash, 10 to 12 feet	Green Hollies, 3 to 4 feet
Ailantus glandulosa, 10 to 12 feet	Bays, 2 to 3 feet
Sycamore, 10 to 12 feet	Laurustinus, 2 to 3 feet
Laburnums, 8 to 10 feet	Veronicas, in sorts, 2 to 3 feet
Pinus austriaca, 5 to 6 feet	Escallonia, in sorts, 2 to 3 feet
Silver Firs, 5 to 6 feet	Lilac, in sorts, 5 to 6 feet

From FRED. WALTON, Esq.
"*October* 15, 1874.
"The Collection of Bulbs is truly a wonderful one for money."

Early Orders ensure the Best Roots.

Carter's
The Queen's Seedsmen,
237 & 238, HIGH HOLBORN, LONDON, W.C.

Special Offer to the Trade.

B. S. WILLIAMS begs to intimate that he has just received from Australia, ex "Somersetshire," a large Consignment of Seeds and Plants, all of which are in first-class condition. The seeds will be found especially good, having been gathered only three weeks previous to their departure from Melbourne. The Cycas stems are in sound condition, and will break freely upon being placed in a suitable temperature.
CYCAS CIRCINALIS, straight stems, height 12 inches, 30*s.*; do. 18 inches, 35*s.*; do. 24 inches, 42*s.*; do. 30 inches, 50*s.*; do. 36 inches, 60*s.*
„ NORMANBYANA (new), straight stems, height 12 inches, 35*s.*; do. 18 inches, 40*s.*; do. 24 inches, 47*s.*; do. 30 inches, 55*s.*; do. 36 inches, 65*s.*
„ CRENATA, rare, strong stems, 60*s.* each.
DORYANTHES EXCELSA, strong crowns, 40*s.* each.
ARAUCARIA EXCELSA, established Seedlings, 6 to 9 inches high, 7*s.* 6*d.* each.
„ CUNNINGHAMII, established Seedlings, 6 to 9 inches high, 10*s.* 6*d.* each.
„ COOKII, established Seedlings, 10*s.* 6*d.* each.

SEEDS.

CORYPHA AUSTRALIS, 2*s.* 6*d.* per 100, 20*s.* per 1000.
CYCAS CIRCINALIS, 25*s.* per 100 seeds.
„ MEDIA and NORMANBYANA, mixed, 30*s.* per 100 seeds.
DORYANTHES PALMERII, new, 2*s.* 6*d.* per packet.
MACROZAMIA FRASERII, rare, 12*s.* per dozen seeds.
PANDANUS SPIRALIS, 10*s.* per 100 fruits; each fruit contains from three to five seeds.
Special quotations for larger quantities.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

Cranston's Nurseries.—Established 1785.

THE FOLLOWING CATALOGUES are now Published :—
Descriptive CATALOGUE of ROSES, 1875—1876.
Descriptive CATALOGUE of FRUIT TREES.
Descriptive CATALOGUE of CONIFER TREES and SHRUBS.
Descriptive CATALOGUE of BULBS.
Descriptive CATALOGUE of GREENHOUSE and HERBACEOUS PLANTS.
Descriptive CATALOGUE of SEEDS. Address,
CRANSTON AND MAYOS, King's Acre, near Hereford.

SPRING-FLOWERING PERENNIALS, &c., for Spring Gardening, Carpet Bedding, and Herbaceous Borders :—

Ajuga reptans fol. var., Aubrietia purpurea fol. var., Campanula persicifolia and C. persicifolia alba, C. carpatica and C. carpatica alba, Cheiranthus Marshallii, C. alpina, Dianthus barbatus fl.-pl., D. barbatus nanus compactus, Seedling Delphinium, Helianthemums in named sorts, Lithospermum prostratum, Lychnis of sorts, Œnotheras in variety, Saxifrages in twelve kinds, Sedums in twelve sorts, Spiræa filipendula fl.-pl., Schizostylis coccinea, Violet Victoria Regina. All the above at 2*s.* 6*d.* per dozen.
Alyssum saxatile, Antennaria tomentosa, Aubrietia purpurea, Barbarea præcox fol. var., Canterbury Bells, double and single, Iberis coriifolia, I. Tenoreana; Violas, alba, Enchantress, Magnificent, lutea, and grandiflora; Arabis albida, Phlox frondosa, P. verna, Armeria rosea, and Veronica incana. Any of the above at 1*s.* 6*d.* per dozen; 50 for 5*s.*; 100 for 9*s.*
Daisies, red, white, or rose; Wallflowers, double or single; Dactylis elegantissima, Golden Pyrethrum, Myosotis dissitiflora, M. sylvatica, M. sylvatica alba or rosea, Polyanthus, Sedum acre elegans, S. glaucum, S. lividum, Sempervivum tectorum, S. californicum, Stellaria graminea aurea, and Sweet Williams. Any at 1*s.* per dozen; 50 for 3*s.*; 100 for 5*s.*
For descriptions, &c., of above, and for Spring-flowering Bulbs to plant with above, see CATALOGUE, post free on application.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Ornamental and other Plants at Cheap Prices.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the FOLLOWING PLANTS, of which a good Stock is in hand, at the annexed cheap prices :—

12 Musa superba, stout plants, 36*s.*
12 „ discolor and rosacea, strong, 24*s.*
3 „ Ensete, stout, 30*s.*
12 Anthurium Scherzerianum, 48*s.*
12 Doryanthes Palmeri, stout seedlings, 48*s.*
12 Ficus elastica, 24*s.*
12 Coffea arabica, strong, 18*s.*
12 best varieties of Crotons, 24*s.*
6 Ficus Parcelli, 12*s.*
50 Gardenia florida, 25*s.*
50 „ radicans, 25*s.*
6 „ florida variegata, 12*s.*
12 Hibiscus sinensis, of sorts, 6*s.*
12 Marantas, of sorts, 24*s.*
6 Medinella magnifica, stout plants, 18*s.*
12 Passifloras, of sorts, 9*s.*
6 Plumbago capensis, 6*s.*
6 Stephanotis floribunda, 9*s.*
12 Bromeliaceous plants, of sorts, 24*s.*
12 Echeveria atropurpurea, 9*s.*
24 Tropical Orchids, flowering plants, 60*s.*
100 fine named Gloxinias, 25*s.*
50 „ „ new Gloxinias, 36*s.*
50 „ „ Achimenes, Tydæas, &c., 15*s.*
24 Bulbous Begonias, mixed varieties, 30*s.*
12 named Ornamental-leaved Begonias, 6*s.*
24 Selaginellas, 12*s.*
100 Ferns, of sorts, 50*s.*
100 Hardy Ferns, of sorts, 63*s.*
12 Yucca aloifolia, strong, 20*s.*
12 „ „ variegata, 36*s.*
25 Aralia japonica, 18*s.*
12 „ „ strong, 18*s.*
6 Cycas media, 30*s.*
6 „ revoluta, 30*s.*
12 sorts of choice Draçænas, 30*s.*

FERNS.

50 Cyathea dealbata, in small pots, 42*s.*
25 Balantium antarcticum, stout plants, 21*s.*
6 Cibotium Schiedei, strong plants, 30*s.*
100 Darea diversifolia, 42*s.*
50 Pteris cretica lineata, 21*s.*
12 Asplenium Billangeri, 12*s.*
12 „ vivipara, 12*s.*
6 Lomaria cycadæfolia, 1 foot stem, 105*s.*
12 „ Zamiæfolia, 24*s.*

PALMS.

25 Latania borbonica, stout plants, 50*s.*
25 Corpyha australis, 50*s.*
25 Chamærops Fortunei, 50*s.*
25 „ humilis, 50*s.*
25 Livistonia humilis, 50*s.*
25 Sabal Adansoni, 25*s.*
100 Phœnix reclinata, 3-yr seedlings, 21*s.*
25 Cocos coronata, strong, 63*s.*
12 Curculigo sumatrana, 18*s*
12 sorts of Choice Palms, 42*s*

VARIOUS GREENHOUSE PLANTS.

100 Indian Azaleas, with buds, 105*s.*
100 „ „ larger, 125*s.*, and upwards.
100 Camellias, with buds, 125*s.*, and upwards.
100 „ without buds, 84*s.*
100 „ „ strong plants, 125*s.*
} My own selection

100 Acacias, in varieties, 42*s.*
12 „ dealbata, strong, 9*s.*
12 strong bulbs of Cyrtanthus, 24*s.*
12 fine named varieties of Amaryllis, 36*s.*
24 sorts of Agave, 50*s.*
12 Agave filifera, 30*s.*
12 „ americana, 18*s.*
12 „ „ variegata, 18*s.*
12 „ xylinacantha, 18*s*,
25 Dracæna Veitchii, fine young plants, 25*s.*
12 „ australis, strong, 18*s.*
6 Orange trees, fine stems, 30*s.*, and upwards.
25 Otaheite Oranges, 30*s.* and upwards.
6 Standard Oleanders, fine stems, 30*s.*
6 Nerium Madoni, fl.-albo pl., 9*s.*
12 Pittosporum Tobira, 9*s.*
12 Primula sinensis fl.-albo-pl., strong plants, 12*s.*
6 Phormium Veitchii fol. var.
25 sorts of choice Cannas 7*s.* 6*d.*

HARDY PLANTS.

100 Spiræa japonica, strong clumps, 25*s.*
12 Helonias asphodeloides, 24*s.*
12 Viola pedata, 6*s.*
25 Adonis vernalis, 6*s.*
12 choice varieties of Tree Pæonia, 24*s.*
12 Spiræa palmata, 9*s.*
50 Euonymus, of sorts, 21*s.*
12 Skimmia japonica, 6*s.*
100 fine mixed Gladiolus, 6*s.*
12 Hydrangea alba-rosea, 9*s.*
12 „ paniculata grandiflora, 9*s.*
25 Asclepias tuberosa, 9*s.*
25 Ilex, of sorts, 21*s.*
12 Magnolia grandiflora, 12*s.*
2 „ „ large, in tubs, 30*s.*
12 „ purpurea, with buds, 15*s.*
100 Fine named Ghent Azaleas, with buds, 84*s.* and upwards
50 choice herbaceous plants, 18*s*
100 choice Standard Perpetual Roses, £4
100 „ Half-standard Roses, 50*s.*
25 Choice Phloxes, 7*s.* 6*d.*

CONIFERS.

50 different sorts of Conifers, 40*s.*
25 Wellingtonia gigantea, 1 foot, 20*s.*
50 Thuja elegantissima, strong, 60*s.*
25 „ Vervæneana, strong, [30*s.*
12 Thuja semper-aurescens, fine, 30*s.*
50 Araucaria imbricata, fine plants, 60*s.*
12 Larix Kæmpferi, seedlings, 3-yr., 60*s.*

ROYAL HORTICULTURAL SOCIETY.

GREAT SHOW OF FRUIT, CHRYSANTHEMUMS, &c.

NOVEMBER 10 and 11.

AWARDS OF THE JUDGES.

CLASS 1.—12 Large-flowered CHRYSANTHEMUMS, in pots, distinct. (Open.)
1st, Mr. C. Turner, Royal Nursery, Slough.

CLASS 2.—6 Large-flowered CHRYSANTHEMUMS, in pots, distinct. (Amateurs.)
1st, Mr. W. Hall, Gr. to W. Stevens, Esq., Tulse Hill.
2d, Mr. J. Herrington, Gr. to H. Soden, Esq., Clapham Park.
3d, Mr. H. Shephard, Gr. to H. Greening, Esq., Highgate.

CLASS 3.—12 POMPON CHRYSANTHEMUMS, in pots, distinct. (Open.)
2d, Mr. A. Harding, Gr. to the Rev. W. Arthur, Clapham Park.

CLASS 4.—6 POMPON CHRYSANTHEMUMS, in pots, distinct. (Amateurs.)
1st, Mr. W. Whittaker, Gr. to S. Williams, Esq., Putney.
2d, Mr. H. Shephard. | 3d, Mr. J. Herrington.

CLASS 5.—Specimen Large-flowered CHRYSANTHEMUM. (Nurserymen.)
1st, Mr. C. Turner.

CLASS 6.—Specimen Large-flowered CHRYSANTHEMUM. (Amateurs.)
1st, Mr. W. Hall. | 3d, Mr. W. Whittaker.
2d, Mr. J. Herrington.

CLASS 7.—Specimen POMPON CHRYSANTHEMUM. (Nurserymen.)
1st, Mr. C. Turner.

CLASS 8.—Specimen POMPON CHRYSANTHEMUM. (Amateurs.)
1st, Mr. A. Harding. | 3d, Mr. H. Shephard.
2d, Mr. J. Herrington.

CLASS 9.—24 Large-flowered CHRYSANTHEMUMS, cut blooms, distinct, Japanese vars. excluded. (Nurserymen.)
1st, Mr. C. Turner.

CLASS 10.—12 Large-flowered CHRYSANTHEMUMS, cut blooms, distinct, Japanese varieties excluded. (Amateurs.)
1st, Mr. C. Waters, Gr. to A. Mongredien, Esq., Forest Hill.
2d, Mr. J. Hillier, 13, Priory Road, Wandsworth Road.
3d, Mr. E. Smith, Gr., Bristol House, Putney Heath.

CLASS 11.—12 JAPANESE CHRYSANTHEMUMS, cut blooms, distinct. (Open.)
1st, Mr. J. H. Hinnell, Gr. to F. A. Davis, Esq., Surbiton.

CLASS 12.—6 BOUVARDIAS. (Open.)
1st, Mr. C. Turner.
2d, Mr. J. Aldous, Gloucester Road, S.W.

CLASS 13.—6 PLANTS in FLOWER, distinct, excluding those for which there are special classes. (Open.)
3d, Mr. J. Herrington.

CLASS 14.—6 TREE CARNATIONS. (Open.)
1st, Mr. C. Turner.

CLASS 15.—3 Pans of ROMAN HYACINTHS, forced, the pans not to exceed 12 inches in diameter. (Open.)
1st, Mr. J. Aldous.
2d, Mr. T. Lambert, Gr. to H. W. Segelcke, Esq., Herne Hill.

CLASS 16.—2 QUEEN PINE-APPLES. (Open.)
1st, Mr. H. Scammell, Gr. to C. Reily, Esq., Tunbridge Wells.
2d, Mr. C. Ross, Gr. to C. Eyre, Esq., Newbury.
3d, Mr. J. Harris, The Gardens, Singleton, Swansea.

CLASS 17.—2 SMOOTH CAYENNE PINE-APPLES. (Open.)
1st, Mr. T. Jones, Royal Gardens, Frogmore.
2d, Mr. G. Ward, Gr. to T. N. Miller, Esq., Bishop-Stortford.
3d, Mr. M. Rochford, Page Green, Tottenham.

CLASS 18.—1 PINE-APPLE, any variety. (Open.)
1st, Mr. T. Jones. | 2d, Mr. H. Scammell.
3d, Mr. G. T. Miles, Gr. to Lord Carington, High Wycombe.

CLASS 19.—GRAPES, not more than 10 kinds, 2 bunches of each. (Open.)
1st, Messrs. H. Lane & Son, the Nurseries, Great Berkhampstead, Gold Medal.

CLASS 20.—GRAPES, BLACK HAMBURGH or FRANKENTHAL, 3 bunches. (Open.)
1st, Mr. W. Coleman, Gr. to Earl Somers, Eastnor Castle, Ledbury.
2d, Mr. W. Iggulden, Gr. to C. B. Bingley, Esq., Greenford, Middlesex.
3d, J. Allward, Gr. to F. C. Barclay, Esq., Lower Woodside.

CLASS 21.—GRAPES, BLACK ALICANTE, 3 bunches. (Open.)
1st, Messrs. H. Lane & Son. | 2d, Mr. J. Allward.
3d, Mr. T. Wattam, Gr. to A. H. Longman, Esq., Hemel Hempstead.

CLASS 22.—GRAPES, any other Black kind, 3 bunches. (Open.)
1st, Mr. W. Wildsmith, Gr. to Viscount Eversley, Winchfield.
2d, Mr. N. Kniller, The Gardens, Malshanger Park, Basingstoke.
3d, Mr. W. Coleman.

CLASS 23.—GRAPES, FRONTIGNAN, or any other Muscat-flavoured, round-berried kind, 3 bunches. (Open.)
1st, Messrs. H. Lane & Son.

CLASS 24.—GRAPES, MUSCAT OF ALEXANDRIA, 3 bunches. (Open.)
1st, Mr. J. Atkins, Lockinge Gardens, Wantage.
2d, Mr. T. Wattam.
3d, Messrs. H. Lane & Son.

CLASS 25.—GRAPES, any other White kind, 3 bunches. (Open.)
1st, Mr. T. Wattam. | 3d, Mr. J. Allward.
2d, Mr. W. Wildsmith.

CLASS 26.—GRAPES, the heaviest bunch (weight to be specified. (Open.)
1st, Mr. T. Wattam,
2d, Mr. T. Bannerman, Gr. to Lord Bagot, Blithfield, Rugeley.
3d, Mr. J. Edmonds, Gr. to the Duke of St. Albans, Nottingham.

CLASS 27.—DESSERT APPLES, 24 varieties, distinct, 6 fruits of each. (Open.)
1st, Mr. S. Ford, Gr. to W. E. Hubbard, Esq., Leonardslee, Horsham, Gold Medal.
2d, Mr. J. Pluck, 38, New Street, Jersey, Silver-gilt Medal.

CLASS 28.—DESSERT APPLES, 6 varieties, distinct, 6 fruits of each. (Open).
1st, W. Skinner, Esq., Maidstone.
2d, Mr. J. P. Arnold, Gr. to G. Wood, Esq., Rochford.
3d, Mr. J. Smith, Romford.

CLASS 29.—DESSERT APPLES, 3 varieties, distinct, 6 fruits of each.
1st, Mr. T. Jones, The Gardens, Elvetham Park, Winchfield.
2d, Mr. G. Murrell, Gr. to A. R. Allerton, Esq., Prittlewell.
3d, Mr. D. Lumsden, Bloxholm Gardens, Sleaford.

CLASS 30.—APPLE, COX'S ORANGE PIPPIN, 6 fruits. (Open.)
1st, Mr. F. Miller, Gr. to J. F. Friend, Esq., Margate.
2d, Mr. W. Holder, Gr. to W. Balstone, Esq., Maidstone.
3d, Mr. W. Coles, Gr. to A. Smee, Esq., Carshalton.

CLASS 31.—APPLE, GOLDEN PIPPIN, 6 fruits. (Open.)
1st, Mr. T. Farrow, Gr. to G. Batters, Esq., Enfield.
2d, Mr. J. P. Arnold. | 3d, Mr. J. Smith.

CLASS 32.—APPLE, MARGIL, 6 fruits. (Open.)
1st, Mr. W. Fowle, Gr. to Sir H. Mildmay, Bart., Winchfield.
2d, Mr. W. Coles.
3d, Mr. J. Clark, Gr. to the Rev. A. D. Stackpool, Chelmsford.

CLASS 33.—APPLE, COCKLE PIPPIN, 6 fruits. (Open.)
1st, Mr. J. Smith. | 2d, Mr. S. Ford.
3d, Mr. R. Webb, Culham House, Calcot, Reading.

CLASS 34.—APPLE, RIBSTON PIPPIN, 6 fruits. (Open.)
1st, Mr. W. Coleman. | 2d, Mr. S. Ford.
3d, Mr. C. Haycock, Gr. to R. Leigh, Esq., Maidstone.

CLASS 35.—APPLE, COURT-PENDU PLAT, 6 fruits. (Open.)
1st, Mr. R. Webb.
2d, Mr. W. Bannister, Gr. to H. Ames, Esq., Bristol.
3d, Mr. G. Brush, Gr. to Lady Hume Campbell, High Grove, Pinner.

CLASS 36.—APPLE, any other Dessert kind, 6 fruits. (Open.)
1st, Mr. C. Haycock. | 3d, Mr. J. Smith.
2d, Mr. G. Head, Gr. to G. Atkinson, Esq., Walton-on-Thames.

CLASS 37.—KITCHEN APPLES, 18 varieties, distinct, 6 fruits of each. (Open.)
1st, Mr. S. Ford, Gold Medal.
2d, Mr. C. Haycock, Silver-gilt Medal.

CLASS 38.—KITCHEN APPLES, 6 varieties, distinct, 6 fruits of each. (Open.)
1st, Mr. G. Ford, The Gardens, Wrest Park, Ampthill.
2d, Mr. G. A. Bromfield, Gr. to J. F. Leith, Esq., Q.C., M.P., Prittlewell.
3d, Mr. R. Webb.

CLASS 39.—APPLE, DUMELOW'S SEEDLING, or WELLINGTON, 6 fruits. (Open.)
1st, Mr. G. Murrell. | 3d, Mr. J. Neighbour.
2d, Mr. Brush.

CLASS 40.—APPLE, ALFRISTON, 6 fruits. (Open.)
1st, Mr. J. Pluck.
2d, Mrs. Thomas, 22, Burrard Street, Jersey.
3d, Mr. J. T. Seymour, Gr. to W. R. Winch, Esq., Hatfield.

CLASS 41.—APPLE, EMPEROR ALEXANDER, 6 fruits. (Open.)
1st, Mr. C. Haycock. | 2d, Mr. J. Pluck.
3d, Mr. W. Gardiner, Gr. to E. P. Shirley, Esq., Stratford-on-Avon.

CLASS 42.—APPLE, BLENHEIM PIPPIN, 6 fruits. (Open,)
1st, Mr. G. Brush. | 2d, Mr. R. Webb.
3d, Mr. J. G. Cocks, Gr. to G. S. Cundell, Esq., Clapham Park.

CLASS 43.—APPLE, MERE DE MENAGE, 6 fruits. (Open.)
1st, Mr. C. Ross. | 3d, Mr. R. Webb.
2d, Mr. G. A. Bromfield.

CLASS 44.—APPLE, REINETTE DU CANADA, 6 fruits. (Open.)
1st, Mr. J. Pluck. | 2d, Mr. C. Haycock.
3d, Mr. W. Fanning, Gr. to M. Digby, Esq., Roehampton.

CLASS 45.—APPLE, any other Culinary kind, 6 fruits. (Open.)
1st, Mr. G. Ford. | 3d, Mr. J. Pluck.
2d, Mr. F. Miller.

CLASS 46.—APPLES, 6 heaviest fruits of any variety (the weight to be specified.) (Open.)
1st, Mr. J. Pluck. | 3d, Mr. G. Ford.
2d, Mr. C. Haycock.

CLASS 47.—DESSERT PEARS, 18 varieties, distinct, 6 fruits of each. (Open.)
1st, Mr. J. Pluck, Gold Medal.
2d, Mrs. Thomas, Silver-gilt Medal.

CLASS 48.—DESSERT PEARS, 6 varieties, distinct, 6 fruits of each. (Open.)
1st, Mr. W. Fowle. | 2d, Mrs. Thomas.
3d, Mr. C. Paskins, St. Helier's, Jersey.

CLASS 49.—DESSERT PEARS, 3 varieties, distinct, 6 fruits of each. (Open.)
1st, Mrs. Thomas. | 2d, Mr. J. Pluck.
3d, Mr. G. Potts, Gr. to Viscount Gage, Lewes.

CLASS 50.—PEAR, LOUISE BONNE OF JERSEY, 6 fruits. (Open.)
1st, Mr. J. P. Arnold. | 3d, Mr. W. Hall.
2d, Mr. W. Iggulden.

CLASS 51.—PEAR, MARIE LOUISE, 6 fruits. (Open.)
1st, Mr. O. Goldsmith, Gr. to Sir W. Farquhar, Bart., Dorking.
2d, Mr. C. Paskins. | 3d, Mr. W. Wildsmith.

CLASS 52.—PEAR, GLOU MORCEAU, 6 fruits. (Open.)
1st, Mr. J. Pluck.
2d, Mr. A. Parsons, The Gardens, Danesbury Park, Welwyn.
3d, Mr. T. Lane, Gr. to J. Cautouche, Esq., Jersey.

CLASS 53.—PEAR, DUCHESSE D'ANGOULEME, 6 fruits. (Open.)
1st, Mr. J. Pluck. | 3d, Mrs. Thomas.
2d, Mr. T. Lane.

CLASS 54.—PEAR, DOYENNE DU COMICE, 6 fruits. (Open.)
1st, Mr. J. Pluck. | 3d, Mr. T. Lane.
2d, Mr. C. Haycock.

CLASS 55.—PEAR, CONSEILLER A LA COUR, 6 fruits. (Open.)
1st, Mr. J. Pluck.
2d, Mr. G. Goldsmith, Gr. to G. D. Tyser, Esq., Hildenborough.
3d, Mr. C. Haycock.

CLASS 56.—PEAR, VAN MONS' LEON LE CLERC, 6 fruits. (Open.)
1st, Mr. W. Fowle. | 3d, Mr. W. Fanning.
2d, Mr. G. Ford.

CLASS 57.—PEAR, any other Dessert kind, 6 fruits. (Open.)
1st, Mrs. Thomas. | 2d, Mr. J. Pluck.
3d, Mr. J. Stevenston, Gr. to F. C. Barker, Esq., Leigh House, Essex.

CLASS 58.—PEAR, CATILLAC, 6 fruits. (Open.)
1st, Mr. J. Pluck. | 2d, Mr. T. Lane.
3d, Mr. J. Neighbour, Gr. to G. Wythes, Esq., Bickley

CLASS 59.—PEAR, UVEDALE'S ST. GERMAIN, 6 fruits. (Open.)
1st, Rev. T. C. Bréhaut, Richmond House, Guernsey.
2d, Mr. J. Pluck. | 3d, Mrs. Thomas.

CLASS 60.—PEARS, 6 heaviest fruits, of any variety (the weight to be specified). (Open.)
1st, Mrs. Thomas. | 3d, Mr. T. Lane.
2d, Mr. J. Pluck.

CLASS 61.—MISCELLANEOUS FRUITS, not specified in the Foregoing Classes.
Extra Prizes.
1st, Mr. G. T. Miles, for 3 Black Jamaica Pines.
2d, Mr. T. Record, Gr. to J. Watman, Esq., Vinters Park, Maidstone, for Outdoor Grapes.

CLASS 62.—3 Sticks of CELERY, White.
1st, Mr. C. Lidgard, Albion Road, Hammersmith.
2d, Mr. C. Osman, South Metropolitan District Schools, Sutton.

CLASS 63.—3 Sticks of CELERY, Red.
1st, Mr. C. Osman. | 2d, Mr. T. Record.

CLASS 64.—20 Dishes of POTATOS, distinct varieties, 9 tubers of each variety.
1st, Mr. R. Dean, Ranelagh Road, Ealing, W.
2d, Mr. D. Lumsden.
3d, Mr. J. Pink, The Gardens, Lee's Court, Faversham.

CLASS 65.—10 dishes of POTATOS, distinct varieties, 9 tubers of each variety.
1st, Mr. R. Dean.
2d, Mr. C. Frisby, The Gardens, Blankney Hall, Sleaford.
3d, Mr. W. Divers, Gr. to W. Moore, Esq., Maidstone.

CLASS 66.—12 ONIONS. (Open.)
1st, Mr. J. Walker, Thame, Oxon.
2d, Mr. G. Neal, Gr. to G. Southey, Esq., Bampton, Faringdon.

SPECIAL PRIZES.

(Prizes in this and next Class offered by Messrs. JAMES CARTER & CO.)

CLASS 69.—For a Collection of VEGETABLES (18 varieties), to include Carter's Dwarf Mammoth Cauliflower, Carter's New Giant Rocca Onion, Carter's Maltese Parsnip, Sandringham Celery, Carter's Perfection of Beet, New Egyptian Turnip-rooted Beet, and Carter's New Fern-leaved Parsley.
1st, Mr. C. Osman, £5 5s.

CLASS 70.—For 10 dishes of POTATOS, half Round and half Kidney varieties, to include Carter's Main Crop, Carter's Ashtop Fluke, Snowflake, Extra Early Vermont, Vermont Beauty, and Carter's Improved Redskin Flourball.
1st, Mr. F. Miller, £1 10s. | 2d, Mr. D. Lumsden, £1.

(Prizes in this and two following Classes offered by Messrs. SUTTON & SONS.)

CLASS 71.—For 12 SUTTON'S IMPROVED READING ONIONS.
1st, Mr. G. Neal, Silver Medal and £2 2s.
2d, Mr. J. Baker, Gr. to the Rev. J. W. B. Bell, Aston Vicarage, Bampton, Faringdon, Bronze Medal and £1 1s.

CLASS 72.—For Collection of POTATOS, 12 dishes, 12 specimens to comprise a dish, distinct kinds, half Kidney and half Round, to include Sutton's Hundredfold Fluke, and Sutton's Redskin Flourball.
1st, P. McKinlay, Esq., Beckenham, Gold Medal and £3 3s.
2d, Mr. D. Lumsden, Silver Medal and £2 2s.
3d, Mr. J. Pink, Bronze Medal and £1 1s.

CLASS 73.—For 6 CAULIFLOWERS, SUTTON'S KING.
1st, Mr. C. Osman, Silver Medal and £2 2s.
2d, Mr. W. Jacob, Pound Street, Petworth, Bronze Medal and £1 1s.

MISCELLANEOUS.—EXTRA PRIZES.

Mr. C. Turner, for Group of Chrysanthemums, Silver Medal.
Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, S.W., for a Group of Chrysanthemums, Silver Medal.
Mr. B. S. Williams, Upper Holloway, for a Group of Plants, Silver Medal.
Mr. H. B. Smith, Ealing Dean Nursery, Ealing, for a Group of Cyclamens in Flower, Silver Medal.
Messrs. James Carter & Co., 237 and 238, High Holborn, for a Collection of Vegetables, Silver Medal.
Mr. T. Jones, Frogmore, for 6 Pine-apples, Silver Medal.
Mr. Aldous, for a Group of Plants, Bronze Medal.
Mr. S. Ford, for Celosias, cut spikes, Highly Commended.

TO THE TRADE. Carters TO THE TRADE.

LIST of VEGETABLE and FLORAL NOVELTIES
FOR 1876,
Is now ready, and will be forwarded on application.

237 & 238, HIGH HOLBORN, LONDON, W.C.

NEW PEAR—"LUCY GRIEVE."
E. G. HENDERSON & SON

Have much pleasure in offering this really fine Pear as a most valuable addition to its class of fruits for the dessert. A First-class Certificate was awarded to its merit by the Royal Horticultural Society, and the following description of it is given by Dr. Hogg in his recently published "Fruit Manual," a Coloured Illustration of which will be forwarded for six postage stamps; a double outline of the fruit, with Dr. Hogg's description, is also given in the "Gardeners' Year-Book" for 1874:—

LUCY GRIEVE.—"Fruit large, above the average, upwards of 3 inches long, and 2½ wide, oval in outline, combining the features of Glou Morçeau and Swan's Egg. Its complexion lemon-yellow, with a red blush towards the sun, and the whole surfaced with cinnamon-coloured russet dots. Flesh white, very tender and melting, very juicy, and richly flavoured. It is a delicious Pear, having the texture of flesh found in Marie Louise, and ripens in October."

10s. 6d. each. Pyramids, 21s.

The seed of this Pear was sown in a flower-pot by the daughter and only child of Mr. Peter Grieve, gardener at Culford Hall, near Bury St. Edmunds, who carefully tended the plants till they were large enough to be planted out, but ere the first of them bore fruit, in 1873, the little maid was in her grave. The first-class qualities of this fruit will perpetuate her name, and as a living record become at once a professional *souvenir* and "forget-me-not."

The wholesale trade firms upon E. G. HENDERSON & SON'S books have each had a Coloured Illustration sent, with a List of New and other Plants, specially priced for October and November. Any other Firm can have a copy of their Priced List sent free, and the Illustration also, for six stamps.

A NEW AUTUMN CATALOGUE
Of Miscellaneous Hardy and Exotic Bulbs, Roses, Fruit Trees, Spring-flowering Bedding Plants, &c., sent free on application.

THE WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

CHRYSANTHEMUM FLOWER SHOW
AT THE
PINE-APPLE NURSERY,
32, MAIDA VALE, EDGWARE ROAD, LONDON, W.

This extensive COLLECTION of CHRYSANTHEMUMS is now and will continue till Christmas in great perfection.

On View in the Grand Winter Garden Conservatory.

CATALOGUES with full description forwarded Free by Post.

ADDRESS—THE PINE-APPLE NURSERY COMPANY,
32, MAIDA VALE, LONDON, W.

GRAPE VINES.
THOMAS METHVEN & SONS
HAVE AT PRESENT A
LARGE AND VERY FINE STOCK OF GRAPE VINES,
Thoroughly ripened, which they beg to offer at the following Prices:
First Size, 7s. 6d.; Second Size, 5s. each.

T. M. & SONS had the honour of supplying to the Gardens at Glamis Castle the Vines which have succeeded so admirably under the management of Mr. Johnston; and their present Stock is raised from eyes taken from these famous Vines.

LEITH WALK NURSERIES, EDINBURGH.—October 30.

Turf.

J. CHEAL AND SONS, of the Lowfield Nurseries, Crawley, Sussex, can supply first-class TURF for Lawns, at 3*d.* per square yard, on rail, at Crawley Station. Special prices for large quantities.

Priced CATALOGUES of their extensive stock of TREES and SHRUBS free by post.

Cheap Marechal Niel Rose, from Paris.

LÉVÊQUE AND SON, NURSERYMEN, 26, Rue du Liégat, Ivry-sur-Seine, beg to offer strong MARECHAL NIEL ROSE, from outdoors, Dwarfs and Standards. Dwarfs, 50*s.* per 100; Standards, £5.

L. & SON also have a splendid stock of TEA ROSES, grown in small pots, and generally strong, from £2 8*s.* to £3 per 100. Standards, Perpetuals, splendid heads, clean, and well rooted, from £4 (their choice) to £6.

LISTS and Prices on application.

VINES, VINES, EPIPHYLLUMS, TREE CARNATIONS, and CYCLAMENS.

VINES.—Strong, well-ripened, and short-jointed fruiting and planting Canes of the following varieties, 2*s.* 6*d.* to 5*s.* each:—Buckland's Sweetwater, Black Hamburgh, Black Alicante, Foster's Seedling, Gros Colman, Lady Downe's, Muscat Hamburgh, Madresfield Court, Dr. Hogg, Mrs. Pince, Muscat of Alexandria, Seacliffe Black, Trentham Black, White Lady Downe's, West St. Peter's; a few of Waltham Cross, 7*s.* 6*d.* to 15*s.* each.

EPIPHYLLUMS.—Strong grafted plants, 6 to 15 inch stems, heads 6 to 9 inches in diameter, 9*s.* per dozen, 60*s.* per 100; larger plants, 12*s.* per dozen, 90*s.* per 100.

TREE CARNATIONS and CYCLAMENS, fine for this season's blooming, 9*s.* and 12*s.* per dozen, 70*s.* and 90*s.* per 100.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

To the Members of the Royal National Tulip Society and Others.

WILLISON'S CELEBRATED TULIPS—In consequence of the decease of Wm. Willison, of Newgardens, Whitby, this large and valuable Collection, comprising 1300 varieties, is now offered to the public, amongst which are many first-class Seedlings never sent out, also a large quantity of the old named sorts, all in boxes and carefully ARRANGED CORRECT TO NAME. The whole or any quantity for Tenders, and all Tenders must be in by the 30th instant. CATALOGUES on application to

ALEXANDER WILLISON, Esk Place, Whitby.

Special Offer to the Trade.

A. M. C. JONGKINDT CONINCK submits the following:—

APPLES,
Maidens on Doucin and on Crab stock—

Per 100, 1st quality	..	25*s.*	Per 1000, 1st quality	..	£10 9*s.*
,, 2d quality	..	20*s.*	,, 2d quality	..	8 7*s.*

PEARS,
Maidens on Quince of Angers and on Crab stock—

Per 100, 1st quality	..	34*s.*	Per 1000, 1st quality	.	£14 12*s.*
,, 2d quality	..	27*s.*	,, 2d quality	.	12 10*s.*

PLUMS,
Maidens on Prunus St. Julien stocks—

Per 100, 1st quality	..	42*s.*	Per 1000, 1st quality	.	£16 14*s.*
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ROSES,
Hybrid Perpetuals on Rosa canina:
Standards—

Per 100, 1st quality	..	£4 4*s.*	Per 1000, 1st quality	..	£33 7*s.*
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Per 100, 1st quality	..	£2 10*s.*	Per 1000, 1st quality	.	£20 17*s.*
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Dwarf Roses on Rosa multiflora de la Grifferaie—

Per 100, 1st quality	..	£1 14*s.*	Per 1000, 1st quality	.	£14 12*s.*
,, 2d quality	..	1 5*s.*	,, 2d quality	.	10 9*s.*

GUNNERA SCABRA, strong plants, £2 per 100.
GYNERIUM ARGENTEUM, strong plants, from 3 to 3½ feet high, 30*s.* per 100.
LILIUM AURATUM, very sound home-grown bulbs, 84*s.* to 335*s.* per 100.
,, colchicum (Szovitzianum), 100*s.* to 142*s.* per 100.
WAHLENBERGIA (Platycodon, Campanula) GRANDIFLORA CŒRULEA, 17*s.* per 100.
☞ A LIST of the names of the FRUIT TREES and ROSES will be sent post free on application.

Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

JAMES IVERY & SON,
DORKING AND REIGATE NURSERIES
Beg to offer the following
LARGE EVERGREENS, PINUS, &c.,
fit to produce an immediate effect:—

PINUS AUSTRIACA, in heights varying from 6 to 10 feet.
,, EXCELSA, ditto, from 8 to 20 feet.
,, CEMBRA, ditto, from 6 to 10 feet.
ABIES DOUGLASII, ditto, from 8 to 15 feet.
,, MENZIESII, ditto, from 6 to 10 feet.
CUPRESSUS LAWSONIANA, ditto, from 6 to 9 feet.
CEDRUS DEODARA, ditto, from 6 to 15 feet.
YEW, Irish, ditto, from 6 to 9 feet.
,, Common, ditto, from 6 to 10 feet.
LAUREL, Common, ditto, from 4 to 6 feet.
BOX, Green, ditto, from 4 to 5 feet.
HOLLY, Green, ditto, from 6 to 9 feet.
SCOTCH, SPRUCE, and WEYMOUTH FIR, ditto, from 6 to 10 feet.
LIMES, ditto, from 8 to 20 feet.
BIRCH, ditto, from 8 to 10 feet.
WALNUTS, ditto, from 8 to 10 feet.
POPLARS, of sorts, ditto, from 8 to 10 feet.

Also NUTS of sorts, including Cobs, Cosford's Prolific, and many of WEBB'S new varieties, 3 to 5 feet; and large quantities of COMMON YEW, SPRUCE, HOLLY, AUCUBAS, COMMON LAURELS, LAURUSTINUS, PORTUGAL LAURELS, ARBOR-VITÆ, CUPRESSUS, PINUS of sorts, &c., 2, 3, and 4 feet.

The above are all well grown, healthy stuff, and will move well. Prices on application. Please address

THE NURSERIES, DORKING, SURREY.

EVERGREENS and AVENUE TREES.—Aucuba japonica, 1 to 3 feet; Laurustinus, 1 to 3 feet; Laurels, 3 to 8 feet; Yews, 2 to 6 feet; Hollies, 2 to 6 feet; Limes, Planes, Birch, Poplars, Chestnuts, 8 to 16 feet, of unsurpassed quality.

For prices per dozen or 100, see CATALOGUE, post free on application.

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SPRING FLOWERS: — 100,000 strong plants of Pansies, Violas, Primroses, Daisies, Aubrietias, Violets, and other Spring Bedding Plants, in best varieties; also a Select Importation of the very finest varieties of Hyacinths, Tulips, Narcissus, Crocus, Anemones, and other DUTCH BULBS, suitable for grouping or mixing with the above. Priced CATALOGUE free on application.

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

SPRUCE FIR, very fine, for Christmas Trees, from 4 to 7 feet high.

PINUS AUSTRIACA, fine, 5 to 6 feet.
IRISH YEWS, fine specimens, 8 feet.
THUJA LOBBII, very fine, 10 feet.
SIBERIAN ARBOR-VITÆ, magnificent specimens, 8 feet.

The above are well-grown and finely rooted. Prices on application.

ELCOMBE AND SON, The Nurseries, Romsey,

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The Executors of the late W. L. RIDER beg to inform the Nobility, Gentry, and Public that the NURSERY STOCK of Plants, consisting of Azaleas, Camellias, Rhododendrons, Fruit, Forest, and Ornamental Trees, Roses, and Evergreen and Deciduous Shrubs, is now in the finest condition. An inspection is invited.

Priced CATALOGUES post free on application.

SPECIAL OFFER to the Trade.

40,000 GOOSEBERRIES, best sorts.
20,000 Northumberland Fillbasket RASPBERRY CANES.
10,000 Red and White CURRANTS.
100,000 EVERGREEN PRIVETS.
50,000 WYCH ELMS.
50,000 STRAWBERRY PLANTS.

Also a large quantity of HORNBEAM, LIMES, OAKS, POPLARS, SYCAMORE, MOUNTAIN ASH, ALDER, BIRCH, TREE BOX, LAURELS, ENGLISH YEWS, BROOM, HONEYSUCKLE, SWEET BRIARS, LILACS, and SYRINGAS of all sizes. Price on application to

JOSEPH GREEN, The Nurseries, Garforth, near Leeds.

THE PLANTING SEASON.
Cheap Offer.

LAURELS, 2 feet, 80s. per 1000, transplanted last spring; 2 to 3 feet bushy, 100s. per 1000; fine plants, 3 to 5 feet, 25s. per 100. PORTUGAL LAURELS, specimens, all transplanted last spring, 2 to 3 feet, 60s. per 100; 3 to 3½ feet, 100s. per 100. TREE BOX, fine, 2 to 3 feet, 30s. per 100; variegated do., 2 to 3 feet, 40s. per 100. CEDRUS DEODARA, fine specimens, 3 to 4 feet, 30s. per dozen; 4 to 5 feet, 42s. per dozen. ENGLISH OAKS, 3 to 4 feet, 40s. per 1000; 4 to 6 feet, very strong, 60s. per 1000. HORSE CHESNUTS, strong, 3 to 4 feet, 50s. per 1000; 4 to 6 feet, very strong, 80s. per 1000. Put on rail for cash. A Priced CATALOGUE of General Nursery Stock on application.

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Our special Guinea Collection contains :—

9 Hyacinths, choice named.
9 do., in 3 colours for beds.
18 Daffodils, double.
18 Tulips, mixed, choicest double.
18 do., mixed, choicest single.
6 Jonquils.
6 Triteleia uniflora.
50 Crocus, large blue.
25 do., large white.
50 do., large yellow.
25 do., large striped.
12 Anemones, finest double.
12 Anemones, finest single.
3 Lilies.
25 Ranunculus.
18 Narcissus, double, white.
18 do., Poeticus.
18 Tulips, Duc Van Thol.
6 Polyanthus Narcissus, choicest varieties.
9 Violets, Dog's-tooth.
9 Iris, English.
12 do., Spanish.
25 Snowdrops.

Packing and Carriage Free.

Gladioli.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), has the honour to inform his numerous Friends and the Public that he will be prepared to supply them, on and after November 15 next, at the lowest possible price, with all they may require in Gladioli.

NEW VARIETIES for 1875-76 (Souchet's):—

Amaranth
Camille
Christophe Colomb
Esther
Fiammetta
Hecla
Leandre
Miriam
Niobe
Phœnix
Rosita
Titania.

The Twelve Varieties for £3 12s., carriage free to London.

CATALOGUES will be forwarded on application, about the end of October.

Gladioli.—New Roses.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), will place in commerce, in November next, the following magnificent ROSES, obtained by him from seed, and which gained a Silver-gilt Medal at the Paris Exposition in June :—

HYBRID PERPETUALS.

Abel Carrière
Dingee Conard
Duchesse de Chartres
Edmund Wood
Général de Cissey
Général Duc d'Aumâle
Guillaume Koëlle
L'Etincelante
Mme. Grandin-Monville
Mme. Prosper Langier
Mdlle. Berthe-Sacavin
Mdlle. Emilie Verdier.

The Twelve Varieties for £10 16s., carriage free to London.

IMMENSE STOCK of GLADIOLI.

CATALOGUES of Gladioli and of all the New Roses may be had on application, about the end of October.

DUTCH BULBS.

B. S. WILLIAMS

begs to announce that he has received his

ANNUAL SUPPLY OF HYACINTHS, TULIPS, NARCISSI, CROCUS, &c., in splendid condition.

CATALOGUE Gratis on application;

also of New Plants, Fruit Trees, Roses, &c.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

VENN'S BLACK MUSCAT.

JOHN KEYNES

Has a few first-rate Fruiting Canes of this magnificent variety. It is unquestionably the finest Black Grape in cultivation for growth and flavour: 21s. each. No Planting Canes. J. K. can also supply a few other kinds grown from last year's eyes, for which he is so celebrated. Fine fruiting well-ripened Canes, 10s. 6d. each. None left for the Trade.

ROSES.

Fine well-ripened not overgrown plants as usual. These Roses, not having been forced, will grow on any soil.

CATALOGUES now ready. Amateurs, try them.

Castle Street, Salisbury.

HOLLIES.

Twenty Thousand of the Finest Varieties of GREEN AND VARIEGATED HOLLIES, 4, 5, 6, 7, 8, and 10 feet.

The Plants are all handsomely Grown and properly Rooted.

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

MR. WILLIAM BULL

IS NOW SENDING OUT THE

NEW REGAL PELARGONIUM "BEAUTY OF OXTON,"

Price One Guinea each.

A Drawing of the above, by MACFARLANE, *can be had on application, price 2s. 6d.*

ESTABLISHMENT for NEW and RARE PLANTS, King's Road, Chelsea, London, S.W.

CATALOGUES

OF

Trees, Shrubs, Roses and Fruit Trees,

ALSO

CLEMATIS, &c., for 1875-76,

Free by Post on application to

GEORGE JACKMAN AND SON,
WOKING NURSERY, SURREY.

THE KNAP HILL CYPRESS,
Cupressus Lawsoniana erecta viridis.

ANTHONY WATERER

Will be happy to supply beautiful specimens of this famous hardy Evergreen, at the following prices :—

3 feet high, 2½ feet in circumference, 30s. per doz.
4 feet high, 3 to 4 feet do., 42s. to 60s. per doz.
5 feet high, 4, 5 and 6 ft. do., 10s. 6d., 15s. to 21s. each.
6 and 7 feet high, 6 to 7 and 8 ft. do., 21s. to 31s. 6d. each.

No cuttings have been taken from the plants here referred to, which are simply perfect in growth and splendidly rooted.

KNAP HILL NURSERY, WOKING, SURREY.

To the Trade.—Seed Potatos.

H. AND F. SHARPE are prepared to make Special Offers of SEED POTATOS grown on their own Farms from the finest selected stocks. Their List this season comprises all the English and American varieties worthy of cultivation. The prices will be found very moderate.

Seed-growing Establishment, Wisbech.

Spring Flowers.

THOMAS S. WARE'S new A. B. C. BULB GUIDE (now ready, free on application) contains a selection of all the best Spring-flowering Perennials and Bulbs in cultivation.

Hale Farm Nursery, Tottenham, London.
N.B.—See Cheap Collections of the above.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON, Whips Cross and Orford Road Nurseries, Wood Street, Walthamstowe, Essex, N.E., offer the above. Part of their Nurseries being required for building purposes, it must be cleared. Trains from Liverpool Street Station, Great Eastern Railway, to Wood Street Station, which adjoins their Whips Cross Nursery, down and up, every half hour.

General Nursery Stock.

WOOD AND INGRAM'S General Descriptive CATALOGUE of the above, including FRUIT TREES, Hardy CONIFEROUS and TAXACEOUS PLANTS, EVERGREENS, ORNAMENTAL TREES and SHRUBS, HARDY CLIMBERS, FOREST TREES, ROSES, &c., is now ready, and will be sent free on application.

The Nurseries, Huntingdon.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

THE NEW PLANT AND BULB COMPANY beg to call attention to their unrivalled collection of LILIUMS, the present being a most suitable time for planting. Their Bulbs are this season remarkably fine.

For further particulars see CATALOGUE, sent free on application, which also contains Bulbs of all kinds, rare Terrestrial Orchids, and other plants from North America; Tropical Orchids, Tree and other Ferns, all at very low prices.

Lion Walk, Colchester.

GRAPE VINES.—A fine stock of Black Hamburgh and other popular sorts, including the new varieties—Venn's Black Muscat, Waltham Cross, and Duke of Buccleuch—in strong, well ripened Fruiting and Planting Canes. Prices on application to

FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

Vines, Vines, Vines.

B. S. WILLIAMS begs to announce that his stock of VINES is now in fine condition, and ready for sending out. It comprises all the leading kinds, strong Canes of Pearson's Golden Queen.

For prices and description see BULB CATALOGUE.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

To the Trade.

Home-grown GARDEN and AGRICULTURAL SEEDS.

H. AND F. SHARPE'S Wholesale Special Priced LIST of the above Seeds of 1875 growth is now ready; it comprises all the best sorts in cultivation. The quality is very fine, and the prices will compare favourably with those of other growers.

Seed Growing Establishment, Wisbech.

New Roses.

WM. PAUL AND SON beg to offer the following NEW ROSES:—

STAR of WALTHAM, 7s. 6d. to 10s. 6d. each.
QUEEN of WALTHAM, 5s. to 7s. 6d. each.

These have been acknowledged by many of our first Rose amateurs, who had seen them blooming in the Nurseries here, to be two of the best novelties of the season.

Coloured Plates, free by post, 1s. each.

250,000 ROSES, new and old, now on Sale, of superior qualities, at very reasonable prices. Priced Descriptive CATALOGUE free by post.

PAUL'S Nurseries, Waltham Cross, Herts.

To Noblemen, Gentlemen, and Others Engaged in PLANTING.

JOHN PERKINS AND SON beg to call particular attention to their large Stock of the following, the whole of which are stout and well rooted :—

ASH, 2 to 3 feet.
BEECH, 2 to 3 feet.
BIRCH, 2 to 3 feet.
FIR, Balm of Gilead, 2 to 3 and 3 to 4 feet.
PINE, Austrian, 1½ to 2, 2 to 3, and 3 to 4 feet.
CHESTNUT, Spanish, 2 to 3, 3 to 4, and 4 to 5 feet.
ELM, Wych, 2 to 3, and 3 to 4 feet.
,, English, grafted, 3 to 4, and 6 to 8 feet.
,, stricta, grafted, 3 to 4, and 6 to 8 feet.
HAZEL, 2 to 3 feet.
HORNBEAM, 1½ to 2, and 3 to 4 feet.
LARCH FIR, 1½ to 2, and 2 to 3 feet.
OAKS, English, 3 to 4, and 4 to 5 feet.
SCOTCH FIR, 1½ to 2, and 2½ to 3 feet.
SPRUCE FIR, 1½ to 2, and 2 to 3 feet.
PINE, Weymouth, 2 to 3, 3 to 4, and 4 to 5 feet.

PLANTS SUITABLE FOR GAME COVERTS, &c.

BERBERIS AQUIFOLIA, 1 to 1½, and 1½ to 2 feet.
BLACKTHORNS, fine, 1½ to 2, and 2 to 3 feet.
BOX, Tree, 1½ to 2, and 2 to 3 feet.
GORSE, 1-yr.
HOLLY, Green, 1½ to 2, 2 to 3, and 3 to 4 feet.
LAURELS, common, 2 to 3, and 3 to 4 feet.
,, Portugal, 1½ to 2, 2 to 3, and 3 to 4 feet.
PRIVETS, Evergreen, 1½ to 2, 2 to 3, and 3 to 4 feet.
SNOWBERRY, 2 to 3 feet.
WHITETHORN or QUICKS, strong, 1½ to 2, and 2 to 3 feet.
YEWS, English, 1½ to 2, 2 to 3, and 3 to 4 feet.

Descriptive CATALOGUES of General Nursery Stock on application to

32, Market Square, Northampton.

WORCESTER PEARMAIN APPLE.

Awarded a First-class Certificate by the Royal Horticultural Society, October 6, 1875.

Fruit 2¾ inches wide, and same in height, conical; skin smooth, brilliant red, with minute fawn-coloured dots; flesh very tender, crisp, juicy, and sweet, with a very pleasant flavour, perhaps the most valuable of all for market. The tree is as productive as Lord Suffield Apple, and one of the handsomest fruits in cultivation. Ripe end of August, and will keep till Christmas.

Maiden Trees, 10s. 6d. each; Pyramid or Trained Trees, 21s. each. Coloured Plates, 6d. each.

RED HAWTHORNDEN APPLE.—Dr. Hogg describes this as large, oblate, and angular; skin smooth, greenish yellow, with a red blush next the sun; flesh white, tender and juicy, with a sprightly and agreeable acidity. A very early and valuable culinary Apple; ripe August and September. Maiden trees, *7s. 6d.* each; Pyramid or trained trees, *10s. 6d.*

YORKSHIRE BEAUTY APPLE.—Dr. Hogg, in his *Manual*, says this fruit is 3½ inches wide and 3 inches high, roundish, flattened, and angular; skin bright yellow, with a bright red blush on the sunny side; flesh tender and juicy, with an agreeable acidity. A first-rate culinary Apple for August and September, the great size and excellent quality ought to commend it as a good orchard fruit for the market. Maiden trees, *5s.* each; Pyramid or trained trees, *7s. 6d.*

NEW GOLDEN LABURNUM.—Unquestionably the finest hardy golden-leaved tree known, of immense value for park and garden scenery; it will take a foremost position among pictorial and garden trees; the foliage is a brighter golden-yellow than the flower of the ordinary Laburnum. First-class Certificate awarded by the Royal Horticultural Society, August 4, 1875. Price *10s. 6d.* each; Standard and extra strong trees, *21s.* Coloured plates, *6d.* each.

OTHERA JAPONICA.—A new and beautiful evergreen shrub. One of the most distinguished Japanese travellers says this is perhaps the prettiest evergreen they have in Japan; it grows about 20 feet high, has dark green leaves and a profusion of bright red fruit; it is very effective and perfectly hardy. Price *10s. 6d.* each; extra strong, *21s.*

CLIMBING ROSE, COUNTESS of OXFORD.—The old variety in all respects, except in being a free climber. *7s. 6d.* each.

FIFTY ACRES OF FRUIT TREES.

Standard and Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, very fine trees for walls.

Standard, Pyramid, Dwarf, Bush, and Cordon APPLES, PEARS, PLUMS, and CHERRIES.

ORCHARD HOUSE TREES, Established in Pots, for Immediate Fruiting.

PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, APPLES, FIGS, ORANGES, and MULBERRIES.

VINES, Planting Canes, 3*s.* 6*d.* to 5*s.* each; Extra Strong Fruiting Canes, *7s. 6d.* to *10s. 6d.* each.

All the above of superior quality, perfect in form, roots, and health, and true to name.
See Descriptive Price List.

TWELVE ACRES OF ROSES,

Standards and Dwarfs, all the popular sorts; 80,000 choicest Tea-scented and Noisette Roses, in pots. Extra strong Hybrid Perpetual Roses, in pots for immediate forcing. Climbing Roses in great variety. *See Descriptive Price List.*

FOR SHRUBBERIES.

	Per 100.
LAUREL, Colchic, the best hardy variety	3 to 4 feet, 35*s.*
„ Portugal, very fine	1½ to 2 feet, 35*s.*
„ Portugal, very fine	2 to 2½ feet, 50*s.*
„ Caucasian, very fine	2 to 3 feet, 50*s.*
„ Round-leaved, extra fine	2 to 3 feet, 70*s.*
„ Six distinct and beautiful vars.	2 to 3 feet, 50*s.*
COTONEASTER SIMONSII, fine	3 to 4 feet, 35*s.*
PYRUS JAPONICA	2 to 3 feet, 50*s.*
EUONYMUS RADICANS VARIEGATA	1 foot, 40*s.*

	Per 100.
CISTUS LAURIFOLIA, in pots	1½ to 2 feet, 50*s.*
ARBUTUS (Strawberry tree)	1½ to 2 feet, 60*s.*
„ (Strawberry tree)	2 to 2½ feet, 75*s.*
CEPHALOTAXUS DRUPACEA	1½ foot, 60*s.*
TREE IVIES, full of flower	1 to 1½ foot, 75*s.*
LAURUSTINUS	1 to 1½ foot, 40*s.*
BROOMS, White and Yellow	2 to 3 feet, 30*s.*
YEW, English, bushy	1½ to 2 feet, 40*s.*
„ English, bushy	2 to 2½ feet, 60*s.*
„ English, bushy	2½ to 3 feet, 80*s.*
„ Golden, bushy	1 to 1½ foot, 90*s.*

	Per doz.
JUNIPER, Chinese	4 to 5 feet, 36*s.*
„ Chinese	5 to 6 feet, 42*s.*
OAK, Austrian Evergreen	2½ to 3 feet, 30*s.*
„ Austrian Evergreen	3 to 4 feet, 42*s.*
„ Ford's Evergreen	3 to 4 feet, 36*s.*

	Per doz.
CRYPTOMERIA ELEGANS	2 to 2½ feet, 21*s.*
PICEA PINSAPO	2 to 2½ feet, 36*s.*
„ PINSAPO	2½ to 3 feet, 42*s.*
YUCCA GLORIOSA PENDULA	12 to 15 in., 12*s.*
„ GLORIOSA PENDULA	15 to 18 in., 18*s.*

	Per 100.
IVY, strong, for climbing	3 to 4 feet, 40*s.*
VIRGINIAN CREEPER	3 to 4 feet, 40*s.*

	Per 100.
ROSES, Climbing, in variety	3 to 4 feet, 40*s.*
HONEYSUCKLES, in variety	3 to 4 feet, 40*s.*

JUNIPERUS CHINENSIS.—One of the hardiest and most ornamental Shrubs in cultivation, and especially valuable to the landscape gardener. In spring it is quite golden with its numerous flowers, which, when shaken with the wind, give off a cloud of yellow dust; and if the plant be kept closely pruned, the young growth becomes so luxuriant and leafy that it gives an entirely different, but equally pleasing effect in its silvery tinge and rigid outline. When left to its own growth it forms a noble green pillar, highly suitable to stand in pairs by a garden walk. Eight to 9 feet, 10*s.* each; £4 4*s.* per dozen.

PICEA PINSAPO.—A very handsome, densely branched tree. The branches are very thickly placed in whorls and spread horizontally, thus giving a singularly beautiful appearance. It is one of the most distinct and desirable trees for ornamental planting, especially for a lawn. Its perfect symmetry of form is so striking that it should have a place in every collection. Eight to 10 feet, 25*s.* each; £12 per dozen.

ABIES DOUGLASII.—This, the most noble of Evergreen Firs, is of rapid growth, hardy, produces valuable Timber, close, heavy, and free from knots, of the colour of Yew wood. It is a native of California, where it grows upwards of 300 feet high, with a trunk 10 feet through. The flagstaff at Kew is of this tree, and was, when growing, 309 feet high. There is at Dropmore (Bucks) a specimen measuring at the present time 100 feet high, and 90 feet through the branches, with a trunk 9 feet in circumference at 4 feet above the base. It was raised from seed sown by Mr. Frost, the present gardener, in 1828, and is now a model of beauty. 12 to 15 feet, 12*s. 6d.* each, £5 per doz.

THE SILVER CEDAR of MOUNT ATLAS.—Now is the time to plant this eminently beautiful tree, unsurpassed for majestic grace and picturesque grandeur even by the Cedar of Lebanon, which it much resembles; and many consider it a variety, but its leaf is more silvery, it grows twice as fast, and its timber is very valuable. Noble trees, 10 to 12 feet, 25*s.* each, £12 per dozen.

DECIDUOUS FLOWERING SHRUBS in 50 beautiful varieties, 30*s.* per 100.
AVENUE AND ORNAMENTAL TREES, many thousands in great variety. See Priced Lists.

STANDARD ORNAMENTAL TREES.

If less than Six of any kind are Ordered an increased Price will be charged.

	Per doz.—*s.*	*d.*
ACACIA, Decaisneana, pink	24	0
„ Bessoniana, crispa, hispida (Rose Acacia), monophylla, sophoræfolia, viscosa, weeping white	21	0
AILANTUS, glandulosa	18	0
„ glandulosa, extra strong	36	0
ALDER, cordata, incana, macrophylla, and quercifolia	12	0
ALMOND, fruit bearing	21	0
ASH, common, 10 to 12 feet, 60*s.* per 100	9	0
„ aucubæfolia, cucullatus, flowering	18	0
„ juglandifolia, monophylla, orange-barked	18	0
„ salicifolia, small twigged, spectabilis	18	0
„ Waterer's variegated	18	0
„ weeping, and gold-barked weeping	42	0
BEECH, purple-leaved, 8 to 10 feet	42	0
„ purple-leaved, 10 to 12 feet	60	0
„ crested-leaved, Chestnut-leaved, Fern-leaved	42	0
„ Oak-leaved, variegated	42	0
BIRCH, Fern-leaved, silver, weeping, 8 to 10 feet 300*s.* per 100	42	0
„ silver, weeping, 9 to 12 feet 90*s.* „	12	0
„ silver, weeping, 14 to 16 feet 125*s.* „	18	0
BIRD CHERRY, Virginian	12	0
BROOM, golden, yellow Spanish, white Portuguese	18	0
BROUSSONETTIA, papyrifera	48	0
CATALPA, syringæfolia, and Kæmpferi	42	0
CHERRY, double-blossomed	24	0
„ Mahaleb variegata	21	0
„ hortensis rosea, pendula, and latifolia pendula	30	0
CHESTNUT, Spanish	18	0
„ American, Fern-leaved and variegated	30	0
COLUTEA, red and yellow	12	0
CORNUS, mas variegata	21	0
COTONEASTER, Simonsii	21	0
CYTISUS, austriacus, elongatus, elongatus purpureus	24	0
„ nigricans, purpureus major, sessilifolius	24	0
„ stricta and Weldonii	24	0
ELM, Camperdown, weeping	42	0
„ campestris aurea variegata, Kaki (fine), montana pendula	36	0
„ elegantissima pendula 150*s.* per 100	24	0
„ English, 10 to 12 feet 100*s.* „	15	0
„ English, 14 to 16 feet 150*s.* „	21	0
„ Chichester, 10 to 12 feet 100*s.* „	15	0
„ Chichester, 14 to 16 feet 150*s.* „	21	0
„ Berardii, betulæfolia, emarginata, filicifolia	21	0
„ myrtifolia, monumentalis, purpurea	21	0
„ pyramidalis, Dampieri, plumosa, silver var.	21	0
„ suberosa microphylla, suberosa pendula	21	0
„ viminalis pendula, viminalis fol. variegatis, Webbiana, Wheatleyi	21	0
GENISTA, anxantica, præcox, and purgans	30	0
GUELDER ROSE	21	0
HORNBEAM, cut-leaved and weeping	24	0
HORSE CHESTNUT, scarlet, 7 to 8 feet	24	0
„ „ scarlet, 10 to 12 feet	36	0
„ „ scarlet, extra strong stems	60	0
„ „ white, 9 to 10 feet	18	0
„ „ discolor, double white, double red	30	0
„ „ macrostachya, Memmingerii, ohioensis, rubicunda nana, variegated and yellow	30	0
JUDAS TREE, purple and white	42	0
KOLREUTERIA, paniculata, 5 to 6 feet	30	0
LABURNUM, Alkengerii, English, Scotch, purple, quercifolia	18	0
„ weeping	30	0
LARCH FIR, 8 to 10 feet	9	0
„ „ 10 to 12 feet	12	0
„ weeping (true)	42	0
„ microcarpa and japonica	18	0
LILAC, Charles X., Persian red and white, Siberian and white	30	0
LIME, red twigged, 9 to 10 feet 140*s.* per 100	18	0
„ red twigged, 10 to 11 feet 175*s.* „	24	0
„ red twigged, 11 to 12 feet 200*s.* „	30	0
„ red twigged, 12 to 14 feet 250*s.* „	36	0
„ red twigged, extra strong stems 42*s.* to	60	0
„ weeping	42	0
„ latifolia alba, Beaumontea (weeping)	30	0
„ dasystyla, yellow-twigged, Fern-leaved and vitifolia	30	0
MAGNOLIA, acuminata, 5 to 6 feet	42	0
MAPLE, campestre punctata	42	0
„ colchicum rubrum	30	0
„ negundo, 5 to 6 feet 40*s.* per 100	6	0
„ „ 8 to 10 feet 60*s.* „	10	0
„ „ variegata, 5 to 6 feet stems 125*s.* „	18	0
„ „ „ 7 to 8 feet stems 175*s.* „	24	0
„ campestre, laciniatum, pennsylvanicum rubrum	18	0
„ rubrum, striatum, tataricum rubrum, virginicum rubrum	18	0
MOUNTAIN ASH, 9 to 10 feet 70*s.* per 100	10	0
„ „ large-berried and yellow-berried	18	0
„ „ weeping and variegated weeping	36	0
OAK, scarlet	30	0
„ Turkey	24	0
„ weeping	42	0
PEACH, double-blossomed	30	0
PEAR, weeping	30	0
POPLAR, grandidentata pendula	30	0
„ Black Italian, Lombardy, Ontario, and silver-leaved 84*s.* per 100	12	0
„ „ „ „ „ extra strong 100*s.* „	18	0
PRIVET, golden variegated weeping, longifolium and weeping	30	0
PYRUS, Aria (White Beam), hybrida, tomentosa pendula	18	0
„ Malus floribunda, spectabilis	18	0
„ albo-plena, imperialis, Kaido, Riversii	18	0
„ spectabilis, Tenorei, carnea nervosa, Fontainebleau	18	0
SIBERIAN CRAB, scarlet and yellow-fruited	18	0
SNOWY MESPILUS, botryapium, florida, grandiflora, ovalis	18	0
SUMACH, typhina (Stag's-horn)	18	0
SYCAMORE, 10 to 12 feet 75*s.* per 100	12	0
„ extra strong 18*s.* to	30	0
„ purple-leaved and variegated	24	0
THORN, Paul's double crimson, double pink, 150*s.* p. 100	21	0
„ double white, single scarlet, and in great variety to name	21	0
TULIP TREES	42	0
WILLOW, caprea tricolor, Kilmarnock, weeping	30	0
„ Wolseyana, weeping	30	0
„ American weeping, Babylonian weeping	24	0
„ Solomon weeping, and Vitellini	24	0
„ extra strong, weeping 30*s.* to	60	0

RICHARD SMITH, NURSERYMAN and SEED MERCHANT, WORCESTER.

PLANTING SEASON.

MAURICE YOUNG

BEGS TO CALL ATTENTION TO HIS VERY

EXTENSIVE AND FINE STOCK.

FINE QUARTERED FOREST TREES, for AVENUES, BELTS, &c.

BEECH, BIRCH, CHESNUTS (Horse and Spanish), ELMS, LIMES, NORWAY MAPLE, OAKS, POPLARS, SYCAMORE, &c.

HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.

COMMON and PORTUGAL LAURELS, BOX, BERBERIS, HOLLIES (Variegated and Green), BAYS, AUCUBAS, LAURUSTINUS, FLOWERING SHRUBS, SCARLET and other OAKS, SCARLET HORSE CHESTNUT, VARIEGATED and other SPANISH CHESTNUT; ALNUS CORDATA, IMPERIALIS, LACINIATA, AUREA, and others; ACERS of sorts, LIQUIDAMBAR, TULIP TREES, MOUNTAIN ASH, LABURNUMS, PYRUS of sorts, DOUBLE BLOSSOMED and WEEPING CHERRIES, WEEPING ASH, BEECH, ELMS, POPLARS, WILLOWS, &c.,

AND

BETULA ALBA PENDULA YOUNGII

(YOUNG'S WEEPING BIRCH).

HARDY CONIFERS.

ABIES, PINUS, PICEA, CEDRUS, TAXUS, CUPRESSUS, JUNIPERUS, THUJA, THUJOPSIS, &c.,

AND

JUNIPERUS CHINENSIS AUREA

(YOUNG'S GOLDEN CHINESE JUNIPER), the finest Golden Conifer known.

SPLENDID COLLECTION of HARDY JAPANESE PLANTS.

ACERS, EUONYMUS, OSMANTHUS, LIGUSTRUM, CRYPTOMERIA, RETINOSPORA, THUJOPSIS, BIOTA, &c.

MAGNIFICENT SEEDLING AUCUBAS,

Splendid in foliage, and in great variety.

RHODODENDRONS.

Large quantities, in all sizes and colours, of the best varieties, for Beds and Clumps, and of cheaper varieties for Belts and Covers.

A LARGE ASSORTMENT of PLANTS for WINTER BEDDING.

AUCUBAS, BIOTA, BOX, COTONEASTER, EUONYMUS HARDY HEATHS, VARIEGATED HOLLIES, MAHONIA, OSMANTHUS, RETINOSPORA, GOLDEN YEWS, THUJOPSIS, TREE IVIES, &c.

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Very fine, and in all the leading varieties.

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25 in 5 ,,	0	4	0	25 in 5 ,,	0	4	0
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SATURDAY, NOVEMBER 13, 1875.

THE GUERNSEY LILY.

IF it were attempted to make a list of the various plants to which the name "Lily" has been applied, the task would be found to be, like the study of politics according to Mr. Pickwick's memorable definition, "of no inconsiderable magnitude." Various natural orders would be represented in the enumeration: we should have the whole group of the Nymphæaceæ under their popular title of "Water Lilies;" the Ranunculaceæ would give us the "Rockwood Lily," the name by which the beautiful Ranunculus Lyallii is known to the New Zealand shepherds, who also call it Water Lily; the Prairie Lily of California is the handsome Mentzelia ornata, of the order Loasaceæ; Hedge Lily is a common English name for Convolvulus sepium; the "Lily among Thorns"—*lilium inter spinas*—of the old herbalists was the common Honeysuckle (Lonicera Periclymenum); the Rubiaceæ are represented by the "Lily Thorn" of the Bahamas (Catesbæa spinosa); while among the Monocotyledons the name is applied to a large number of Amaryllidaceæ as well as Liliaceæ, and even an Orchid (Dendrobium speciosum) is known as "Rock Lily" in New South Wales. In most cases this arises from a superficial or fancied resemblance in the flowers, but "Lily," like "Rose" and one or two other plant names, seems to have been employed almost indiscriminately as an equivalent of "flower."

It is scarcely remarkable, however, that the name of Lily should have been extended to plants so closely connected with the Liliaceæ as are many of the Amaryllids; such an extension is, indeed, only natural, and is but a modification of the mode of classification adopted by the old herbalists, who often placed in the same chapter plants which were dissimilar in almost every respect, but yet had a superficial resemblance one to another. The beautiful and favourite Astilbe barbata is almost universally known as a Spiræa on this account, nor is the mistake an unnatural one. Similarly our Guernsey Lily has so far established its right to the name, that no one but a botanist would speak of it by its proper title of Nerine sarniensis.

Just at this season of the year the Guernsey Lily occupies the place filled later on by the Hyacinth or Tulip. Grown in a pot in a room it flourishes and puts forth its beautiful rose-coloured flowers, and has doubtless cheered the solitary and weary hours of many an invalid with its brightness. Like others of its kind, the plant loses some of its beauty on account of the flowers appearing before the leaves; but in spite of this drawback it is a brilliant and beautiful object. Its name, Guernsey Lily, is popularly believed to refer to the native country of the plant, but it is hardly necessary to say that this is incorrect. The connection of the plant with the island has been explained in various ways, the earliest and most generally received account being that a Dutch or English ship was wrecked off the coast of Guernsey on its way home from Japan, and that roots of the Nerine, which formed part of the cargo, were thrown up on the shore and buried in the sand, appearing two or three years after in full blossom, and at once attracting the attention of the inhabitants by their beauty. Be this as it may, the plant soon obtained the name it now bears, and became an article of export from the island. The account we have just given was published by Dr. Morison in 1680, and the following extract from a letter published a year or two since in *Notes and Queries*, and dated "Guernsey, July 26, 1748," will show the popularity the Nerine had then attained. "I sent you a dozen of Guernsey Lillys," it runs, "for your acceptance; these flowers are very much esteem'd, and demanded by all our quality in England, and none to be had but here, and blowes to this season of ye year only. To see the buty of them 'tis by looking close to them on a dry day when ye sun shines upon them; they then ressemble a tissue of gold." The peculiar beauty of colour manifested in the flowers of the Guernsey Lily was analysed by Dr Douglas, who in 1725 published a folio pamphlet entitled *Lilium sarniense, or a Description of the Guernsay-Lilly.* He says:—"In this flower there is a beautiful complication of different shades of red that all follow one another, for when it is in its prime there may be discerned in it, 1, a carnation; 2, a pale scarlet; 3, a fuller scarlet; 4, a modena; and 5, a crimson. When we look upon the flower in full sunshine, each leaf appears to be studded with thousands of little diamonds, sparkling and glittering with a most surprising and agreeable lustre; but if we view the same by candle-light these numerous specks or spangles look more like fine gold dust."

In this work by Dr. Douglas various other traditions are given as to the origin of the plant on the Guernsey shore, where, by the way, it is not now to be found. It is said that the first roots were presented by a shipwrecked passenger to a gentleman of Guernsey, who had received him and treated him well; that the gentleman planted the bulbs in his garden, but after three or four years, no sign of blossom having appeared, he ordered them to be dug up and thrown into a corner of his garden, where they flowered when he least expected them to do so. These roots are said to have been about six in number, and from them the whole stock in the island was produced. Another account was given to Dr. Douglas by a native of the island, who stated that his own mother, "who had been a great lover and curious observer of this flower in her younger days, could remember perfectly well that sixty years ago they were as common in the island as they are at this day; and that even then it was a custom to send presents of roots to England. This gentleman adds further, that had this plant come into their island so lately as Dr. Morison pretends [*i.e.*, about 1680], he does not see how it is possible the roots should have multiplied so prodigiously as that they could afford to send such vast quantities of them every year to England, besides the immense number always to be found in the island." Notwithstanding these remarks it seems at least likely that Dr. Morison's account is the correct one. Other versions state that the bulbs were among the ballast of a West Indian merchantman, which unloaded at Guernsey, and that they sprang up among the rubbish; while yet another version of the story states that the natives, finding the roots cast up on their shores, took them for a kind of Onion, and planted them in that belief.

The Guernsey Lily is a native of the Cape of Good Hope, in the regions about Table Mountain, and also of Japan, whence the first roots known in Europe were brought to Paris, where the plant flowered in 1634. It was not long in finding its way to England, as, according to the *Hortus Kewensis*, it was cultivated in 1659 by General Lambert, at Wimbledon. In Japan the bulb is generally considered to be poisonous, and one of its Japanese names refers to this circumstance. An attempt has been made to establish the plant upon some part of the sandy shore of France, but without success. Although so generally known in England as

the Guernsey Lily, it appears from Dr. Douglas' account that it is, or was, generally believed in Jersey to be of East Indian origin, and was hence known as the Indian flower, but for this supposition there is no foundation in fact. *B. M.*

New Garden Plants.

× CYPRIPEDIUM TESSELATUM, *Rchb. f., nov. hyb.**

Those who like Cypripedium niveum and concolor must be delighted by this very interesting novelty. It is a small thing, nearly as curious as the two named species, yet a little taller. The leaves have the form of those of C. concolor, and the marking of those of C. barbatum. The bloom-stalk is longer than that of C. concolor, but not much. The flower is at least a half larger than that of the just named mother species. It is quite a pleasure to compare those flowers. One begins with thinking more of C. concolor, but the nearer one looks the more the first impression proves to be fallacious. The petals are narrower and longer, and they have a ciliate margin. The lip is much more in the way of that of C. barbatum, having each side an inflexed round lobe in lieu of the nearly falcate one of C. concolor. The staminode, too, is also quite that of C. barbatum, when the two sepals would be those of C. concolor, provided the very projecting nervation was not that of C. barbatum. The ground colour of the flower is a certain whitish, with a greenish hue. I do not see a trace of the characteristic, quite unique yellow of the Rev. C. Parish's glorious discovery. The upper sepal is washed with the colour of port wine with a few doses of water. All the nerves reminded me of the strange colour of the surprising beverage sold in many places of Piedmont as "vino nostrale," a connecting link, as it would appear, between vinegar and ink, with some alcoholic flavour before the vinegar taste got the better of the whole. The petals are washed with the same light port-wine colour, nerves like "vino nostrale," with transverse bars and lines of black dots. The lip is almost wholly brownish, except the greenish white under-side; and the staminode is pallid with numerous brown and a few central green bars, covered with hairs. I have to thank Messrs. Veitch for the great pleasure of comparing those plants with the novelty. The plant is one of the peaceful, excellent monuments Mr. Seden likes to raise, following Mr. Dominy, who followed the good Dr. Harris. Thus one man's idea has given origin to many lovely beauties. *H. G. Rchb. f.*

AN ASH TREE ON STILTS.

MONSIEUR E. LIÉNARD, while botanising last May, in company with a friend, in the woods of Wailly and Frémoutier, 14 or 15 miles south-west of Amiens, came upon a vegetable eccentricity (fig. 128) whose origin was, at first sight, anything but obvious. Seen from a distance, the puzzle was complete. A tree, supported below by a pedestal of rough grey bark, suddenly shot up, at about half its height, into a straight, slender, smooth, green stem. Was it a stout sapling growing side by side with some old stump so close as to touch it?

On reaching the foot of the tree he found himself in the presence indeed of two associated plants, and that it was a case not simply of juxtaposition, but of superposition also. Raising himself a little, he discovered that the lower trunk (which was that of a Willow whose bark only remained undecayed), served as a sort of sheath or stand for the roots of a young and vigorous Ash, whose foster-mother it had been, and whom it still protected with its bark, after feeding it by the decomposition of its woody fibre, in accordance with the grand utilitarian law which ordains that death itself shall assist in the maintenance of life. Observing the slight resistance which this cortical case was able to offer, he removed it, and found that the young Ash (to whom the wind, by dispersing a seed, had given the head of a pollard Willow for cradle) had thrust its roots, in quest of aliment, down the Willow's trunk, following the course of its decomposition from top to bottom, where, finding the grand reservoir of vegetable forces, the soil, it had abandoned a succedaneum now become insufficient to satisfy its robust nurseling's craving appetite.

Often had our observer noticed (as has everybody whose eyes are open to natural phenomena) attempts at vegetation adorning and sometimes encumbering the tops of old Willows, but never anything which had attained a like development; for here was a veritable tree, measuring from the collar of the root to the uppermost twigs at least 18 feet, and which moreover was standing aloft supported, as by props, by aërial roots, or roots which had become aërial by the suppression of the medium (rotten wood) in which they had grown, some 7 feet high, corresponding to the height of the Willow trunk which had been their birthplace, and indicating an age of not less than twenty years.

Independently of its interest as a picturesque object and a curiosity, is there not in this fact, for those who study vegetable physiology, and making allowance for the action exercised by the Willow's cortical envelope, a special interest in marking the vertically descending course so obstinately pursued by the Ash's roots and their great development in a direction which is not, if not natural, at least not habitual to such a degree? And ought the only explanation of the fact to be referred to the phenomenon of appetence combined with the external constraint, that is, the purely mechanical action of the bark? Did, in short, the Ash, while still perched aloft, know that, by sending stout roots straight downwards, it would eventually reach the soil of the meadow, and thereby both attain an ample supply of nourishment, and also maintain itself firmly in an erect position after the gradual decay of its original support? M. Liénard modestly leaves the point to the consideration of more competent persons than himself.

FIG. 128.—ASH TREE, SELF-SOWN ON A POLLARD WILLOW.

And he well may hesitate, on finding himself at the threshold of one of the great mysteries of life. Plants are to some minds more inexplicable and difficult to understand in the circumstances of their being than animals. In animal organisation all is comparatively clear, their place in creation is distinctly defined, for they have sensation and consciousness to direct their doings; in them we behold a complex machinery, which, with the exception of a few details which puzzle us, evidently and plainly works together for the production of independent life, locomotion (in the vast majority of individuals), free will, and, highest quality of all, the inward persuasion of their own existence. The last attribute is still more fully developed into pleasure, resulting from the due performance of natural and healthy functions, and displeasure (which, carried to excess, becomes pain), occasioned by whatever is unwholesome, injurious, dangerous, or destructive to the creature. We can see the various relations of animals to each other, whether for advantage or disadvantage, and they themselves are aware of them, instinctively knowing to a certain extent the objects and consequences of each other's actions; they have their likes and dislikes, their alliances and their feuds.

In plants we have also a complex machinery, but its performance, objects, and results, are much less easy to comprehend. It might even be asked, "Is a plant a live thing, or a dead thing?" We can hardly avoid believing it alive, because it grows—but so do crystals, which have no pretensions to what we understand by life; because it produces young after its kind; because it manifests movements, spontaneous tendencies, appetencies. The life, however, which may result from plant organisation, is stationary, fixed. Except in the case of the microscopic locomotive plants, no voluntary change of place is possible for the individual, although, for the race, it takes place in a tentative form by means of runners, underground rhizomes, and the like. Plants assuredly have preferences, manifested by the attraction which light and warmth exercise on their leaves and flowers, and certain soils and substances on their stems and roots; but can we say they have a will? Can they ever feel, if ever so faintly, and know that they feel? Do they taste their food, aware that they taste it? Is liquid manure their anchovy sauce? Do hungry Dionæas really enjoy a hearty meal of fine fat flies? Have they no dreamy sense of well-being in sunshine, of lassitude in drought, of suffering in frost? They often manifest sensibility. The tendril and the climbing leaf-stalk especially, quickly grasps the support presented to it with all the air of an animal instinct. It may be said that it is the force of gravity which directs and draws the rootlet of the seed invariably downwards; but the force of gravity cannot at the same time urge the young stem to shoot invariably upwards.

The question will ever recur to the mind, "Are plants in the slightest degree conscious?" For life, according to our ordinary notions, is inseparably connected with consciousness, except in cases of temporary accident. Mostly it is so connected, no doubt; but, perhaps, not always. Our heart is alive, but is not conscious, that we are aware. It has a life independent of our will and of our knowledge. It beats, it does its appointed work without requiring any control or interference on the part of its owner. The only occasions when it betrays any consciousness are while suffering under derangement or disease. The same of the stomach and other internal organs, which in health perform their functions spontaneously and unfelt, without needing the slightest urging.

We know of no single combats, that I recollect, or antipathies and feuds between individual plants [Cases of this kind have been alleged. EDS.], although when inconveniently crowded together they maintain a grand relentless struggle for life, the stronger inexorably overpowering, stifling, and starving the weaker. But who can take upon him to say that plants are never, under any circumstances, conscious? Many leaves and flowers are notoriously impressionable by changes of the weather and the alternations of day and night. Why do even shade-loving plants seek the light, and turn to it? Light may be necessary to their health, and even to their continued existence; but they seem to take a positive delight in absorbing the solar radiations. Do they, then, experience sensations corresponding, however slightly, to the comfort or discomfort known to higher creatures? Are their beauty, their repulsiveness, their perfume, their stenches and noxious qualities, entirely wasted and lost on other members of the vegetable kingdom? or have they ever a visionary suspicion of the presence of some lovely and fragrant neighbour? Are sympathy and aversion included amongst the events of their lives? Is "The Loves of the Plants" merely a graceful poem, wholly imaginary and nothing else, without the least foundation on fact? In short, have they no approach to a glimmer of agreeable self-perception, like that sometimes felt during a healthy slumber?

Ay, there's the rub! One would give one's little finger to discover the secret of their lives, whether or not they love sunshine and detest chilly nights; whether they turn sick when their leaves are drooping with thirst, and rejoice when warm showers restore their strength. Shall we ever be able to state the affirmative, without personal experience of what passes in the organisms of vegetable existence? *E. S. D.*

A FRUIT SHOW IN NOVA SCOTIA.

THE annual exhibition of the Nova Scotia Fruit Growers' Association was held here October 19. Apples were the principal articles shown, and perhaps there was never seen a finer display. Some readers of the *Tribune* may not know that the finest Apples raised in the world grow in Nova Scotia, but so it is. Five collections were shown, each containing ten varieties, two dozen of each sort grown by the exhibitor. Besides these collections 462 dozens of some fifty kinds were exhibited by more than a hundred persons, each showing one dozen of each sort.

The largest Apple (Chebucto Beauty) weighed 18¼ oz.; the second largest (Cayuga Red Streak), 17 oz. The best dozen shown (Emperor Alexander),

* ×*Cypripedium tesselatum*, Rchb. f., MS., nov. hyb.—(Acaulia tesselatifolia.) Foliis cuneato-oblongis apice inæqualiter acutis (si mavis tridentatis) Cypripedii barbati; pedunculo altiori, puberulo; bractea ligulata ancipiti ovarium dimidium non æquante; sepalo superiori elliptico obtuse apiculato, conspicua retinervi, sepalo inferiori subæquali, minori bidentato; tepalis late ligulatis obtuse acutis longioribus porrectis ciliatis; labello basi utrinque angulato, ligulis inflexis obtusis; sacco amplo conico obtuso, antice limbo superiori retusiusculo; staminodio transverso postice emarginato, antice tridentato, dente medio magno recto, dentibus lateralibus introrsum incurvis.—*Cypripedium barbatum* (♂) × *concolor* (♀).—Flos albidus, atrobrunneo-nervatus ac lavatus. Labellum antice brunneum, postice albidum.

weighed 10 lb. 6 oz. The fruit was placed upon tables 45 inches in width, each dozen arranged across the table. In very many cases but ten or eleven could be placed in a row; the other one or two had to be put on top. First, second, third, and, in some cases, fourth prizes were given for the best dozens, the association retaining the ones which took prizes. These, I believe, it is intended to have exhibited in the United States. The weight of other kinds was:—

	Per doz. Apples. lb.	oz.	Single Apple. oz.
Gravenstein	6	7	13
Yellow Bellefleur	5	14	10
Ribston Pippin	5	10	9
Nonpareil	5	9	9
King of Tompkins County	7	11	12
Blenheim Pippin	8	8	12
Northern Spy	7	0	12
Rhode Island Greening	6	8	12½
Blue Pearmain	6	9½	11
Esopus Spitzenberg	5	0½	7½
Gloria Mundi	9	12	13½
Chebucto Beauty	9	15	18½
Calkin's Pippin	5	14	9
Yellow Newton Pippin	4	4	6
Porter	4	15	6½
Clyde Beauty	9	1	13
Baldwin	6	8	9½

In Pears, 85 dozens were shown, the largest collection containing twenty kinds. In crab Apples, six varieties, in dishes. In Plums, thirteen sorts, one dozen of each. The largest dozen of these (Bradshaw) weighed 27½ ounces. In Grapes grown in the open air, 12 varieties. The largest two bunches (Isabella) turned the scale at 15 ounces. When next the Nova Scotia Fruit Association has a show, may you be there to see. I will send you as soon as published the report of the judges, from which you may gather further information for your readers, if you wish. *A Constant Reader, Annapolis, N. S., in "New York Tribune."*

MR. WILLS' NEW DRACÆNAS.

WE mentioned at p. 589 that Mr. Wills had, through the agency of his foreman, Mr. Bausé, succeeded in obtaining a batch of seedling Dracænas, which throw most of the varieties at present cultivated into the shade. These seedlings may be numbered by hundreds, and the effect of a group of them grown on into nice young specimen plants, and filling the whole centre bed of a long span-roofed house, is startling. There is scarcely one among them but is worth growing as an ornamental plant of distinct character, so thoroughly has the work of crossing been effected; but of course it would be altogether impracticable, as it would be undesirable, to pour such a flood of novelty into the market, and Mr. Wills has, therefore, very wisely determined to send out but a limited number—the more so as he has, in his furnishing business, a sufficient outlet to take off the remainder.

The following are the varieties which have been selected in the first instance, though it is not improbable that it may be thought desirable to retain others of the now less developed forms, when they assume a more matured character. Mr. Wills has kindly permitted us to make notes of these plants, which formed the splendid group exhibited by him at South Kensington on Wednesday last, and to which the Gold Medal of the Society was awarded; and Mr. Bausé has supplied the information as to their parentage, which we are very glad to have an opportunity of recording in the interests of scientific horticulture.

SYNOPTICAL LIST.

§ 1. BROAD-LEAVED.

Leaves Drooping or Recurved.

Red Series.	*White Series.*
1. Bausei	14. albo-marginata
2. Berkeleyi	
3. Cantrellii	
4. Elizabethæ	
5. fulgens	
6. Mastersii	
7. pendens	
8. picturata	
9. Rebeccæ	
10. Renardæ	
11. Tellingii	
12. voluta	
13. Willsii	

Leaves Spreading or Patent.

Red Series.	*White Series.*
15. Anerleyensis	
16. Barroni	
17. Imperator	
18. versicolor	

Leaves Erect or Suberect.

Red Series.	*White Series.*
19. eximia	20. Victoriæ

§ 2. MEDIUM-LEAVED.

Leaves Drooping or Recurved.

Red Series.	*White Series.*
21. Carolettæ	
22. venusta	

Leaves Spreading or Patent.

Red Series.	*White Series.*
23. Frederici	26. leucochila
24. Mabiliæ	
25. Scottiæ	

Leaves Erect or Suberect.

Red Series.	*White Series.*
27. salmonea	28. stricta alba
	29. terminalis alba

§ 3. NARROW-LEAVED.

Leaves Drooping or Recurved.

Red Series.	*White Series.*
30. Ernesti	

Leaves Spreading or Patent.

Red Series.	*White Series.*
31. Amaliæ	
32. bella	
33. Sydneyi	
34. Thomæ	
35. violacea	

Leaves Erect or Suberect.

Red Series.	*White Series.*
36. jucunda	

1. D. BAUSEI (Chelsoni ♀, regina ♂).—A highly coloured and most effective variety, one of the best and most striking in the collection. The growth is free and stocky, the recurved oblong elliptic leaves, which are about 4 inches wide, closely overlying each other; the surface is of a dark bronzy hue, the margin being crimson, narrow in the lower leaves, becoming broader and more developed on the upper ones, the youngest and uppermost being broadly and brilliantly edged with deep rose, and the margins of the leaf-stalks also richly coloured. A remarkably fine variety, and a grand ornamental plant.

2. D. BERKELEYI (excelsa ♀, terminalis ♂).—A fine-habited stocky-growing variety, having the leaves oblong, 4 inches broad, drooping or recurved, and of a rich bronze colour, the older ones being edged with deep rose, the younger ones with pink, forming a narrowish and tolerably even edging of the brighter colour, which is also conspicuous on the margins of the foot-stalks. A good ornamental variety of the dark-coloured series.

3. D. CANTRELLII (excelsa ♀, ferrea ♂).—A variety of bold habit, with densely-set drooping or recurved oblong leaves, 4 inches broad, of a very dark bronze colour, margined with salmony rose, the margins of the petioles being also coloured. It has the broad-leaved character of D. Willsii, Bausei, and others, but differs in the colouring of the leaf-margin, and is moreover free and more erect in its growth, and calculated to form a taller specimen.

4. D. ELIZABETHÆ (Cooperi ♀, regina ♂).—This is a very handsome variety and remarkably distinct, not only on account of its variegation, but also for the tendency of its leaves to curve under volutely. It is of dense habit, with broad, strongly recurved leaves, measuring 5 inches across, of a dark green colour, with a dark midrib, and a narrow edge of bright rosy crimson on the older leaves, and with a broader marginal variegation of deep pink and creamy white on the younger leaves, the leaf-stalks being conspicuously coloured of a fine rosy tint. It is remarkable for its very densely set, much recurved foliage, as well as for its varied and striking colouring.

5. D. FULGENS (excelsa ♀, terminalis ♂).—A fine variety, in which the leaves are of an oblong-elliptic form, drooping or recurved, measuring about 5 inches across, the ground-colour a bronzy green, with bright rosy crimson edge, the younger parts of a lovely pink, flushed in places with a pale tint of coppery bronze, which gives it a very distinct appearance. The leaf-stalks are also prettily edged with rose.

6. D. MASTERSII (nigrescens ♀, regina ♂).—A handsome variety of dense stocky habit, with broad leaves of ovate outline, measuring 5 inches across, recurved or drooping, of a bronzy green, the older leaves having the dark purple margin and costa characteristic of D. nigrescens, but having the younger leaves handsomely margined with bright purplish magenta, which latter colour is also well developed upon the leaf-stalks.

7. D. PENDENS (Cooperi ♀, regina ♂).—A variety of very free, upright growth and bold habit; the leaves are from 16 to 18 inches long and 5 inches broad, drooping, their ground colour green, with a very distinct and even edging of pink deepening into a bright magenta, the leaf-stalks being edged with deep pink. Quite distinct in character, from the elongate outline and remarkably drooping character of the foliage.

8. D. PICTURATA (nigrescens ♀, regina ♂).—A very distinct form of dense stocky habit, with recurved or drooping leaves, of oblong-ovate outline, 5 inches in breadth, and of a dark bottle-green colour, with the margin and costa dark purple as in nigrescens, the younger leaves developing a much broader marginal variegation of a pallid or whitish hue, which is mottled over with a rich tint of rosy violet.

9. D. REBECCÆ (Cooperi ♀, regina ♂).—A variety of dense stocky habit, having the leaves drooping, oblong, 3½ inches broad, the lower ones variously spotted with purple-rose, the upper ones freely marbled with magenta-pink and creamy white, changing to yellowish green, and broadly edged with dark rosy purple, in some leaves almost wholly coloured, the centre of the variegation showing a broadish varied band of green. The rosy coloration of the leaf-stalk adds much to the effect of this and some other of the varieties.

10. D. RENARDÆ (Cooperi ♀, regina ♂).—One of the stocky habited forms, with drooping or recurved leaves, which are oblong ovate, somewhat more spreading than in the type represented by D. Willsii; the ground colour is a dark bottle-green, edged with rosy crimson, and in the younger growths breaking into a finely marked variegation of rose-pink, yellowish cream-colour, and blush-white dashed with bars of green, the youngest leaves wholly of a blush-white, slightly suffused with rose. The leaf-stalks are conspicuously coloured of a delicate pink.

11. D. TELLINGII (ferrea ♀, regina ♂).—A bold habited sort, almost emulating the aspect of a Musa. The leaves are oblong, 6 inches broad, drooping or recurved, of a bronzy green, with an edging of bright rosy pink, which in the older leaves deepens into crimson, the leaf-stalks being also nicely coloured at the edge. It has the boldest and broadest leaves in the whole series, and they are, moreover, remarkably stout in texture.

12. D. VOLUTA (Cooperi ♀, regina ♂).—A very distinct and sturdy-looking variety, having a kind of pyramidal habit, the base of the plant being wider than the apex. The leaves are very stout in texture, volutely recurved in a remarkable degree, of a dark bottle-green colour, with a purple edge and midrib, the younger leaves breaking out into white and rosy variegation, with the under-surface of a salmony rose, and the margins of the leaf-stalks coloured white. The volutely-recurved leaves are very distinctive and characteristic.

13. D. WILLSII (excelsa ♀, regina ♂).—A very handsome form of dense stocky habit, with fine, broad, close-set, drooping or recurved oblong-elliptic leaves, measuring 4 inches across; the ground colour a bronzy green, the lower leaves being narrowly edged with rosy pink, the upper ones breaking out into a bold variegation, in which rose, pink, and white are beautifully blended with the green, which sometimes appears near the centre. The margins of the leaf-stalks are of a bright rose-pink. It is of very free habit, and one of the best in the series.

14. D. ALBO-MARGINATA (nigrescens ♀, regina ♂).—A strong-growing variety of stocky growth, with large, oblong-elliptic, drooping or recurved leaves, measuring 4 inches across, of a bright green colour, with a clear, narrow, and tolerably regular margin of white. It is a fine and free-growing, broad-leaved, white-edged sort, with something the habit of D. Willsii, and forming a good drooping-leaved representative of D. regina.

15. D. ANERLEYENSIS (terminalis ♀, regina ♂).—A free-growing tall form, the leaves erectly spreading, on long stalks which are very distinctly edged with rose, oblong in outline, 5 to 6 inches across, of a deep green edged with rose, and breaking out in the young growth into a handsome variegation of rosy pink and white. It is a very free-growing sort, and would soon develope into a large specimen.

16. D. BARRONI (terminalis ♀, regina ♂).—A very striking variety, with the bold spreading habit of D. Youngii. The leaves are oblong, 5½ inches broad, spreading or half-drooping, of a dark bronzy green, with a broad and irregular edging of mottled magenta on the younger leaves, the edges of the older leaves being of a deep magenta colour. The edges of the leaf-stalks are of a rosy pink. The young leaves come first of a creamy blush, with a rosy tint on the under-surface, and in some cases they take on this roseate hue on the upper side. It is a fine and noble-habited variety of great beauty.

17. D. IMPERATOR (nigrescens ♀, regina ♂).—A remarkably bold and distinct-looking plant, of free growth and erect habit; the leaves are broadly oblong-ovate, 5 inches across, erectly spreading, of a dark or bottle-green, with dark purple edge and costa, the younger leaves breaking out into a conspicuous broad marginal variegation of pink and creamy white, more or less flushed and mottled with a pale tint of magenta. The back of the leaves seem to be strongly coloured with purple. It is a well-marked variety, bearing evidence of its female parentage in the dark purple midrib and margins of the older leaves.

18. D. VERSICOLOR (Chelsoni ♀, regina ♂).—A showy variety, remarkable for its varied and novel colouring. It is of erect spreading habit; the leaves lanceolate oblong acuminate, 3½ inches wide, on long stalks which are margined with white, passing with age into rose. The ground colour of the leaves is dark green, and they have a pale rosy purple margin and purple costa; the older leaves blotched and banded with pale yellow-green mottled with brown, the yellow-green also forming a mottled band within the purple margin; the younger leaves are of a creamy blush, with a yellowish green bar in the centre, and purplish behind. It is quite distinct from any of the other varieties of the series, and, from the presence of yellowish green patches of permanent colour, points hopefully to the ultimate acquisition of golden variegation in these already highly ornamental plants.

19. D. EXIMIA (excelsa ♀, terminalis ♂).—A rather tall-growing stoutish variety, having the leaves oblong acuminate, measuring 4 inches across, erectly spreading, of a bronzy green colour, the older ones bordered with crimson, the younger ones irregularly and rather broadly feather-edged with pink suffused with crimson. It is one of the more vigorous of the taller growing sorts, and well coloured.

20. D. VICTORIÆ (concinna ♀, reginæ ♂).—One of the finest and handsomest of all the varieties with white variegation. The plant is of a dwarfish stocky habit of growth, the leaves lanceolate-ovate, about 3½ inches wide, erectly spreading, the ground colour bright green, the older leaves being freely striped with white on the green ground colour, and the younger ones very freely variegated with, and in some cases almost wholly coloured, white. It is a grand acquisition among the white-edged sorts, and will be both distinct and useful for decoration or exhibition.

21. D. CAROLETTÆ (concinna ♀, regina ♂).—A dense-habited variety of medium growth, having the leaves drooping or recurved, 2 inches broad, of a bronzy green, strongly edged and freely striped with deep crimson, the younger upper leaves often becoming wholly of a deep rose crimson. A very richly-coloured and effective sort,

22. D. VENUSTA (concinna ♀, regina ♂).—A very elegant and distinct variety, of free growth, but of medium size. The leaves are of a dark bottle-green, lanceolate acuminate, subcarinate and recurved, the older ones edged with a narrow line of rosy purple, the younger ones having a similar line of bright rosy purple, within which runs a somewhat broader line of creamy white; the coloration of the edge thus forming a narrow belt of white with the extreme margin magenta. The leaves are very elegantly drooping, supported on longish stalks, which have a pink margin.

23. D. FREDERICI (excelsa ♀, terminalis ♂).—A variety of medium size and of a stocky habit of growth, with long-stalked leaves, which are spreading, and of a dark bronze colour, edged with crimson, the petioles being also crimson-edged. The upper leaves have a broad margin of deep magenta-purple, with a dash of pale olive-green in the centre, some of the younger central leaves being entirely rose-coloured, reflecting almost a blue surface in some side lights; on these the flush of olive-green is very effective. It is a remarkably high-coloured variety of the dwarf medium-sized set, and will be a most valuable acquisition for table decoration, and also for market purposes.

24. D. MABILIÆ (Cooperi ♀, regina ♂).—A charmingly elegant variety, of dwarf habit and medium growth. The leaves are of a light bronzy green, oblong-lanceolate, spreading, 3½ inches broad, supported on longish petioles, both leaves and petioles very deeply bordered with dark rosy pink. The upper leaves are variegated with delicate creamy pink, passing to rosy pink, and having a dash of yellowish or pale olive-green. Its very light and pretty variegation is quite dissimilar from that of any of the cultivated varieties.

25. D. SCOTTIÆ (concinna ♀, regina ♂).—A variety of slender and somewhat stocky habit, the leaves spreading, lanceolate, with a long narrow point about 3 inches wide, of a deep bottle-green, with crimson edge, the young leaves freely variegated with pink and creamy white, flushed with yellowish green; the long foot-stalks of the leaves have the margins white passing to rosy crimson. An elegant and well-marked form, distinct in habit.

26. D. LEUCOCHILA (Cooperi ♀, regina ♂).—A free-growing variety, of tallish erect growth. The leaves are oblong-lanceolate, 3 inches wide, of a bright green colour, spreading and somewhat sparse, the younger central ones freely edged and variegated in a striate manner with pure white. A distinct and free-growing form of the white variegated series, likely to be very useful for decoration purposes.

27. D. SALMONEA (concinna ♀, regina ♂).—A tall, slender-growing, and very distinct variety, with the long-stalked, sparsely set, erect, channelled leaves of a narrow-lanceolate form, tapered to the point, 3½ inches broad, the ground colour deep green, with the edges distinctly marked with salmony pink, which colour is extended down, and very conspicuous on the edge of the petiole. The salmony tinted, almost flame-coloured margin, and which is paler in the younger leaves, is a very distinct feature, and gives a bright-looking aspect to the plant.

28. D. STRICTA ALBA (nigrescens ♀, regina ♂).—This variety has exactly the habit of D. stricta, but with white variegation. The plant is erect in habit, of medium growth, with an open disposition of the leaves, which are stiff and erect, of a clear green, with a well-defined but irregular white margin. It has the merit of colouring well, while the plant is yet of small size, and will, in consequence, be highly valuable for decorative purposes, and for market.

29. D. TERMINALIS ALBA (nigrescens ♀, regina ♂).—This is a most important acquisition, having quite the habit and character of the well known favourite, D. terminalis, but with white variegation. The leaves are lanceolate oblong acuminate, the ground colour bright green, with bold white variegation, the upper leaves being white, with here and there a bar or band of green, in some cases the whole of the leaf, and in other cases large sectional patches, are coloured white, while the rather elongated leaf-stalks are also edged with white. It will be a useful variety for general purposes as well as table decoration and for market.

30. D. ERNESTI (concinna ♀, terminalis ♂).—A well-marked variety of erect slender habit. The leaves are lanceolate, 1½ inch wide, tapered to a point, drooping or recurved, of a bronzy green colour, with dark crimson edge; on the young leaves the parts are coloured rosy pink and creamy white, which forms a pretty contrast.

31. D. AMALIÆ (congesta (paniculata) ♀, regina and terminalis ♂).—A brilliantly-coloured variety, of remarkable beauty. The habit is slender and erect, the leaves spreading, narrow lanceolate, about a foot in length, and from 1 to 1½ inch broad, green, with a broad, rich rosy crimson margin and costa, producing a strongly-marked and most effective coloration; sometimes wholly coloured. The ground colour of the young leaves is whitish passing through yellowish green to deep green, and the margins of the green permanently yellowish and mottled with brown. The leaf-stalks are edged with rose colour. As a slender, richly-coloured plant this will be invaluable for table decoration and for small vases. Another good quality is that it colours very early. It was produced by the agency of mixed pollen, and its history and parentage demand more careful study than we can now give.

32. D. BELLA (concinna ♀, Chelsoni ♂).—A distinct and very elegant small-growing variety, the leaves of which are about a foot long and 2 inches broad, of spreading habit, and of a bronzy green colour, with crimson margins; the young leaves rosy at the edge, within which is a line of cream-colour passing to yellowish green, the coloration being evenly laid on. This and the other small-growing sorts will be highly useful for table decoration.

33. D. SYDNEYI (concinna ♀, regina ♂).—A striking variety of the narrow-leaved series. The leaves are long-stalked, erectly spreading, a foot long, and about 1½ inch wide; dark green, with a deep purple midrib, and dark, rosy crimson edge, the younger leaves being wholly of a rosy crimson colour. The petioles are finely coloured with the same rosy crimson hue.

34. D. THOMÆ (terminalis ♀, concinna ♂).—A slender erect-habited, very free-growing variety, with spreading long-stalked leaves, which are 1½ foot long and about 2 inches wide, narrow-lanceolate, tapered to a point, and of a light bronze colour, evenly margined and here and there spotted with rosy-crimson, the young central growth assuming an arched position, and being almost wholly red. It will be useful for all purposes where a free-growing, slender, erect form is required, and is strikingly handsome.

35. D. VIOLACEA (concinna ♀, nigrescens ♂).—A very distinct form, of small slender growth, with narrow, spreading, very dark bronze-coloured leaves, about 1½ inch broad, and having the margins of a dark purple hue, the young central leaves taking on a well-marked violet-purple coloration. The decidedly purple hue of the variegation renders this one of the most distinct of the whole series.

36. D. JUCUNDA (limbata ♀, terminalis ♂).—A slender-habited, erect-growing form, of free growth; the leaves are elongate, narrow, erect, on long petioles, and are of a deep bronze colour with a very distinct edge of crimson. It is a pleasingly coloured and effective variety. *T. Moore.*

POT CULTURE OF THE WATERCRESS.

HAVING about a quarter of a mile run of a pretty brook at command for the production of Watercresses, I have found considerable amusement in collecting the varieties, and planting them to form a series of distinct plantations separated by a sufficient space to isolate them, with a view to keep each sort true to its name and character. I will not trouble you with the names of the varieties, or with particulars of my wanderings in search of them, but the result of the pastime is too interesting to be kept a secret. Strange to say, any experienced observer of natural phenomena could easily guess the purport of the tale I have to tell. The collecting and planting began seven years since, and from time to time the plots have been cleared out and replanted, and such other little attentions have been bestowed as would occur to any one keeping in mind the adage, "What is worth doing is worth doing well." It matters not what sort of Cress I plant in my brook, it acquires a character peculiar to the locality in the very first new growth it makes, and thus I lose the brown Springhead, and the green Hackney, and the bronzy Bedford, and any and every other Cress, and all the sorts become identical at last, and yet my plants is so distinct that I should be justified in bestowing on it a name descriptive of its peculiarity. For passing purposes, we will call my variety the Purple Stoke Newington Watercress, for it is always tinged with purple, and at the time of flowering the stems and leaf-stalks are so strongly coloured as to approximate to the blue of indigo. This purple-tinted Cress is the collective product of any number of sorts of Watercresses, for, as remarked above, whatever the variety, it quickly loses its original character, and assumes the form peculiar to the place. The conclusion is too obvious to require to be insisted on. The so-called varieties of Watercress are not, properly speaking, varieties at all. The mode of growth is determined solely by local circumstances, and a Cress having strongly marked characteristics may be expected to lose them entirely on being removed to another water, where soil and climate and the chemical composition of the water itself decidedly differ from those of its native bed. I can only grow a purple Cress in my brook, and I am bound to say of it that it is as fine a Cress as any I have met with, the leafage being of a beautiful dark green colour, and the purple tinge of the stems in no way objectionable.

In the outset of my search after Cresses I secured through Messrs. Barr & Sugden a sample of seed of the "Erfurt Sweet Cress," and this sample found its way into the wrong drawer and was forgotten. In the course of a clear up I found the packet, and at once sowed the seed in a pan and put the pan on the bed of a Cucumber-house. The seed must have been seven years old when sown, and there was enough of it to cover a crown-piece. Two plants came up, and grew vigorously, and I begun to consider how to keep this interesting variety true to its Erfurt character. It is wholly of a light grass-green colour, the stems a shade paler than the leaves; it is peculiarly tender, and the flavour is truly delicious, being slightly sweet with a little piquant pungency, quite different from the powerful pungency of a coarse Cress. To plant this in the brook would be to lose it, for in a month or so it would acquire the purple colour and the other characteristics of my own peculiar Watercress; so I resolved to grow it in pots, and very soon I learnt a most useful lesson in Watercress culture, which I think fully as interesting as the resolution of many varieties into one in my brook. The lesson is this, that pot culture may most usefully supersede brook and bed culture for the supply of a household, the product being superior in every way, and the supply being more completely under the control of the cultivator the whole year round. As to the trouble, it is so trifling that the busiest man need not pause to consider it. You may go to the bed or the brook as usual when you want a quantity of Cresses, but if you want a delicate dish, the Erfurt Cress grown in pots, as I shall advise, surpasses the best samples grown in the ordinary way. From the end of May to the present time my table has been abundantly supplied with tender Cresses by the pot system, and I have now a lot ready to be housed for the winter, though at the distance of 200 yards I have bushels of fine Cresses in the open water.

FIG. 129.—POT CULTURE OF WATERCRESS.

The best form of pot for the purpose is one that Messrs. Adams, of Belle Isle, made for me some years ago for Fern growing (fig. 129). It is 15 inches across and 9 inches deep. I put in to the pot about 5 or 6 inches of chalk, old mortar, or broken bricks of the size of my fist or smaller, and then fill up with a rich loamy compost, such as would be suitable for Fuchsias or pot Roses. I take care to make the soil firm, and heap it up slightly to form a convex surface, and I dibble in

tiny cuttings all over it about 3 inches apart. The pot is stood in a pan or "stand," as they call it at the pottery, and this being filled with water suffices to ensure a vigorous growth, so that the Cresses soon spread, and a really pretty plant is the result. During high summer the growth is extremely rapid, so that in less than three weeks from starting a batch you may cut from them for the table. Three good cuts are the most that can be fairly taken from a pot, for after the third cut the growth becomes poor and wiry, consequently there must be a periodical destruction and renewal of the plants, and that is such an easy matter that I shall say no more about it.

In the event of such pots as I prefer being unattainable, common seed pans will answer admirably (fig. 130). Those I have found most suitable are 15 inches wide and 5 inches deep. In these I put a layer of smallish lumps of chalk and brick, then a spread of coarse moss, and finally a heaping up of rich loamy compost, fat and rough. In any and every case the pots and pans should stand in water, and 2 or 3 inches depth of water is sufficient. When first planted the pots should be put in a somewhat shady place, and be sprinkled overhead two or three times a day if the weather is hot and dry, but as soon as growth begins they should be in the full sun, for the Watercress needs the fullest exposure to air and light, and all the plans that are resorted to for growing it in the shade result in the production of a poor sample.

All possible modes of growing Watercresses have been tried here. I have grown rather nice samples in common market punnets filled with moss and floated in pans of water. I have also grown eatable Cresses in the kitchen garden under the shade of trees,

FIG. 130.—PAN CULTURE OF WATERCRESS.

but, generally speaking, makeshift methods are objectionable, for if you spend a pound in producing a worse bunch of Cresses than you can buy for a penny, you have wasted money and time to become a subject for ridicule, and such you are pretty sure to do by going much out of the way in this business. I tried a lot of my pots plunged in troughs, so that the plants were wholly immersed, and the growth was not so satisfactory as in the case of those that were in a depth of 2 or 3 inches only. Those who indulge morbid fancies about sewage may, with advantage to their sensibilities, take to the pot system of cultivation, because it compels them to select water for the purpose, and they may, if they like, send to Castalia or the River Jordan for it. I suspect the purple tinge of my brook Cresses is the consequence of a slight dash of sewage, but my pot Cresses are grown in New River water, and with a conscience quite void of offence (in respect of sewage) I can invite my friends to eat freely of them. *Shirley. Hibberd, Stoke Newington.*

SCOTTISH ARBORICULTURAL SOCIETY.

THE twenty-second annual meeting of this Society was held in the rooms of the Royal Botanic Garden, Edinburgh, on Wednesday and Thursday, November 3 and 4. There was a large attendance of foresters and country gentlemen interested in arboriculture. Professor Balfour, President of the Society, occupied the chair, and among those present were Mr. James Cowan, M.P., Mr. Duncan, of Benmore; Mr. Robert Hutchison, of Carlowrie; Mr. Lorraine, of The Riding Mill; Mr. Young, of Durris; Mr. Barbour, of Bouskeid; Dr. Cleghorn, of Stravithy; Mr. Boyd, of Cherrytrees; Dr. W. Craig, Dr. M'Bain, Dr. Douglas, Kelso; Bailie Methven, Mr. M'Corquodale, Scone; Mr. Grant Thomson, Grantown; Mr. W. Gorrie, Rait Lodge; Mr. Gilchrist, Cluny; Mr. Michie, Cullen; Mr. James McNab, Curator, Botanic Garden; Mr. Wm. Welsh, Edinburgh; Mr. Dunn, Dalkeith Gardens; Mr. C. Ollier, Newcastle; Mr. France, Penicuik; Mr. M'Laren, Hopetoun; Mr. Richardson, Arniston; Mr. Scott, Darnaway Castle.

The President delivered the inaugural address. In the outset he thanked the Society for the honour conferred on him by his election to the honourable position of President of such an important society. In referring to the success of the Association in the advancement of arboriculture in Scotland, he took occasion to pay a tribute to the memory of Wm. Thomson, of H.M. Woods, Chopwell, who had been the father of the Society. Next taking up the practical part of his address, he proceeded to point out the importance of a scientific knowledge of the cultivation of trees. He pointed to their effect on the climate of countries, and the importance of forests in a hygienic point of view, giving by way of illustration the good effected by the plantations formed in Malta by Mr. Milne-Home. After passing allusions to the necessity in some countries of forest growth for fuel purposes, he went on to refer to the forest department of India. He was not disposed to support the plan adopted for some years of sending students, destined for India, from this country to France and Germany to learn forestry. He believed that if proper schools were established in this country, students might acquire a knowledge of the principles of arboriculture, and might be qualified to act in the forest departments of India and our colonies. There were certain matters connected with forest management which might be best illustrated on a large scale; at the same time, there seemed no reason why our students of forestry should be sent to the Continent for their training. There ought to be sufficient means in Britain for imparting practical instruction in the management of forests. The Indian Department had adopted the plan of sending their students abroad. By so doing they of course compelled students to study the language of these countries in the first instance. Much time was thus spent which might be better employed in studying some of the languages of India, so as to fit the forester for his employment in that country. A member of the forest department in India had told him that while the Continental system gave practical information as to forest rules, he found the young men sent out to India totally ignorant of the names and characters of the plants they cultivated. He (Dr. Balfour) was disposed to think that the education of foresters should be conducted on some such plan as the following:—In the first place they must see that they had had a fair education in English, arithmetic, writing, and composition. Instruction should next be given in the elements of the natural sciences, more especially botany with its bearing on arboriculture, the nature of soils, and their adaptation for different kinds of trees, along with a knowledge of elementary chemistry. In studying botany, the young forester should attend to the mode in which plants were nourished, the functions of the root, stem, and leaves, the structure of the wood, the effects of vegetation on climate, rainfall, &c., the diseases to which trees were liable, and the mode of prevention and cure. A certain amount of knowledge of Latin was valuable for the names of trees. The instruction given in the science should not be merely from books, but should be by practical demonstration and by teaching the principles of forest cultivation. Schools for practical forestry might be established in the vicinity of well-wooded districts, where planting, thinning, pruning, felling, drying, and transportation could be practised, and the remedies for diseases could be tested. He believed that the requisite instruction for those who were candidates for the forest department in India and our colonies could be acquired in this country, if Government took up the matter and called in the aid of the Scottish Arboricultural Society. If the student acquired a thorough knowledge of the principles and practice of arboriculture in this country, he could easily get the additional information required for such countries as India in the way of forest management and rules. These details must be acquired on the spot, as they varied in different places. The Professor next noticed the importance of having primary education at schools in natural sciences, and called attention to the recent regulations of the Highland Society in reference to bursaries at schools, in which physical geography, botany, and geology formed part of the curriculum of study. For instruction in arboricultural principles botanic gardens in this country offered many facilities. There was at Kew an excellent arboretum illustrating all the more important trees now cultivated in this country. They had in the Edinburgh Botanic Garden a very good collection of forest trees, but the space was far too limited for the purpose of arboricultural study, and hence he had requested Government to purchase ground lying in the vicinity of the garden for an arboretum. There was now an opportunity of acquiring Inverleith grounds on the west of the garden, and he hoped that Government would not lose the opportunity now offered of acquiring them from the trustees of Fettes College. These grounds had been recently visited by many eminent arboriculturists and landed proprietors, and all agreed in the importance of securing them. The difficulty on the part of the Treasury was the purchase money. He hoped that this would be removed by the indefatigable exertions of the Lord Provost, so that this addition might be made to the Botanic Garden, and might be supported by an annual Government grant. In various parts of the world increasing attention was being paid to arboriculture, and reports from the Governments of India, Australia, New Zealand, Japan, Bavaria, and the United States, extracts from which he read, showed that the conservation of forests was now more fully appreciated than formerly. Dr. Balfour then went on to refer to the importance of reserving spaces in cities for planting with trees—the health of which was a guarantee for the freedom from the city atmosphere of noxious vapours; and, in conclusion, he alluded to the injury caused to certain classes of trees by sea breezes, parasitic fungi, and insects.

Dr. Cleghorn moved a vote of thanks to Dr. Balfour for his important and comprehensive address. He was sure they all concurred in what had been said regarding the great subject of forest education. There was no part of the world where students could be more thoroughly grounded in forestry than here, although they might afterwards have to go to Switzerland, the Black Forest, and Bavaria to study forestry on a large scale. The contemplated extension of the Botanic Garden by the addition of an arboretum was one of the grandest projects ever brought forward in Edinburgh, whether considered from a sanitary point of view or as a scheme for forest tuition.

Mr. James Cowan, M.P., seconded the motion. The beauty of various parts of the country had been so much increased by what had been done of late years in the way of planting, that one could not help feeling grateful to the Society which had been promoting in every way the interests of arboriculture in Scotland. The absolute necessity of the extension of the Botanic Garden was a very important question, but, if examined closely, few difficulties presented themselves in the way of its accomplishment. The grounds were very beautiful, but small, and not now sufficient for the requirements of the public demand for botanical teaching. But they should be extended not only for this purpose, but to afford a place for the recreation of the inhabitants of Edinburgh. The municipal rulers might tax them for almost anything that was

requisite, and Parliament would pass any scheme whatever that was for the benefit of the city and the University. The ground required for the arboretum extension was from 20 to 27 acres, which would cost about £18,000. Now, 1*d.* per £1 in the rental of Edinburgh would produce £5000, so that 3½*d.* or 4*d.* per £1 for one year—or 1*d.* for four years—would pay the whole expense of the ground which was proposed to be taken. He pointed out the great benefit which the arboretum would be to the inhabitants as a beautiful and health-giving resort, and expressed the hope that the appeal for support to them would meet with a hearty response.

Dr. Balfour, in acknowledging the compliment, pointed out that the class-rooms in the garden were not only connected with the University but were Government property, and the classes conducted there were open to all the world, ladies included.

Mr. Gilchrist, Cluny, moved, Mr. Lorraine seconded, and it was agreed, that the Society should record their deep sense of the loss which practical arboriculture had sustained in the death of Mr. William Thomson, Deputy-Surveyor of H.M. Woods, Chopwell, Durham.

The Secretary, Mr. Sadler, having read a report from the Council, fifty new members were balloted for and elected.

Mr. George Crichton, Treasurer, submitted his report for the year, which showed that the income had been £304 16*s.*, and the expenditure £283 2*s.* 3*d.*, of which £125 2*s.* 6*d.* had been an allotment to the sinking fund.

On the motion of Mr. Hutchison, a committee was appointed to attend the British Association at Glasgow next year, with a view to pressing for a grant towards the observations conducted by the Society as to the influence of the denudation of trees on the rainfall of a district.

PRIZE ESSAYS.—Mr. Gilchrist, Cluny, read the report of the judges on the essays sent in in competition for the prizes offered by the Society. The following are the awards:—

Pruning of Timber-trees, considered Physiologically.—1st, five guineas, given by Mr. Reid, nurseryman, Aberdeen—J. B. Smyth, forester, Duff House, Banff.

Pruning of Timber-trees, considered Physiologically.—Silver medal, George Home, assistant forester, Drumlanrig.

Pruning of Timber-trees, considered Physiologically.—Silver medal, Louis Bayne, forester, Kinmel Park, Abergele, North Wales.

Ages at which the various sorts of Timber-trees grown in Scotland may be most Profitably Felled.—Silver medal, D. F. Mackenzie, Meldrum House.

Report on Silver Firs (Picea pectinata) damaged by Beetles.—Silver medal, J. B. Smyth, Duff House.

Present State and Future Prospects of Arboriculture in Fifeshire.—Bronze medal, J. B. Smyth.

Present State and Future Prospects of Arboriculture in Clare, Ireland.—Bronze medal, D. Scott, Broadford, Clare, Ireland.

Most Profitable Mode of Disposing of Home-grown Timber.—Silver medal, D. F. Mackenzie, Meldrum House.

Utilising and Protecting River Sides.—Silver medal, D. Scott, Broadford.

Best Collection of Cones.—1st, silver medal, Alexander Strang, Rendlesham Hall, Suffolk; 2d, silver medal, H. Lamberton, Orwell Park, Ipswich; 3d, bronze medal, James Gow, Camperdown.

It was agreed to appoint a representative, to be afterwards named, of the Society at the Philadelphian Exhibition next year.

ELECTION OF OFFICE-BEARERS.—Dr. Balfour was unanimously re-elected President of the Society for the ensuing year; Mr. Crichton, Treasurer; and Mr. Sadler, Secretary. The other officials were duly nominated and elected.

ANNIVERSARY DINNER.—The anniversary dinner of the Society took place in the afternoon in the Albert Hotel. Professor Balfour occupied the chair, supported by Dr. Cleghorn. Mr. Robert Hutchison of Carlowrie, Mr. George Crichton, Mr. Lorraine, of the Riding Mill; Mr. David Syme, Dr. Craig, Mr. John Sadler, and Mr. Dunn, Dalkeith Palace Gardens. The croupiers were Bailie Methven, who had on his right and left Mr. W. Gorrie, Rait Lodge, and Mr. M'Corquodale, Scone Palace; and Mr. Thomson, Grantown, supported by Mr. France, Penicuik; Mr. Gilchrist, Cluny; Mr. Stewart, Dalhousie Castle; and Mr. Cocker, Aberdeen.

After the usual loyal and patriotic toasts had been given and responded to,

The Chairman gave "Success to the Scottish Arboricultural Society." He referred to the almost unparalleled success of the Society, which now numbered between 700 and 800 members, and had about £150 in hand. A large number of members were being constantly added to the Society, and no doubt they would go on prospering, giving a stimulus to the forestry of the country. They hoped still to make further advances in arboriculture, not only in this country but in India and the colonies. He would like to see each member bringing his friends to the ranks of the Society; and men high in authority in the land having property ought to become members, and thus stimulate the study of arboriculture in the country. The Society did not confine itself to Scotland, for, like Scotch gardeners, Scotch foresters were found far and wide, and the presence from year to year at their meetings of gentlemen from England and Ireland showed that their Association was doing good work. He was sure they all felt satisfied with the management of the Society, for both Treasurer and Secretary were active, zealous men, anxious to promote the interests of arboriculture. The toast was received with much enthusiasm.

Mr. M'Corquodale, Scone, one of the oldest members of the Society, replied. He commended the essays which the prizes offered by the Society brought forth, and suggested that foresters should visit each other's plantations more frequently than they did at present. This practice would conduce to profit, for all would learn something from the mode of work pursued in the woods under each other's charge.

Mr. Hutchison proposed "The Lord Provost, Magistrates, and Town Council of Edinburgh," coupled with the name of Bailie Methven, who, both as a member of the Society and as a magistrate, had opportunity to do much to further the interests of arboriculture. He regretted the unavoidable absence of the Lord Provost, who took such a warm interest in the proposed arboretum, which he hoped soon to see established, not only for the benefit of the citizens, but of arboriculture.

Bailie Methven, in acknowledging the toast, said that in the Bill which had been so suddenly strangled the other day by the Town Council, there was a clause providing for the acquisition of the arboretum at Inverleith. He himself thought the Government should buy the ground and attach it to the Botanic Garden; but in the event of the Government not doing that he would back up the Lord Provost, who had the matter at heart, in his efforts to prevent the city losing such a valuable scientific recreation ground.

Mr. Hutchison, in proposing the health of the Chairman, Dr. Balfour, said that the rapid strides which the Society had made of late years were very much due to the influence and interest in its well-being displayed by the late and present Presidents.

The Chairman, in the course of a brief reply, adverted to the important interests which would be served by the extension of the Botanic Garden and the institution of an arboretum.

Thursday, Nov. 4.—The meeting to-day was resumed in the class-room of the Royal Botanic Garden. Professor Balfour, President of the Association, occupied the chair.

After some routine business, a committee was appointed, on the motion of Mr. Dunn, Dalkeith, to revise the laws of the Society, and bring up a draft code of regulations at the next meeting.

THE FAILURE OF THE LARCH.—Mr. Gorrie, Rait Lodge, read a paper on "The Failure of the Larch." This subject, whether considered economically or scientifically, was, he said, the most important which forced itself on the attention both of forest owners and foresters, for the failure of the Larch had involved vast pecuniary loss in many districts of Britain. The principal causes of the Larch failure he classed under the following heads:—(1) Heart-rot, dry-rot, or pumping; (2) surface-rot, cancer, cankering or blistering, and top-rot; (3) the Larch bug or blight. The first was caused by excessive droughts, occasional saturations, and fungoid attacks on the roots, and the prevention was to avoid planting Larch in places that were likely to favour these causes. Surface-rot, cancer, and blistering, and top-rot were due to the effects of late spring frosts occurring after the sap flow and growth were in full progress, and to autumn frosts setting in before the growth of the season was fully matured. The prevention here was a more judicious selection of soils in which to plant young Larch. They should avoid warm southerly exposures that excited a too early spring growth, and more especially all low flat moist districts that were subject to cold ground fogs or hoar frosts. The bug which attacked the Larch did not appear to be a native of this country, but had been imported with the tree. It was found most prevalent in low hollow sheltered situations where thinning had been neglected. No perfect preventive of the ravages of the bug had been discovered, and the Society should offer prizes for the best "steep" that would destroy the insects or their eggs.

Mr. M'Corquodale, Scone, said some supposed dry-rot was produced in damp soils, but he never saw that himself. The trees on such a soil might not thrive so well, but they produced sound timber. It was on moor soil, with dry sandy subsoil, that dry-rot most frequently appeared. The aphis or bug produced a drying up at the points of the branches, which was followed by canker and ulcerated sores, and if the insect increased and pursued its ravages for years, the tree ultimately died. He found Spruce affected from soil in the same way as Larch; but Scotch Fir and other Coniferæ throve well enough in that soil.

Mr. Scott, Darnaway Castle, said he had found Larch twenty years of age affected with rot, but he thought that it was caused by insufficient thinning, and consequent want of light and air. The soil was damp, with a gravel subsoil.

Bailie Methven said he had had large experience of Larch, and he found a great flight of the aphis immediately after a spring frost on plants which had previously been quite free from the insect. But the weakest plants were always the first affected.

Dr. Cleghorn pointed out that the Deodar, which was a close congener of the Larch, never grew well on level ground, and this experience so far confirmed Mr. Gorrie's.

A vote of thanks was accorded to Mr. Gorrie for his valuable paper.

RAPIDITY OF GROWTH IN CONIFERS.—Mr. M'Corquodale said he had measured recently two specimens of Abies Douglasii, which were 41 years of age. One contained 99½ cubic feet of timber, and the other 132 cubic feet. That was a rapidity of growth in coniferous trees that was seldom seen. Douglasii suited a dry soil remarkably well.

DIFFERENT MODES OF PRUNING.—Mr. M'Corquodale opened a discussion on different modes of pruning. Referring first to Oak, he said that there was a demand for long straight heavy planks of Oak for railway carriages. When Oak was used for shipbuilding they used to prune to produce crooked limbs. Now they pruned to produce as much timber in the bole of the tree as possible. When the plantations received the periodical course of thinning, the remaining trees were pruned even supposing they were 40 feet high. Pruners went up into the trees with the saw, checked all the rambling straggling limbs, and foreshortened others. When the top was well balanced one or two branches were pruned from the bole below. Thus treated, Oak grew rapidly, and produced most of the timber in the bole instead of running into limbs. He illustrated this by mentioning a pruned Oak tree, 67 years of age, which had 102 cubic feet of timber in the bole, and another, a year younger, which had 92 feet of timber. Now, he had never seen Larch, quick growing as that tree was, producing such a quantity of timber at the same age. Trees that had not been pruned were branchy and did not produce half the quantity of timber that the pruned trees did. It was, indeed, impossible that trees could produce such a large amount of timber if the strength of the tree was allowed to go into the limbs. It was a great mistake to overprune trees and deprive them of branches and foliage which were necessary for their development.

Mr. Scott, Darnaway Castle, said that in Morayshire he only got half the money for unpruned that he got for pruned trees. In his neighbourhood the demand for Oak was for shipbuilding, so that he pruned to make the trees grow crooked, and he realised from 2*s.* 6*d.* to 3*s.* per cubic foot for the timber.

Mr. France, Penicuik, said that Oak and other deciduous trees ought to be pruned when young, and pruning should be continuous. Experience, however, would only prove whether pruning or not pruning would produce the greatest possible amount of timber, without impairing the health of the trees.

The Chairman said that from a physiological point of view early and continual pruning was the proper way to obtain the largest amount of timber.

Mr. Baxter, Dalkeith Park, said that he had pruned some trees in January, February, and March, and the wounds were not healed yet, while the wounds of trees pruned in June and July were quite safe for the winter. Again, he found that foreshortening the branches of young Oaks caused the death of the branch up to the bole.

GIRDLING TREES.—Dr. Cleghorn, Stravithy, read a short paper on the practice of the natives of Malabar and Burmah of seasoning timber by girdling previous to felling. This plan had been followed for centuries. A ring, 2 or 3 inches broad, was cut round the tree into the hard wood, and the bark of the ring taken completely off, one, two, or three years before the tree was cut down. The bulk of the testimony of the forest officers in these countries was against girdling in a dry climate. If girdled the trees could be removed with greater ease, and the practice was a check on the native contractors. The disadvantages were that it produced "heartshaking," and the timber lost its essential oils and much of its elasticity.

Mr. Dunn said that he had seen in the South of England Oaks stripped of their barks months before being felled, and the people said that this caused the wood to last longer, though it made it harder to work.

Mr. France said that he knew of several places in Scotland where Larch was peeled a year before it was felled, which had the effect of preventing the wood twisting when cut up.

The Chairman having referred to the interesting nature of the discussions, the proceedings were brought to a close by the usual vote of thanks.

THE PLAIN OF ANKAY, MADAGASCAR.

THE plain of Ankay is a place of peculiar interest, says Dr. Joseph Mullens, of the London Missionary Society; there is nothing like it in the island of Madagascar. It is a vast plain of sedimentary clay, inclosed by bordering chains of hills, which run in a direction from north to south. Ankay proper is at least 180 miles long, and here is about 20 miles broad. The chain along its eastern side is not lofty; it has a height of only 365 feet. It is rather like a lip to the plain below than an overhanging wall; it consists largely, too, of the same material as the plain itself, with gneiss rocks underlying and intermingled with it. The western chain, on the contrary, is a lofty wall of granite and gneiss, 1620 feet high; it overhangs the plain in its entire length, and passes far beyond it. It is the second of the great ridge walls, by which so much of the contour of the island is regulated. It runs the entire length of the island, so far as known, and is covered all the way with wood, which forms the second and upper line of the primeval forest. Vast buttresses of rock project into the plain from its lofty front, and deep ravines and valleys run in behind them, giving to the scenery a rich variety of outline and of detail.

Ankay should be a level plain. It once was so. But its material is soft and friable, and water speedily washes it away. For countless ages, storms, floods, waterspouts, and steady rains have made havoc of its surface. It is ploughed and scored into little valleys in all directions; but the scorings all find one outlet, and pass from one to another till they reach the central drain of all, the valley of the Mangoro River.

The bottom of this valley is 325 feet below the level of the plain, and the river flows (like the Jordan) in a little valley within the valley. Naturally this great draining valley, with its river, runs, like its inclosing walls, a course from north to south. The Mangoro eventually makes its way through the eastern chain, descends the great hills by a series of rapids and cascades, and falls into the sea near Manahoro.

It is interesting to observe that under the western hills, where floods and waters are most abundant, the plain is 100 feet lower than its eastern side.

The people who have occupied this plain, apparently without interruption from the time of its first settlement, are called Bezánozáno. Their name of Tánkays only denotes that they live in Ankay. They are apparently a branch of the Betsimasáraka tribes, who have peopled the coast. They probably came from the lower plains up the valley of the Mangoro, and it is certain that they have spread along Ankay from south to north, the upper portion of the plain being to this day empty. They have been almost completely cut off from their neighbours, and have led an isolated life, till, conquered by the Hovas, and subjected to the demands of the Hova service, large numbers of the men were made bearers of Government goods and travelled to distant parts of the Hova dominions. They have suffered much from their isolation, and are still very uncivilised and ignorant. Their women have a brown complexion, with liquid eyes. They are very simple and hospitable. The clay soil is covered with thick coarse grass, and many portions of this country are gay with the Seva, or Buddlea madagascarensis, covered with long spikes of orange-coloured flowers. There is also met with a finely growing Fern, in Osmunda obtusifolia. In the sluggish streams, which are half choked with reeds and rushes, are numbers of beautiful Water Lilies. Numbers of people are to be seen crossing the plain, carrying baskets of Rofia leaf, cotton, cloth, manioc, poultry, and meal, to the market at Moromanga; or perhaps the traveller may meet a simple funeral procession—the corpse being wrapped up and corded in white cloth, borne by two men. It is the universal practice for every one travelling to be armed, and it is no unusual sight to see the man walking first with his load in a basket at the front end of the Bamboo over his shoulder, balanced by a little child in an open basket at the other, whilst the mother walks behind with a smaller bundle, carrying her husband's spear. Herds of cattle, with humps and huge horns, are also to be met with on their way to the coast, and they are frequently halted here for rest and food, before traversing the steep and slippery paths through the great forest of Ahalamaznotra. The machine to be noticed in the foreground of the sketch (fig. 131, p. 621) is a rudely constructed native sugar crushing-mill, composed solely of a round trunk of heavy wood—"zahana"—with half-a-dozen pegs or handles to roll it with. *S. P. Oliver, Pallant House, Havant, Hants, Nov. 5.*

Foreign Correspondence.

GAWLERTOWN, IN SOUTH AUSTRALIA.—Amongst other things you showed me in the greenhouses there were some trees of Xanthorrhæa, sent to you by my friend Dr. Schomburgk, in which you apparently took a great interest. Since that time I am informed that you have lost these trees, and as I am quite sure that they will never survive transplanting or transport for a length of time, I have taken the liberty to forward to you some freshly-gathered seeds of Xanthorrhæa, of which some are sure to sprout, as they came up very freely lately in my garden after being three weeks in the ground. From personal observations, I beg to remark that this remarkable tree likes a very rich Fern soil, mixed with a good deal of fine black sand. It loves to drive its roots on the tops of the mountains between the crevices of the rocks, where the mould has been accumulating, perhaps for centuries, to the distance of 20 or 30 feet, and the roots are very straggling. On those hills it grows in company with Galanthus (?) ternifolia, Grevillea rosea, Kennedya prostrata, &c. As long as it is a little shrub it looks very pretty—very much like Gynerium, or a fine-leaved Dracæna; but growing older, and being subjected to the periodic bush fires, it loses its leaves with the exception of the centre; the grass gets black, ugly, and naked, and there being only a tuft of green leaves on the top gives it a rather singular appearance. The flower-stem is thrown up about June or July. Its countless blossoms exude a great deal of a clear white honey, of very fine quality, just like the blossoms of Hoya carnosa. *Extract from a letter of A. Engelhart, M.D.*

Notices of Books.

The Rose Garden: *in Two Divisions.* By William Paul, F.R.H.S. Fifth edition. London: Kent & Co.

Mr. Paul's *Rose Garden* is well known in the horticultural world as a standard work on the most popular of flowers. It must be also familiar to a wide circle of individual rosarians, since we have now before us a fifth edition, which, for beauty of type and illustration, excels all that have preceded it, and places it before every other Rose book which has appeared in this country. The imperial 8vo size now adopted permits of the introduction of several excellent portraits of some of the best Roses; and its text has materially benefited by the accumulated experience of the twenty-seven years which have passed since the original edition was written.

Besides the new illustrations, which are exceedingly well executed, and the additional information which the lapse of a quarter of a century has made available, we have in the present edition an extensive and interesting chapter on the entomology of the Rose, by Mr. Arthur W. Paul, in which a popular account of the insects which have been found injurious to the Rose is given, accompanied by woodcut illustrations. The appendix also contains a paper on new Roses, briefly noting the advances of the past few years, and giving short descriptions of the introduction of the present year.

In its new form and dress Mr. Paul's book commends itself to a prominent position in the drawing-room for its beauty and finish, and to the most accessible shelf of the garden library on account of its practical utility.

Tobacco: its History and Associations. By F. W. Fairholt, F.S.A. Chatto & Windus.

A very readable book has just been issued by Messrs. Chatto & Windus under the above title. As might be expected from the title itself, and from the name of the author, the bulk of the book is devoted to the "associations" of Tobacco, which, of course, includes quotations and references from quaint works on the subject, whether in the form of a "counterblaste" or in praise of the weed. The chapter on "Tobacco-pipes, Cigars, and the smokers' paraphernalia," and that on "Snuff and snuff-boxes," contains much that is interesting; for instance, a very good description is given, together with an illustration, of the old Brazilian snuff-mill, which consists of a flat, plate-like mortar, made of wood, and a long stick, somewhat thicker at one end, used as a pestle. These snuff-mills, however, vary somewhat, both in form and workmanship; sometimes the pestle is short and thick, and both it and the mortar quite plain; at other times they are more or less curved. They are used to pulverise only a small portion of leaf, as required, so that it can be had quite fresh and without loss of aroma. The snuff is taken into the nostrils through an instrument composed of two slender hollow bones united at one end, where they are prolonged into a single tube of wider bore, likewise formed of bone, probably the leg bones of some bird. Upon the upper or double ends are fixed two round knobs, to fit the nostrils, which are, of course, perforated; these knobs are often made of the hard endocarp of a Palm fruit, such as Astrocaryum, rounded and smoothed, but they are sometimes made of wood.

The snuff is carried in a mull or box, sometimes formed of the hollow bone of some large animal, and when taken is sniffed into the nostrils through the instrument just described. Under this system the taking of a pinch of snuff is a lengthy operation. In the book before us the plate or mortar, as well as the pestle, are described as being made of rosewood, the advantage from which is that the heat evolved by the friction of the two pieces of rosewood draws the aroma from the wood, which impregnates whatever is ground between them; hence, also, the advantage of grinding but a small portion at one time, as by keeping the imparted aroma would naturally fly off. But it is not always the case that aromatic or scented woods are used, hardness seems to be one of the principal qualities, for in a complete apparatus of this nature, contained in the Kew Museum, the pestle and mortar are made of the wood of a species of Tecoma; nor is it always that Tobacco itself is used. On the Rio Negro some of the Indian tribes pulverise in this manner the seeds of Acacia Niopo, H.B., and use them instead of Tobacco.

In the first chapter of the book a brief description is given of the species of Nicotiana, furnishing the Tobacco of commerce, but as this has undoubtedly been compiled from other works, and not from the author's personal knowledge of or inquiry into the subject, the matter is similar to what has been often published before, inaccuracies as well as accuracies being perpetuated. The final chapter is devoted to the culture, manufacture, and consumption of Tobacco—facts in which will be read with interest by many who may have wondered what becomes of the eighty odd millions of pounds of Tobacco annually brought into this country.

—— The *Florist and Pomologist* for this month contains coloured plates of Pentstemon humilis and the Prince of Wales Plum. The former is described as a charming little hardy herbaceous plant, imported from the Rocky Mountains by Messrs. Backhouse & Son. It grows to the height of 6 inches; and the flowers, which are half an inch to two-thirds of an inch long, are horizontal or drooping, and collected into a shortish panicle of three or four whorls; they have a slender slightly inflated tube of a reddish lilac tint, and a widespread limb of a deep bright blue-purple, the filaments being smooth and the style hairy. The merits of the Prince of Wales Plum as a market variety are too well known to require further mention, and the figure now published will make it familiar to those who do not know it.

—— *Rose Budding*, by D. T. Fish (*Country* Office), gives plain directions for performing the operation, accompanied by illustrations; and *Rose Growing for Amateurs*, by W. D. Prior (same office), gives full practical directions for the management and propagation of Roses, both outdoors and under glass, and contains many valuable hints as to the selection of varieties for various purposes. Both are useful publications in their respective departments.

Natural History.

WHITETHROATS.—I want to tell of a family of whitethroats that came and cleared my little garden of a mass of blight, chiefly from greenfly. I am not sure of the time at which they commenced the operation, or of the day of its completion; but of this I am sure, it was most effectual. How many times during the day they came I could not guess—no doubt they were on the alert, and looking through my little place long and often before I was up. To see the little fellows come and commence work at one end of the garden, take plant by plant to the other end, mostly two birds at a plant—one on each side—then fly back again in an irregular manner, and this thirty or forty times in the day, was something for me to dwell on when confined to my room and my chair on a rainy or wintry day. Some of the plants being tall and slender, beside any such infested with the blight I placed a stick. My little helpers evidently understood my meaning, and took the hint—the plants were surely cleared. There was some woodwork by the side of the borders, palisading; that got well looked after—not a hole, not a crack was there but was cleared out if possible. My garden did not seem to be the only work these busy labourers had in hand, for they came all together and they left all together. There was once in the winter season a lad who had placed in his hands a gun with powder and shot, and directions were given him to shoot all the birds he could come near on the place, and I was told he killed 600. No whitethroats, of course, would be destroyed here in winter, but perhaps some other little birds quite as useful were sacrificed. A wren is most indefatigable. *R. J.*

HORTICULTURAL EXHIBITIONS, 1875.

NOVEMBER.

25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Cheetham Hill Horticultural Society's Annual Exhibition of Chrysanthemums, Miscellaneous Plants, and Fruit.

DECEMBER.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 13, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 15	Poultry Show at the Crystal Palace (four days). Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Nov. 16	Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Nov. 17	Sale of Bulbs, Shrubs, and Greenhouse Plants, at Stevens' Rooms.
THURSDAY,	Nov. 18	Meeting of the Linnean Society, at 8 P.M.
SATURDAY,	Nov. 20	Royal Berks Root Show at Reading. Sale of Dutch Bulbs, Plants, Shrubs, Trees, &c., at Stevens' Rooms.

THE case of WILLIAMS v. LESLIE, the report of the first day's proceedings of which appeared in last week's issue, and the conclusion of which will be found at p. 623, is of so exceptional a character, and of such general interest to employers, gardeners, and nurserymen, as to warrant our specially referring to it here.

From what transpired in evidence it would appear that Colonel CHARLES LESLIE was the owner of Leslie Castle, Ireland, and kept up a regular gardening establishment there until his death, in June, 1871. At that time, and for some time previous, he had a gardener of the name of HOOD, who, after the death of Colonel LESLIE, continued in the same capacity with his brother, Mr. JOHN LESLIE. It would appear that, during Colonel LESLIE'S time, the cost of maintaining the garden had not exceeded £700 per annum, and that some comparatively small orders for plants had been given by HOOD, on behalf of his employer, to plaintiff, and which were executed by him.

After the defendant, Mr. J. LESLIE, came into possession of the place HOOD continued as heretofore, to give orders to plaintiff and others for plants, shrubs, &c., but to a larger amount collectively, and for plants of much greater value individually. There was an account of some £16 odd paid by defendant to plaintiff in Jan., 1873, through his gardener HOOD. Mr. LESLIE, finding that over double the amount expended in his brother's time was being spent, told HOOD that he would not permit this to go on, and that the expenditure must not exceed £600 per year. This, as a matter of course, was unknown to plaintiff; nevertheless HOOD purchased even more largely than before, ordering from plaintiff on different occasions a number of very fine specimen stove and greenhouse plants. In May, 1874, an account of over £72 was paid by HOOD, leaving a still larger amount unsettled, at the same time HOOD intimated to plaintiff by letter that he had exceeded his allowance for 1873, but would settle the balance when he could draw upon his next year's account, and still kept on ordering specimen plants until the amount reached £428. Shortly after this, but before he was aware of the extent to which his gardener had gone in purchasing from the plaintiff, Mr. LESLIE discharged him, after which, as a matter of course, the accounts were sent in to Mr. LESLIE. We may here state that, as the goods were ordered by the gardener, the invoices and accounts were, as is customary in such cases, sent in to him. As soon as the defendant became aware of how matters stood, he repudiated the acts of his gardener, on the ground that the plants had been purchased without his authority; but upon payment being pressed he paid into court £328, being £100 less than the amount claimed, and to recover this the case was taken into court.

We have thus brought the principal facts together in a way that our readers will be able to understand them. In the evidence adduced at the hearing there is such a mixing up of dates and figures, as renders it difficult from a simple perusal to fully comprehend the case.

The plea set up at the commencement by the learned Counsel for the defence, of the non-liability of defendant for the orders given by his gardener, was over-ruled by the judge, and was withdrawn. The fact of previous orders having been given by the gardener for defendant to plaintiff, executed by him and afterwards paid for, rendered the defendant liable for any subsequent transactions. Defendant's Counsel also submitted that plaintiff could not claim on account of having supplied goods after learning from the gardener that he had purchased more than the sum he was allowed for the year would permit of, unless he, the plaintiff, had taken the trouble to learn more about the matter.

The Counsel for plaintiff urged the strength of his case, in the fact that the defendant, after he became aware of his possession of the goods, retained them, instead of asking plaintiff to take them back. The Judge saw the force of this, but, as a counterpoise, considered it equally incumbent on the plaintiff to have proposed to take them back. In the careful summing up of the learned Baron he fully exonerated the plaintiff from any disposition to act unjustly or wrongfully in the matter, nevertheless he considered that in supplying goods to the gardener's order, after he had had an intimation that the gardener, had for the year expended more than his allotted sum, he did so at his own peril.

After retiring for deliberation the jury gave a verdict for the plaintiff for the full amount claimed, less 5 per cent., which, had the account been settled in the ordinary course, woul probably have been presented to the gardener—though we are glad to find the plaintiff repudiating the equivocal practice of giving discount.

Respecting the views advanced as to a proposition from either side to take back the plants, this could only arise from a want of knowledge as to the totally different nature of plants from ordinary merchandise. In the case of a bale of Manchester goods or a package of Sheffield cutlery a proceeding of this kind might hold good, for, if they had not been used and were carefully stored, even for the length of time some of these plants had been delivered, they might have lost little in value. Not so with valuable full-grown specimen plants, which nothing less than skilful attention and great care for years had brought up to the size and condition those in question had evidently attained. With them any lack of knowledge in their management, even for a very short time, would either destroy them outright, or lessen their value so as to make them of little worth—a condition, from what transpired at the trial, some of them had indeed been reduced to.

In connection with this case there are two things that forcibly present themselves, the first of which is, the blind infatuation and culpable recklessness of the gardener after being warned by his employer that he would not allow such an expenditure, in continuing to pledge his employer's credit for so large an amount; next the unaccountable carelessness on the part of the employer, after having had occasion to reprimand his gardener for exceeding the amount he should have gone to in purchasing plants, and limiting him for the future, in not ascertaining that his injunctions were adhered to. Many gentlemen know little comparatively about plants, but any one who knows a plant at all when he sees one, could surely tell the difference betwixt his houses being filled with Fuchsias, Pelargoniums, and such like ordinary things, and the finest specimens, such as those in question, some of which were individually as well known to many connected with gardening as a Doncaster or a Lowlander amongst *habitués* of the Turf. As might be supposed, it suited the purpose of defendant's Counsel to make it appear that the plants were sold for more than their value; but, in justice to the plaintiff, we can state our opinion with confidence—an opinion shared by many competent to judge—that such was not the case.

To the credit of gardeners be it said, it is a very rare occurrence for them to spend more money than their employers approve of, although very frequently they take as much pride in the excellence of the things under their charge, and the general appearance of the places entrusted to them, as they could possibly do were the whole their own property. The case is one that may serve as a salutary warning to all concerned, both employers, gardeners, and nurserymen.

Since the foregoing remarks were written we have seen that a new trial has been asked for on behalf of the defendant, so that the matter is likely to excite even more attention than it has yet done.

—— WE are informed that M. E. ANDRÉ, well known as a landscape gardener in this country as well as on the Continent, and also as the Editor of the *Illustration Horticole*, is about to undertake a BOTANICAL EXPLORATION in Brazil, Peru, Ecuador and New Granada. Horticulturists will look forward to the results of this journey with unusual interest, for it is rare to meet with a traveller so well qualified by previous knowledge of the existing state of horticulture and of its requirements as M. ANDRÉ. We heartily wish him God-speed on his journey.

—— Mr. DOWNIE, of Edinburgh, has sent us a couple of PRIZE LEEKS from the Peebles Leek Club Show, which together weigh 3 lb. 10 oz. The blanched portion measures 11 inches in length and 6 inches in circumference, and the whole was solid as an Onion.

—— There are indications presenting themselves to the observant horticulturist that the RAKING AWAY OF FALLEN LEAVES from shrubberies during winter is, in some instances at least, having an injurious effect on the well-being of the plants. We have seen belts of shrubbery growing in the shallow soils in gravel where there is a large amount of natural drainage, that sufier severely in times of drought, and when the drought is actually causing the death of some of the shrubs. Especially is this true of lines of shrubbery skirting roadways, where there is a frequented public footway on the east, south, and west sides, and a fence dividing it from the shrubbery on which the sun can act. Where there is but little surface soil the roots must come upward to seek nutriment. The fallen leaves when decayed would supply valuable assistance, but they are raked out for the sake of tidiness, and with them a certain amount of the already inadequate soil. If the leaves could be allowed to remain on the surface sometimes, and a coating of good soil were spread on them, the shrubs would be largely benefited thereby, and decay and death would be materially arrested. A healthy, vigorous shrubbery is of the first importance in a well ordered garden.

—— The proper STORING OF DAHLIA ROOTS is a matter of much importance to cultivators at this season of the year. As a general rule the plants are allowed to remain out-of-doors, where they have bloomed, as long as possible, to mature any seed; but as soon as a frost sets in, and the foliage becomes destroyed, the roots are taken up. Some growers prefer to lift them from the soil before the frost has injured them, while they are in a healthy state, and free from decay in the lower part of the stem. It is well to lift the tubers in fine weather, after cutting away the stalks; and if done early in the day it is a good plan to allow the roots to remain in the ground for a time, but not beyond the evening of the day; nor should the roots be washed, but lifted with the soil adhering to them, which should be removed in good part by means of a sharp-pointed stick. It is a good plan to dry the soil somewhat before the roots are finally

stowed away, though many growers are less careful on this point than others. The name of each variety must be securely fixed to the root, and a lead or leather tally fastened by means of a piece of flexible copper or lead wire is best. This advice applies more to growers who cultivate a few sorts only, and who may put them aside in some suitable place, and not examine them frequently. Where a large collection of Dahlias is grown it is requisite to look them over almost weekly, and the ordinary wooden labels fastened to the roots with thin wire will suffice. Where to stow the roots away is a point of some importance. At the Royal Nursery at Slough this is done in a dry shed, with shelves all round it, and lined with mats or some such warm fabric. The main thing is to keep the roots dry, and exclude frost when it prevails. A dry cellar answers well, for it is invariably warm in winter without being close; but the roots should be placed on a rack or shelf raised above the level of the flooring, for if they are placed on the bricks, and they prove a little damp, the tubers are apt to become mouldy. A bottle rack is a good place for them, and the necks of the stems may be turned downwards, bottle-fashion, and allowed to remain so for a time, so that any moisture may drain from them. When the roots are lifted and housed in dry weather this precaution is scarcely necessary. An examination should be made once a fortnight, and any portions that may have commenced to decay cut away. A great deal depends upon properly drying the roots previous to stowing them away. They should never be dried up so as to present a shrivelled appearance, but merely the soil about the tubers dried a little, and the stems cut off to within about 3 inches of the crown. None of the green portion of the stem should be left, as in the process of decaying it might endanger the crown, which is the portion of the root most necessary to be preserved, as the eyes spring from round it when put in heat in February and March. Failing any better place in which to store the roots, they may be placed under the plant stage in a greenhouse, but they are subject to drip, and they give the house a slovenly appearance. Those who have very choice roots, in the shape of seedlings of great merit, or scarce and valuable varieties, cannot do better than pot them in large pots in dry soil, without shaking any earth from the roots, and then place them in the cellar, and in the spring, when they are turned out of pots, the tubers, and even the small fibres, will be found as fresh and as perfect as when they were lifted from the ground. This is a certain and safe way of keeping the most delicate varieties, the trouble of potting and the space the pots occupy being the only objections.

—— We have been requested by Mr. J. T. PEACOCK, of Hammersmith, to notice the remarks made by M. CARRIÈRE, in a recent number of the *Revue Horticole*, claiming precedence for the name Agave Consideranti over that of AGAVE VICTORIÆ REGINÆ, published by us at p. 484. "The plant was shown as a new unnamed species at Cologne," writes Mr. PEACOCK, "and I subsequently bought of the exhibitor on that occasion, M. L. DE SMET, what purported to be the whole of the existing stock of this plant. It was purchased without any reservation as to the name, though in a letter received a short time afterwards, M. DE SMET incidentally mentioned that he should like it named after the gentleman who collected it. Believing it to be, as represented, a new plant, and having purchased, as I supposed, the whole of the existing plants, without any obligation as to naming it, I adopted, in perfect good faith, the name of A. Victoriæ reginæ, which was published by you; and this name having been used by permission of the QUEEN, it is quite impossible for me to withdraw it. I am the more confirmed in this course, as the name I have adopted has certainly the priority of publication in your columns, having appeared therein with a figure and description on October 16 last, whereas the name of A. Consideranti has not, I believe, even yet been published in the botanical sense, though M. CARRIÈRE proposes to publish it in the next number of his work. It is to be regretted, for M. CONSIDÉRANT'S sake, that this mishap should have occurred, but it is not my fault. I have throughout acted with perfect good faith, and what is past cannot now be recalled." We may add for ourselves, that we know nothing of M. CONSIDÉRANT'S connection with this plant. We know it was shown as a new unnamed plant at Cologne, which description, so far as we are aware, was allowed to go unchallenged there; we were, therefore, quite prepared to give publicity to the figure and description of Mr. PEACOCK'S plant, and we must maintain that our publication has the priority over a name applied in a private collection, or even at an exhibition, without diagnosis, and consequently that the name Agave Victoriæ reginæ must stand, unless our contemporary, who proposes to return to the subject, can show adequate cause to the contrary. In the meantime we appreciate his reference to our *loyauté* and *délicatesse*.

—— Mr. JOHN INGRAM, of the old-established firm of WOOD & INGRAM, Huntingdon, has been unanimously elected Mayor of that town.

—— In the August number of the *Bulletin de la Société d'Acclimatation de Paris* we read of a remarkable instance of RAPID GROWTH of WELLINGTONIA GIGANTEA. Indeed, the figures appear almost incredible, though we have no reason to disbelieve them. A certain Mons. A. DES JAMONIÈRES writes from the Lower Loire that he has measured a tree of Wellingtonia in the park of M. SIFFAIT, which was planted in 1855, and it is now 22 m. 20 (more than 72 feet) high. The girth of the trunk a yard from the ground is 2 m. 11 (about 7 feet). In the same garden a plant of Bambusa mitis, it is stated, threw up a stem more than 22 feet in the space of two months; and a small stemless plant of Yucca albospica has just produced an inflorescence above 8 feet high.

FIG. 131.—THE PLAIN OF ANKAY, MADAGASCAR. (SEE P. 619.)

—— **The following circular relating to the affairs of the ROYAL HORTICULTURAL SOCIETY has just been issued:—**

"The Council of the Royal Horticultural Society have the pleasure of announcing to the Fellows that they have succeeded in making arrangements with Her Majesty's Commissioners of 1851, whereby the gardens are granted to them virtually rent free, but only upon the performance of one important condition, viz., that the annual income from subscriptions shall be raised to £10,000.

"The present income from subscriptions amounts to £7700, a sum which experience has proved to be quite inadequate to maintain the gardens efficiently, with regard either to their usefulness or their attractiveness.

"The Council have been most desirous that the necessary addition to their income should be raised with-

out undue interference with the privileges of their Fellows. They have carefully inquired into the causes why the income of the Society has not increased in proportion with the increase in the population, wealth, and importance of the neighbouring districts; and they are satisfied that this is due to the practice of transferring tickets, by which the use of the gardens is to a very large extent enjoyed by those who contribute nothing to its funds, and they are convinced that they cannot expect to obtain that enlarged revenue which is essential to their continued existence without putting an end to this practice.

"It is upon this principle that the accompanying summary of the privileges of the Fellows has been framed. [See p. 590 of our last issue.]

"Should the Council be—as they confidently hope they will be—successful in their appeal to existing Fellows and to the residents in the neighbourhood of the gardens, they will soon be in possession of funds which will enable them gradually to discharge the debts which have accrued in past times, greatly to improve the condition of the gardens, and to increase at once their usefulness and their beauty.

"But they must not conceal the fact, that if this appeal should prove unsuccessful, the failure would be most disastrous both to the interests of horticultural science and to those of the residents of that part of the metropolis who now enjoy the many benefits resulting from the existence of these spacious and beautiful gardens. The project so warmly supported by the late Prince Consort—so hopefully accepted by the public — of bringing home to greater numbers than heretofore the means of studying horticulture, would, in that case, be abandoned, and it would be for Her Majesty's Commissioners of 1851 to decide to what new and more profitable uses the 22 acres now occupied by the South Kensington Horticultural Gardens should be applied.

"The Council believe that these calamitous results may be averted by measures which would have the effect of inducing those who now enjoy, for themselves and their families, most of the advantages of the gardens, without paying for them, to contribute a fair and moderate annual sum towards their maintenance; and it is with that view that they have prepared the accompanying regulations, which will come into operation on January 1, 1876.—ABERDARE, President."

—— We are not surprised to find that the Fruit Committee declined the responsibility of offering any opinion as to the enormous weights of Potatos alleged to have been grown from a single pound of seed, and shown at the last meeting of the Royal Horticultural Society. When we find the produce alleged to be 500 and even 1000 per cent. in the case of certain varieties, we think practical men will endorse the action of the committee, and wait for further evidence. The Council of the Society must also speedily take into consideration the question whether or no its reputation is not likely to suffer by the admission of "exhibits" of so purely commercial a character.

—— Mr. W. B. HEMSLEY, the author of the useful *Handbook of Hardy Trees, Shrubs, and Herbaceous Plants*, has been appointed to the office of Librarian to the LINDLEY LIBRARY at the Royal Horticultural Society. Mr. HEMSLEY will attend in the library on Wednesdays in each week. It is to be regretted that this valuable library, which is open under proper restrictions to any one, Fellow of the Society, or otherwise, is not more used. Under certain conditions books are lent out by the trustees, so that great facilities are offered to students and practical horticulturists. One great reason why the usefulness of the library is less than it might be, is the fact that the whole sum available by the trustees for its maintenance, purchase of books, periodicals, &c., is not more than about £30 per annum. A separate room and other necessary appliances are therefore at present impracticable.

—— Mr. F. BEDFORD, late gardener to the Earl of KENMARE, has taken charge of the gardens of H. L. BARTON, Esq., Straffan House, Co. Kildare.

—— A short time ago a deputation, headed by Sir HENRY PEEK and other influential gentlemen, waited upon the First Commissioner of Woods and Forests to request him to sanction a NEW ENTRANCE TO KEW GARDENS by a path across the Old Deer Park. A letter has just been received by the Richmond Select Vestry, in which Mr. GORE says:—"I communicated to the Lords of the Treasury the proposal which had been made to me, and I am now in the receipt of a reply. It appears that their lordships consulted the First Commissioner of Works, and that they were fully informed of the extent of Richmond Park and Green, and of Kew Gardens, containing altogether more than 2000 acres, of which the inhabitants of Richmond have the enjoyment for purposes of recreation. Their lordships were also made aware that the inhabitants have the use of one of the most agreeable walks in the neighbourhood of London, viz., the raised footpath provided with seats by the side of the Thames, and maintained at the public expense. Under all the circumstances of the case, their lordships have informed me that they decline to sanction the opening of a footpath across any part of the Old Deer Park."

—— At the meeting of the LINDLEY CLUB on Wednesday last Mr. D. T. FISH read a paper entitled "Suggestions for the Formation of a National Horticultural Club." We have been favoured with a copy of the suggestions, which the pressure on our space forbids our inserting at present. We shall, however, take an opportunity of reverting to the matter.

—— The principal part of the timber of the FORESTS OF SWEDEN, according to the *Chronique de la Société d'Acclimatation*, is furnished by the Scotch Pine and Spruce Fir. The White Birch is also widely diffused and abundant in that kingdom. The Aspen and the Alder, the Elm and the Lime are also common, and attain large dimensions in some districts. The timber of the Spruce and Silver Firs is used in the construction of houses, ships, &c.; moreover, they furnish tar, and the wood reduced to a pulp is employed in the manufacture of paper. Balks and planks of these two kinds of timber are largely exported. Birch-wood is chiefly consumed as fuel, supplying nearly all the coasting vessels in the Baltic. As an example of the extent of trade in this article, we may mention that no less than 25,488,678 cubic feet of Birch-wood for fuel were shipped from a single port in 1872. The wood of the Aspen is used in the manufacture of matches, one of the most flourishing industries of Sweden.

—— The dinner of the HORTICULTURAL CLUB, on Wednesday evening last, was numerously attended, and the members expressed themselves pleased with the arrangements made on their behalf. To country members, or those visiting London for short periods, the Club now offers the conveniences of a hotel at very moderate rates.

—— We invite the attention of our readers to the brief notice of Mr. MAULE'S experiments on GRAFTING POTATOS with Solanum nigrum and S. Dulcamara, as laid before the Scientific Committee of the Royal Horticultural Society at its last meeting. We shall revert to the subject at an early opportunity.

Home Correspondence.

Rooks and Walnuts.—In answer to the inquiry of "Bozz," I can say that I have frequently seen rooks eating Walnuts. There is a large rookery close to my house, and more than a hundred Walnut trees close at hand. As soon as there is a kernel in the Walnut the rook has instinct sufficient to find it out, and they are continually bringing them to their home and eating them; they are not, however, able to eat them in the trees, but get on the ground to do that, as I have seen many times, and have often frightened the birds away, when I found the nut in pieces in most, and in some cases all the kernel gone, but then the time at which the rook takes them is before the shell becomes hardened by ripeness. The rook has not the power to open or break a shell the same as a woodpecker has. A proof of that I have also experienced, because there is a large tree from which I did not gather all the crop. The birds have continually brought them to the trees in the rookery above spoken of, and in my way to the gardens from my house I have picked up as many as a gallon quite sound, and have found them in the park also, whereas before the shells were hardened they were most of them eaten. *T. Record, Vinter's Park, Maidstone.*

—— It is by no means an unusual occurrence for rooks to carry off Walnuts from the trees, and they doubtless are very good judges of their nearness to maturity, as they commence their depredatory onsets in real earnest as the kernels of the nuts become solid and they part somewhat freely from the trees. There are a number of Walnut trees in the park here, and all that are not strictly tended for two or three week previous to perfect ripeness are annually plundered and the nuts carried off by the rapacious rooks. The shells of the nuts may now be seen in quantities in the surrounding plantations. *Geo. Westland, Witley Court.*

—— When foreman in a nobleman's establishment my rooms were within easy access of a fine old Walnut tree, therefore I had an opportunity of witnessing rooks attack and fly away with most of the Walnuts from the top of the tree. I have seen them hovering around until they deemed it safe to venture, then, with a dart similar to a hawk's, seize the object of their search, *i.e.*, the Walnuts, and fly away with them, returning at brief intervals until the nuts were gone. *J. Clarke, Gr., Melton Constable, East Dereham, Norfolk.*

Seeds out of a Jam-pot.—The instance quoted by Mr. Webster (p. 361), of a Plum seed vegetating after having been boiled in the jam, is not the only one of the kind on record. Dr. Lindley has mentioned a case of Raspberry seeds vegetating after being subjected to the same ordeal, and he also states that the practice of boiling the seeds, of leguminous plants especially, with the object of making them germinate more readily, had been adopted by several persons with perfect success (*Theory of Horticulture*). The fact does not appear so wonderful when we know that seeds will stand without injury a temperature as far below the germinating point as above it. I suppose an extremely low temperature is as destructive to vitality as a high one, and that both act something in the same way. Seeds seem fitted by Nature to survive under very adverse circumstances, existing for ages if buried deeply, and, what is quite as singular as anything, passing unscathed through animals that have the power of digesting very extraordinary substances. *J. S. W.*

Baobab.—In Upper India especially the growth of this tree is extremely slow. Two trees planted at Etawah in 1824 are at this date only 50 and 55 feet high, with a girth of only 9 and 10 feet respectively at 6 feet from the ground; and the largest of a number of trees planted in the same station between the years 1859 and 1864, by Mr. A. O. Hume, the magistrate and collector of the district, has now only attained a height of 24 feet, with a girth of 2 feet 2 inches at 6 feet from the ground. At Lucknow, also, the largest of some trees, locally reported to have been planted in the reign of Asaf-ud-dowla, or between ninety and a hundred years ago, is not more than 13 feet in girth at 5 feet from the ground. *Government Paper* (*Forests*), 1873, *No.* 14.

Sunken Stokeholes.—With reference to this subject I again state, in reply to Mr. Baines, that if it was not for the difficulty of dealing with the water in the stokeholes, and the expense of re-arranging the piping (the houses being well heated by five tubular boilers), I should adopt the limekiln system of heating at Rabley. I have before stated that the expense to do this is more than my pocket could stand. I see nothing marvellous in such a statement. Had I sufficient money, and then did not adopt the system, there would be something for your readers to cavil at; but they all ignore the expense, and harp only on the water. In the formation of a stokehole for Messrs. Gilbey it cost £80 to keep the water in check whilst the place was being made water-tight; and I believe it cost nearly £200 to make the stokeholes at Mr. Miller's, Bishops Stortford, water-tight. If water could be got rid of for next to nothing, as your correspondents imply, one would wonder why the stokeholes at Chatsworth, Berkhampstead, and hundreds of other noted places, are not water-proof; but they have failed in meeting with an engineer of Mr. Baines' skill. Let it not be misunderstood, or again misconstrued: I assert it is the difficulty of dealing with the water, and the great expense of the re-arrangement of the pipes, that prevents my adopting the limekiln system of heating at Rabley, and not the lack of faith, as Mr. Baines insinuates. The Garston trial quite settled the question in my mind. *Edward Bennett, Rabley, Herts.*

Late Fruiting Raspberry.—I would recommend to your readers the late and second fruiting Raspberry, which I never see except in my own garden, and find a most valuable plant at a time when there is so little fresh out-of-doors fruit. We were abundantly supplied all the month of October, and had a good dish yesterday, and there is still more fruit on the bushes. This variety bears as well as the ordinary Raspberry in the summer. The whole strength of the plant goes to fruit; it is not above half the height of the common Raspberry, and, therefore, takes less room. I suppose it can be bought at most nurseries; I had mine from Mr. Rivers. *William Wickham, Binstead-Wyck, Alton, Hants, November* 9.

Veitch's Autumn Giant Cauliflower.—This, one of the most valuable Cauliflowers in cultivation, has with me every year (the present excepted) been all that could be desired. This year I had four packets, from which I made four sowings at three weeks' or a month's interval; and, to my great disappointment, not more than 5 per cent. have come true, the remaining 95 being the Early London. Has this happened with any of your correspondents besides myself? If not, I shall think that I am myself to blame, and not the seed. *H. W. Ward, Longford Castle, Salisbury.*

Lasiandra macrantha.—Mr. Bishop's letter (p. 464) in reference to his cultivation of this plant in the same house where Ixoras and Allamandas are grown, directly confirms what I said respecting the Lasiandra not succeeding in a temperature that was high enough to grow the above plants as they ought to be. He, writing the first week in October, says he has cut Allamanda flowers for two months, which would give the time of his Allamandas as coming into bloom the beginning of August. He also speaks of having Ixoras and Stephanotis in flower in September, the time my notice of the Lasiandra was written. Where a temperature is kept up such as to grow Ixoras, Dipladenias, and Allamandas as they ought and are capable of being grown, they will commence flower-

ing by the end of April, and continue on without intermission all through the summer and autumn, which is a very different thing to having them to come in when the season is far advanced. I repeat it—to grow stove plants that require a maximum of heat in the most satisfactory manner, and in a way to fully exemplify what can be done with them, is not possible where no more heat is kept up than required by things such as the Lasiandra, that will not succeed with a continuous high temperature; and that no one who possesses a full knowledge of the cultivation of stove plants will ever advance a proposition so opposed to facts. *T. Baines.*

The Celery Fly.—I can fully concur with what has been stated by Mr. Tillery as regards soot being beneficial to the growth of Celery, and also a preventive to the Celery fly (Tephritis onopordinis), having experimented with the same with satisfactory results, though instead of selecting a fine day for the operation I selected a showery one. I intended to have written to you before on this subject, as I consider it an easy remedy and of great importance where fine heads of Celery are in requisition. *Joseph Clarke, Gr. to Lord Hastings, Melton Constable, East Dereham, Norfolk.*

Law Notes.

Williams *v.* Leslie: *Friday, November* 5.—Part heard. (See p. 595.)—In the High Court of Justice, Exchequer Division, before Mr. Baron Bramwell and a special jury.

At the sitting of the Court the plaintiff, Mr. Williams, was recalled, and said in answer to Mr. Hawkins: The majority of the plants we sold were exhibition plants—what we exhibited ourselves before they were sold: they were the best specimens. Some of the flowering plants were just coming on, and some just going off bloom. If a man wished to have flowers to exhibit, he would have flowers which were just coming on. Some plants are worth more money when they are coming into full bloom, and some are not. The value of those exhibition plants would depend on the cultivation they have received since. Valuable specimens do not as a rule, go down in price, unless it is an old plant. An Azalea, if it is coming into full bloom, would be worth more money than after the blooming is over. Some plants would be of the same value all the year round. An Azalea will last for twenty or thirty years. I am a tradesman, and, of course, should not like to take the plants back at the same price, but if they had been properly cultivated they would be increasing in value, if they had been sold at twelve guineas; but sometimes, if they are sold at twenty or thirty guineas, they would not be worth so much for increase in value proportionately. I have a cashier and clerks who keep my books. Gardeners never expect commission, but we make them presents sometimes. It is a rule in the trade to make presents, but not to give commission. We make presents according to our own views on the subject. We generally make a present to any one we know. We sent Hood a present when the account was paid; when the £72 was paid we sent him about 73*s.* We do not always do the same thing, but we always make a present. It is a rule in the trade. It was a present that my cashier sent to Hood when the account was paid. We generally send an invoice with the goods, but in many cases in our books the invoice is sent afterwards. If the invoice did not go with the plants it would have been sent afterwards, and it would have been made out from the order-book of the traveller. I believe the traveller's order-books are here. The invoices were all sent to Hood. The orders are in my traveller's handwriting, who is here. I received the letter from Mr. Leslie. I have no copy here of the letter which I generally send with my accounts. The ordinary form of letter which we send is this:—"According to usual custom we enclose our account." We always enclosed the account to Hood when we sent in the account. Hood never told me he received his money from Mr. Cunningham. I went over Mr. Leslie's place last year when I was at the Belfast show. I did not see Mr. Leslie himself, but I went all round his place. I have never seen Mr. Cunningham at all. I saw some of my own plants there. Some were looking very well, and others were not. One had been planted out, and lost some of its foliage through it. I have a man here who sent the goods. Mr. Leslie had a long range of glass houses which looked nearly new. I heard that Mr. Leslie had supplies from other people. I could distinguish the specimen plants which I sent him from others, but not the other plants, because they might have been grown since then. My own specimens I should know as well as I should know my own child.

Re-examined by Mr. Kemp: No offer was ever made to me to return these plants to me, and it is not my place to ask for them. The last general account I sent in I sent to Mr. Leslie personally. At that time I knew that Hood had left him; so I sent them in to Mr. Leslie, and received a letter from Mr. Leslie on January 19. In 1874 I went through these grounds, and saw various plants which I had supplied. I believe I saw a plant which I charged at ten guineas. I saw some plants I charged twenty-one guineas for. I saw these plants at Mr. Leslie's. When I sent out these plants they were either packed in cases or in round baskets—most of the large plants were in the large round baskets, and my name was painted on them in large letters, so that any one could see where they came from. One of these plants (Lapageria rosea) had 500 flowers upon it before it was sent to Glasgow, and an illustration of it is shown in the *Gardeners' Chronicle* for 1873, p. 181. It was £22 3*s.*

Alexander Wright was next sworn, and in answer to Mr. Kemp said: I am a gardener near Tunbridge Wells. Between 1872 and 1873 I was in the service of Mr. Leslie. It was my duty to unpack goods as they arrived. I have examined a list produced, and I unpacked all except the first two, which were there before I arrived. The others were all unpacked by me and placed in Mr. Leslie's grounds. Some of them we put in the greenhouses and others in the grounds. Mr. Leslie from time to time went through his grounds; Mrs. Leslie also went through the grounds. I have had conversations with Mrs. Leslie about the plants. I never had any conversation with Mr. Leslie about the plants. I have seen Mr. Leslie looking at the plants. Mr. Leslie has passed me when I have been unpacking the plants. On each basket when it arrived there was a conspicuous label with Mr. Williams' name on it. Some of these plants were exhibited by my master. Mr. Leslie has received prizes, but not altogether for plants. He has received prizes for some of the plants that came from Mr. Williams. Mr. Leslie's gardener exhibited them in Mr. Leslie's name. I do not know whether Mr. Leslie was aware of that. The first one that was exhibited was in May, 1873; at that time Mr. Leslie was in London. The prize was a silver cup given by the Lord-Lieutenant of Ireland. I saw the silver cup in Hood's possession. It was in Hood's possession when I left Belfast.

Cross-examined by Mr. Hawkins: A cup was given by a person of the name of Bull, who was a nurseryman. Hood dealt with Bull for plants. I do not know whether he bought all his plants of Bull to exhibit for Bull's cup. He did exhibit, and won the cup. I do not know whether Bull charged Mr. Leslie for this. Hood won the cup. I do not know that the cup went back to Bull for another year or not. I do not know whether Bull bought the cup back or not. I do not know that there were other plants exhibited by other people also bought from Bull. The plants had been in the possession of Hood I should think for three or four months before the show; the show was in August, 1874. There were twelve greenhouse plants exhibited; they were principally stove plants, but there might have been one or two greenhouse plants. I remember one day Mr. Leslie passed when I was in the potting-shed unpacking them. I do not know whether he looked at me or not, but he walked by the potting-shed. He must have seen the plants after they were placed in the houses. I have also seen him walking round the grounds just as any other gentleman would walk round his own grounds. I first went into the service of Mr. Leslie in November, 1872; I stopped there two years. I do not know that I can say that Hood increased the orders during the time that I was there. Plants came in all the time I was there. I did not see any difference. I do not know that any of these plants were given away or disposed of. I left of my own accord, and went to Mr. Williams, in Upper Holloway. I have known Hood take three cups. I left about a month before Hood left. I knew nothing about the invoices, and never saw them myself.

Re-examined by Mr. Kemp: I first saw Mr. Williams at the Belfast show in August. I came and remained with Mr. Williams until I got a place.

By the Judge: I could guess very nearly the value of the plants. I am not surprised at twenty guineas being given for a plant.

William Henry Heale was then sworn, and said, in answer to Mr. Kemp: I was in September, 1872, a traveller in the plaintiff's employ, and as such traveller I sold goods for the plaintiff. It was my custom when I sold goods to treat with the head gardener in the majority of cases; sometimes with the lady, and sometimes with the gentleman, but generally with the gardener. It depended on the customer. Some of the gentlemen liked to order them, and sometimes the ladies; and sometimes they would have nothing to do with it, and they were ordered by their gardeners. In September, 1872, I was at the International Flower Show at Glasgow. I sold Hood the first seventeen plants marked in the list produced to me, and the prices marked in this account were agreed upon at the time. At Hood's request I purchased two plants, as fine as could be had, at ten guineas each. The first two articles marked here I packed and sent away myself from the Glasgow Flower Show. The entry would be found in the books of the Belfast Company. I sent them away direct from the show, the others were sent from Mr. Williams' nursery. I have frequently been to Mr. Leslie's—once since the articles were sold. I saw the first two of the plants there, but the others had not arrived.

Cross-examined by Mr. Hawkins: The price of this sort of article has not risen for the last ten years. The new plants have decreased since then, because they are not so rare. As to those plants marked twelve guineas I should expect to realise more for them now; they ought to be worth fifteen to twenty guineas now if they have improved. I have nothing to do with the accounts with persons with whom we have ordinarily dealt. I cannot say whether the accounts are regularly sent in or not.

Alfred Outram sworn. In answer to Mr. Kemp the witness said: I am a traveller in the service of Mr. Williams, and go about the United Kingdom to get orders for plants. I have a specimen plant list. I took orders for plants marked on the list produced, at prices agreed upon when I took the orders, and they were in accordance with the price list furnished by Mr. Williams before I started. They are the prices which I charged every one who wanted plants of the same description. I went to Mr. Leslie's place in the autumn of 1873, and I saw several of the plants that I sent there. Most of them were conspicuous plants, which could not be matched, and anybody going into the house could not but notice them.

The witness was not cross-examined, and this closed the case on the part of the plaintiff.

Mr. Hawkins then proceeded to address the jury on the part of the defendant. He considered the defendant had behaved very handsomely in paying into Court the sum of £328, and treated the plaintiff in a manner he very little deserved. He was very much surprised to find the plaintiff had not called Hood, the gardener, through whom he had received all the orders, and who could have explained the letter of May 25. Before the year 1871 Colonel Charles Leslie was the owner of this property; he died in the month of June, 1871. During his life he took great interest in his garden, and for several years before his death the expenditure on the garden had varied from £300 to £700 a year. In one year, 1869, he expended as much as £714, which sum included some extensive alterations. After his death Mr. John Leslie entered into possession of the property, and desired to keep it much the same as it was during his brother's lifetime. Matters went on until 1873, when defendant discovered the extravagance of his gardener, Hood, and put him on an allowance of £600 a year, which sum was to pay for plants, shrubs, labour, and everything necessary to keep the garden in proper order. In December, 1873, there was due to the plaintiff £119, and he received a bank post bill for £72 6*s.* 6*d.*, enclosed in a letter, in which Hood stated that he could not send him any more for a month or two, because he had exceeded his allowance for 1873. He contended that it was the duty of the plaintiff, upon receipt of that letter, to have written to the defendant acquainting him with the fact that £119 was still owing to him (the plaintiff), instead of which he allowed Hood to incur a further debt of £234 9*s.* 6*d.*, knowing he had an allowance, but not taking the trouble to inquire the amount. In the autumn of 1874 Hood left the service of Mr. Leslie, and previously to his leaving he swore there were no accounts outstanding, owing to Williams or any one else; and defendant remained in that belief until January, 1875, when he received an account amounting to £428 8*s.* 6*d.* On January 19, 1875, defendant wrote to the plaintiff, repudiating the account altogether; he also repudiated Hood's authority to order these goods, and declined to have anything to do with them. The learned Counsel further contended that defendant had a perfect right to do so—that plaintiff might have taken his plants out of defendant's grounds—that plaintiff was affected with notice by that letter stating that the gardener's expenditure was limited—and that he had exceeded that limit; and with such knowledge he ought not to have supplied defendant's gardener, and could not now recover the sum he claimed.

Mr. John Leslie, M.P., was then sworn and said, in answer to Mr. Meadows White: I am the defendant in this action, and reside at Glaslough; I am Member of Parliament for Monaghan. I succeeded my brother to the estate in June, 1871. The man Hood was gardener. Colonel Leslie was fond of his garden, he made it himself. I was his executor, and had to pay some bills for his garden. The expenses of the garden averaged, I should say, from £500 to £600 a year. When I came into possession my great desire was to do what my brother had done before—to carry out, as far as possible, his views. Like ordinary beings, I like sweet-smelling flowers, such as Violets and things of that sort. Hood continued in my service. A bank post bill was paid by my agent. The invoices never came under my observation until after the full account was sent in. The full account was sent in in January, 1875; the first intimation I had was without reference to items, it was merely "to goods as per date." I had found out before that Hood was more extravagant than I wished. In 1872 he presented to me a small bill from a man named Mackenzie for a few Tree Ferns. In the following year I had other accounts sent in to me for a considerable amount. I called his attention to the fact that he had acted in contradiction to my express orders, and I told him as he had been my brother's servant I should be more lenient to him than if he had been one of my own selection. I gave him strict orders not to order any plants from anybody without my consent and signature, and that if it occurred again I should discharge him. I told him I should give my agent directions to stop all payments exceeding £600 a year. My principal interest in the garden was to give employment to the tenants. That was to be included in the £600. These goods did not come under my notice until I found they had been paid in May, 1874. I left home in January, 1874, and did not return until September. In the meantime he had involved me to the amount of nearly £3000 in buying very expensive plants. On my return, by accident an auctioneer's bill was sent in to me for the sale of goods of which I had no knowledge. He had sold plants by auction which he had bought in my name without my consent. At that time I knew of no other plants except those bought of Williams, which had not been paid for. I told him he had deceived me, and I should not pay the bill; he said it was sent to me by mistake, as it was his. He said the goods were his, but that they were in my greenhouses; I said "Turn them out of my place; I refuse to have anything to do with them."

Was the plaintiff's name mentioned? His name was not mentioned until the time when I asked if that was the whole amount that I was liable for. Hood had given me certain items of plants ordered by him (Hood), of which I made a list, amounting to a large sum of money. That list did not include anything that was supplied by the plaintiff. I tried to find out from the bills the plants that were included in those bills.

By the Judge: Plaintiff's bill was not amongst those given to me.

By Mr. Meadows White: I had had no bill sent in by the plaintiff at all. Hood distinctly swore I owed nothing. About three weeks or a month after this time I received this long account from the plaintiff.

By the Judge: What I received was merely the gross amount due.

By Mr. Meadows White: I received no particulars, except that complimentary invitation to pay it, in reply to which I wrote a letter, dated January 19, "No, sir, not correct," and I wrote a letter on January 28 on the same subject. I did not see any plants which I could recognise as coming from the plaintiff; I have seen them since, because it interested me very much to find them worth so much money. When I first saw them they did not appear to me to be valuable, because they were in very poor condition—some dry stalks and bell-shaped flowers. When my attention was first called to them I should have been very sorry to have given twenty-one pence for one, much less £21. I have had a great many accounts sent in from other people. There was nothing on these plants to indicate that they came from Mr. Williams. At that time Hood and Wright had both left me; Wright disappeared in a single night.

Mr. Meadows White: He could not disappear in two nights at once. (A laugh.)

The witness continued: I asked for him, and was informed that he had left. I was under the impression that he was my servant, but he left without giving me any notice. I dismissed Hood. My attention was never called to any plant, either in my greenhouse or in my garden, as having come from the plaintiff. I know that Hood exhibited; the first year he exhibited was at Glasgow. He said, "My things are packed up, I am going to exhibit at Glasgow; I take it for granted you will allow me to do so." This was in 1872. I said "I have a strong objection to it, but, as my brother permitted you to exhibit once a year in Ireland you may do so now, but I am quite sure he would not have allowed you to have exhibited out of Ireland." I do not know what the things were; I believed them to be fruit, not flowers. I had no idea he was exhibiting anything except what he grew himself. I believed them to be Grapes out of my vineries. My brother had allowed him to exhibit anything he had produced himself: he merely wished to do justice to his gardener and to encourage horticulture in Ireland. Until this account was sent in I did not know that he was buying plants for exhibition.

By the Judge: I never had any of the prizes myself. When I discharged him I said, "Where are my prizes?" He said, "Packed up." I said, "Unpack them." He said they were his. My name was upon the cups. I told him to take the cups into the grocer's shop and leave them behind him. I should have thought it dishonest to have bought things of a London nurseryman and to have exhibited them as my own productions and to have competed with my neighbours.

The Judge: I should think so too. (The witness was not cross-examined.)

Mr. Cunningham was next called, and in answer to Mr. Hawkins he said: I am agent for Mr. Leslie, and was agent for Colonel Charles Leslie during his life. The bank post bill was obtained through me, and I understood it was Mr. Williams' account for 1873. I never heard of any other until this account was sent, in 1875.

Cross-examined by Mr. Kemp: I do not think I received the receipt from the plaintiff. I think it was handed to my clerk. I did not show the receipt to Mr. Leslie.

By the Judge: I cannot say that I read it. If I had read it no doubt I should have understood there was something more owing, the receipt being "on account."

Mr. Hawkins, in summing up the case to the jury on behalf of the defendant, said that the last witness had thoroughly explained the question his lordship had put to him. If a man comes to you and says he is a confidential servant and wants a cheque or a bank post bill for £73 for certain accounts, and that that clears all the accounts up for the whole of the year 1873, and that is all that is owing, you give him the bank post bill, and the man brings you back the bill receipted. If you cast your eye over it, and you have no reason to believe the man is a scamp and a thief, you do not read the receipt. If the last witness had read the receipt and seen the words "on account," it would have been one thing, but you place confidence in the man you have known. If the jury believed Mr. Leslie and Mr. Cunningham, and there was no cross-examination of either of them, it did seem to him that the case was as clear as the sun at noonday. Mr. Leslie said in effect, "My brother kept the garden up, and I desired to do as much as my brother did; we desired to keep as much labour as we could. I did not wish to knock off the expenditure, for the benefit of the people in the county, and instead of finding that Hood had limited it, as it was in my brother's time, I found that the bills came to a serious amount." He said to Hood, "I will have none of these extravagant plants ordered at all; I cannot tell what I like, but I like sweet-smelling things." He (the learned Counsel) supposed that meant a little Heliotrope and Violets, a Moss Rose when Roses were in season, and a few Chrysanthemums. (A laugh.) "I suppose," added Mr. Hawkins, "Chrysanthemums smell, but I do not know. As I am a Bencher of the Temple, I am told I ought to know, but I do not." (A laugh.) He could understand a gentleman wanting to see plants about, but as to giving £21 for a thing he would not give twenty-one pence for it. Mr. Leslie said he was astounded when he found in January, after Hood had gone, that bills were sent in to the extent of over £500. A good deal was endeavoured to be made of this.

The Judge: Mr. Kemp did not cross-examine about the shows.

Mr. Hawkins: Not a bit. Mr. Leslie did not conceal anything from the jury, and he said, if he had known it, he would not have allowed anything of the sort to be done. "If I grew Grapes, and my neighbour grew Grapes, I did not mind my gardener competing to see who could grow the best. But as to giving my gardener liberty to buy £25 plants to show them as having been grown in my garden, I never did anything of the sort, and I had no notion of what was going on between Hood and Williams. I thought everything was included in the £600. I could not distinguish between what came from Williams and anybody else, and, having Hood's assurance that everything I bought from Williams was paid for by that bank post bill in May, 1874, when Williams sent in that account I sent him that strong letter; and I repudiated, as I still repudiate, the notion of any contract between myself and the plaintiff for a single penny piece." £328 had been paid into Court, but not as an acknowledgment of any amount being due beyond the bill; and on the whole the learned Counsel submitted that the plaintiff was not entitled to any further payment.

Mr. Kemp then replied on the whole case. Comments had been made as to the absence of Hood, but the plaintiff did not call him because it would have been a most foolish thing to put a man into the witness-box whose character his learned friend had been attacking. The defendant, Mr. Leslie, might be perfectly justified in complaining of Hood's conduct, and he (Mr. Kemp) was content to accept Mr. Leslie's statement as correct. It might also be that Mr. Leslie believed he had been most abominably treated by Hood, and that against Hood he had every reason to complain, but he thought Mr. Leslie might have refrained from writing letters charging Mr. Williams with being a party to the fraud which Hood had perpetrated. His friend, Mr. Hawkins, had omitted to place before them the real question in issue, which was, not whether the defendant had been robbed by his servant, or whether he had exceeded his limits, but whether or not Mr. Leslie, having notice that these goods had been supplied to his gardener, Hood, ought to have returned them. He thought proper to keep them, and he would remind the jury that they still remained in his possession. If the case rested on the question of implied authority, he would say there was no case upon which to address the jury. But his friend tried to instil in their minds that the defendant had a serious grievance against Hood, and because of that grievance he (Mr. Hawkins) asked them for their verdict. It was very easy to say, Why did not the plaintiff do so and so? but in business things are hastily read, and when a man has no idea that a crime is being committed he puts an interpretation on the course pursued different from that which he would if he entertained any suspicion. Why, when the receipt was sent to the defendant did he not read it? for upon that receipt there was a distinct statement that it was received "on account," showing to him, or his agent, that the plaintiff had other accounts against him. The defendant did not read the receipt because he had confidence in the honesty and propriety of Hood, and the plaintiff had equal faith in Hood's honesty and propriety. From the plaintiff's point of view it was unnecessary to charge anybody with impropriety. His friend Mr. Hawkins, whose notion of a garden seemed to be limited to a bunch of Violets and things of that kind, thought the account an extravagant one; but gentlemen do buy expensive plants, or they would not be grown. These matters are often left to the gardeners, who hold responsible positions, and who are men of skill and ability. In this case, although the matter was left to Hood, it is clear the defendant must have known about these plants, because he was constantly walking through the grounds; and there were persons who could have identified the particular plants; so that, having had a list supplied, he could easily have sent the plants back or have requested the plaintiff to fetch them away. If, upon such an application being made, Mr. Williams the plaintiff had declined to accede to it, then the defence would have been a much more rational one; but if the defendant, Mr. Leslie, thinks proper to say, I will keep these goods—

Mr. Hawkins: He does not say so.

Mr. Kemp: My friend, Mr. Hawkins, ought to know that he has done with you. There are some counsel, who, when they find their adversary is making a point, interrupt them so as to divert the attention of the jury from that point. I am a very little man, and my friend is a very great man, but I think he ought to leave me to address you. (A laugh.) In conclusion Mr. Kemp said he was quite ready to admit that the defendant may have had a cause of grievance against Hood, who may have exceeded his authority, but the real point was this: As soon as the defendant had notice from the plaintiff that the goods had been supplied on the order of his gardener, Hood, it was the defendant's business to have told the plaintiff to take them away. He did not do that, but kept them, and declined to pay for them. It was true a sum of money had been paid into Court by the defendant, but he (Mr. Kemp) submitted that was not sufficient. All the prices had been agreed upon before the traveller left: the goods were purchased at those prices, and although Mr. Leslie might have a grievance against his gardener, he had no legitimate grievance against Mr. Williams, the plaintiff. If any one had a grievance it was Mr. Williams, who had not had his plants back, and if Mr. Leslie thought fit to keep them he must pay for them.

Mr. Baron Bramwell in summing up said: This is an action in which the plaintiff claims to be paid for goods which he has delivered to the defendant. The prices are agreed; if you think the verdict ought to be for the plaintiff you will have no difficulty as to the amount. Although he has delivered the goods the defendant ought not to pay for them unless they were ordered by the defendant, or with his authority: by him personally they were not ordered, but by his gardener. I should have said, but for the matter to which I am going to call your attention, that he would have been liable. No doubt a gardener might buy a packet of seeds, or £5 worth of bedding plants, but whether he was to pay £25 is another matter. I do not think you need be troubled about that, because the defendant has furnished evidence against himself, namely, that he gave authority to his gardener: he said, You may go to the extent of £600 a year; and the defendant did not order the goods himself, but left it to his gardener to do so. If the matter stood there he would be liable, and he would be liable, as a consequence, for the account of £119, which was for things ordered before the plaintiff had any notice that there was a limitation on the gardener's part. If a man gives authority to a person he is liable for that authority, although it may be indiscreetly exercised. If I said to my gardener, "You may order plants, but only to the extent of about £100," and in the next year he orders things to the extent of £200, a nurseryman would say, "How am I to know the extent of the authority? If you expected me to have known the amount you should have told me so." In that letter of May, 1874, Hood clearly tells the plaintiff that his authority is a limited one, and that he is to go to a certain extent: he does not name what it is, but he gives him notice that he has no authority to order goods to any amount, but to a limited amount only. After that anybody who chooses to supply goods to his order supplies them at his peril; because, if he exceeds the order, the person supplying them, knowing it is a limited authority, takes the risk. What he should have done was this: "You tell me you have a limited authority—what is the extent of it? because beyond that I cannot supply you." The plaintiff well knew, or had some pretty good notice, of what the nature of the limitation was. Hear what the gardener says: "I have not an authority to order such things as in my discretion I think right. My discretion is a limited one." But for what I am going to call your attention to there would be a very good answer to the action. I quite agree that it is too hard to call the plaintiff fraudulent, or say he is a party to a fraud, for I cannot see that he is a party to a fraud at all. I believe any one who takes an interest in the garden knows that he is one of the greatest horticulturists that we have, and I may venture to say a very respectable gentleman. He has done in this case what tradesmen do so often. I do not think it is so much a question of making £20 or £30, but the desire to do a deal of business. It is the pleasure of success in what he is about. If it were a question of doing £50 worth of business he would have done it, but I think he should not have done it for the mere pleasure. He says, "If I had asked Mr. Leslie whether this was by his authority, Mr. Leslie would have been offended." That is a pretty good intimation that it was not by his authority. But if he had refused to supply them, the gardener would have been offended. Those are very excellent reasons, but why should the master pay for it? A tradesman may say, I did not like to offend my customer. Then bear the loss yourself, and do not make some one else pay for it. If you are of opinion that this letter told him that there was a limitation of authority, and that he supplied these goods afterwards at his peril, then on that I think you ought to give your verdict for the defendant. I ought, however, to tell you the defendant might be liable for an order not given by him if he has sanctioned it, or taken advantage of it. That is what they say he has done here. They say the plants have been delivered, and the place has been decorated with them; that he has seen them and must have known they were ordered; that when he got the notice of that account he ought to have offered to return them. If you should be of opinion that Mr. Leslie must have known that these things had been ordered beyond the limitation which he had put on his gardener, and that nevertheless he permitted them to remain there, and had the benefit of them in the decoration of his place, why then of course he would be liable. Then Mr. Leslie tells you he did not know. I am not aware whether you are gardeners enough to know about these things. I am sure if any one had told me about the value of some of these things I might have believed it, but I do not suppose there are many people who know the value of these plants—such as these Chinese Yews and such kinds of things. Mr. Leslie declares he did not know it. He says, "The account was never sent in to me until the plaintiff sent in his bill, and I never saw it. I might have seen the plants there, but whether they came from the plaintiff, or how they came, I did not know in any way until that account was sent in that Hood had dealt beyond the limit. He inquired of Hood, and Hood assured him he had not ordered anything else." There is some difficulty, therefore, in saying that, up to that time, any notice had been given to Mr. Leslie, so as to make out that he had adopted anything that had been done on his behalf by Hood. Some time in January that account was sent in, in which Williams says, "I want £400 of you." Mr. Leslie writes to say, "Not at all correct." Afterwards there is another letter from the plaintiff, and then this letter of the 28th, in which, as I said before, Mr. Leslie need not have charged Mr. Williams with fraud. He had noticed that Mr. Williams supplied plants to the amount of £400. It is suggested that he ought to have said to Mr. Williams, "I am not liable for these goods, come and take away such as belong to you." Perhaps it would have been better he should have done so. It is also true that he was not liable. It would have been true if Mr. Williams had said: "If you are not going to pay me I must take them away." It would have been a very unprofitable business for the plaintiff, but if a man delivers you an article that you have not ordered it is his business to take it away, and not your

business to return it. It was said it was not a case of goods being delivered but of goods being enjoyed, because they say that Mr. Leslie saw them. Mr. Leslie says, I did not know they were delivered without my order until you sent in your account. The question is whether Mr. Leslie ought to have said, You must take them back, or whether Mr. Williams ought to have said I will take them back. But has Mr. Leslie so acted that he has really and knowingly taken the benefit of the goods that have been delivered, although delivered without his authority? Mr. Kemp says, Why did not they read that receipt? because if they had read it it would have shown there was something wrong. I do not know why they should not have read the receipt. Mr. Cunningham says, "I cannot say that I did not read it." Why should he have read it? Suppose his clerk had said, "Here is a receipt sent in," not having any suspicion there was anything wrong, there is no reason why he should have read it. If he had, no doubt it would have excited his attention, and he would have said it was not in a proper form. The defendant has paid into Court £300. Now, in point of fact, that is no admission of indebtedness; it amounts to saying "I do not admit I owe you anything, but if I do it does not show you can prove that I owe you more than £300." I think he was liable for the £119 bill, but that leaves £200, as to which he can say, "Show that I owe you anything beyond it." To my mind it is a very large and handsome sum to pay in under the circumstahces; because that he has been most cruelly ill-used by this gardener is abundantly manifest. But if it is not the whole of Mr. Williams' due in point of law—if you think he is entitled to the balance of the account—you will give him your verdict. It is shown that he knew that Hood had a limited authority, that he had exceeded that authority, and that being so he dealt with him at his peril. If it should turn out that he was dealing with him beyond his authority, then probably the only ground on which you would find the defendant liable is, that he had knowingly taken the benefit of the articles which he should have rejected in the first instance under the circumstances under which they were delivered. If you think that you will find for the plaintiff—otherwise you will find for the defendant.

The jury then retired, and on their return into court said they found a verdict for the plaintift for the full amount, less 5 per cent., which the gardener would have received.

EXCHEQUER DIVISION: *Nov.* 9.—(Before the Lord Chief Baron and Barons Cleasby and Amphlett.)

Mr. Hawkins, Q.C., moved on behalf of the defendant in the action Williams *v.* Leslie, M.P., for a rule to show cause why the verdict should not be set aside and a new trial ordered, on the ground that the learned Judge had misdirected the jury, and that the verdict was against the weight of evidence. The learned Counsel stated the facts of the case. As already reported, the defendant, soon after succeeding to the estate in Ireland, in 1871, on the death of his brother, found that his then gardener, Mr. Hood, had pledged his credit to a considerable amount for shrubs and plants for his garden. He therefore felt it necessary to insist upon him limiting his expenditure on the garden to £600 a year. He found, notwithstanding this positive order, that his gardener had exceeded this limit by some hundreds of pounds—the amount in one year reaching to about £2200. He thereupon dismissed Hood, and resisted the plaintiff's claim, on the ground that he had knowledge of the arrangement he had made with Hood as to limiting his expenditure on the garden to £600 annually.

The learned Judges said that before giving judgment they should consult Baron Bramwell on the subject.

Reports of Societies.

Royal Horticultural: *November* 10.—David Wooster, Esq., in the chair.—The Rev. M. J. Berkeley, when announcing the awards made by the Fruit Committee, stated with reference to the competition with the produce raised from 1 lb. of seed each of the Snowflake and Eureka Potatos, that the committee declined to undertake any responsibility in the awarding of the prizes, and left the Council to settle the matter with the Messrs. Hooper. Mr. Berkeley then alluded to several points of interest in the exhibition, including a spike of Indian Corn, which was of some interest on account of its having been grown in London Wall, almost in the heart of the City, and then proceeded to notice some interesting experiments which Mr. Maule had been making by grafting Solanum nigrum and S. Dulcamara on the common Potato, with a view to imbue the latter with greater hardihood. Some very curious results had been obtained, but he, Mr. Berkeley, was afraid Mr. Maule's notion would not be realised. He might make the Potato more hardy, but he might, at the same time, introduce into the Potato some of the evil effects of Solanum Dulcamara, which was not at all desirable. A curiosity shown before the Scientific Committee was a small bunch of Grapes, consisting of three perfect berries, which had been produced in the wood of the stem. From the gentleman who brought the last also came specimens of curious nodules on the roots of Vines. He, Mr. Berkeley, had seen the same thing before, but never in so fully developed a condition as these. He had not had time to examine the specimens carefully, but would do so, and report the results another time. He thought the case was something analogous to the productions sometimes found at the base of Pelargoniums, which usually came from a quantity of ill-developed buds, but whether the cause was the same in the case of the Vine he was unable to say. Growths something like this were found on other trees, and produced by a minute species of Fungus belonging to the genus Exobasidium. With reference to the splended batch of hybrid Dracænas shown by Mr. John Wills, Mr. Berkeley remarked that they were raised by Mr. Bausé, who was formerly in the service of the Society at Chiswick, and who while in their service had proved a most industrious servant and successful hybridist—as witness the batch of new Coleuses, Golden Caladiums, Golden Fuchsias, &c. It had been remarked in the *Gardeners' Chronicle* that Mr. Bausé ought to receive a medal from the Society; and in connection with that subject he would mention that on referring to the minutes of the meeting of the Chiswick Board of Direction held on August 2, 1869, he found that the Board recommended to the Council the award of a silver medal (or some other suitable acknowledgment) as a recognition of the admirable manner in which he had acquitted himself at Chiswick, he being about to leave at that time. Through some misunderstanding that medal had never been delivered, but now that Mr. Berkeley had brought the case under the notice of the Council he had no doubt Mr. Bausé would get it. While speaking of this medal Mr. Berkeley commented upon the fact of the Society having never so honoured the father of hybridisers—Mr. Dominy. Mr. Dominy had for many years been known as a most successful raiser of new Orchids, and he (Mr. Berkeley) trusted that the Council would take his case into consideration, for he thoroughly deserved some recognition on the part of the Royal Horticultural Society for the great benefits he had conferred on horticulture. From Sir W. Hutt he had received, through the Messrs. Veitch, a fruit of Diospyros Kaki, which he believed originally came from China, but which was subsequently found in Japan and was now distributed over most parts of the world. Mr. Fortune had told him that in China they immersed the fruit in lime, as Medlars are sometimes done here, and then they became delicious to eat. A fruit and flower of the Physianthus albens, a native of Buenos Ayres, had also been placed in his hands. The former was very ornamental, but he should not like to eat it. At the last meeting Mr. Wooster had called attention to the subject of beautiful coloured plants, and to-day Mr. William Paul had sent a most interesting collection of cut sprays of ornamental leaved and berried shrubs. He was much struck lately in Northamptonshire with the great number of berries on the Cratægus bushes, which produced an effect on the scenery beyond anything he could conceive.

SCIENTIFIC COMMITTEE. — Andrew Murray, Esq., in the chair.—At this, the first meeting after the recess, there was a large gathering of members, while a large number of varied and interesting matters were brought forward; of some of these we can merely make mention.

Abnormal Pinus.—Dr. Masters showed a branch of Pinus Pinea, which he had received from Signor Fenzi, of Florence, and from which protruded a dense tuft of contracted branches, so that the whole resembled a large brush. Such sports are not uncommon in Conifers, especially in the Silver Fir, and they are the source of many of the curious dwarf varieties in cultivation. The inducing cause of the peculiarity was in this case wholly unknown. Dr. Masters remarked in allusion to this subject that he had recently seen on the Simplon the Clanbrasilian Fir, or a closely allied form, existing as a sport, and also as a seedling; he had, therefore, no doubt that this variety originated sometimes from bud-variation, sometimes from seminal variation.

Bambusa nigra, &c.—Dr. Masters exhibited a cane of this species, grown in the garden of Prince Troubetzkoi at Pallanza, Lago Maggiore, with a view to show how rapid the growth of the plant was in that favoured locality. Fruiting specimens of two species of Eucalyptus from the same garden were likewise shown.

Adventitious Roots of Hazel.—A specimen was shown from Mr. Stratton, Newport, Isle of Wight, analogous to the formation often met with on the roots of Elms.

Galls on Beech Leaves.—Dr. Masters showed leaves of Beech trees gathered near Interlaken and studded with hard conical galls, the produce of a dipterous insect, on which Mr. McLachlan will probably report.

Experiments on Grafting Potatos. — Dr. Masters exhibited a photograph in illustration of some important and most curious experiments undertaken by Mr. Maule, of Bristol. That gentleman had succeeded in grafting Solanum nigrum and S. Dulcamara on to the Potato. The object of these experiments is to endeavour to impart to the Potato a more robust constitution, and, consequently, a greater power to withstand disease.

The Imperial Winter Garden, Vienna.—A series of exquisite photographs was exhibited in illustration of the Imperial Winter Garden at Vienna. The plates have been issued by M. Antoine, the eminent Austrian gardener and writer on Conifers, and constitute some of the most remarkable photographs of vegetation under glass that have ever been issued.

Excrescence from Cone, and other Malformations.—Mr. Berkeley exhibited a cone of Abies Douglasii, which had produced a shoot, and then referred to and exhibited specimens of abnormal growth in Piptanthus nepalensis. He then exhibited Vine stems with unusually large nodular growths, so large, indeed, as to be seriously injurious to the Vine on which they grew. Mr. Berkeley considered it just possible that these growths might have been more or less caused by the fungus known as Exobasidium. He then referred to similar growths in Bignonias, Pelargoniums, and Ficus Sycomorus. In Pelargoniums these excrescences are found, on examination, to be groups of ill developed buds, but how far this view would hold good with the Vine, Mr. Berkeley could not say without careful examination, which he promised to give, and report upon at a future meeting. In connection with this subject Mr. Berkeley referred to the Clavaria-like bodies found on Laurels in Madeira, the Canary Islands, and Spain; the nodules on leaves of Vaccinium Vitis-Idæa, and the so-called galls in Rhododendrons—in which latter positions, indeed, insects had been found, although the insects themselves had not formed the galls. Mr. Berkeley said he believed he had seen the fungi respectively known as Exoascus and Exobasidium growing together on the same plant, and he considered it quite possible that they might both prove to be the same—one a mere conidioid form of the other. In conclusion, Mr. Berkeley exhibited a small bunch of Muscat Grapes, ripened from the old wood—a condition not very uncommon.

Tea-leaf Disease. — Mr. Grote exhibied diseased leaves of the Tea plant, forwarded by the planter direct from the jungle. The disease of the leaves was considered more fungoid than animal, although Mr. McLachlan stated that Mr. Stainton had observed the work of a leaf-boring larva in similar leaves, and he had indeed detected the little round entrance hole to the leaf mine. Mr. Stainton believed the larva belonged to Coleophora.

Diseased Pear.—Mr. Andrew Murray exhibited a Pear infested with the parasitic fungus known as Helminthosporium pyrorum. This is the same as Cladosporium dendriticum, and the fungus not only attacks the leaves of Pears, but also the flowers and fruits, and causes the latter to crack.

Trap-door Spiders, &c.—Mr. Murray then exhibited a number of nests of trap-door spiders from the South of Europe, and explained how these nests were found by Mr. Moggridge on road-side banks. It appears that the trap-door itself is only slightly hinged, so that it commonly falls off, and is then rapidly renewed by the spider. By carefully searching for the fallen trap-doors at the base of the hedge banks, Mr. Moggridge was soon able to light upon the nests themselves. Mr. Murray then exhibited some caterpillars' nests from Rio Grande do Sul, South Brazil. These caterpillars make their appearance in the months of November and December on the trees. They are at first very small, and, as they grow, they go on increasing the size of their nests. They are often to be found on the Cedar trees, and appear in large quantities, proving very destructive. They sometimes appear on the Apple, Pear, and Plum trees, but not in any quantities. Unless they are destroyed they will eat away the greater part of the young shoots of the Cedars. The specimens exhibited were taken from the garden of Mr. Christopher James, at Rio Grande do Sul, in January of the present year.

Larch Disease.—Dr. M. C. Cooke then brought forward the subject of the Larch disease, a matter which has been discussed by the committee on several previous occasions and reported upon at length in the *Gardeners' Chronicle*. Dr. Cooke exhibited specimens of Larch forwarded for examination by the forester to the Duke of Athole. These specimens were infested with a fungus known as Peziza calycina (often described as a variety under the name of P. laricis), and the same with Rabenhorst's P. Willkommii. The Peziza is, however, not the cause of the disease. The forester, Mr. John Macgregor, states that (with him) the fungus is almost invariably found on living trees on the parts where aphides or coccus (Adelges Laricis) were abundant the previous season on the living tender bark, Mr. Macgregor's theory being that the fungus follows the insect attacks, the Larch being prepared by the insect for the rapid propagation of the fungus. It is curious, says Mr. Macgregor, that on the Scotch and Silver Fir the same sort of aphis appears, but it it is not followed by an exudation of resin-forming blisters, or by any fungoid appearance. The aphis-blister and fungus on Larch is found on all sorts of soils, from the most porous sand and gravel to the dampest bog, and on all aspects and altitudes up to 1600 feet above the sea-level. Dr. Cooke stated that there were hundreds

of acres of Larch in the Dunkeld quarter affected in a similar way with the specimen exhibited. In reference to this matter, Mr. Berkeley said he had recently received the true Corticium amorphum from Dr. F. Buchanan White—a plant he had not seen before, and (as he suspected) quite devoid of asci.

Exotic Snails.—The Hon. and Rev. J. T. Boscawen sent some snails found by him upon Lasiandra: they, however, did not belong to the West Indian species of Bulimus (B. Goodallii), sometimes found infesting Pine-apples, Cucumber plants, &c., in this country, and illustrated by us in our number for March 8, 1873, but to a small mollusc common on walls, and known as Clausilia nigricans.

Tree Planting in Towns, &c.—A general discussion took place as to the advisability of planting trees in towns and the varieties best suited for the purpose, especially the different sorts of Planes. The committee then determined to suggest to the Council of the Royal Horticultural Society the advisability of procuring statistics from the Fellows of different societies as to the ravages of insects on vegetation, with the seasons of the year when the insects most abound, so as to put our knowledge of these pests and their work on a better and more practical foundation. It was suggested that the Royal Agricultural, the Highland, and other societies might be applied to, and a sample paper of instructions drawn up and forwarded to such members of those societies as might be willing to aid with their observations.

THE FRUIT AND CHRYSANTHEMUM SHOW.—This exhibition, which opened in the conservatory and two arcades on Wednesday, and closed on Thursday night, proved conclusively that there are plenty of exhibitors ready and willing to support the Society, if only the Council will deal liberally and courteously by them; for beyond any doubt, as regards the fruit, it was one of the very best displays the Society has ever had, and as regards the amount of competition in each class there never has been better anywhere. So much for the good feeling of exhibitors towards the Society, which, shown under the present depressed state of affairs at South Kensington, is very greatly to their credit; but it will be a disgrace to the Council if, by any blundering policy in the future, they again lose the hold they have thus so signally regained. The show of Grapes was an exceedingly good one for the season, notwithstanding that a great many more entries were made than promises fulfilled; and we have no hesitation in saying that had all the intending exhibits come forward there would have been such a display as London has never seen before. Of Pines there were a much greater number than is usually seen here, and the quality was uniformly all that could be desired. Pears, as usual, were staged in vast quantities, which, however, was exceeded largely by Apples, some 1320 dishes of which were staged, not in the form of large collections from individual nurserymen, as was the case last year, but in competition in the various classes. Dessert Apples were uniformly good, but the palm of superiority must be awarded to the culinary varieties, which came out in such numbers, such grand size, and generally of such rich colours, as to far surpass anything we have seen before, and to make, indeed, an exhibition of themselves. The Jersey Pears, as usual, were conspicuous by their great size and fine colour, but the Jersey men had not all the competition to themselves this time, more than one of the leading prizes going to the less favoured home growers. The attendance in the afternoon of the first day was fairly good for the season, but at night, when the show was admirably illuminated, we were sorry to see such a small number present. But the paying public cannot be expected to visit exhibitions of the existence of which they are unaware.

CHRYSANTHEMUMS.—As might have been expected, the show of Chrysanthemums in the conservatory was not so large or so good as the one held last year, but, all things considered, it was a very creditable one. Of specimen plants of the large-flowered varieties the finest groups of six came from Mr. J. Herrington, gr. to H. Soden, Esq., Larkbere, Clapham Road, and Mr. W. Hall, gr. to W. Stevens, Esq., Springfield, Tulse Hill, the latter having by far the neatest plants, the former the finest blooms. The most conspicuous plants in these groups were of Mrs. Brunlees, Prince of Wales, Mrs. Halliburton, George Glenny, Mr. Gladstone, dark beet-red, very showy; and the white Mrs. G. Rundle. Mr. A. Harding, gr. to the Rev. W. Arthur, Clapham Common, contributed twelve very fair Pompons, and in the class for six collections were staged by Mr. W. Whittaker, gr. to S. Williams, Esq, The Laurels, Putney, Mr. W. Hall, and Mr. J. Herrington, but their specimens call for no further comment. A group of large-flowered and Pompon varieties was shown by Mr. Fox, gr. to C. Millington, Esq., East Combe, Old Charlton, but they were very poor. The 1st prize for twelve large-flowered varieties was taken by Mr. Turner, who had very fine flowers of Mrs. G. Rundle, Rifleman, Jardin des Plantes, George Glenny, very nice; Prince Alfred, Guernsey Nugget, &c. Mr. Turner also sent a large and effective group which admirably set off one end of the conservatory, while a smaller group from Messrs. James Veitch & Sons did duty at the opposite end. A large plant of Mr. Brunlees, well-flowered and shown by Mr. W. Hall, was the best single specimen staged.

Amongst the cut blooms were some very fine ones, especially of Empress of India, Prince Alfred, Bronze Jardin des Plantes, Alfred Salter, Queen of England, Mrs. G. Rumble, John Salter, Princess of Wales, Mr. Brunlees, Lady Slade, Nil Desperandum, Lady St. Clair and Princess Teck. The leading exhibitors in these classes were—Mr. E. Smith, Bristol House, Putney Heath; Mr. J. Cooke, gr. to W. H. George, Esq., Romford; Mr. C. E. Waters, gr. to A. Mongredien, Esq., Forest Hill; Mr. J. Pearce, gr. to Professor Adams, The Observatory, Cambridge; and Mr. J. H. Hennell, gr. to F. A. Davis, Esq., Surbiton. The last-named exhibitor also sent a good stand of Japanese varieties.

In the miscellaneous class Mr. H. B. Smith, Ealing Dean, contributed a very attractive group of Cyclamens; and from Mr. S. Ford, Leonardslee, Horsham, came some nice cut spikes of Celosias. Mr. Thomas Hobbs, Lower Easton, near Bristol, showed a small seedling white Chrysanthemum, named Mrs. Nash. Mr. J. Aldous sent a small group of flowering and foliaged plants, and also six Bouvardias, which came in competition with a similar number from Mr. Turner. Capital pans of forced Roman Hyacinths came from Mr. Aldous and Mr. Lambert, gr. to W. H. Segelcke, Esq., Herne Hill; some fine new Carnations from Mr. Turner; and a very attractive group of small flowering and fine-foliaged plants from Mr. B. S. Williams.

GRAPES AND PINES.—Of both these fruits the display was remarkably good—much better, indeed, than has been seen for some time at Kensington. For a collection of Grapes, not more than ten kinds, Messrs. Lane & Son came in 1st with very good samples, amongst others, of Barbarossa, Muscat of Alexandria, Gros Colman (grand berries, and beautifully coloured), Muscat Hamburgh, Alicante (fine), Trebbiano, and Lady Downe's. Messrs. Lane & Son also sent the finest three bunches of Black Alicante, in a good class, the next best samples coming from Mr. J. Allward, gr. to J. G. Barclay, Esq., Lower Woodside, Hatfield, and Mr. Wattam, gr. to A. H. Longman, Esq., Shendish, Hemel Hempstead. There were thirteen competitors in this class. The show of Black Hamburghs was rather limited, but nice samples from Mr. Coleman, gr. to Lord Somers; Mr. W. Iggulden, gr. to C. B. Bingley, Esq., Stanhope Park; and Mr. J. Allward took the awards in the order named. In the class for three bunches of any other black variety, the 1st prize was awarded to Mr. W. Wildsmith, gr. to Lord Eversley, Heckfield Place, who had fine bunches with grand berries of Gros Colman. Beautiful bunches, carrying splendid bloom, of Lady Downe's, and shown by Mr. W. Kniller, The Gardens, Malshanger Park, Basingstoke, and W. Coleman, Eastnor, were respectively 2d and 3d. Mr. Bannerman, gr. to Lord Bagot, showed in the same class three exceedingly good bunches of Barbarossa. There were five exhibitors of dishes of Muscat of Alexandria, and the best came from Mr. J. Atkins, The Gardens, Lockinge, Wantage, Mr. T. Wattam, and Messrs. H. Lane & Son, all showing fair bunches beautifully coloured. Nice examples of the round berried Dr. Hogg, shown by Messrs. H. Lane & Son, were 1st in the class for Frontignan; and the best dishes of white Grapes, any kind, came from Mr. Wattam, with good Foster's Seedling, Mr. Wildsmith, with Trebbiano, and Mr. J. Allward with Raisin de Calabre, both good samples. In the class for the heaviest bunch the 1st prize went to Mr. Wattam, who had a well finished bunch of Black Alicante, weighing 10 lb.; Mr. Bannerman was 2d with Barbarossa, weighing 7 lb. 1 oz.; and Mr. J. Edmonds, gr., Bestwood Lodge, Nottingham, 3d, with the same variety, weighing 6 lb. 3 oz. Other varieties shown were Gros Colman and Waltham Cross. Mr. G. Thomas, Oakley Road, Whetstone, showed a basket of Gros Colman of the weight of 17 lb. 8 oz., very fine in berry, well coloured, and carrying a splendid bloom. The Pines, of which thirty-one fruits were staged, were all exceedingly good, and especially the examples of Smooth Cayenne. The best two fruits of this variety were sent by Mr. Jones, the Royal Gardens, Frogmore, both being of fine size. Mr. G. Ward, gr. to T. N. Miller, Esq., Bishops Stortford, was 2d; and Mr. M. Rochford, Page Green, 3d. The best pair of Queens, weighing 10 lb. 6 oz., came from Mr. H. Scammell, gr. to C. Reilly, Esq., The Priory, Neville Park, Tunbridge Wells. Of nine fruits shown in the class for any variety, the 1st prize was also taken by Mr. Jones, Frogmore, with a large and handsome Smooth Cayenne, the weight of which was not given. A handsome Queen, weighing 5 lb. 6 oz., from Mr. Scammell, was 2d, and a handsome fruit of the broad-leaved Montserrat, from Mr. G. T. Miles, gr. to Lord Carrington, was 3d. This is an old variety, almost lost to cultivation, but of which Mr. Miles speaks very highly for winter work.

DESSERT AND KITCHEN APPLES.—As before remarked, dessert Apples were shown in good numbers and splendid quality. The class for twenty-four distinct sorts was a remarkably good one, and the 1st prize went to Mr. Sydney Ford, gr., Leonardslee, Horsham, who had large and finely coloured examples, amongst others, of Blenheim Orange, Pitmaston Nonpareil, Golden Reinette, Winter Pearmain, Fearn's Pippin, Allman's Red, Scarlet Pearmain, Ribston Pippin, &c. The next best came from Mr. James Pluck, Jersey, and a very fine sample they were. There were no less than thirty-one competitors with six dishes, and the class was no doubt judged for quality rather than mere size. The highest award went to Mr. Edmond Banks, gr. to W. Skinner, Esq., Boughton, Maidstone, who had Cox's Orange Pippin, Court-pendu Plat, Warwickshire Pippin, King William, Ribston Pippin, and Golden Russet, in exceedingly fine order; from Mr. J. P. Arnold, gr. to G. Wood, Esq., Rochford, came the 2d prize collection, which comprised very fine examples of Beauty of Wilts, Pomme d'Api, Golden Winter Pearmain, Dutch Mignonne, Court-pendu Plat, and King of the Pippins; Mr. J. Smith, who hails from opposite the Brewery, Romford, was a good 3d. No less than forty-four competitors appeared in the class for three dishes, and a grand lot they were. The premier award went to Mr. Jones, gr., Elvethams Park, Winchfield, who had Allman's Pippin, very highly coloured, fine Ribstons, and remarkably good King of the Pippins; 2d came Mr. G. Murrell, gr. to A. R. Allerton, Esq., Prittlewell, with Fearn's, Cox's Orange, and Ribston Pippins of very superior quality; and 3d Mr. Lumsden, gr., Bloxholm Hall, Sleaford, with Scarlet Nonpareil, Ribston and King of the Pippins. The six heaviest Apples of any variety were a dish of Alfriston, weighing 7 lb. 12 oz., from Mr. J. Pluck; the next being Belle Dubois, 7½ lb., from Mr. C. Haycock; and Gloria Mundi, 7 lb. 7 oz., from Mr. Ford, gr., West Park, Ampthill. Of the classes for single dishes of specified varieties we can only say that all were good, and that the best examples (which in all cases it must be understood were of the finest possible quality) of Cox's Orange Pippin came from Mr. F. Miller, gr. to J. T. Friend, Esq., Margate, and Mr. W. Holder, gr. to W. Balstone, Esq., Springfield, Maidstone; Golden Pippins, from Mr. F. Farrer, gr. to G. Batters, Esq., Enfield; Margil, from Mr. W. Fowle, gr. to Sir H. Mildmay, Bart., Dogmersfield; Cockle Pippin, from Mr. J. Smith, Romford, and Mr. S. Ford, Leonardslee; Ribston Pippins, from Mr. Coleman, Eastnor, Mr. S. Ford, and Mr. C. Haycock; Court-pendu Plat, from Mr. Webb, Calcot, Reading, Mr. Bannister, gr. to H. Ames, Esq., Cote House, Westbury-on-Trym; and Mr. G. Brush, gr. to Lady Hume Campbell, High Grove, Pinner. The best dish of dessert Apples, any other variety, was a magnificent one of King of the Pippins, from Mr. C. Haycock.

The kitchen varieties made a grand show of themselves, so great were the numbers and so grand the quality. Mr. Sydney Ford was again the successful exhibitor of the 1st prize collection of eighteen varieties, and amongst the varieties most noticeable were remarkably fine samples of Minchull Crab, Gloria Mundi, Lord Nelson, Wadhurst Pippin, Reinette du Canada, Hollandbury, Emperor Alexander, Mère de Ménage, &c. The second best, a splendid lot, was contributed by Mr. C. Haycock, whose specimens of Reinette d'Espagne, Lemon Pippin, Cellini, Reinette du Canada, Tower of Glamis, Calville Blanche, Emperor Alexander, were all that could possibly be desired. Out of thirty-six exhibitors of six dishes, Mr. G. Ford, West Park, came in 1st, with Blenheim Orange, Bedfordshire Foundling, Gloria Mundi, Alfriston, Beauty of Kent, and the New Hawthornden—all splendid samples. The other prizetakers in the same class were Mr. G. Bromfield, gr., The Priory, Prittlewell, and Mr. W. W. Calcot. Of the specified varieties the following are the names of the sorts and the leading exhibitors:—Dumelow's Seedling, Mr. G. Murrell; Alfriston, Mr. J. Pluck; Emperor Alexander, Mr. C. Haycock and Mr. Pluck, splendid fruit; Blenheim Pippin, Mr. G. Brush, Mr. R. Webb, and Mr. Cocks, gr. to G. S. Cundell, Esq., Clapham Park; Mère de Ménage, Mr. C. Ross, gr. to C. Eyre, Esq., Welford Park, almost blood-red in colour, and of grand size; Reinette du Canada, Mr. J. Pluck.

DESSERT AND KITCHEN PEARS.—As compared with the Apples, Pears were shown in small numbers, about 400 dishes being staged. The largest competition took place in the class for six dessert varieties, in which Mr. W. Fowle, gr. to Sir H. Mildmay, Bart., Dogmersfield Park, Winchfield, was 1st, with magnificent examples of Conseiller à la Cour, Duchesse d'Angoulême, and Beurré Clairgeau, from pyramids; and Pitmaston, Duchesse d'Angoulême, Beurré Diel, and Flemish Beauty, from a wall. The next two prizes went to Jersey growers—Mrs. Thomas, who was 2d, and who had splendid samples of Beurré Clairgeau, Doyenné du Comice, Chaumontelle, Glou Morçeau, Duchesse d'Angoulême, and Forelle;

and Mr. C. Paskins, Grove Place, St. Helier's, who had very fine Chaumontelles, Beurré Diel, Glou Morçeau, Forelle, Easter Beurré, and Duchesse d'Angoulême. Amongst the other exhibitors the most conspicuous examples came from Mr. T. Lane, gr. to J. Catouche, Esq., Gloucester Terrace, Jersey; Mr. J. Pluck, New Market, Jersey; Mr. G. T. Miles, Mr. G. A. Bromfield, gr., The Priory, Prittlewell; Mr. Jack, gr., Battle Abbey; Mr. Stephenson, gr., Leigh House, Essex. For eighteen varieties there was also a good competition, but our own growers stood no chance with the Jersey men for the first two prizes. The finest lot came from Mr. J. Pluck, who had amongst others very fine specimens of Grosse Calabasse, Beurré Clairgeau, Duchesse d'Angoulême, Beurré Diel, Columbia, Beurré Bachelier, De Tongres, Chaumontelle, Colmar d'Aremberg, Van Mons' Léon le Clerc, &c. Mr. Thomas was 2d, showing also grand examples of Beurré Clairgeau, Duchesse d'Angoulême, Doyenné du Comice, Bergamot Esperen, and Chaumontelle. Mr. C. Haycock, gr. to R. Leigh, Esq., Barham Court, Maidstone, was a good 3d. The class for three varieties was a very large and also a very good one. Here the first two prizes also went to Jersey, Mr. Thomas being 1st, with large and beautifully coloured Beurré Clairgeau, Doyenné du Comice, and Chaumontelle; and Mr. J. Pluck 2d, with very fine Glou Morçeau, Chaumontelle, and Van Mons' Léon le Clerc. Mr. G. Potts, gr. to Viscount Gage, The Firle, Lewes, was a very good 3d, with Beurré Diel, Mons. Affre, and Glou Morçeau, all of a striking pale green colour. The finest single dishes in a good competition of Van Mons' Léon le Clerc, came from Mr. W. Fowle, Mr. G. Ford and Mr. G. A. Bromfield; and for Conseiller à la Cour, Mr. J. Pluck, and Mr. G. Goldsmith, Hollanden Park, were the leading prizetakers. Mr. J. Pluck also sent the finest samples of Doyenné du Comice, Mr. C. Haycock being 2d; and Mr. Pluck was also the most successful exhibitor of Duchesse d'Augoulême, and Glou Morçeau — Mr. T. Lane, Jersey, being 2d with the first-named, and Mr. Parsons, Danesbury, 2d, with the latter. There was a very strong competition with Marie Louise, and the awards eventually went to Mr. O. Goldsmith, gr., Polesden Lacy, Mr. W. Wildsmith, Heckfield, and Mr. C. Paskins, St. Helier's, Jersey. Six remarkably fine fruits of Uvedale's St. Germain, from the Rev. T. C. Bréhaut, Richmond House, Guernsey, were the 1st in that class; and the same variety of the following weights were shown as the six heaviest—Mrs. Thomas, Jersey, 14 lb. 5 oz.; Mr. J. Pluck, 12 lb. 12 oz.; and Mr. T. Lane, 10 lb.

VEGETABLES, &C.—Various prizes were offered by the Society for Celery, Potatos, and Onions, and very good competitions resulted. Of twenty and ten dishes of Potatos respectively, Mr. Dean, Ealing, was the leading exhibitor, Mr. Lumsden being 2d in the larger class, and Mr. C. Frisby, gr., Blankney, 2d in the smaller. The whole of these showed admirable samples, amongst which one was astonished to find Porter's Excelsior, which was nearly unknown in the South until shown at the recent exhibition at the Alexandra Palace. Wright's Grove White, shown by Mr. Lidgard, Hammersmith, was the best white Celery; and Wright's Grove Red, shown by Mr. C. Osman, the South Metropolitan Schools, Sutton, the best red, Williams' Matchless Red being 2d in the latter class. For twelve Onions, Mr. Walker, Thame, Oxon, was 1st with fine samples of Walker's Improved Exhibition Onion, a good strain of White Spanish; and the 2d prize also went to the same variety, shown by Mr. G. Neal, gr. to P. Southby, Esq., Bampton.

Messrs. Sutton & Sons offered prizes for certain Onions, Potatos, and Cauliflowers, and were rewarded with very fair competitions. The best six of Sutton's King Cauliflowers came from Mr. C. Osman, Mr. Gilbert, Burghley, being 2d; and for twelve Sutton's Improved Reading Onion, Mr. G. Neal came in 1st, and Mr. J. Baker, gr. to the Rev. J. W. B. Bell, Aston Vicarage, Bampton, 2d—both showing very fine samples in a good class. Mr. P. McKinlay, Woodbine Cottage, Beckenham, was the winner of the 1st prize for twelve varieties of Potatos, including the Hundredfold Fluke and Redskin Flourball—the latter, it must be admitted, being the ugliest that Mr. McKinlay staged. Mr. Lumsden was a good 2d, and Mr. J. Pink, gr., Lee's Court, Faversham, a good 3d.

Messrs. James Carter & Co. also offered prizes for a collection of eighteen varieties of vegetables, and for ten dishes of Potatos, but, as a result of too large a number of specialities being stipulated for, there was no competition with the larger class for vegetables, and only a poor one for the Potatos. Mr. C. Osman staged the collection of vegetables, and they were certainly a great credit to him. Mr. Miller, gr. to J. T. Friend, Esq., Margate, was 1st for the Potatos, and Mr. Lumsden 2d. The Messrs. Carter were the exhibitors themselves of a very large and most interesting collection of Kales and Cabbages, including some seventy-six apparently distinct sorts; and also a collection of about sixty sorts of Potatos. A silver medal was awarded.

Messrs. Hooper & Co., Covent Garden, offered a series of prizes to be competed for with the produce raised from one pound of seed each of the Snowflake and Eureka Potatos. For this competition there were no less than ninety-eight entries, spread all over the country, but through the ravages of the disease, and from other causes, the number of exhibitors who put in an appearance was only twenty-nine, and great was the diversity between the result of each competitor's culture. It was early seen that the awarding of these prizes would, from various causes, be an unpleasant affair; and when we were asked to believe that over 1000 lb. were obtained from 1 lb. of seed, it will be judged that the original surmise was fully justified. When it came to the point of awarding the prizes on Wednesday, the Fruit and Vegetable Committee declined to interfere in the matter, and left the Council to arrange with Mr. Hooper. The Council, we understand, requested Mr. Barron to co-operate with Mr. Hooper, and settle the matter between them as best they could: but this arrangement fell through, and it was not until Thursday that the vexed question was put at rest by Dr. Hogg, Mr. Barron, Mr. Dancer, and Mr. Barr, undertaking to make the awards, which they did in the following order, taking the terms of the schedule literally, and giving the prizes according to the weights before them:—Eureka: 1st, Mr. J. Pink, gr. to Lord Sondes, Lee's Court, Faversham, 647 lb.; 2d, Mr. Bellis, gr. to Major Thoyts, Sulhamstead, Reading, 477 lb.; 3d, Messrs. Cock Bros., Spalding, 461 lb.; 4th, Mr. Robertson, The Gardens, Hartrigge, Jedburgh, 421 lb.; 5th, Mr. Ford, gr. to W. M. Davenport, Esq., M.P., 384 lb.; 6th, Mr. J. Down, The Gardens, Ashdown Park, Forest Row, 348 lb. Snowflake: 1st, Mr. J. Pink, 372½ lb.; 2d, Mr. J. Bellis, 346½ lb.; 3d, Mr. C. Ross, gr. to C. Eyre, Esq., Welford Park, 296 lb.; 4th, Messrs. Cocks Bros., 290 lb.; 5th, Mr. J. Down, 265 lb.; 6th, Mr. Robertson, 260½ lb. Messrs. Hooper, in compliment to the exhibitors, put on their respective cards the weights testified to by witnesses, at the time of lifting, but which differed materially from the weight of the heaps shown. We should not be surprised if the course taken by the judges does not lead to a considerable amount of discontent but for the present, at all events, has closed one of the greatest horticultural farces ever put before the public. It is difficult to conceive how by any possible means this competition could be of any benefit to horticulture; and for the credit of the Royal Horticultural Society it is to be hoped that it will never again lend its influence for the furtherance of such useless projects, or its arcades for the reception of Potatos by the ton, and especially when such Potatos are, like the Eureka, quite unworthy a gardener's care. The Horticultural Society should not allow itself to become a mere advertising medium, unless indeed it institute a regular advertising department, and publicly proclaim the fact.

FLORAL COMMITTEE.—W. B. Kellock, Esq., in the chair. The most striking feature in the Council-room to-day was a remarkable group of new hybrid Dracænas, which, to the number of three dozen, were shown by Mr. John Wills, and raised by his foreman, Mr. Bausé. As these plants are all described in another column (p. 615), we need only state here that they created considerable interest, and were most deservingly awarded a Gold Medal. But few First-class Certificates were awarded, and these went to Mr. Denning, gr. to Lord Londesborough, for a species of Cattleya from Minas, a very interesting species, with short pseudobulbs and short blunt leaves, and a flower of which the sepals and petals were of a pale magenta colour, the labellum being striped of a deeper hue, with a pale lemon base. To Mr. Croucher, gr. to J. T. Peacock, Esq., Sudbury House, Hammersmith, for Echeveria pachyphytoides, a very distinct upright growing form, with long oblong leaves. To Mr. R. Dean, for Echeveria rotundifolia, a seedling from E. glauca metallica, crossed with E. secunda major—a flat-growing form, of a metallic green hue. Mr. Dean also sent a small group of known forms of Echeveria, for which the thanks of the committee were awarded. From Messrs. Veitch & Sons came an interesting group of garden hybrids, raised in their establishment; and as it may be of interest to some, we append the names of the plants shown:— × Cattleya Dominiana and × C. Exoniensis; × Cypripedium vexillarium, × C. Harrisianum, × C. Dominii, × C. Sedeni, × C. Marshallianum, and × C. Arthurianum; × Alocasia Sedeni, × Calanthe Veitchi, × Dracæna hybrida, × D. Taylori, × Rhododendrons, Princess of Wales, Queen of Denmark, Princess Royal, Princess Alexandræ and Princess Thyra; and × Nepenthes intermedia, hybrida, hybrida maculata, Dominii, Sedeni, and Chelsoni. A Gold Medal was awarded. The Messrs. Veitch also sent a small group of flowering and fine-foliaged plants, and neat specimens of Cupressus Lawsoniana variegata, for which the thanks of the committee was awarded. Mr. Smith, gr., Henley-on-Thames, showed a beautifully flowered plant of Vanda cœrulea. It had five spikes on two growths, and the number of flowers was sixty-seven. A Cultural Commendation was awarded. Messrs. Wm. Paul & Son contributed a large number of cut sprays of coloured-leaved and berry-bearing trees and shrubs, which also gained a vote of thanks.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. This was a more than usually busy meeting for the committee, but many of the subjects brought before them were of too little general interest to be mentioned here. Amongst the greatest novelties were a specimen of the fruit of Diospyros Kaki, an Orange-like fruit of a rich golden colour, from Sir William Hutt, Appley Towers, Ryde; and a fine fruit of Physianthus albens, a tropical fruit introduced from Brazil in 1836, but whether edible or not is more than doubtful. This came from Fountaine Walker, Esq., Ness Castle, Inverness. Mr. Dancer, Little Sutton, Turnham Green, showed very fine samples of Cox's Orange Pippin Apples, Hughes' Prince of Wales, and Beurré d'Aremberg Pears, also samples of seedling Pear from Marie Louise, raised by Mr. Willmot, of Isleworth, and which is of great size, and not unlike its parent in appearance.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, NOV. 10, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall
Nov.	In.	In.	°	°	°	°	°	°			In.
4	29.67	—0.11	59.8	45.8	14.0	52.3	+ 6.7	47.7	84	S.S.W.: S.	0.11
5	29.59	—0.20	56.6	43.9	12.7	49.2	+ 3.8	46.7	92	S.S.W.: S.W.	0.08
6	28.99	—0.81	59.1	50.2	8.9	53.5	+ 8.4	48.5	83	N.W.: WNW	0.40
7	29.12	—0.68	50.2	39.5	10.7	44.6	— 0.1	39.4	82	WSW: S.W.	0.26
8	29.30	—0.50	47.5	33.0	14.5	39.7	— 4.6	33.5	78	N.W.	0.15
9	29.11	—0.69	50.9	31.4	19.5	40.0	— 3.9	35.4	84	S.: S.S.E.	0.00
10*	28.69	—1.11	54.8	43.5	11.3	48.3	+ 4.8	45.6	91	N.W.: WNW	0.48
Mean	29.21	—0.59	54.1	41.0	13.1	46.8	+ 2.2	42.4	85	S.W.: N.W.	sum 1.48

Nov. 4.—A fine day. Dull and cloudy at intervals. Rain in early morning.
— 5.—Fine till noon, overcast, dull, and occasional rain fell afterwards
— 6.—A fine day from 10 A.M. Heavy rain in early morn. Gale of wind.
— 7.—A fine cloudy day. Rain after 7 P.M. The reading of the barometer at midnight was 28.89.
— 8.—A fine bright day. Rain fell in early morn. Cold. The lowest reading of the barometer was 28.87 at 0.15 A.M., and remained at this reading for one hour, and then turned to rise.
— 9.—Fine till 2 P.M. Dull and occasional thin rain fell afterwards. Cold day. Hoar-frost on ground in early morning, and ponds frozen.
— 10*—Rain fell before 7 A.M., and after 7 P.M. Tolerably fine between.

* The reading of the barometer at 9 A.M. was 28.51 in.; at 3 P.M. was 28.97 in; and at midnight was 28.64 in.; the mean reading for the day was 28.69 in., being the unusual amount of 1.11 in below its average.

—— During the week ending Saturday, November 6, in the vicinity of the Metropolis, the reading of the barometer at the level of the sea decreased from 29.93 inches at the beginning of the week to 29.89 inches by the early morning hours of November 1, increased to 29.93 inches by the morning of the 2d, decreased to 29.83 inches by the morning of the 3d, increased to 29.90 inches by the morning of the 5th, decreased to 29.08 inches by the morning of the 6th, and was 29.33 inches by the end of the week. The mean reading for the week was 29.76 inches, being 0.23 inch below that of the preceding week, and 0.20 inch below the average for the above week. The highest temperature of the air day by day at the height of 4 feet above the ground ranged from 47° on October 31 to 59¾° on November 1, the mean weekly value being 53¾°. The lowest temperature of the air, night by night, varied between 37½° on the 1st of November, and 50½° on the 6th, with a mean for the week of 43°. The mean daily range of temperature in the week was 10¾°, the greatest range in the day being 14° both on the 2d and 4th of November; and the least 6½° on October 31. The mean daily temperatures of the air and the departures from their respective averages were as follows:—Oct. 31, 42°.7, — 3°.7; Nov. 1, 42°.9, — 3°.3; 2d, 44° — 2°; 3d, 48°.4, + 2°.6; 4th, 52°.3, + 6°.7; 5th, 49°.2, + 3°.8; 6th, 53°.5, + 8°.4. The mean temperature

of the air for the week was 47°.6, being 1°.8 above the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in rays of sun, were 70¾° and 79¾° on November 4 and 6; the mean value for the week was 65°. The lowest readings of a thermometer on grass with its bulb exposed to the sky were 35° and 34¾° on November 1 and 2; the mean for the seven low readings was 39¾°.

The direction of the wind was E., S.E., and S.W., and its strength brisk.

The weather during the week was fine though dull, cloudy, and showery. Rain fell on five days, the amount measured was 0.61 inch.

A strong gale of wind prevailed during the whole of Saturday the 6th inst.

In England the highest temperatures of the air, observed by day at 4 feet above the ground, were 60° at Truro and Birmingham; at Hull 55° was the highest temperature observed in the week; the mean from all stations was 58½°. The lowest temperature of the air observed by night was 33° at Cambridge; at Truro the lowest temperature was 52°; the mean value for the week was 39°. The mean range of temperature in the week was the largest at Cambridge, 25°, and the smallest at Truro, 8° only; the mean range from all stations was 19½°. The mean of the seven high-day temperatures was the greatest at Truro, viz., 58¼°, and the least at Hull, viz., 49¾°; the mean average value from all stations was 52½°. The mean of the seven low night temperatures was the largest at Truro, 53°, and the smallest at Cambridge, 41½°; the mean from all stations was 44°. The mean daily range of temperature in the week was the greatest at Eccles, 11¼°; and the least at Truro, 5¼°; the mean daily range from all stations was 8½°. The mean temperature of the air for the week was 47½°, being 1½° lower than the value for the corresponding week for 1874. At Truro the mean temperature was the largest, viz., 55°, and at Cambridge it was the lowest, viz., 45½°.

Rain fell on every day in the week at Truro; the amount measured was 2 inches, being the largest amount recorded in the week. At Leeds half an inch was measured, being the smallest amount recorded in the week; the average fall over the country was nine-tenths of an inch.

The weather during the week was somewhat fine though cloudy, with occasional showers of rain.

In Scotland the highest temperatures of the air ranged from 61° at Edinburgh to 53¼° at Glasgow. The lowest temperatures of the air varied from 41¾° at Aberdeen to 37° at Paisley, the average of the former being 57¾°, and that of the latter 38¾°. The mean range of temperature in the week was 19°. The mean temperature of the air for the week was 47°, being 1¼° above the value of the corresponding week in 1874. The highest was 48½° at Edinburgh, and the lowest, 45¾°, at Glasgow.

The heaviest fall of rain was at Greenock, 3¼ inches, and the least fall at Aberdeen and Leith, both seven-tenths of an inch; the average fall over the country was 1¾ inch.

At Dublin the highest temperature was 64½°, the lowest 36°, the mean 51½°, and the fall of rain 0.70 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

ORCHIDS.—The gradual lowering of the temperature has brought about a partial rest to most of the occupants of the East Indian house; moisture must nevertheless be attended to; as soon as the temperature in the morning begins to rise, which it should do by 9 o'clock, water must be poured over the paths and between the plants, and to any plants requiring water just enough must be given to keep the moss damp. All watering and syringing must be done by 12 o'clock, the house will then become dry by the time the temperature lowers; this is of the greatest importance, for a cold temperature with a wet atmosphere will cause disease: a little air may be given on warm days to prevent the temperature becoming too high. *Cattleyas* and *Dendrobiums* should not get any water at their roots, excepting plants on blocks, or newly imported ones. *Odontoglossums Alexandræ* and *O. Pescatorei*, and others of the same type, are growing vigorously, and require a good supply of water—a good damping overhead on fine mornings with a syringe or a fine rose, using tepid rainwater for the purpose. Plants in flower may be removed to a drier atmosphere. *Pilumna fragrans grandiflora* is one of the most charming Orchids in the dull season; it requires the same treatment as the Trichopilia, but the flowers last a week longer than that species. *Odontoglossum leopardinum* is a grand variety of Insleayi, but far superior to it, flowering at this season, and requiring the same treatment as O. grande. The period at which any of the plants begin to grow is the best time to re-pot them, placing them in the most favourable position in the house. *Miltonias* may be re-potted, and shallow pans are the most suitable for their growth. These plants require a liberal supply of water. As they are subject to the white scale they should also be frequently sponged over with a little soft soap. Any plants hanging near the roof should now be lowered to quite a foot from the glass; they will not then be subjected to alterations of temperature. Any plants of *Dendrobium nobile* that have completed their growth and are swelling their buds, may be placed in the East Indian house, and, with a damping overhead on fine days, may be had in flower by the new year. Give very little water at their roots until they begin to grow. Let all plants coming into flower, or that are pushing up their spikes, be thoroughly exposed to the light; otherwise they are subject to go blind, or their buds frequently drop off before expanding. *Anæctochilus* will now require special care. Where grown in frames, or under bell-glasses, a little air must be left on, and the glass must be kept clean—in fact, wiped over every morning. Very little water will suffice for the next three months, just sufficient to keep the sphagnum a little moist. Small snails and slugs are a great nuisance to these plants. If a slug is allowed to remain only one night it will often eat the stem of the plant through; they must be sought for every night. *G. Baker, Coombe Cottage.*

HARDY FRUIT GARDEN.

Strawberries in pots, especially those intended for early forcing, should now be got under cover as soon as possible. If well matured little benefit is derived from their further exposure. Where the convenience of cold pits is available, nothing better is required for their well doing. The floor of an orchard-house, late Peach-house, or vinery where the fruit has been gathered, answers equally well. In some cases however none of these are at this time available, and in lieu of this in former years we have succeeded extremely well by stacking the pots in narrow cones in the open air. To do this a layer of pots with the plants outwards are laid sidewise on the ground, either round or in an oblong form, filling up the centre and interstices between the pots with well sifted coal ashes. Successive layers may be put on and filled in as before, providing a sufficient space is left between the bottoms of the pots in the first, so that the rims of the pots may lie immediately inside those below, the top course fitting close together and rounded up with the ashes. In case of a severe frost before the plants are required for taking in to start into growth, a little Fern or loose litter may be thrown over, so as to prevent injury, to be removed with a favourable change of weather. The only drawback to this plan is, that where soft pots are used the rims are liable to perish from constant exposure to atmospheric changes.

Where wall trees have dropped their leaves no time should be lost in commencing the operations of pruning and nailing. At this season there is considerably more leisure in the indoor department, and the weather is also usually more suitable for this work than later in the winter; and as with the commencement of the new year other work becomes imperatively necessary and constantly increasing, it is well to forward these operations at this season as much as possible. Apricots, Plums, and Pears usually lose their leaves earliest, and should be taken in order. The early pruning of bush plants is also desirable, as it admits of fruit borders being cleaned and put in order, instead of being kept in a state of disorder. Nothing contributes so much to the interest in a garden as a general state of cleanliness at all seasons. In some cases, however, where birds are numerous, it is requisite to defer pruning until spring, as should a hard winter ensue, considerable injury is frequently done by them in destroying the buds of *Plums*, *Gooseberries* and *Currants*. The season, so far, has been very adverse for planting on heavy soils, continuous and heavy rains having fallen daily here for some weeks; with a change for the better no time should be lost in planting fruit trees, otherwise it is better to defer doing so until spring, and on cold soils it is probable, with the ground in its present state, that this course may be the best. *W. Cox, Maidresfield Court.*

KITCHEN GARDEN.

The beneficial effects resulting from fully exposing the soil to the operation of natural agencies at this season cannot be over-estimated, and especially to those soils which partake of a stiff adhesive character. Such soils should be put up into ridges, in the roughest manner possible, in order that pulverisation may be more effectual, and even on light soils, where this may not be needful, it is necessary as a means of exterminating in some degree the numerous pests which were concealed beneath the soil in safe quarters. No vacant ground should therefore be left unturned. If *Globe Artichoke* plants were cleaned and exposed, as advised in a former Calendar, they will have become somewhat hardened, and should be protected before severe frost comes. We use ashes for this purpose, and find them to be preferable to other materials. Cut and remove decayed *Asparagus* stems, and apply a good dressing of well decomposed manure to the surface of the beds, which should be turned in to just above the crowns. Avoid raising the beds too high with fresh soil, as to have the roots deeply imbedded is quite as injurious as when they are almost exposed. A sowing of *Peas* and *Beans* for an early crop may now be made. Choose a well sheltered border for these, and keep a sharp look-out for the depredations of mice, &c. All decayed leaves on *Broccoli* and similar plants should be cleared away, in order to harden them against frost, which may now be expected. *Geo. Thos. Miles, Wycombe Abbey Gardens.*

Enquiries.

He that questioneth much shall learn much.—BACON.

75. VIOLETS.—I wish to have a continuous supply of Violets. Could any of your correspondents tell me what variety or varieties to grow, and how to grow them in North Britain? *A. G. McLaren.*

76. DISINFECTANT.—Will some one who has had practical experience give me the benefit of his opinion as to which is the best disinfectant to employ in a manure-tank,—one which will abate the nuisance without interfering with the manurial value of the contents, or causing injury to the plants when it is applied? *M.*

77. PEAR FOR MENTONE.—Will some correspondent kindly advise me as to the best late Pear to plant at Mentone? The natural conditions are as follows:—Soil, hard limestone rock, with shallow but rich surface soil in places and in the cracks; climate intensely hot and dry all the summer, rainy for a week or two in autumn; mild and sunny all the winter. *B.*

78. EUGENIA UGNI.—Can any of your readers tell me how the fruit of Eugenia Ugni is made into a preserve? *S. D. A.*

Answers to Correspondents.

AN EXPLANATION: Perhaps you will not object to state, for Mr. Bennett's satisfaction, that the words he takes exception to in my last letter were not addressed to him. He has appropriated a cap that was not intended for him. *Jonathan.*

BOOKS: *J. L.* Masters' *Botany for Beginners* (Bradbury, Agnew & Co.); and for the natural orders, Lindley's *School Botany* (Bradbury, Agnew & Co.).

DISEASED CUCUMBER ROOTS: *S.* These are the work of a minute worm, or vibrio. Will you forward your address?

GARDEN SUPPLIES: *J. C.* Judging from the information before us we consider, 1, that the arrangement of your fruit and vegetable book is very good; 2, that it is fairly well kept; and 3, that the supply is a very fair one, all things considered.

KEEPING GRAPES: *Gardener.* You appear to have taken all the precaution necessary to keep the Grapes sound, and your master ought not to expect them to keep better under the circumstances you mention.

MEALY BUG: *Flag of Truce.* When you prune the Vines, go over them carefully, and remove as much of the loose bark and bug as you can, and then give the canes a good dressing with Gishurst Compound. You must clean the house out thoroughly, scrubbing the woodwork with hot water, and white-washing or colouring the walls. Paraffin may safely be applied if the buds have not started.

MUSCAT VINE: *Captain C.* If convenient, plant inside the house, but allow the roots to spread into the outside border. If it is not convenient, plant outside; the result will be pretty much the same.

NAMES OF PLANTS: *James Heamen.* Physalis Alkekengi.—*A. B. H. C.* Both specimens are forms of Adiantum Capillus-Veneris; indeed, No. 2, which you think "quite distinct," is the more normal of the two, the other having a tendency to produce depauperate and deeply incised pinnules.

ORCHARD TREES: *Roberts.* Mix cowdung with the tar, and then you will be safe. Paraffin, applied with discretion to the old wood of Peaches, will kill the scale, and do the trees no harm.

PLANTS FOR A SHADY PLACE: *J. P., Dulwich.* It is hopeless to expect grass to grow under such circumstances. Plant Ivy, St. John's Wort, or Perriwinkle; and if you have any plants of the common London Pride (Saxifraga umbrosa) try that.

CATALOGUES RECEIVED: James Cocker & Sons' (Sunnypark and Froghall Nurseries, Aberdeen), Descriptive Catalogue of Forest Trees, Ornamental Trees, Climbing Plants, &c., Roses, Fruit Trees, &c.—Paul & Son's (The "Old" Nurseries, Cheshunt, N.), Descriptive Catalogue of Rhododendrons, Trees and Shrubs, Climbing Plants, also the Catalogue of Roses for 1875-76.—Edwin Cooling (Mill Ash Nurseries, Derby), Descriptive Catalogue of Roses, Fruit and Ornamental Trees, Shrubs, Plants, &c.—Richard Fennessy & Son (The Nurseries, Waterford and Kilkenny), General Priced Catalogue of Trees and Shrubs, Rhododendrons, Roses, &c.—John Harrison (North of England Rose Nurseries, Darlington), Catalogue of Select Roses.

COMMUNICATIONS RECEIVED.—T. F. G.—Agher.—J. D.—A. H.—W. R. F.—C. P. E.—W. T.—H. & Co.—Mr. O.—W. S.—A. C.—Nemo.—W. F.—J. H.—S. Z.—J. M.—A. J. S.—General M.—T. T. H. (how can Mr. Baines forward his address when you do not give your own?)—J. V. & Sons.—An Old Sub.—J. C. & Co.—W. J. M.—

T. R.—H. E.—W. B. H.—J. R. J.—N. E. B.—R. Fenn (next week).—A. B.—P. L. S.—J. W. M.—E. P.—P. W.—S. L.—J. S.—W. M.—H. A.—S. P. O.—D. O.—R. D.—C. W. P.—J. D.—J. Smith.—A. B. M.—R. F.—W. H. F.

*** IMPORTANT NOTICE.—*On and after the 6th of* DECEMBER *the* AGRICULTURAL GAZETTE *will be* PUBLISHED *on* MONDAYS, *in time for the Evening Mails, containing a Full Report of the London Markets, and of all other Agricultural Intelligence up to the hour of going to press.*

Markets.

COVENT GARDEN, November 11.

We have very little alteration to make from last week, prices remaining much the same, with a better demand for first-class goods. Among imported fruits, some American New Town Pippins have been offered, but not first-rate samples, though good prices have been realised. *James Webber, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 6	Peaches, per doz.	2 6	12 0
Cobbs and Filbts., lb.	0 6	0 9	Pears, per doz.	1 0	4 0
Figs, per doz.	0 9	3 0	Pine-apples, p. lb.	4 0	7 0
Grapes, per lb.	1 0	5 0	Plums, per bushel	2 0	6 0
Lemons, per 100	6 0	10 0	— per punnet	0 6	1 6
Melons, each	2 0	5 0	Walnuts, p. bush.	8 0	12 0
Oranges, p. 100	6 0	12 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Horse Radish, p. bun.	3 0	5 0
— Jerusalem, p. lb.	0 3	..	Leeks, per bunch	0 2	0 4
Beans, Scarlet Runners, per lb.	0 6	..	Lettuces, per score	2 0	..
Beet, per doz.	1 0	2 0	Mint, per bundle	0 4	..
Brussels Sprouts, lb.	0 4	..	Mushrooms, per pott.	1 0	2 0
Cabbages, per doz.	1 0	2 0	Onions, young, bun.	0 4	0 6
Carrots, do.	0 6	..	Parsley, per bunch	0 4	..
Cauliflowers, p. doz.	2 0	4 0	Radishes, per bunch.	0 2	0 4
Celery, per bundle	1 6	2 0	— Spanish, doz.	1 0	..
Cucumbers, each	1 0	1 6	Salsafy, per bundle	0 9	..
Endive, per doz.	1 0	2 0	Seakale, per punnet	2 0	3 0
— Batavian, p. doz.	2 0	3 0	Shallots, per lb.	0 3	..
Herbs, per bunch	0 2	0 4	Tomatos, per doz.	1 0	2 0
			Turnips, per bundle.	0 4	..

Potatos—Rocks, £5; Regents, £6 to £7; Kidneys, £7 to £8 per ton.

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0	12 0	Heaths, in var., doz.	12 0	30 0
Bouvardias, do.	12 0	18 0	Heliotrope, per doz.	6 0	12 0
Chrysanthemum, do.	4 0	9 0	Hyacinths, Rom., do.	12 0	30 0
Coleus, do.	4 0	6 0	Mignonette, do.	3 0	6 0
Cyclamen, do.	12 0	24 0	Myrtles do.	3 0	9 0
Cyperus, do.	6 0	12 0	Pelargoniums, dble., per doz.	4 0	12 0
Dracæna terminalis	30 0	60 0	— Scarlet, do.	3 0	9 0
— viridis, per doz.	12 0	24 0	Primula sinensis, do.	4 0	12 0
Epiphyllums, do.	18 0	42 0	Solanums, do.	6 0	24 0
Ficus elastica	1 6	7 6	Veronica, do.	4 0	12 0
Fuchsia, per doz.	6 0	12 0			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, 12 sprays	1 6	4 0	Narcissus, per dozen	3 0	6 0
Camellias	4 0	12 0	Pelargoniums, 12 spr.	1 0	2 0
Carnations, 12 blooms	1 6	4 0	— Zonal, do.	0 6	1 6
Chrysanthem., 12 bl.	1 0	4 0	Primula, dbl., p. bun.	1 0	1 6
— 12 bunches	4 0	12 0	Roman Hyacinths, 12 sprays	3 0	6 0
Cornflower, p. doz. bun.	3 0	6 0	Roses, indoor, p. doz.	2 0	6 0
Cyclamen, 12 blooms	0 3	0 6	— outdoor, 12 bun.	9 0	12 0
Epiphyllum, p. doz.	1 0	3 0	Spiræa, 12 sprays	1 0	3 0
Eucharis, per doz.	4 0	12 0	Stephanotis, 12 sprays	6 0	12 0
Gardenia, per doz.	3 0	6 0	Tuberoses, per doz.	2 0	4 0
Heliotropes, 12 spr.	0 6	1 0	Violets, 12 bunches	1 0	3 0
Mignonette, 12 bun.	3 0	6 0			

SEEDS.

LONDON: *Nov.* 11.—Our seed markets, as might be expected, are now thinly attended, with only a smal amount of business passing. For French red Clover seed there is a moderate sale on slightly enhanced terms. In American, German, and English reds, there is scarcely anything doing. More money is asked for Trefoil seed. Alsike and white Clovers keep firm. In Rape seed the advance we noted last week is fully maintained. White Mustards, in the lack of any demand, are drooping in value. The Canary seed trade continues steady; from Essex the supply shows signs of falling off. Hemp seed on the spot readily commands an improvement of 2*s.* to 3*s.* per quarter. Blue Peas are scarce and dearer. Linseed is in better request at unchanged currencies. There is a fair business doing in Königsberg spring Tares, and prices seem to be hardening. Occasionally orders come to hand for winter Vetches.—*John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

POTATOS.

The Borough and Spitalfields report states that sound Potatos are in active request, while a moderate demand prevails for secondary and inferior kinds, the quotations for both English and foreign varieties ruling as under:—Kent Regents, 95*s.* to 120*s.*; Essex ditto, 90*s.* to 110*s.*; Victorias, 100*s.* to 130*s.*; rocks, 70*s.* to 90*s.*; kidneys, 100*s.* to 120*s.*; flukes, 110*s.* to 130*s.* per ton.—At King's Cross the market was firm, and there was an active demand for all good descriptions. The following were the prices:—York and Lincoln flukes, 120*s.* to 160*s.*; do., Victorias, 120*s.* to 140*s.*; York Regents, 110*s.* to 140*s.*; Lincoln do., 110*s.* to 130*s.*; East Lothian do., 110*s.* to 140*s.*; Perth and Fife do., 100*s.* to 110*s.*; Essex and Kent do., 110*s.* to 130*s.*; do. rocks, 80*s.* to 90*s.*; French whites, 70*s.* to 80*s.*; do. seedlings, 90*s.* to 95*s.*; Belgian kidneys, 90*s.* to 95*s.*; Dutch Regents, 80*s.* to 85*s.*; do. rocks, 75*s.* to 80*s.*—The imports into London last week consisted of 7332 bags from Antwerp; 174 tons 559 bags and 715 sacks Dunkirk; 407 bags 20 casks Hamburgh; 100 bags Ghent; 6003 bags Harlingen; 41 bags Amsterdam; 150 tons Flurien; 98 tons Rouen; and 1333 bags 24 casks and 799 packages from Bremen.

AVENUE TREES.

Girth 4 ft. from ground.

LIMES, 12, 14, 15, 16 and 18 feet high	6 to 10	inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8	,,
MAPLES, Norway, 12 to 16 feet high	5 to 8	,,
CHESTNUTS, Horse, 10 to 14 feet high	8 to 10	,,
,, Scarlet, 10 to 14 feet high	8 to 10	,,
,, Double, 10 to 14 feet high	8 to 10	,,
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10	,,
ELMS, 15 to 18 feet	7 to 9	,,

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots. They are unquestionably the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.

Knap Hill Nursery, Woking, Surrey.

FIRST PRIZE ROSES,

FROM

CRANSTON'S NURSERIES, HEREFORD.

Try our One Guinea, Two Guinea, and Three Guinea Collections.

ONE GUINEA COLLECTION contains Thirty Selected First-class Show Roses.

TWO GUINEA COLLECTION contains Sixty Selected, Distinct, and all First-class Show Roses.

THREE GUINEA COLLECTION contains One Hundred of the Finest Roses, New or Old, in cultivation, Selected from upwards of 600 Varieties.

Either of the above Collections will be carefully packed and forwarded, on receipt of Cheque or Post Office Order payable to

CRANSTON and MAYOS,
HEREFORD.

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

TO THE TRADE.

CRANSTON AND MAYOS beg to offer very fine—

Dwarf trained PEARS.
Dwarf-trained APPLES.
Dwarf-trained PLUMS.
Dwarf-trained CHERRIES.
Dwarf-trained PEACHES.
Dwarf-trained NECTARINES.
Pyramid APPLES.
Pyramid PEARS.
Pyramid PLUMS.
Pyramid CHERRIES.

The Largest Stock of DWARF ROSES in the Trade.

PRICED LISTS ON APPLICATION.

THE NURSERIES, HEREFORD.

TO THE TRADE.

JAS. GARAWAY & CO.

OFFER

ALMONDS, standards, fine, 15*s.* per dozen.
BAYS, 1 to 2 feet, 6*s.* per dozen; 2 to 3 feet, 9*s.* per dozen.
CHESTNUTS, Scarlet, 6 to 8 feet, 10*s.* per dozen; 8 to 10 feet, 15*s.* per dozen.
ELMS, Chichester, 3 to 4 feet, 20*s.* per 100; 4 to 6 feet, 30*s.* per 100; 6 to 8 feet, 50*s.* per 100.
,, ,, extra fine, 8 to 10 feet, 75*s.* per 100; 10 to 12 feet, 100*s.* per 100; 12 to 16 feet, 120*s.* per 100.
ESCALLONIA MACRANTHA, in pots, 9*s.* per dozen.
LAUREL, Portugal, 2 to 3 feet, bushy, 10*s.* per dozen.
LIMES, 8 to 10 feet, 9*s.* per dozen; 10 to 12 feet, 18*s.* per doz.
OAKS, Evergreen, in pots, 2 to 3 feet, 9*s.* per dozen, 60*s.* per 100; 3 to 4 feet, 12*s.* per dozen, 90*s.* per 100.
PÆONIES, Moutan, Tree, 12*s.* per dozen.
WILLOWS, Kilmarnock Weeping, 18*s.* per dozen.

Fruit Trees.

Leading sorts, good trees, our selection.

APPLES, dwarf-trained, 15*s.*, 18*s.*, and 21*s.* per dozen.
,, standards, 15*s.* per dozen.
APRICOTS, Maidens, 9*s.* per dozen, 60*s.* per 100.
,, dwarf-trained, 30*s.* and 36*s.* per dozen.
CHERRIES, Mayduke and Morello, dwarf-trained, 24*s.* per dozen.
NECTARINES, Maidens, 9*s.* per dozen, 60*s.* per 100.
,, dwarf-trained, 30*s.* and 36*s.* per dozen.
PEACHES, Maidens, 9*s.* per dozen, 60*s.* per 100.
,, dwarf-trained, 30*s.* and 36*s.* per dozen.
PEARS, dwarf-trained, 18*s.* and 21*s.* per dozen.
,, pyramids, 3 to 4 feet, 12*s.* per dozen, 75*s.* per 100; 4 to 5 feet, 15*s.* per dozen, 100*s.* per 100.
,, standards, 18*s.* per dozen, 125*s.* per 100.
PLUMS, dwarf-trained, 18*s.* and 21*s.* per dozen.
,, pyramids, 4 to 5 feet, 12*s.* per dozen; 5 to 6 feet, 15*s.* per dozen.
,, standards, 15*s.* per dozen.

JAS. GARAWAY AND CO.,
Durdham Down Nurseries, Clifton, Bristol.

To the Trade.

ROSES, ROSES, ROSES.—Standard Roses. large heads, strong Stocks, and well rooted, £5 per 100; Dwarf, on Manetti Stocks, very fine, 40*s.* per 100; all the best Show Varieties. CATALOGUES on application.
FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

Stephanotis floribunda.—A Rare Bargain.

WM. KNIGHT, Floral Nurseries, Hailsham, Sussex, offers to the Trade, for cash, 100 healthy plants of the above, best variety, for £5, in 60-sized pots; also a few dozen extra strong flowering plants, for 30*s.* per dozen. Also TWENTY ACRES of GENERAL NURSERY STOCK, in excellent condition. CATALOGUES on application.

Evergreen Hedges.—Box, Green Hollies, and LIGUSTRUM OVALIFOLIUM.

R. NEAL, having a very large Stock of the above, can offer the same by the 100 or 1000 at a very low rate.
Also 10,000 ACER CAMPESTRIS, from 5 to 8 feet in height, clean-grown stuff.
Price on application.
The Nurseries, Wandsworth Common, S.W.

SPRING GARDENING.—For Sale, several hundred Crimson, White, and Pink DAISIES, at 4*s.* per 100; also a few Golden-leaved. About 200 AUBRIETIAS, five large PEACH and NECTARINE TREES in pots, in good bearing state; several dozen ARBOR-VITÆ, from 1 to 4 feet, and a few thousand PINUS AUSTRIACA, about 2½ feet.—Apply to
J. CLARK, Gardener, North Collingham, Newark, Notts.

To Market Gardeners, Nurserymen, and Others.

FOR SALE, 10,000 VICTORIA PLUM TREES, one and two years old; a quantity of SEA-KALE for Forcing; GOOSEBERRY and BLACK CURRANT TREES, also ASPARAGUS ROOTS for Forcing. Apply to Mr. GEORGE STEEL, Broom House Farm, Parson's Green, Fulham.

To Noblemen, Gentlemen, and Others who are REPLANTING this AUTUMN.

R. NEAL begs respectfully to call the attention of the above to his large and varied stock of Hardy SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS, CLIMBING PLANTS, &c., which are now in fine condition for removal. An early inspection invited.
CATALOGUES may be had on application.
The Nurseries, Wandsworth Common, S.W.

J. SCOTT, Merriott, has to offer as under:—
110 AVENUE YEWS, 14 feet high, clean stems, 6 to 7 feet, fine heads, 5*s.* each; also about 30 IRISH YEWS, 10 to 12 feet, handsome trees, 20*s.* each.
5000 BLACK NAPLES and 3000 RED GRAPE CURRANTS, 16*s.* per 100, 4 years old, clean stems.
Large stock of ASH, 4 to 5 feet, 35*s.* per 1000.
HAZEL, 4 to 5 feet, 30*s.* per 1000.
OAK, 6 to 8 feet, 8*s.* per 100.
AUSTRIAN PINE, 1½ to 2½ feet, 30*s.* per 1000.
ABIES DOUGLASII, 3 to 7 feet, 2*s.* 6*d.* to 5*s.* each.
Large sized LIMES, OAKS, ELMS, HORSE CHESTNUTS, BEECH, BIRCH and POPLARS.
CATALOGUES on application.

Richmond Nurseries, Richmond, Surrey.

To GENTLEMEN, NURSERYMEN, LARGE CONTRACTORS, LANDSCAPE GARDENERS, and OTHERS.

G. AND W. STEELL beg to call the attention of all Planters to their very extensive and fine grown NURSERY STOCK, consisting of an excellent selection of Ornamental Evergreen and Deciduous Shrubs and Trees, Standard and Dwarf Rose Trees, Standard and Dwarf Variegated and Green Hollies of the newest and best varieties, Standard and Dwarf Fruit Trees, &c., which they can highly recommend for their fine growth and moving qualities.
N.B.—Where large quantities are required they can be supplied at very low prices.

NEW RHODODENDRONS.

BIANCHI.—Bright salmon-pink, changing to nearly white, large blotch of brown spots on the upper petals; splendid truss; foliage large and good.

CAPTAIN WEBB.—Rich deep lake, black blotch on the upper petals; truss large and good; a really fine distinct variety, and one of the best and darkest yet offered.

LADY WINIFRED HERBERT.—Bright rosy crimson, lighter centre, finely marked with chocolate spots on the upper petal; well-shaped flowers, with fimbriated edges; compact truss; good habit and foliage; an attractive and distinct variety.

MRS. GEORGE BROWN.—Bright rosy pink, bordered, centre nearly white, with chocolate blotch on upper petal, surmounted by a white spot; stamens white; foliage and habit good; a very pleasing and distinct variety.

SALVINI.—Purplish rose, shaded, well marked with chocolate spots on upper petal, spots of same colour regularly disposed over the other part of the flower, which is large and well formed; a fine free blooming variety, with handsome foliage and dwarf compact habit.

WILLIAM MILTON.—Fine dark crimson, shaded with distinct black blotch on upper petal; truss large and good; a fine free-growing variety, with dark green lanceolate foliage.

☞ The above Rhododendrons having been thoroughly tested for several seasons can be confidently recommended to purchasers as really distinct and hardy late-blooming varieties, combining all those qualities most desirable in this attractive class of plants, viz., vigour of constitution, good habit and foliage, and prolific blooming. They are now offered in good plants:—

1st size, nice plants	£4 4*s.* the set.
2d size, bushy, about 1½ foot	£6 6*s.* the set.
3d size, bushy, 1½ to 2 feet	£8 8*s.* the set.

The usual discount to the Trade.

MAURICE YOUNG,
MILFORD NURSERIES, near GODALMING, SURREY.

LIMES, ENGLISH and IRISH YEWS, &c.

LIMES, of all sizes up to 12 and 14 feet, the larger sizes frequently transplanted, and suitable for avenues, &c.

COMMON YEW, all sizes up to 3 and 4 feet; 2½ feet, bushy, £7 10s. per 1000.

IRISH YEW, all grown to single stems and finely furnished, any size up to 5 feet, by the 100 or 1000; 3½ to 4 feet, 50s. per 100, extra fine specimens, 12 to 14 feet in height, perfect pyramids, 21s. to 30s. each.

GOLDEN YEWS, of all sizes, by the dozen or 100; Golden Yews grafted on specimen Irish Yews, with fine heads.

RETINOSPORAS, of all sizes.

JUNIPERUS, fragrans, excelsa, Irish and others.

GOOSEBERRIES and CURRANTS, very strong, per 100 or 1000.

PICEAS.—A few very fine specimens of Picea nobilis glauca, 9 to 10 feet, and finely furnished; also Picea lasiocarpa and grandis, 10 to 12 feet; amabilis, 3 to 6 feet.

CATALOGUES on application.

R. MORRISON, Nurseryman, Elgin, N.B.

COCOA-NUT FIBRE REFUSE.—Testimonials from all the leading Nurserymen. Twenty bushels, 6s, 8d.; 50 bushels, 12s. 6d.; truck, 45s. Delivered free on to rail or within 6 miles.

THOS. HODGES AND CO., Eagle Steam Fibre Works, Hatcham Road, Old Kent Road; and 81, Bishopsgate Street Within, London, E.C.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.

BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5s. 6d. each.

FRESH SPHAGNUM, 10s. 6d. per sack.

WALKER AND CO., Farnborough Station, Hants.

PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17s. per ton. A small sample will be sent by Post, free.

W. TARRY, "Golden Farmer," Bagshot, Surrey.

THE LONDON MANURE COMPANY

(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—

WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

A DISCOVERY.—The secret of obtaining Bunches of Grapes of immense weight is TANTON'S IMPROVED ROLLER CRUSHED BONE, as exhibited at South Kensington, Manchester, Brighton, &c.

One inch, Half-inch, Dust, a Sample Peck for 30 stamps.

Mr. RANSLEY TANTON, Seed and Artificial Manure Warehouse, Borough End, London Bridge, S.E.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass. Retail 1s. 6d. and 2s. 6d. per bottle, of the Sole Manufacturers,

BELL AND SON, 10 and 11, Exchange Street, Norwich.

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1s. 6d. and 3s. per bottle—1s. 9d. and 3s. 4d. per bottle, if packed for travelling, of the Manufacturers,

EWING AND CO., Norwich.

TRADE MARK.

Entered at Stationers' Hall.

F. STEVENSON'S ABYSSINIAN MIXTURE, Warranted to Destroy Mealy Bug, and all Insects infesting Plants. Unequalled as a Winter Dressing for Vines and Fruit Trees.

Sold by all Nurserymen and Seed Merchants, in Bottles, 1s. 6d., 3s., 4s. 6d. & 5s. 6d. each.

Inventor and Sole Manufacturer,

F. STEVENSON,

STAMFORD ST., ALTRINCHAM, CHESHIRE.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton; and the late Professor Lindley, &c.

MADE of PREPARED HAIR and WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 4d. and 1s. 10d. per yard.

"FRIGI DOMO" CANVAS.

2 yards wide	.. ..	1s. 10d. per yard run.
3 yards wide	.. ..	3s. per yard.
4 yards wide	.. ..	3s. 10d. per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100s.; Petersburg, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; packing Mats, 20s., 30s., and 35s. per 100; and every other description of Mat at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1d. for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS'S Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,

THOMAS ROBERTS, 112, Victoria St., Westminster, S.W.

Rosher's Garden Edging Tiles.

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THE PATENT TRUE FRIEND STOVE

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AS IT PERFECTLY DEFIES FROST AND GIVES A SURROUNDING HEAT THAT CANNOT BE ATTAINED BY ANY OTHER SYSTEM.

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The peculiar and novel construction of the Patent WHITE STAR GERMAN ROUND BURNER makes it especially acceptable in any position in the household, as it only heats the air in passing through the Stove, without throwing off a burning smell, or any unpleasant odour from the oil, and it is in fact the greatest desideratum of the age, as by simply lifting off the upper part of the Stove it is adapted for any description of Cooking, by Boiling or Frying, which at once makes it useful the whole year through. Experience proves that it gives by a single burner more NATURAL heat than four flat burners, or any other known Petroleum Stove. It can never get out of order, it is always cold on the Oil-well, and cannot explode; and the economy is obvious, as it can be kept at full burning power by using one quart of any mineral oil in thirty-six hours, and will effectually warm a space of twenty square feet.

27 inches high.

Price, £1. 2s. 6d.

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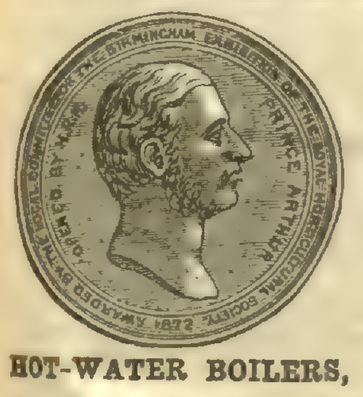

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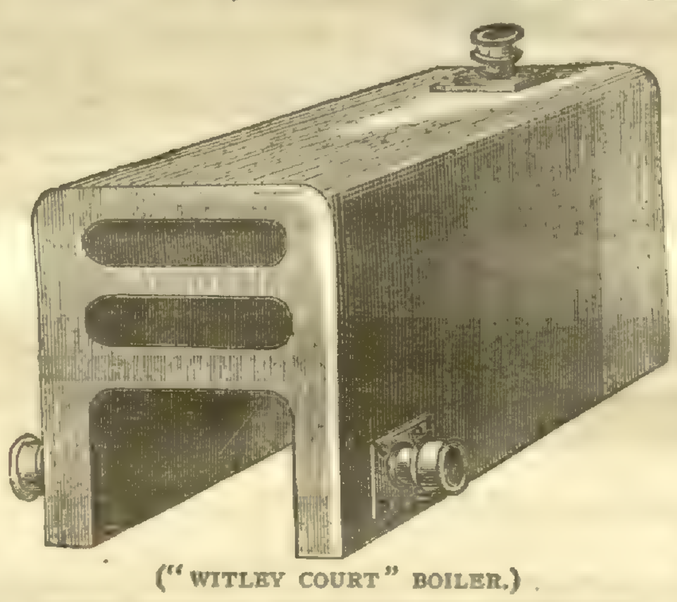

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Can be obtained in all sizes and qualities, of

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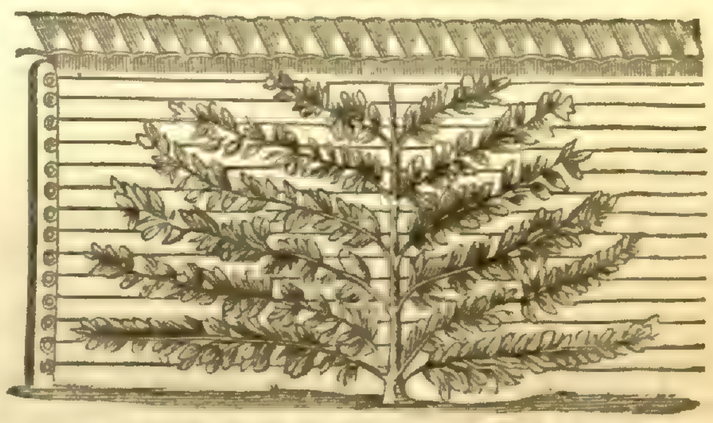

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For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

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For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

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GALVANISED EYED NAILS for Stretching Wires, one at each end of wall, 1*s.* 10*d.* per dozen. Smaller Size for supporting the wire, every 10 feet, 1*s.* per dozen. Smallest Sizes, not recommended, 9*d.* and 6*d.* per dozen.
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SMALL-EYED STRAINING SCREWS and NUTS, neater than Raidisseurs, for Tightening Wires, 3*s.* 6*d.* and 2*s.* 6*d.* per dozen.
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With bars secured by F. M. & Co.'s Patent Self-locking Joints, which effectually prevent the uprights being pushed aside, and are independent of loose pins, wedges, or staples.

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IN WROUGHT AND CAST IRON,
Designed for the Mansion, Villa, or Farm.
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In Great Variety of Patterns.
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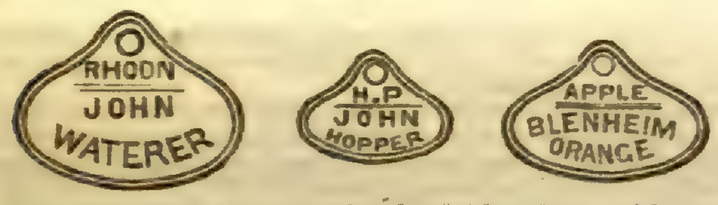

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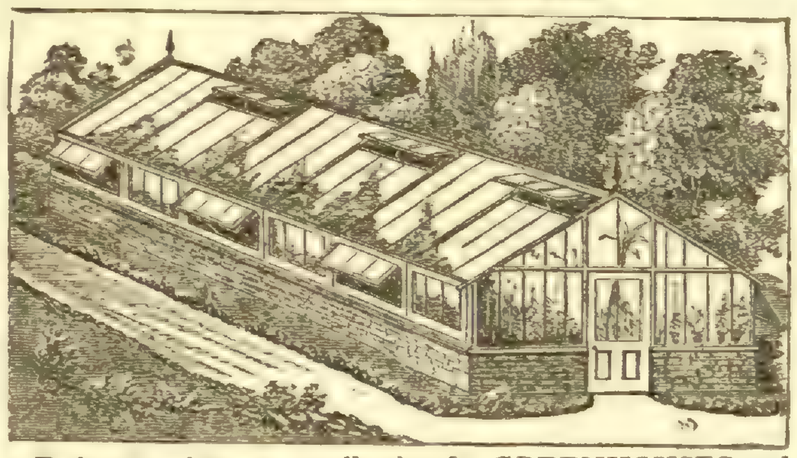

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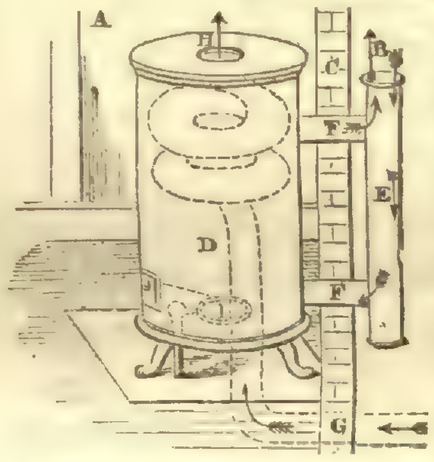

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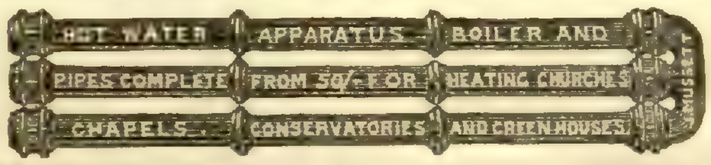

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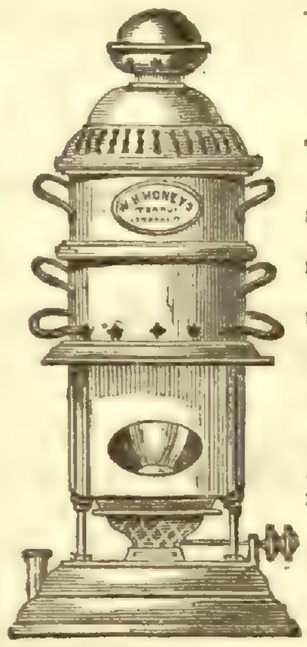

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They require no attention beyond replenishing the oil.
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They will not injure the most tender exotics, nor are they in any way injurious to the health.
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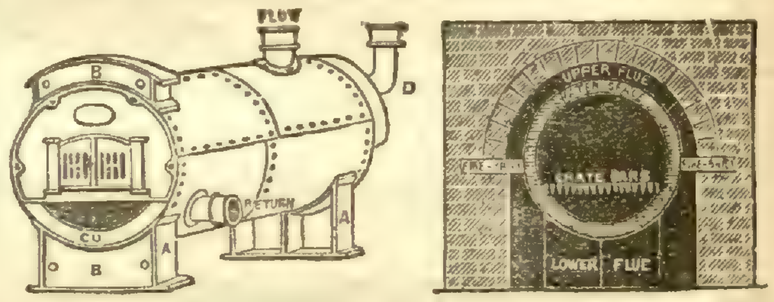

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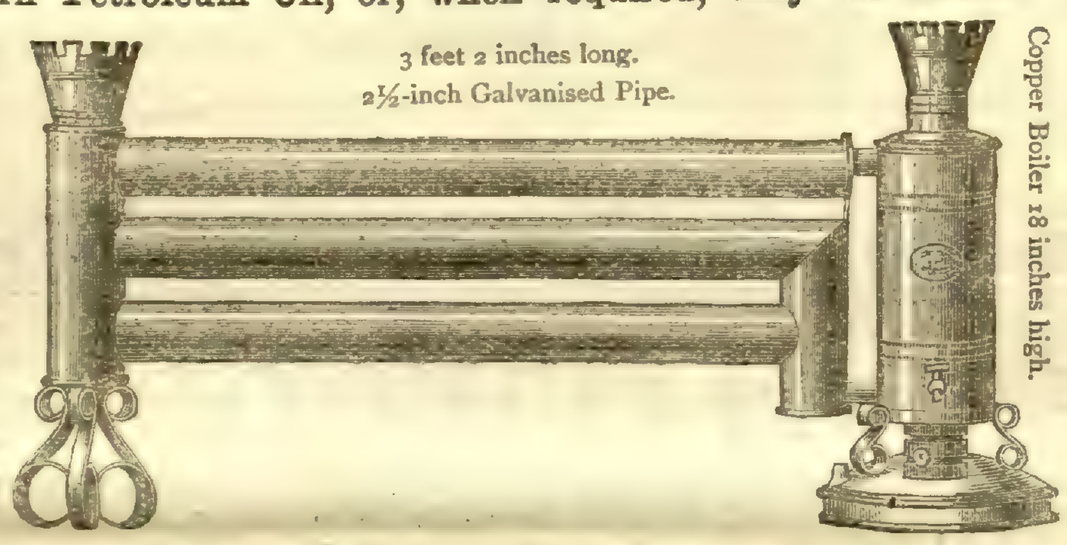
Suitable for Warming Small Entrance Halls, Conservatories, Bed Rooms, Offices, Saddle Rooms, Ship's Cabins, &c.



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SPECIAL OFFER TO THE TRADE SUPPLIED UPON APPLICATION.

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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IMPORTANT NOTICE.

On and after the 6th of DECEMBER *the* AGRICULTURAL GAZETTE *will be* PUBLISHED *on* MONDAYS, *in time for the Evening Mails, containing a Full Report of the London Markets, and of all other Agricultural Intelligence up to the hour of going to press.*

To Secretaries of Agricultural Societies, Farmers' CLUBS, HORSE, POULTRY, and DOG SHOWS.

THE PUBLISHER of the AGRICULTURAL GAZETTE ALMANAC will be obliged to Secretaries of Societies named above if they will kindly furnish him with the dates fixed for holding their Exhibitions in 1876.
W. RICHARDS, 7, Catherine Street, Strand, London, W.C.

ALEXANDRA PALACE.—GREAT CHRYSANTHEMUM SHOW of Messrs. Cutbush & Son, in Grand Central Hall, open until the 27th inst. 1s.

A GRAND INTERNATIONAL HORTICULTURAL EXHIBITION will be held in Parker's Square, and Drill Hall, DUNDEE, on SEPTEMBER 7, 8, and 9, 1876. ONE THOUSAND POUNDS offered as Prize Money. Open to all competitors free.
Prize Schedules may be had from JAMES HARDIE, 73, Nethergate, Treasurer; and WM. R. McKELVIE, 26, Euclid Crescent, Secretary.

Notice to the Trade.

HURST AND SON'S LIST of NEW and CHOICE VEGETABLE and FLOWER SEEDS is now in the Press, and will be posted in a few days.
6, Leadenhall Street, London, E.C.—Nov. 20.

BEECH, BEECH, BEECH—2 to 3 feet, and 3 to 3½ feet, well rooted, at 7s. 6d. per 1000.
LAURUSTINUS, splendid stuff, 2½ to 3 feet, bushy and well rooted, 25s. per 100.
SAMUEL BALE, Westacott Nursery, Barnstaple.

BEECH—3 to 3½ feet (well-rooted), 7s. 6d. per 1000. PORTUGAL LAURELS, AUCUBAS, LAURUSTINUS, HOLLIES, and other Shrubs to offer, cheap. Special Trade LIST upon application.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

HOLLIES.—To Gentlemen wishing to plant with immediate effect, a quantity of magnificent Hollies of variegated and other kinds for Sale, from 10s. 6d. to £5 5s.
Apply at Bache Hall, Chester.

SPANISH CHESTNUTS, a large quantity, 3 feet; ASH, LARCH, BIRCH, and ALDER, stout, well-grown, and transplanted, to be Sold.
G. CHORLEY, Midhurst, Sussex.

Well Transplanted Forest Trees.

LARCH, OAK, POPLAR, LIMES, SPRUCE, &c. Samples and prices on application,
W. JACKSON AND CO., Nurseries, Bedale.

LARCH, fine, 2 to 2½ feet, 25s.; SCOTCH, 1½ to 2 feet, 14s.; SPRUCE, 1½ to 2 feet, 14s.; OAK, 4 to 5 feet, 25s. per 1000; Green HOLLY, with leaders, 1 to 1½ foot, 15s. per 100; Standard ROSES, fine, 70s. per 100. Samples free.
H. JACKSON, Nursery, Kidderminster.

EVERGREENS to be Sold cheap.—A quantity of fine large Aucubas, Bays, Laurels, Hollies, Laurustinus, Yews, Portugal Laurels, Euonymus, Cupressus, Evergreen Oaks, &c. Lowest cash price on application to
D. SCOTT, Northgate Nursery, Chichester.

Hoteia (Spiræa) japonica.

E. H. KRELAGE AND SON, Haarlem, Holland, have a very fine Stock of the SPIRÆA JAPONICA, good plants for forcing, to offer to the Trade. The plants are remarkably well grown this year. Price per 100 and 1000 on application.

PALM SEEDS.—Fresh Seed of Corypha australis, just arrived; price per thousand, five, ten or twenty thousand, on application to
WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

To the Trade.

DEUTZIA GRACILIS, DEUTZIA GRACILIS.
JOHN PERKINS AND SON beg to offer fine strong plants of DEUTZIA GRACILIS, at 20s. per 100, fine for potting.
Address—52, Market Square, Northampton.

To the Trade.

CZAR VIOLETS.—Strong healthy plants of this splendid free-flowering Violet, 5s. p. 100, 40s. p. 1000.
DANIELS BROS., Norwich.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., having a large stock of unusually fine and sound DUTCH BULBS, will be pleased to submit Special Prices to Buyers on application.

Special Culture of Fruit Trees and Roses.

THE DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS (by THOMAS RIVERS) is now ready; also CATALOGUE of Select ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Roses.

CHARLES TURNER'S carefully prepared CATALOGUE is now ready, and may be had on application. The stock, of all heights, is very large and most healthy.
The Royal Nurseries, Slough.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
The Ottershaw Nursery, Chertsey.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

The Oxford Roses, on Cultivated Seedling Briar.

GEORGE PRINCE'S Priced and Descriptive CATALOGUE now ready. All Roses are grown exclusively on the above stock at this establishment.
14, Market Street, Oxford.

Standard Roses.

H. LANE AND SON have a very large Stock to offer, Wholesale and Retail.
Priced CATALOGUE Free on application.
The Nurseries, Great Berkhamstead, Herts.

ROSE SHOWS, 1875.—50 First Prizes, 25 Guinea Silver Challenge Cup, and other Premier Prizes. See Cranston & Mayos' DESCRIPTIVE ROSE CATALOGUE for 1875. Address,
CRANSTON'S Nurseries, King's Acre, Hereford.

THE MILE ASH ROSES are recommended as specially hardy and healthy. The plants are superb this season. LIST free on application.
EDWIN COOLING, Mile Ash Nurseries, Derby.

To the Trade.

DWARF ROSES, splendid Plants, and good leading varieties, 30s. per 100; Standards, fine heads, 90s. per 100. CYCLAMENS and EPIPHYLLUMS, beautiful plants, just coming into bloom, 9s. and 12s. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

WM. POTTEN can still supply FRUIT TREES and ROSES, as advertised in the *Gardeners' Chronicle*, Nov. 6. W. P.'s LIST will be sent to all applicants.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

Fruits.—Roses.

A. M. C. JONGKINDT CONINCK'S Wholesale TRADE LIST of FRUITS and ROSES is now ready, free on application.
Large quantity of home-grown, very sound bulbs of LILIUM AURATUM.
Tottenham Nursuries, Dedemsvaart, near Zwolle, Netherlands.

WANTED, a Truckload of EVERGREENS at Christmas; also fifty CHRISTMAS TREES, 3 to 15 feet. State price to
STANSFIELD BROS., 48, Hall Street, Southport.

Cut Flowers.

WANTED, any quantity, to SELL on COMMISSION. Best prices obtained. Cash returned within three days.
FLORAL AGENT, *Gardeners' Chronicle* Office, W.C.

Pansy Cuttings.

WANTED, CLOTH of GOLD, BLACK PRINCE, and GREAT EASTERN, or kinds similar. State price per 100 or 1000 to
H. WHITLOW, 28, Gladstone Road, Garston, Liverpool.

WANTED, 1000 to 1200 CONIFERÆ, EVERGREEN and DECIDUOUS SHRUBS, in Small Plants, for a Nursery. Names, sizes, and prices, to
FREDK. HUGHES, Gr, to Robert Martin, Esq., Overbury Court, Tewkesbury.

STUART AND CO., SEED GROWERS, Nice, France: London Offices—5, Tavistock Row, Covent Garden, W.C.
TRADE CATALOGUE, containing all the leading Novelties of the Season, and other choice Seeds, is now in the Press, and will be forwarded shortly, or sent post free on application.

To the Trade.

OUR LIST of NOVELTIES of sterling merit only is now ready, and may be had on application to
F. SANDER AND CO., Seed Growers, St. Albans.

T. VANDER SWAELMEN, NURSERYMAN, Gendbrugge, Ghent, Belgium, offers, at the lowest price, a nice collection of the finest LILIES, from California, Caucasus, and Japan; also a large quantity of SPIRÆA JAPONICA, at 12s. per 100.
Priced CATALOGUE post free upon application.

Lilies of the Valley.

E. H. KRELAGE AND SON, Haarlem, Holland, have a splendid Stock of 3-yr. old Clumps of the best variety of LILY of the VALLEY at the disposal of the Trade. The plants are extra fine this year. Prices per 100 and 1000 on application.

BOX EDGING—10,000 nursery yards, at 2½d. per yard, or £9 per 1000; 100,000 CABBAGE PLANTS, at 2s. 6d. per 1000. Cash with order.
J. B. YOUNG, Landscape Gardener, Bridge of Allan.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium.
CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.
Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

PEACH TREES, twelve nice young, for Sale. Have been grown under glass these last three years, and lifted every year. Address
MANAGER, South Bourne Winter Garden, near Christchurch, Hants.

Raspberry Canes.

TO BE SOLD, Cheap, a large quantity of NORTHUMBERLAND FILLBASKET RASPBERRY CANES, of one year's growth. Apply to
Mr. THOS. JEFFEREY'S, Gunnersbury Lane, Brentford Road, W.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c. Free by post for one stamp.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Pyramidal Pears.

H. LANE AND SON have a large stock of transplanted bearing Trees of all the leading kinds to offer at a reduced price, as the ground must be cleared by Christmas.
The Nurseries, Great Berkhamstead, Herts.

To the Trade.

DWARF-TRAINED PEARS.—All the best leading kinds, both as Horizontal and Fan-trained. Magnificent Trees—cannot be excelled. Price moderate.
FRANCIS & ARTHUR DICKSON & SONS, "UPTON" Nurseries, Chester.

Splendid New Apple,

LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, 3s. 6d. each, 21s. for seven; 2-yr. plants, 5s. to 7s. 6d. each.

PEASGOOD'S NONESUCH APPLE.—In consequence of the great demand W. AND J. BROWN have only a limited number of Maidens now to offer, at 3s. 6d. each. Trade terms on application.
Stamford and Oakham.

Mulberries, Mulberries.

PONSFORD AND SON can supply the above by the dozen, 100, or 1000. Prices on application to
Loughborough Park Nurseries, Brixton, Surrey.

HANDSOME BEARING MULBERRIES.—One hundred to select from, 800 smaller sizes in stock.
Apply to WOOD AND SONS, 172, Old Kent Road, S.E.

Fruit Trees.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE for the present season is now ready, and may be had on application. The Trees are extra fine this season. The Royal Nurseries, Slough.

VICTORIA RHUBARB.—About 1000 extra fine stools. Apply to
J. W., Farmer, Post Office, Warrington.

RHUBARB.—Baldry's Scarlet Defiance, Linnæus and Prince Albert, extra fine stools, £1 per 100, £8 per 1000.
F. SANDER AND CO., Seed Growers, St. Albans.

Mangel and Swede.

JOHN SHARPE can furnish, on application, his quotations for the choicest Stocks of the above, selected and grown by himself.
Bardney Manor, Lincoln.

SALES BY AUCTION.

Spring Flowering Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, Importations of first-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, GLADIOLI, and other BULBS, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of Imported Orchids
from BRAZIL.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 25, at half-past 12 o'Clock precisely, an importation of ORCHIDS just arrived from Brazil, consisting of a quantity of selected specimens of Lælia purpurata, L. elegans, Cattleya Leopoldii and C. amethystina; also a few fine plants of Oncidium sarcodes, O. crispum, O. concolor, Sophronites grandiflora, and Lælia cinnabarina (true). One of the Lælia elegans is most probably the finest mass ever imported; it consists of eighty very strong bulbs, in perfect health and foliage. The Lælia purpurata, Cattleya Leopoldii, and Cattleya amethystina are immense specimens, all in the best possible condition.

On view the morning of Sale, and Catalogues had.

Batheaston Nursery, near Bath.

HIGHLY IMPORTANT NOTICE to GENTLEMEN, NURSERYMEN, and OTHERS ABOUT to PLANT.

MR. W. ABRAHAM is instructed by Mr. J. Scott, of the above Nursery, to SELL by AUCTION, without the least reserve (in consequence of his giving up the Nursery portion of the business), on MONDAY and TUESDAY, November 22 and 23, at 12 o'Clock punctually each day, a quantity of beautifully grown NURSERY STOCK, large Lean-to Vinery, Hot-water Piping, &c. The stock consists of many splendid and unequalled specimen Coniferæ, including Picea Pinsapo, P. Nordmanniana, Thuja aurea, Thujopsis borealis, Chinese Juniper, Arbor-vitæ, also fine Euonymus, English and Irish Yews, Berberis, Tree Box, 4000 Common Laurel, 20,000 Quick, &c. Also a fine collection of Pyramidal and Bush Fruit Trees in bearing condition.

The stock has all been removed within the last two years, and is in the best possible condition.

May be viewed ten days prior to the Sale, and Catalogues obtained of Mr. SCOTT, Bathford Nursery, or (post free) of Mr. W. ABRAHAM, Auctioneer and Valuer, Goldworth Nurseries, Woking, Surrey.

Guilford Nursery, Whitfield, near Dover.

CLEARANCE SALE of Valuable NURSERY STOCK.

To Landowners, Builders, Nurserymen and Others.

MESSRS. WORSFOLD AND HAYWARD have received instructions to SELL by AUCTION, upon the Ground, on THURSDAY, December 2 (unless the Nursery shall in the meantime be let as a going concern, in which case due notice of the withdrawal of the Sale will be given), the whole of the valuable NURSERY STOCK, comprising 6000 healthy Standard, Pyramid and Trained Fruit Trees; over 20,000 Forest Trees, of sorts; 12,000 thriving Evergreen and Deciduous Shrubs and Coniferæ, of choice varieties; 3500 first-class Dwarf and Standard Roses, 6000 Fruit Bushes and Canes, several thousand Fruit and Manetti Stocks, &c.

May be viewed prior to the Sale, and Catalogues, or particulars as to hiring the Nursery, had of Messrs. WORSFOLD AND HAYWARD, Auctioneers and Surveyors, Market Square, Dover, and 11, Queen Victoria Street, London, E.C.

Dutch Bulbs.—Extensive Consignment of the finest named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, GLADIOLUS, 600 strong clumps of LILY of the VALLEY and SPIRÆA for forcing, &c., for absolute Sale.

Important to the Trade and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY next, at 11 for half-past 11 o'Clock precisely, about 700 lots of the above, the whole being of a very superior quality.

On view morning of Sale. Catalogues had at the Mart; and of the Auctioneers, 98, Gracechurch Street, E.C.

Exeter.

HIGHLY IMPORTANT UNRESERVED SALE of 6000 unrivalled specimen CONIFERÆ and EVERGREENS, forming together the largest and most unique collection ever submitted to public competition, and in fine condition for removal, including 1000 unusually handsome pyramidal and other skilfully trained English, Irish, and Golden Yews; 1000 Thujopsis borealis, 5 to 15 feet; 6000 Picea Pinsapo, 3 to 10 feet; thousands of Picea Nordmanniana, nobilis, and lasiocarpa; Araucaria imbricata, 5 to 10 feet; Cupressus Lawsoniana in variety; magnificent Cedrus Deodara and Wellingtonia gigantea; choice Thujas, Abies, Pines, Podocarpus, &c. Also a considerable quantity of Quercus Fordii and other beautiful Evergreen Oaks, Standard Weeping Hollies and Portugal Laurels, and numerous fine examples of other Stock remarkable for their perfectly symmetrical form and great beauty. Also 15,000 common Laurels, 5000 English and Irish Yews, 5000 Colchic and Caucasian Laurels, 4000 Portugal Laurels, 5000 Laurustinus and Aucubas, 2000 Biotas, 6000 Thujas, 5000 Box, thousands of Phillyreas, Hollies, Rhododendrons of all kinds, and quantities of other Stock too numerous to specify. Likewise 2000 Standard Cider Apple and Fruit Trees, a fine collection of Forest and Ornamental Trees in great variety.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Lucombe, Pince & Co. to SELL the above by AUCTION, on the Premises, the Nurseries, Exeter, and also at the Hill Side Nursery, Exminster, three miles from Exeter, on TUESDAY, November 23, and several successive days, at 11 for 12 o'Clock precisely each day.

The Stock may at any time be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E. Luncheon will be provided.

N.B.—Messrs. P. & M. beg to call special attention to the extensive Sale, and to the unprecedented opportunity offered thereby to Noblemen and Gentlemen improving their estates, to the Trade, and others largely engaged in Planting. The Proprietors will place their transplanting machine at the disposal of the purchasers, and will remove (at mere cost of labour and packing) where required.

EXTRAORDINARY GREAT SALE of NURSERY STOCK, November 23 and nine following days.—By order of the Executors of the late Mr. John Standish.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to submit for unreserved SALE by AUCTION, on the Premises, the Royal Nurseries, Ascot, Berks, opposite Ascot Grand Stand, the Valuable NURSERY STOCK, ranging over 80 Acres, consisting of the extensive and extraordinary rich assortment of Evergreen, Coniferæ, and Deciduous Shrubs, varying all sizes, including many thousands of specimens which have been transplanted within the last eight months, and are adapted for immediate effective purposes; also millions of smaller stock too numerous to specify; 20,000 Green and Variegated Hollies, 15,000 common and other Laurels, 4000 Aucubas, 20,000 Berberis, 1000 Euonymus, 1000 Cedars, 600 Yews, 3000 Ligustrum ovalifolium, 1000 Wellingtonias, 1000 Abies, 2000 Piceas, 17,000 Cupressus, 1500 Thujopsis borealis, 2000 Thujas, 2500 Junipers, 10,000 Retinosporas, 100,000 choice named Hybrid and Pontica Rhododendrons, 18,000 Apples, Pears, Plums, and other Fruit Trees, 7000 Gooseberries and Currants, 40,000 Spruce and other Firs, 10,000 Roses, collection of Clematis and other Climbers, &c.

Sale to commence punctually at 12 o'Clock each day, luncheon for intending purchasers at 11.30. Goods may be transmitted from Ascot Railway Stations to all parts without change of truck.

Now on view. Catalogues had on the Premises; at the "London," 22, St. George's Place, Knightsbridge; and of the Auctioneers.

Important Announcement.

THE PRESTON ROAD NURSERIES,
One mile from Yeovil, Somersetshire.

To the NOBILITY, CLERGY, GENTRY, NURSERYMEN, FLORISTS, and OTHERS.

MESSRS. CROSS AND SON will SELL by AUCTION, about the middle of December next, the entire NURSERY STOCK, Seeds and other Effects of the above famed Nurseries, which comprise a valuable collection of Coniferous and other Plants, Fruit Trees, Standard and Dwarf Roses, hardy and well-rooted Oak, Hazel, Larch, and Scotch Firs, &c., a large variety of Greenhouse and Stove Plants, Garden and Agricultural Seeds, &c.—Further particulars in due course.

Also, to be SOLD or LET for a term of years, the above-named FREEHOLD NURSERIES, about 6 acres in extent, together with the substantial DWELLING-HOUSE, Hothouses and Greenhouses, Forcing-pits, Seed-stores, and other offices erected thereon.—For further particulars apply to the AUCTIONEERS.

Auction and Agency Offices, Yeovil, November 16.

Potter's Bar.

IN consequence of the weather on Nov. 13, the SALE of NURSERY STOCK (including every description of hardy Shrubs, Trees, &c.) stands POSTPONED to TUESDAY, November 23.

JAMES BUTTERFIELD, Proprietor; WILLIAM KEMP, Auctioneer.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

TO BE LET (on March 25 next), a first-class LIGHT LAND FARM, of about 570 acres. Situation healthy. Farm in good condition, with excellent house, and all local conveniences, good Markets, &c. For particulars apply to

EDWARD SEARGEANT, Esq., Stafford Old Bank, Lichfield, Staffordshire.

FIVE POUNDS REWARD.—Whereas at the close of the Exhibition of the Royal Horticultural Society, South Kensington, held on Wednesday and Thursday, November 10 and 11, some evil disposed person or persons STOLE EIGHTEEN BANBURY ONIONS, the property of Mr. P. J. Perry, Seed Merchant, Banbury, from a number of Bulbs exhibited by him, not for competition—Whoever will give such information as will lead to the apprehension and conviction of the offender or offenders shall receive the above reward on application to Mr. P. J. PERRY, Seed Merchant, Banbury.

Hawes.

M. GRANT, NURSERYMAN, Newry, Ireland, has about 100 tons of clean, freshly-gathered HAWS for Sale, in lots to suit purchasers. Lowest price per ton on application.

Also, about 150,000 splendid 1-yr. CRAB, from 6 to 15 inches. Samples, &c., on application to above address.

ARTOCARPUS CANNONI.—The most distinct and striking New Ornamental Stove Plant sent out in 1875. *Vide* illustration and description in the *Florist and Pomologist* for last September. Price 10s. 6d. each.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

To the Trade.

STANDARD APPLES, STANDARD APPLES,
By the Dozen, Hundred, or Thousand.

JOHN PERKINS AND SON beg to offer fine STANDARD APPLES, 5 to 6 feet stems, good heads, and all the best sorts, at 70s. per 100.

Address—52, Market Square, Northampton.

Trade.—Autumn, 1875.

SEAKALE for Forcing, 100,000, extra strong, 80s. per 1000; strong, 60s. per 1000.

Dwarf ROSES on Manetti, 25s. per 100, £10 10s. per 1000, my selection. As good as money can procure. A remittance must accompany all orders, by cheque or post-office order.

RICHARD LOCKE, Alexandra Nurseries, Red Hill, Surrey.

J. BOOTH, FLORIST, Failsworth, Manchester, has to offer to the Trade the finest varieties of CARNATIONS and PICOTEES in cultivation, at the following prices, for cash:—

100 Finest Show Carnations and Picotees, in 30 sorts, 30s.
200 " " in 40 sorts, 55s.

CATALOGUES on application. Selection left to me.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.

Highgate Nurseries, London, N.

Stephanotis floribunda.—A Rare Bargain.

WM. KNIGHT, Floral Nurseries, Hailsham, Sussex, offers to the Trade, for cash, 100 healthy plants of the above, best variety, for £5, in 60-sized pots; also a few dozen extra strong flowering plants, for 30s. per dozen. Also TWENTY ACRES of GENERAL NURSERY STOCK, in excellent condition. CATALOGUES on application.

To the Trade.

Home-grown GARDEN and AGRICULTURAL SEEDS.

H. AND F. SHARPE'S Wholesale Special Priced LIST of the above Seeds of 1875 growth is now ready; it comprises all the best sorts in cultivation. The quality is very fine, and the prices will compare favourably with those of other growers.

Seed Growing Establishment, Wisbech.

Vines, Vines, Vines.

B. S. WILLIAMS begs to announce that his stock of VINES is now in fine condition, and ready for sending out. It comprises all the leading kinds, strong Canes of Pearson's Golden Queen.

For prices and description see BULB CATALOGUE.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

General Nursery Stock.

WOOD AND INGRAM'S General Descriptive CATALOGUE of the above, including FRUIT TREES, Hardy CONIFEROUS and TAXACEOUS PLANTS, EVERGREENS, ORNAMENTAL TREES and SHRUBS, HARDY CLIMBERS, FOREST TREES, ROSES, &c., is now ready, and will be sent free on application.

The Nurseries, Huntingdon.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON, Whips Cross and Orford Road Nurseries, Wood Street, Walthamstowe, Essex, N.E., offer the above. Part of their Nurseries being required for building purposes, it must be cleared. Trains from Liverpool Street Station, Great Eastern Railway, to Wood Street Station, which adjoins their Whips Cross Nursery, down and up, every half hour.

Cheap Marechal Niel Rose, from Paris.

LÉVÊQUE AND SON, NURSERYMEN, 26, Rue du Liégat, Ivry-sur-Seine, beg to offer strong MARECHAL NIEL ROSE, from outdoors, Dwarfs and Standards. Dwarfs, 50s. per 100; Standards, £5.

L. & SON also have a splendid stock of TEA ROSES, grown in small pots, and generally strong, from £2 8s. to £3 per 100. Standards, Perpetuals, splendid heads, clean, and well rooted, from £4 (their choice) to £6.

LISTS and Prices on application.

Superb Double Hollyhocks.

WILLIAM CHATER begs to announce that he can supply fine Seedlings with colours named, from 9s. to 12s. per dozen.

Unbloomed Seelings, from 6s. to 9s. per dozen. Named Varieties, once bloomed, from 18s. per dozen.

W. C. strongly recommends Autumn Planting.

The Nurseries, Saffron Walden.

Turf.

J. CHEAL AND SONS, of the Lowfield Nurseries, Crawley, Sussex, can supply first-class TURF for Lawns, at 3d. per square yard, on rail, at Crawley Station. Special prices for large quantities.

Priced CATALOGUES of their extensive stock of TREES and SHRUBS free by post.

New Cucumber.

COOLING'S KING of the CUCUMBERS, a cross between Long Gun and Telegraph, combining the best qualities of both varieties. Fruit 18 to 24 inches; colour deep glossy green, very smooth and handsome; flesh, crisp and solid, very free bearer. The best Cucumber ever sent out. Price, 2s. 6d. per packet. Trade terms on application.

Mile Ash Nurseries, Derby.

From Paris.—New Roses for 1875-1876.

LÉVÊQUE AND SON, NURSERYMEN, 26, Rue du Liégat, Ivry-sur-Seine, offer the following NEW ROSES:—H.P. Duc de Montpensier, Avocat Duvivier, Monseigneur Fournier, which are recommended. Also fifty others of other growers. One plant added for Discount if twelve plants or twelve sorts are taken.

LISTS and Prices on application.

To the Trade.

BILLING ROAD NURSERIES, NORTHAMPTON.

JOHN PERKINS AND SON beg to call particular attention to their large stock of Standard and Dwarf-trained FRUIT TREES, APPLES, PEARS, PLUMS, PEACHES, NECTARINES, and APRICOTS, strong GOOSEBERRIES and CURRANTS, EVERGREEN SHRUBS, CONIFERÆ, and FOREST TREES. Trade LIST upon application to

52, Market Square, Northampton.

To the Trade.—Seed Potatos.

H. AND F. SHARPE are prepared to make Special Offers of SEED POTATOS grown on their own Farms from the finest selected stocks. Their List this season comprises all the English and American varieties worthy of cultivation. The prices will be found very moderate.

Seed-growing Establishment, Wisbech.

To the Trade.

MESSRS. JOHN AND GEORGE McHATTIE, SEED MERCHANTS, Chester, can supply the following, at moderate prices:—

Extra strong SEAKALE, for forcing.
Strong SEAKALE, for planting out.
Extra strong ASPARAGUS, for forcing.
Strong ASPARAGUS, of the best kinds for beds.
MONA'S PRIDE KIDNEY POTATOS.
MYATT'S PROLIFIC KIDNEY POTATOS.
PATERSON'S VICTORIA POTATOS.

Samples on application.

GRAPE VINES.—A fine stock of Black Hamburgh and other popular sorts, including the new varieties—Venn's Black Muscat, Waltham Cross, and Duke of Buccleuch—in strong, well ripened Fruiting and Planting Canes. Prices on application to
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

CABBAGE PLANTS for SALE.—Good strong Plants of Early Battersea, Enfield Market, Improved Nonpareil, and Robinson's Champion Cattle Cabbage, can be supplied at 3*s.* per 1000. Package free for cash with order.
The above are all well-rooted stuff, growing on red sand, and cannot fail to give satisfaction.
S. BIDE, Alma Nursery, Farnham, Surrey.

CHRYSANTHEMUM FLOWER SHOW

AT THE

PINE-APPLE NURSERY,

32, MAIDA VALE, EDGWARE ROAD, LONDON, W.

This extensive COLLECTION of CHRYSANTHEMUMS is now and will continue till Christmas in great perfection.

On View in the Grand Winter Garden Conservatory.

CATALOGUES with full description forwarded Free by Post.

ADDRESS—THE PINE-APPLE NURSERY COMPANY,
32, MAIDA VALE, LONDON, W.

THE CORINIUM GUINEA COLLECTION OF BULBS

WILL PLEASE EVERYBODY.

THESE COLLECTIONS, which gave so much satisfaction last season, are suitable for Outdoor, also Conservatory and Greenhouse. They contain great variety, and are the best and cheapest ever offered.

H. I., Market Harborough, says:—"The Bulbs from your firm have turned out very good.
W. P. B., Bridport, says:—"It gives me great pleasure to say the Collection of Bulbs you sent last year gave great satisfaction."

25 HYACINTHS, choice for borders.
6 Ditto, choice for pots or water.
12 NARCISSUS, for pots.
12 Ditto, for borders.
12 JONQUILS.
25 TULIPS, assorted.
25 RANUNCULUS.
200 CROCUS, assorted.
100 SNOWDROPS.
50 ANEMONES.
4 IXIAS.
6 SCILLAS.
6 TRITELEIA ODORATA.
50 WINTER ACONITES.

Carriage Paid to any Railway Station in England.

Jno. Jefferies & Sons,
SEED MERCHANTS AND NURSERYMEN, CIRENCESTER.

GRAND NEW HARDY EVERGREEN FLOWERING SHRUB, &c.

HYPERICUM PATULUM (Thunb.).

This magnificent shrub is a grand acquisition to our scanty list of hardy flowering species; its individual flowers, which are produced in bunches, are pale yellow in colour, and of great substance, resembling much in appearance the beautiful Gordonia javanica of our stoves. It continues long in perfection, commencing to flower in June, and has been in fine perfection till the first week in November. We can endorse all M. CARRIÈRE says of it in the *Revue Horticole* of May 1, 1875 (it is also figured there):—"This is a species we feel convinced is destined to create a sensation in the horticultural world; it seems in fact to unite all the qualities desirable in a plant—hardiness, vigour, fine evergreen foliage, flowers large and numerous, a free flowering habit, prolonged from June without interruption till the frost comes." We have a fine stock of flowering bushes, from 2 to 3 feet in height.

See Catalogue, free on application.

DIOSPYROS KAKI (New Fruit).

Of this New Japanese Fruit we have introduced from Japan four of the best cultivated varieties. The ripe fruit resembles much in appearance that of an Apricot, having a bright orange colour, covered with a delicate bloom, and attaining a size of from 2½ to 3 inches in diameter. The flavour approaches that of an Apricot, gradually passing into that of a Medlar, and when fully ripe is very pleasant. A Fruit was exhibited at the Fruit Committee of the Horticultural Society, November 10, 1875. We have a fine stock of two-year-old grafted plants of our own growing, fit for training against a wall or to grow as bushes.

For further particulars, see our Catalogue, free on application.

THE NEW PLANT AND BULB COMPANY,
LION WALK, COLCHESTER.

New Roses.

WM. PAUL AND SON beg to offer the following NEW ROSES:—
STAR of WALTHAM, 7*s.* 6*d.* to 10*s.* 6*d.* each.
QUEEN of WALTHAM, 5*s.* to 7*s.* 6*d.* each.
These have been acknowledged by many of our first Rose amateurs, who had seen them blooming in the Nurseries here, to be two of the best novelties of the season.
Coloured Plates, free by post, 1*s.* each.
250,000 ROSES, new and old, now on Sale, of superior qualities, at very reasonable prices. Priced Descriptive CATALOGUE free by post.
PAUL'S Nurseries, Waltham Cross, Herts.

Gladioli.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), has the honour to inform his numerous Friends and the Public that he will be prepared to supply them, on and after November 15 next, at the lowest possible price, with all they may require in Gladioli.

NEW VARIETIES for 1875-76 (Souchet's):—

Amaranth	Leandre
Camille	Miriam
Christophe Colomb	Niobe
Esther	Phœnix
Fiammetta	Rosita
Hecla	Titania.

The Twelve Varieties for £3 12*s.*, carriage free to London.
CATALOGUES will be forwarded on application, about the end of October.

Gladioli.—New Roses.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), will place in commerce, in November next, the following magnificent ROSES, obtained by him from seed, and which gained a Silver-gilt Medal at the Paris Exposition in June:—

HYBRID PERPETUALS.

Abel Carrière	Guillaume Koëlle
Dingee Conard	L'Etincelante
Duchesse de Chartres	Mme. Grandin-Monville
Edmund Wood	Mme. Prosper Langier
Général de Cissey	Mdlle. Berthe-Sacavin
Général Duc d'Aumâle	Mdlle. Emilie Verdier.

The Twelve Varieties for £10 16*s.*, carriage free to London.
IMMENSE STOCK of GLADIOLI.
CATALOGUES of Gladioli and of all the New Roses may be had on application, about the end of October.

Bulbs, Bulbs.

THE HEATHERSIDE NURSERIES COMPANY (LIMITED), 59, Queen Victoria Street, London, E.C.; Nurseries—Bagshot, Surrey.
Illustrated CATALOGUES Gratis.

Our special Guinea Collection contains:—

9 Hyacinths, choice named.	12 Anemones, finest single.
9 do., in 3 colours for beds.	3 Lilies.
18 Daffodils, double.	25 Ranunculus.
18 Tulips, mixed, choicest double.	18 Narcissus, double, white.
18 do., mixed, choicest single.	18 do., Poeticus.
6 Jonquils.	18 Tulips, Duc Van Thol.
6 Triteleia uniflora.	6 Polyanthus Narcissus, choicest varieties.
50 Crocus, large blue.	9 Violets, Dog's-tooth.
25 do., large white.	9 Iris, English.
50 do., large yellow.	12 do., Spanish.
25 do., large striped.	25 Snowdrops.
12 Anemones, finest double.	

Packing and Carriage Free.

SPECIAL OFFER to the Trade.
40,000 GOOSEBERRIES, best sorts.
20,000 Northumberland Fillbasket RASPBERRY CANES.
10,000 Red and White CURRANTS.
100,000 EVERGREEN PRIVETS.
50,000 WYCH ELMS.
50,000 STRAWBERRY PLANTS.
Also a large quantity of HORNBEAM, LIMES, OAKS, POPLARS, SYCAMORE, MOUNTAIN ASH, ALDER, BIRCH, TREE BOX, LAURELS, ENGLISH YEWS, BROOM, HONEYSUCKLE, SWEET BRIARS, LILACS, and SYRINGAS of all sizes. Price on application to
JOSEPH GREEN, The Nurseries, Garforth, near Leeds.

W. ROSSITER, Paignton, Devon, has for Sale several thousand fine-rooted and strong TREES and SHRUBS, very cheap, of the following sorts:—

Spanish Chestnuts, 10 to 12 ft.	Abies Douglasii, 6 to 8 feet
Horse Chestnuts, 10 to 12 feet	Cupressus Lawsoniana, 8 to 10 feet
Birch, 10 to 12 feet	,, macrocarpa, 5 to 6 feet
Elms, in sorts, 10 to 12 feet	Thuja Lobbii, 8 to 10 feet
Turkey Oaks, 10 to 12 feet	Thujopsis borealis, 6 to 8 feet
English Oaks, 10 to 12 feet	Cedrus Deodara, 6 to 8 feet
Lime trees, 8 to 10 feet	Irish Yew, 6 to 8 feet
Judas trees, 6 to 8 feet	Cypress, 4 to 5 feet
Poplars, in sorts, 10 to 12 feet	Arbor-vitæ, in sorts, 4 to 6 ft.
Beech, 5 to 6 feet	Portugal Laurels, 4 to 5 feet
Mountain Ash, 10 to 12 feet	Green Hollies, 3 to 4 feet
Ailantus glandulosa, 10 to 12 feet	Bays, 2 to 3 feet
Sycamore, 10 to 12 feet	Laurustinus, 2 to 3 feet
Laburnums, 8 to 10 feet	Veronicas, in sorts, 2 to 3 feet
Pinus austriaca, 5 to 6 feet	Escallonia, in sorts, 2 to 3 feet
Silver Firs, 5 to 6 feet	Lilac, in sorts, 5 to 6 feet

AVENUE TREES.

	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 ,,
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 ,,
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 ,,
,, Scarlet, 10 to 14 feet high	8 to 10 ,,
,, Double, 10 to 14 feet high	8 to 10 ,,
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 ,,
ELMS, 15 to 18 feet	7 to 9 ,,

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots. They are unquestionably the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.
Knap Hill Nursery, Woking, Surrey.

THE KNAP HILL CYPRESS,

Cupressus Lawsoniana erecta viridis.

ANTHONY WATERER

Will be happy to supply beautiful specimens of this famous hardy Evergreen, at the following prices :—

3 feet high, 2½ feet in circumference, 30*s.* per doz.
4 feet high, 3 to 4 feet do., 42*s.* to 60*s.* per doz.
5 feet high, 4. 5 and 6 ft. do., 10*s.* 6*d.*, 15*s.* to 21*s.* each.
6 and 7 feet high, 6to7 and 8 ft. do., 21*s.* to 31*s.* 6*d.* each.

No cuttings have been taken from the plants here referred to, which are simply perfect in growth and splendidly rooted.

KNAP HILL NURSERY, WOKING, SURREY.

TO THE TRADE.

JAS. GARAWAY & CO.

OFFER

ALMONDS, standards, fine, 15*s.* per dozen.
BAYS, 1 to 2 feet, 6*s.* per dozen ; 2 to 3 feet, 9*s.* per dozen.
CHESTNUTS, Scarlet, 6 to 8 feet, 10*s.* per dozen ; 8 to 10 feet, 15*s.* per dozen.
ELMS, Chichester, 3 to 4 feet, 20*s.* per 100 ; 4 to 6 feet, 30*s.* per 100 ; 6 to 8 feet, 50*s.* per 100.
" " extra fine, 8 to 10 feet, 75*s.* per 100 ; 10 to 12 feet, 100*s.* per 100 ; 12 to 16 feet, 120*s.* per 100.
ESCALLONIA MACRANTHA, in pots, 9*s.* per dozen.
LAUREL, Portugal, 2 to 3 feet, bushy, 10*s.* per dozen.
LIMES, 8 to 10 feet, 9*s.* per dozen ; 10 to 12 feet, 18*s.* per doz.
OAKS, Evergreen, in pots, 2 to 3 feet, 9*s.* per dozen, 60*s.* per 100 ; 3 to 4 feet, 12*s.* per dozen, 90*s.* per 100.
PÆONIES, Moutan, Tree, 12*s.* per dozen.
WILLOWS, Kilmarnock Weeping, 18*s.* per dozen.

Fruit Trees.

Leading sorts, good trees, our selection.

APPLES, dwarf-trained, 15*s.*, 18*s.*, and 21*s.* per dozen.
" standards, 15*s.* per dozen.
APRICOTS, Maidens, 9*s.* per dozen, 60*s.* per 100.
" dwarf-trained, 30*s.* and 36*s.* per dozen.
CHERRIES, Mayduke and Morello, dwarf-trained, 24*s.* per dozen.
NECTARINES, Maidens, 9*s.* per dozen, 60*s.* per 100.
" dwarf-trained, 30*s.* and 36*s.* per dozen.
PEACHES, Maidens, 9*s.* per dozen, 60*s.* per 100.
" dwarf-trained, 30*s.* and 36*s.* per dozen.
PEARS, dwarf-trained, 18*s.* and 21*s.* per dozen.
" pyramids, 3 to 4 feet, 12*s.* per dozen, 75*s.* per 100 ; 4 to 5 feet, 15*s.* per dozen, 100*s.* per 100.
" standards, 18*s.* per dozen, 125*s.* per 100.
PLUMS, dwarf-trained, 18*s.* and 21*s.* per dozen.
" pyramids, 4 to 5 feet, 12*s.* per dozen ; 5 to 6 feet, 15*s.* per dozen.
" standards, 15*s.* per dozen.

JAS. GARAWAY AND CO.,
Durdham Down Nurseries, Clifton, Bristol.

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

TO THE TRADE.

CRANSTON AND MAYOS beg to offer very fine—

Dwarf-trained PEARS.
Dwarf-trained APPLES.
Dwarf-trained PLUMS.
Dwarf-trained CHERRIES.
Dwarf-trained PEACHES.
Dwarf-trained NECTARINES.
Pyramid APPLES.
Pyramid PEARS.
Pyramid PLUMS.
Pyramid CHERRIES.

The Largest Stock of DWARF ROSES in the Trade.

PRICED LISTS ON APPLICATION.

THE NURSERIES, HEREFORD.

FIRST PRIZE ROSES,

FROM

CRANSTON'S NURSERIES, HEREFORD.

Try our One Guinea, Two Guinea, and Three Guinea Collections.

ONE GUINEA COLLECTION contains Thirty Selected First-class Show Roses.

TWO GUINEA COLLECTION contains Sixty Selected, Distinct, and all First-class Show Roses.

THREE GUINEA COLLECTION contains One Hundred of the Finest Roses, New or Old, in cultivation, Selected from upwards of 600 Varieties.

Either of the above Collections will be carefully packed and forwarded, on receipt of Cheque or Post Office Order payable to

CRANSTON and MAYOS,
HEREFORD.

To Noblemen, Gentlemen, and Others Engaged in PLANTING.

JOHN PERKINS AND SON beg to call particular attention to their large Stock of the following, the whole of which are stout and well rooted :—

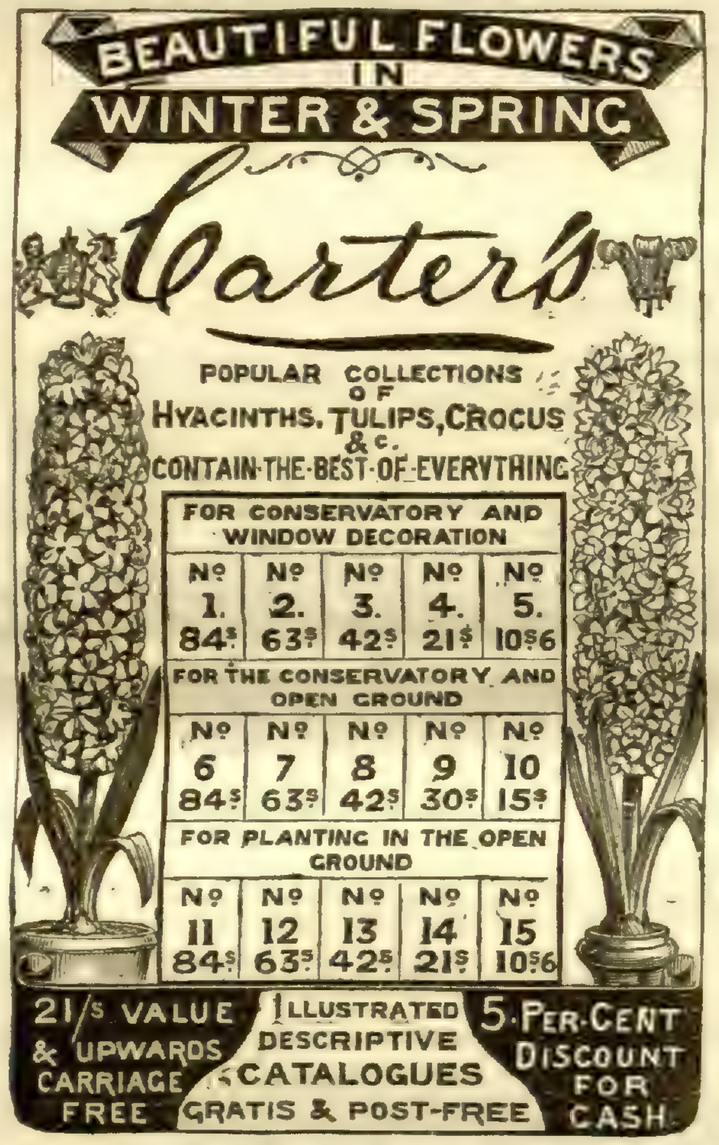
ASH, 2 to 3 feet.
BEECH, 2 to 3 feet.
BIRCH, 2 to 3 feet.
FIR, Balm of Gilead, 2 to 3 and 3 to 4 feet.
PINE, Austrian, 1½ to 2, 2 to 3, and 3 to 4 feet.
CHESTNUT, Spanish, 2 to 3, 3 to 4, and 4 to 5 feet.
ELM, Wych, 2 to 3, and 3 to 4 feet.
" English, grafted, 3 to 4, and 6 to 8 feet.
" stricta, grafted, 3 to 4, and 6 to 8 feet.
HAZEL, 2 to 3 feet.
HORNBEAM, 1½ to 2, and 3 to 4 feet.
LARCH FIR, 1½ to 2, and 2 to 3 feet.
OAKS, English, 3 to 4, and 4 to 5 feet.
SCOTCH FIR, 1½ to 2, and 2½ to 3 feet.
SPRUCE FIR, 1½ to 2, and 2 to 3 feet.
PINE, Weymouth, 2 to 3, 3 to 4, and 4 to 5 feet.

PLANTS SUITABLE FOR GAME COVERTS, &c.

BERBERIS AQUIFOLIA, 1 to 1½, and 1½ to 2 feet.
BLACKTHORNS, fine, 1½ to 2, and 2 to 3 feet.
BOX, Tree, 1½ to 2, and 2 to 3 feet.
GORSE, 1-yr.
HOLLY, Green, 1½ to 2, 2 to 3, and 3 to 4 feet.
LAURELS, common, 2 to 3, and 3 to 4 feet.
" Portugal, 1½ to 2, 2 to 3, and 3 to 4 feet.
PRIVETS, Evergreen, 1½ to 2, 2 to 3, and 3 to 4 feet.
SNOWBERRY, 2 to 3 feet.
WHITETHORN or QUICKS, strong, 1½ to 2, and 2 to 3 feet.
YEWS, English, 1½ to 2, 2 to 3, and 3 to 4 feet.

Descriptive CATALOGUES of General Nursery Stock on application to

52, Market Square, Northampton.



From FRED. WALTON, Esq.
"*October* 15, 1874.
"The Collection of Bulbs is truly a wonderful one for money."

Early Orders ensure the Best Roots.

Carter's

The Queen's Seedsmen,
237 & 238, HIGH HOLBORN, LONDON, W.C.

To the Members of the Royal National Tulip Society and Others.

WILLISON'S CELEBRATED TULIPS.—In consequence of the decease of Wm. Willison, of Newgardens, Whitby, this large and valuable Collection, comprising 1300 varieties, is now offered to the public, amongst which are many first-class Seedlings never sent out, also a large quantity of the old named sorts, all in boxes and carefully ARRANGED CORRECT TO NAME. The whole or any quantity for Tenders, and all Tenders must be in by the 30th instant. CATALOGUES on application to

ALEXANDER WILLISON, Esk Place, Whitby.

CATALOGUES

OF

Trees, Shrubs, Roses and Fruit Trees,

ALSO

CLEMATIS, &c., for 1875-76,

Free by Post on application to

GEORGE JACKMAN AND SON,
WOKING NURSERY, SURREY.

MR. WILLIAM BULL

IS NOW SENDING OUT THE

NEW REGAL PELARGONIUM

"BEAUTY OF OXTON,"

Price One Guinea each.

A Drawing of the above, by MACFARLANE, *can be had on application, price* 2*s.* 6*d.*

ESTABLISHMENT for NEW and RARE PLANTS,
King's Road, Chelsea, London, S.W.

JAMES IVERY & SON,

DORKING AND REIGATE NURSERIES,

Beg to offer the following

LARGE EVERGREENS, PINUS, &c.,

fit to produce an immediate effect :—

PINUS AUSTRIACA, in heights varying from 6 to 10 feet.
" EXCELSA, ditto, from 8 to 20 feet.
" CEMBRA, ditto, from 6 to 10 feet.
ABIES DOUGLASII, ditto, from 8 to 15 feet.
" MENZIESII, ditto, from 6 to 10 feet.
CUPRESSUS LAWSONIANA, ditto, from 6 to 9 feet.
CEDRUS DEODARA, ditto, from 6 to 15 feet.
YEW, Irish, ditto, from 6 to 9 feet.
" Common, ditto, from 6 to 10 feet.
LAUREL, Common, ditto, from 4 to 6 feet.
BOX, Green, ditto, from 4 to 5 feet.
HOLLY, Green, ditto, from 6 to 9 feet.
SCOTCH, SPRUCE, and WEYMOUTH FIR, ditto, from 6 to 10 feet.
LIMES, ditto, from 8 to 20 feet.
BIRCH, ditto, from 8 to 10 feet.
WALNUTS, ditto, from 8 to 10 feet.
POPLARS, of sorts, ditto, from 8 to 10 feet.

Also NUTS of sorts, including Cobbs, Cosford's Prolific, and many of WEBB'S new varieties, 3 to 5 feet ; and large quantities of COMMON YEW, SPRUCE, HOLLY, AUCUBAS, COMMON LAURELS, LAURUSTINUS, PORTUGAL LAURELS, ARBOR-VITÆ, CUPRESSUS, PINUS of sorts, &c., 2, 3, and 4 feet.

The above are all well grown, healthy stuff, and will move well. Prices on application. Please address

THE NURSERIES, DORKING, SURREY.

HOLLIES.

Twenty Thousand of the Finest Varieties of GREEN AND VARIEGATED HOLLIES, 4, 5, 6, 7, 8, and 10 feet.

The Plants are all handsomely Grown and properly Rooted.

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

VENN'S BLACK MUSCAT.

JOHN KEYNES

Has a few first-rate Fruiting Canes of this magnificent variety. It is unquestionably the finest Black Grape in cultivation for growth and flavour : 21*s.* each. No Planting Canes. J. K. can also supply a few other kinds grown from last year's eyes, for which he is so celebrated. Fine fruiting well-ripened Canes, 10*s.* 6*d.* each. None left for the Trade.

ROSES.

Fine well-ripened not overgrown plants as usual. These Roses, not having been forced, will grow on any soil.

CATALOGUES now ready. Amateurs, try them.

Castle Street, Salisbury.

Hooper's — for Spring & Autumn blooming Bulbs.

Purchasers will find a REAL ADVANTAGE in procuring one or more of Hooper's assortments of Bulbs, which are prepared as under :—

For both INDOOR and OUTDOOR CULTURE.
No. 1, £4 4*s.* (containing 1345 bulbs) ; No. 2, £3 3*s.* ; No. 3, £2 2*s.* ; No. 4, £1 1*s.*

For CONSERVATORY and WINDOW CULTURE.
No. 5, £4 4*s.* (containing 446 bulbs) ; No. 6, £3 3*s.* ; No. 7, £2 2*s.* ; No. 8, £1 1*s.*

For OUTDOOR CULTURE only.
No. 10, £4 4*s.* (containing 1701 bulbs) ; No. 11, £3 3*s.* ; No. 12, £2 2*s.* ; No. 13, £1 1*s.*

All carriage free on receipt of remittance.
CATALOGUES may be had on application.
HOOPER AND CO. Covent Garden, London, W.C.

WORCESTER PEARMAIN APPLE.

Awarded a First-class Certificate by the Royal Horticultural Society, October 6, 1875.

Fruit 2¾ inches wide, and same in height, conical; skin smooth, brilliant red, with minute fawn-coloured dots; flesh very tender, crisp, juicy, and sweet, with a very pleasant flavour, perhaps the most valuable of all for market. The tree is as productive as Lord Suffield Apple, and one of the handsomest fruits in cultivation. Ripe end of August, and will keep till Christmas.

Maiden Trees, 10s. 6d. each; Pyramid or Trained Trees, 21s. each. Coloured Plates, 6d. each.

RED HAWTHORNDEN APPLE.—Dr. Hogg describes this as large, oblate, and angular; skin smooth, greenish yellow, with a red blush next the sun; flesh white, tender and juicy, with a sprightly and agreeable acidity. A very early and valuable culinary Apple; ripe August and September. Maiden trees, *7s. 6d.* each; Pyramid or trained trees, *10s. 6d.*

YORKSHIRE BEAUTY APPLE.—Dr. Hogg, in his *Manual*, says this fruit is 3½ inches wide and 3 inches high, roundish, flattened, and angular; skin bright yellow, with a bright red blush on the sunny side; flesh tender and juicy, with an agreeable acidity. A first-rate culinary Apple for August and September, the great size and excellent quality ought to commend it as a good orchard fruit for the market. Maiden trees, *5s.* each; Pyramid or trained trees, *7s. 6d.*

NEW GOLDEN LABURNUM.—Unquestionably the finest hardy golden-leaved tree known, of immense value for park and garden scenery; it will take a foremost position among pictorial and garden trees; the foliage is a brighter golden-yellow than the flower of the ordinary Laburnum. First-class Certificate awarded by the Royal Horticultural Society, August 4, 1875. Price *10s. 6d.* each; Standard and extra strong trees, *21s.* Coloured plates, *6d.* each.

OTHERA JAPONICA.—A new and beautiful evergreen shrub. One of the most distinguished Japanese travellers says this is perhaps the prettiest evergreen they have in Japan; it grows about 20 feet high, has dark green leaves and a profusion of bright red fruit; it is very effective and perfectly hardy. Price *10s. 6d.* each; extra strong, *21s.*

CLIMBING ROSE, COUNTESS of OXFORD.—The old variety in all respects, except in being a free climber. *7s. 6d.* each.

FIFTY ACRES OF FRUIT TREES.

Standard and Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, very fine trees for walls.

Standard, Pyramid, Dwarf, Bush, and Cordon APPLES, PEARS, PLUMS, and CHERRIES.

ORCHARD HOUSE TREES, Established in Pots, for Immediate Fruiting.

PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, APPLES, FIGS, ORANGES, and MULBERRIES.

VINES, Planting Canes, 3*s. 6d.* to 5*s.* each; Extra Strong Fruiting Canes, 7*s. 6d.* to 10*s. 6d.* each.

All the above of superior quality, perfect in form, roots, and health, and true to name.
See Descriptive Price List.

TWELVE ACRES OF ROSES,

Standards and Dwarfs, all the popular sorts; 80,000 choicest Tea-scented and Noisette Roses, in pots. Extra strong Hybrid Perpetual Roses, in pots for immediate forcing. Climbing Roses in great variety. *See Descriptive Price List.*

FOR SHRUBBERIES.

	Per 100.
LAUREL, Colchic, the best hardy variety	3 to 4 feet, 35*s.*
,, Portugal, very fine	1½ to 2 feet, 35*s.*
,, Portugal, very fine	2 to 2½ feet, 50*s.*
,, Caucasian, very fine	2 to 3 feet, 50*s.*
,, Round-leaved, extra fine	2 to 3 feet, 70*s.*
,, Six distinct and beautiful vars.	2 to 3 feet, 50*s.*
COTONEASTER SIMONSII, fine	3 to 4 feet, 35*s.*
PYRUS JAPONICA	2 to 3 feet, 50*s.*
EUONYMUS RADICANS VARIEGATA	1 foot, 40*s.*

	Per 100.
CISTUS LAURIFOLIA, in pots	1½ to 2 feet, 50*s.*
ARBUTUS (Strawberry tree)	1½ to 2 feet, 60*s.*
,, (Strawberry tree)	2 to 2½ feet, 75*s.*
CEPHALOTAXUS DRUPACEA	1½ foot, 60*s.*
TREE IVIES, full of flower	1 to 1½ foot, 75*s.*
LAURUSTINUS	1 to 1½ foot, 40*s.*
BROOMS, White and Yellow	2 to 3 feet, 30*s.*
YEW, English, bushy	1½ to 2 feet, 40*s.*
,, English, bushy	2 to 2½ feet, 60*s.*
,, English, bushy	2½ to 3 feet, 80*s.*
,, Golden, bushy	1 to 1½ foot, 90*s.*

	Per doz.
JUNIPER, Chinese	4 to 5 feet, 36*s.*
,, Chinese	5 to 6 feet, 42*s.*
OAK, Austrian Evergreen	2½ to 3 feet, 30*s.*
,, Austrian Evergreen	3 to 4 feet, 42*s.*
,, Ford's Evergreen	3 to 4 feet, 36*s.*

	Per doz.
CRYPTOMERIA ELEGANS	2 to 2½ feet, 21*s.*
PICEA PINSAPO	2 to 2½ feet, 36*s.*
,, PINSAPO	2½ to 3 feet, 42*s.*
YUCCA GLORIOSA PENDULA	12 to 15 in., 12*s.*
,, GLORIOSA PENDULA	15 to 18 in., 18*s.*

	Per 100.
IVY, strong, for climbing	3 to 4 feet, 40*s.*
VIRGINIAN CREEPER	3 to 4 feet, 40*s.*

	Per 100.
ROSES, Climbing, in variety	3 to 4 feet, 40*s.*
HONEYSUCKLES, in variety	3 to 4 feet, 40*s.*

JUNIPERUS CHINENSIS.—One of the hardiest and most ornamental Shrubs in cultivation, and especially valuable to the landscape gardener. In spring it is quite golden with its numerous flowers, which, when shaken with the wind, give off a cloud of yellow dust; and if the plant be kept closely pruned, the young growth becomes so luxuriant and leafy that it gives an entirely different, but equally pleasing effect in its silvery tinge and rigid outline. When left to its own growth it forms a noble green pillar, highly suitable to stand in pairs by a garden walk. Eight to 9 feet, 10*s.* each; £4 4*s.* per dozen.

PICEA PINSAPO.—A very handsome, densely branched tree. The branches are very thickly placed in whorls and spread horizontally, thus giving a singularly beautiful appearance. It is one of the most distinct and desirable trees for ornamental planting, especially for a lawn. Its perfect symmetry of form is so striking that it should have a place in every collection. Eight to 10 feet, 25*s.* each; £12 per dozen.

ABIES DOUGLASII.—This, the most noble of Evergreen Firs, is of rapid growth, hardy, produces valuable Timber, close, heavy, and free from knots, of the colour of Yew wood. It is a native of California, where it grows upwards of 300 feet high, with a trunk 10 feet through. The flagstaff at Kew is of this tree, and was, when growing, 309 feet high. There is at Dropmore (Bucks) a specimen measuring at the present time 100 feet high, and 90 feet through the branches, with a trunk 9 feet in circumference at 4 feet above the base. It was raised from seed sown by Mr. Frost, the present gardener, in 1828, and is now a model of beauty. 12 to 15 feet, 12*s. 6d.* each, £5 per doz.

THE SILVER CEDAR of MOUNT ATLAS.—Now is the time to plant this eminently beautiful tree, unsurpassed for majestic grace and picturesque grandeur even by the Cedar of Lebanon, which it much resembles; and many consider it a variety, but its leaf is more silvery, it grows twice as fast, and its timber is very valuable. Noble trees, 10 to 12 feet, 25*s.* each, £12 per dozen.

DECIDUOUS FLOWERING SHRUBS in 50 beautiful varieties, 30*s.* per 100.
AVENUE AND ORNAMENTAL TREES, many thousands in great variety. See Priced Lists.

STANDARD ORNAMENTAL TREES.

If less than Six of any kind are Ordered an increased Price will be charged.

	Per doz.—*s.*	*d.*
ACACIA, Decaisneana, pink	24	0
,, Bessoniana, crispa, hispida (Rose Acacia), monophylla, sophoræfolia, viscosa, weeping white	21	0
AILANTUS, glandulosa	18	0
,, glandulosa, extra strong	36	0
ALDER, cordata, incana, macrophylla, and quercifolia	12	0
ALMOND, fruit bearing	21	0
ASH, common, 10 to 12 feet, 60*s.* per 100	9	0
,, aucubæfolia, cucullatus, flowering	18	0
,, juglandifolia, monophylla, orange-barked	18	0
,, salicifolia, small twigged, spectabilis	18	0
,, Waterer's variegated	18	0
,, weeping, and gold-barked weeping	42	0
BEECH, purple-leaved, 8 to 10 feet	42	0
,, purple-leaved, 10 to 12 feet	60	0
,, crested-leaved, Chestnut-leaved, Fern-leaved	42	0
,, Oak-leaved, variegated	42	0
BIRCH, Fern-leaved, silver, weeping, 8 to 10 feet 300*s.* per 100	42	0
,, silver, weeping, 9 to 12 feet 90*s.* ,,	12	0
,, silver, weeping, 14 to 16 feet 125*s.* ,,	18	0
BIRD CHERRY, Virginian	12	0
BROOM, golden, yellow Spanish, white Portuguese	18	0
BROUSSONETTIA, papyrifera	48	0
CATALPA, syringæfolia, and Kæmpferi	42	0
CHERRY, double-blossomed	24	0
,, Mahaleb variegata	21	0
,, hortensis rosea, pendula, and latifolia pendula	30	0
CHESTNUT, Spanish	18	0
,, American, Fern-leaved and variegated	30	0
COLUTEA, red and yellow	12	0
CORNUS, mas variegata	21	0
COTONEASTER, Simonsii	21	0
CYTISUS, austriacus, elongatus, elongatus purpureus	24	0
,, nigricans, purpureus major, sessilifolius	24	0
,, stricta and Weldonii	24	0
ELM, Camperdown, weeping	42	0
,, campestris aurea variegata, Kaki (fine), montana pendula	36	0
,, elegantissima pendula 150*s.* per 100	24	0
,, English, 10 to 12 feet 100*s.* ,,	15	0
,, English, 14 to 16 feet 150*s.* ,,	21	0
,, Chichester, 10 to 12 feet 100*s.* ,,	15	0
,, Chichester, 14 to 16 feet 150*s.* ,,	21	0
,, Berardii, betulæfolia, emarginata, filicifolia	21	0
,, myrtifolia, monumentalis, purpurea	21	0
,, pyramidalis, Dampieri, plumosa, silver var.	21	0
,, suberosa microphylla, suberosa pendula	21	0
,, viminalis pendula, viminalis fol. variegatis, Webbiana, Wheatleyi	21	0
GENISTA, anxantica, præcox, and purgans	30	0
GUELDER ROSE	21	0
HORNBEAM, cut-leaved and weeping	24	0
HORSE CHESTNUT, scarlet, 7 to 8 feet	24	0
,, ,, scarlet, 10 to 12 feet	36	0
,, ,, scarlet, extra strong stems	60	0
,, ,, white, 9 to 10 feet	18	0
,, ,, discolor, double white, double red	30	0
,, ,, macrostachya, Memmingerii, ohioensis, rubicunda nana, variegated and yellow	30	0
JUDAS TREE, purple and white	42	0
KOLREUTERIA, paniculata, 5 to 6 feet	30	0
LABURNUM, Alkengerii, English, Scotch, purple, quercifolia	18	0
,, weeping	30	0
LARCH FIR, 8 to 10 feet	9	0
,, ,, 10 to 12 feet	12	0
,, weeping (true)	42	0
,, microcarpa and japonica	18	0
LILAC, Charles X., Persian red and white, Siberian and white	30	0
LIME, red twigged, 9 to 10 feet 140*s.* per 100	18	0
,, red twigged, 10 to 11 feet 175*s.* ,,	24	0
,, red twigged, 11 to 12 feet 200*s.* ,,	30	0
,, red twigged, 12 to 14 feet 250*s.* ,,	36	0
,, red twigged, extra strong stems 42*s.* to	60	0
,, weeping	42	0
,, latifolia alba, Beaumontea (weeping)	30	0
,, dasystyla, yellow-twigged, Fern-leaved and vitifolia	30	0
MAGNOLIA, acuminata, 5 to 6 feet	42	0
MAPLE, campestre punctata	42	0
,, colchicum rubrum	30	0
,, negundo, 5 to 6 feet 40*s.* per 100	6	0
,, ,, 8 to 10 feet 60*s.* ,,	10	0
,, ,, variegata, 5 to 6 feet stems 125*s.* ,,	18	0
,, ,, ,, 7 to 8 feet stems 175*s.* ,,	24	0
,, campestre, laciniatum, pennsylvanicum rubrum	18	0
,, rubrum, striatum, tataricum rubrum, virginicum rubrum	18	0
MOUNTAIN ASH, 9 to 10 feet 70*s.* per 100	10	0
,, ,, large-berried and yellow-berried	18	0
,, ,, weeping and variegated weeping	36	0
OAK, scarlet	30	0
,, Turkey	24	0
,, weeping	42	0
PEACH, double-blossomed	30	0
PEAR, weeping	30	0
POPLAR, grandidentata pendula	30	0
,, Black Italian, Lombardy, Ontario, and silver-leaved 84*s.* per 100	12	0
,, ,, ,, ,, extra strong 100*s.* ,,	18	0
PRIVET, golden variegated weeping, longifolium and weeping	30	0
PYRUS, Aria (White Beam), hybrida, tomentosa pendula	18	0
,, Malus floribunda, spectabilis	18	0
,, albo-plena, imperialis, Kaido, Riversii	18	0
,, spectabilis, Tenorei, carnea nervosa, Fontainebleau	18	0
SIBERIAN CRAB, scarlet and yellow-fruited	18	0
SNOWY MESPILUS, botryapium, florida, grandiflora, ovalis	18	0
SUMACH, typhina (Stag's-horn)	18	0
SYCAMORE, 10 to 12 feet 75*s.* per 100	12	0
,, extra strong 18*s.* to	30	0
,, purple-leaved and variegated	24	0
THORN, Paul's double crimson, double pink, 150*s.* p. 100	21	0
,, double white, single scarlet, and in great variety to name	21	0
TULIP TREES	42	0
WILLOW, caprea tricolor, Kilmarnock, weeping	30	0
,, Wolseyana, weeping	30	0
,, American weeping, Babylonian weeping	24	0
,, Solomon weeping, and Vitellini	24	0
,, extra strong, weeping 30*s.* to	60	0

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LILIUM AURATUM.—Plump and sound English-grown bulbs at 30*s.*, 42*s.* and 60*s.* per dozen. Large importations from Japan are shortly expected, when they will be supplied at 18*s.*, 24*s.* and 30*s.* per dozen.

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CHRISTMAS TREES (large) and SPRUCE FIRS, 2 to 3 feet, £1; 3 to 4 to 5 feet, £2 per 100.
GOOSEBERRY and CURRANT TREES, strong Standard, 60*s.* to 80*s.* per 1000.
VICTORIA and other PLUM TREES, strong Standard, 60*s.* to 70*s.* per 100.
APPLE TREES, bests sorts, strong Standard, 60*s.* per 100.
PEAR TREES, best sorts, strong Standard, 50*s.* per 100.
Strong Pyramids and Bushes of the above cheaper.
W. JACKSON AND CO., Nurseries, Bedale, Yorkshire.

HEDGES and COVERT PLANTING.

QUICKTHORN, 50,000 strong, 3-yr. and 4-yr. transplanted; 50,000 BLACKTHORN or SLOE, 2 to 3 feet; 50,000 EVERGREEN PRIVET, 2 to 3 feet; MOUNTAIN ASH, 4 to 5, and 6 feet, 20,000; with LARCH, SCOTCH FIR, and SPRUCE of various sizes, and suitable for all situations.
JOHN DYKES, Ward's Nurseries, Kilmarnock, N.B.

Dwarf and Standard Roses, &c.

ROSES, splendid Dwarf, as fine as can be bought, 6*s.* and 9*s.* per dozen, 50*s.* per 100; Standards, 12*s.* and 15*s.* per dozen, 100*s.* per 100, all good leading varieties. GOOSEBERRIES, Lancashire Show, 3*s.* and 4*s.* per dozen, 20*s.* per 100. CURRANTS, Red, White, or Black, 3*s.* per dozen, 18*s.* per 100. Trade Price on application.
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PINE PLANTS for SALE.—A Gentleman, who is giving up the cultivation of Pines, has Fruiting and Succession Plants of Smooth Cayennes and Queens to dispose of, warranted clean and healthy. For further particulars apply to
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Lilium auratum (Imported).

THE NEW PLANT and BULB COMPANY beg to announce the arrival of their first consignment of the above, in magnificent condition, at very low prices. Lion Walk, Colchester.

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THE NEW PLANT and BULB COMPANY invite intending purchasers to send for one of their CATALOGUES, which, in addition to Lilies, contains a selection of the best Hardy Flowering and other Plants in cultivation, all remarkably good, and such as will give a fine effect next season. The Trade liberally dealt with.
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SPRUCE FIR, very fine, for Christmas Trees, from 4 to 7 feet high.
PINUS AUSTRIACA, fine, 5 to 6 feet.
IRISH YEWS, fine specimens, 8 feet.
THUJA LOBBII, very fine, 10 feet.
SIBERIAN ARBOR-VITÆ, magnificent specimens, 8 feet.
The above are well-grown and finely rooted. Prices on application.
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VENN'S SEEDLING BLACK MUSCAT combines all good qualities of a Grape. First-class Certificate Royal Horticultural Society, Kensington; also wherever exhibited. Patronised by the principal Grape growers in the kingdom, also by Prince of Wales. Abundant bearer, delicious flavour, thrives equally in hot or cold houses. Hangs perfect until March. Fine planting Canes now on sale, reduced price 15*s.*, delivered to order on receipt of Cheque or Post Office Order, payable to
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G. AND W. STEELL beg to call the attention of all Planters to their very extensive and fine grown NURSERY STOCK, consisting of an excellent selection of Ornamental Evergreen and Deciduous Shrubs and Trees, Standard and Dwarf Rose Trees, Standard and Dwarf Variegated and Green Hollies of the newest and best varieties, Standard and Dwarf Fruit Trees, &c., which they can highly recommend for their fine growth and moving qualities.

N.B.—Where large quantities are required they can be supplied at very low prices.

To Noblemen, Gentlemen, and Others who are REPLANTING this AUTUMN.

R. NEAL begs respectfully to call the attention of the above to his large and varied stock of Hardy SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS, CLIMBING PLANTS, &c., which are now in fine condition for removal. An early inspection invited.
CATALOGUES may be had on application.
The Nurseries, Wandsworth Common, S.W.

J. SCOTT, Merriott, has to offer as under:—
110 AVENUE YEWS, 14 feet high, clean stems, 6 to 7 feet, fine heads, 5*s.* each: also about 30 IRISH YEWS, 10 to 12 feet, handsome trees, 20*s.* each.
5000 BLACK NAPLES and 3000 RED GRAPE CURRANTS, 16*s.* per 100, 4 years old, clean stems.
Large stock of ASH, 4 to 5 feet, 30*s.* per 1000.
HAZEL, 4 to 5 feet, 30*s.* per 1000.
OAK, 6 to 8 feet, 8*s.* per 100.
AUSTRIAN PINE, 1½ to 2½ feet, 30*s.* per 1000.
ABIES DOUGLASII, 3 to 7 feet, 2*s.* 6*d.* to 5*s.* each.
Large sized LIMES, OAKS, ELMS, HORSE CHESTNUTS, BEECH, BIRCH and POPLARS.
CATALOGUES on application.

Evergreen Hedges.—Box, Green Hollies, and LIGUSTRUM OVALIFOLIUM.

R. NEAL, having a very large Stock of the above, can offer the same by the 100 or 1000 at a very low rate.

Also 10,000 ACER CAMPESTRIS, from 5 to 8 feet in height, clean-grown stuff.

Price on application.
The Nurseries, Wandsworth Common, S.W.

LIMES, ENGLISH and IRISH YEWS, &c.
LIMES, of all sizes up to 12 and 14 feet, the larger sizes frequently transplanted, and suitable for avenues, &c.
COMMON YEW, all sizes up to 3 and 4 feet; 2½ feet, bushy, £7 10*s.* per 1000.
IRISH YEW, all grown to single stems and finely furnished, any size up to 5 feet, by the 100 or 1000; 3½ to 4 feet, 50*s.* per 100, extra fine specimens, 12 to 14 feet in height, perfect pyramids, 21*s.* to 30*s.* each.
GOLDEN YEWS, of all sizes, by the dozen or 100; Golden Yews grafted on specimen Irish Yews, with fine heads.
RETINOSPORAS, of all sizes.
JUNIPERUS, fragrans, excelsa, Irish and others.
GOOSEBERRIES and CURRANTS, very strong, per 100 or 1000.
PICEAS.—A few very fine specimens of Picea nobilis glauca, 9 to 10 feet, and finely furnished; also Picea lasiocarpa and grandis, 10 to 12 feet; amabilis, 3 to 6 feet.
CATALOGUES on application.
R. MORRISON, Nurseryman, Elgin, N.B.

BEAUTIFUL FLOWERS,
FOR WINTER AND SPRING.
Very Easy of Culture. *Carriage Free.*

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"GUINEA" COLLECTION
OF
CHOICE FLOWER ROOTS
FOR POTS AND GLASSES

Contains the Finest Assortment of Bulbs yet offered,
including—

12 Hyacinths, named.
6 Ditto, miniature.
6 Jonquils, sweet-scented.
3 Iris, choice.
3 Sparaxis, choice.
36 Tulips, named, including White Pottebakker, Chrysolora, Duchesse de Parma, Keizer Kroon, Standard Royal.
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50 Crocus, named, including Queen of Sheba, Sir Walter Scott, Prince Albert, Ne Plus Ultra.
6 Scillas.
6 Ixias, choice.
3 Oxalis, choice.
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And will be forwarded,

Carriage Free to any Railway Station in England.

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ROYAL BERKS SEED ESTABLISHMENT, READING.

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WHITE ROMAN HYACINTHS, true, pure white, early variety, price very low.
LEUCOJUM VERNUM—Spring Snowflake.
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GLADIOLUS BYZANTINUS.

Snowdrops
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Narcissus poeticus
„ double Roman
„ paper-white
Dielytra spectabilis
Hepatica, single white
„ single blue
„ single red
„ double red
Iris pumila azurea
„ germanica
Hyacinth, blue grape
„ blue feathered
Cyclamen europæum
Triteleia uniflora
Scilla campanulata
Jonquils, double
Dog's-tooth Violets
Double Daffodils
Star of Bethlehem
Pancratium maritimum
Cyclamen persicum.
Lilium bulbiferum.
„ excelsum
„ martagon
„ tigrinum
„ candidum, fol. var.
„ chalcedonicum
„ eximium
„ lancifolium roseum
„ Humboldtii
„ Washingtonianum
„ Szovitzianum
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„ pulchellum
„ auratum
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White Garden Lilies
St. Bruno Lilies.

All in extra fine bulbs. Prices very low. On application to
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CRANSTON AND MAYOS, King's Acre, near Hereford.

Surplus Nursery Stock at Reduced Prices.

THOMAS PERKINS has great pleasure in offering the following, which, having been regularly transplanted, are fine and healthy:—
MAHONIA AQUIFOLIA, 1 to 1½ foot.
CEDRUS DEODARA, 1 to 1½ and 1½ to 2 feet.
GARRYA ELLIPTICA, very fine, from pots.
LAURELS, Portugal, 1 to 1½ and 1½ to 2 feet.
BIRCH, fine Standards, 12 to 14 feet.
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MAPLE, Norway, Standards, 10 to 12 feet.
LIMES, Standards, 8 to 10, and 10 to 12 feet.
ELMS, Huntingdon, Standards, 8 to 10 feet.
OAKS, English, Standards, 8 to 10 feet.
THORNS, Double Pink, and Paul's New Scarlet, 6 to 8 feet.
ALDER, 2 to 3 feet.
LARCH FIR, 2 to 2½ feet.
SPRUCE FIR, 1 to 1½ and 1½ to 2 feet.
HORNBEAM, 3 to 4 and 4 to 5 feet.
EVERGREEN PRIVET, 2 to 3 and 3 to 4 feet.
BLACKTHORN, fine, transplanted.
WHITETHORN, fine, transplanted.
Special prices of the above on application to
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STEPHEN BROWN, Weston-super-Mare, has much pleasure in offering fine roots of the following SUPERB LILIUMS:—

	Each—*s.* *d.*
AURATUM, fine bulbs	2*s.* 6*d.* to 7 6
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„ eight others, fine and distinct	6*d.* to 0 9
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„ white, scarce	3 6
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PHILADELPHICUM	3 6
PULCHELLUM	5*s.* to 7 6
PUBERULUM	3*s.* 6*d.* to 7 6
PURPUREUM	7*s.* 6*d.* to 10 6
TENUIFOLIUM	5 0
THUNBERGIANUM PLENO	3*s.* 6*d.* to 5 0
„ SPLENDENS	5 0
„ five others, fine and distinct	6*d.* to 5 0
TIGRINUM FLORE-PLENO	5*s.* to 7 6
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WALLICHIANUM	21 0
WASHINGTONIANUM	3*s.* 6*d.* to 7 6
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Also an extensive collection of others, choice: selections, 5*s.*, 9*s.*, 12*s.*, 18*s.*, 24*s.*, and 36*s.* per dozen.

IXIAS, 12 beautiful named varieties, three of each, 6*s.*
SPARAXIS, 12 beautiful named varieties, three of each, 5*s.*
TRITONIAS, 6 beautiful named varieties, three of each, 3*s.* 6*d.*
GLADIOLUS COLVILLEI, THE BRIDE, fine pure white, very early, 9*d.* each, 8*s.* per dozen.
„ 12 splendid dwarf varieties, flowering June, July, 7*s.*
„ 12 splendid ramosus hybrids, flowering July, August, 3*s.* 6*d.*
„ Gandavensis hybrids, extensive collection of newest and best; selections, 3*s.*, 5*s.*, 9*s.*, 12*s.*, 15*s.* 20*s.*, and 30*s.* per dozen; fine mixed, 12*s.* per 100.
ACHIMENES, 12 beautiful varieties, strong tubers, 6*s.*
IRIS RETICULATA, striking and brilliant dwarf bulb, 6 to 9 inches in height, flowering February and March, 1*s.* each, 10*s.* per dozen.
TRITELEIA UNIFLORA, a great favourite among spring bulbs, flowering February to May, pure white and blue tinge, 9*d.* per dozen, 5*s.* per 100.
Choice HYACINTHS, TULIPS, CROCUSES, ANEMONES, RANUNCULUSES, and very large collection of other bulbs.
DESCRIPTIVE CATALOGUE sent free on application.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce they are in a position to supply strong healthy plants of their Choice and Extensive Collection of the above as follows:—
CARNATIONS, 18*s.* to 24*s.* per dozen pairs; PICOTEES, 15*s.* to 21*s.* per dozen pairs; PINKS, 9*s.* to 15*s.* per dozen pairs. Orders booked now will be executed at once, or in spring of 1876, at choice of purchaser.
Our One Guinea Collection of the above, which gave general satisfaction last season, contains 6 pairs choice Show CARNATIONS, 6 pairs choice Show PICOTEES, 12 pairs Show PINKS, and 12 choice Carnations and Picotees mixed, for borders, sent carriage and package free on receipt of P.O.O. for 21*s.*; double above quantities, 40*s.*; half ditto, 11*s.*

CHOICE HYBRID GLADIOLI.
I. B. & Co. have now ready for delivery a very large and choice Collection of the above, which they will be pleased to supply in Collections as under:—No. 1 Collection contains 100 bulbs in 50 choicest kinds, with names, £5; No. 2 contains 100 bulbs in 25 choicest kinds, with names, £3 10*s.*; No. 3 contains 50 bulbs in 25 choicest kinds, with names, £2 10*s.*
Fine selections can also be supplied at 6*s.*, 9*s.*, 12*s.*, 18*s.*, to 30*s.* per dozen. GLADIOLUS BRENCHLEYENSIS, splendid Scarlet, 9*s.* per 100, 1*s.* 6*d.* per dozen. List of varieties and prices of Carnations and Gladioli may be had.

FASTOLF RASPBERRY (true).
We have a limited quantity of the above (for the stock of which our Nurseries have for years been famous) to offer, in steong, well-ripened canes, at 9*s.* per 100.
Goods carriage and package free for Cash with order on all parcels value 20*s.* and upwards. The usual discount to the Trade.
ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application. Mr. WEBB, Calcot, Reading.

To Gentlemen, Nurserymen, and Others.

R. COLLYER, Cart House Lane, Woking Station, Surrey, has to offer for sale, for Cash:—

10,000 HOLLIES, Green, 6 to 24 inches, stout.
5,000 ,, Green Stocks, to work Stripe on.
1,500 ,, Variegated, 1 to 3 feet; also Standard, 3 to 5 feet.
10,000 YEWS, Common, 6 inches to 3½ feet; also Gold and Silver Variegated.
100 CHINESE ARBOR-VITÆ, 5 to 6 feet.
2,000 LAURELS, Common, 2½ to 4 feet, bushy.
2,000 ,, Portugal, 2 to 8 feet, bushy and good plants for specimens, &c., all removed in Spring, 1874.
500 IVIES, Irish, staked, 3½ to 5 feet.
1,000 CUPRESSUS LAWSONIANA, 3 to 4 feet.

All the above plants are good, and have been removed since Autumn, 1873.

SPRING FLOWERS and SWEET VIOLETS.

	P. doz.	P. 100.
DAISIES, large crimson, pink, Red Rover, and white	.. .. ..35s. per 1000 ..	4 0
AUCUBÆFOLIA	1 6 ..	10 0
PANSY, Cloth of Gold, in pots	3 0 ..	16 0
,, Mrs. Felton, in pots	3 0 ..	16 0
,, Blue King, large roots	3 0 ..	16 0
,, Purple King, large roots	3 0 ..	16 0
AUBRIETIA PURPUREA, large	2 0 ..	16 0
,, ,, GRANDIFLORA	3 0 ..	20 0
GENTIANA ACAULIS	6 0 ..	40 0
PRIMROSE, Purity, single white	3 0 ..	20 0
,, Magenta Queen, single	3 0 ..	20 0
,, double yellow	3 0 ..	20 0
POLYANTHUS, King Theodore, double black	4 0 ..	30 0
,, Jack-on-Ape, scarlet	3 0 ..	20 0
,, best gold-laced, large roots	1 6 ..	10 0
ROCKET, double purple	3 0 ..	20 0
VINCA MAJOR VARIEGATA	3 0 ..	20 0
VIOLETS, Brandyanum, double purple ..	4 0 ..	30 0
,, The Czar, one of the best single	2 0 ..	15 0
,, Neapolitan, double lavender	4 0 ..	30 0
,, Marie Louise, double blue, white centre, the best Violet in cultivation	6 0 ..	40 0

These Violets have been well grown, and suitable for potting.

CATALOGUE free on application.

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

SEEDLING BRIARS and ROSES on SEEDLING BRIARS.

SEEDLING BRIARS, 2s., 4s. and 6s. per 100.
HYBRID PERPETUAL ROSES, on Seedling Briars, 100, in 50 varieties, 75s.
TEA ROSES, on Seedling Briars, 100, in 50 varieties, 90s.
CATALOGUES on application to
WILLIAM CORP, 54, High Street, Oxford.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

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BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5s. 6d. each.

FRESH SPHAGNUM, 10s. 6d. per sack.

WALKER AND CO., Farnborough Station, Hants.

COCOA-NUT FIBRE REFUSE.—Testimonials from all the leading Nurserymen. Twenty bushels, 6s. 8d.; 50 bushels, 12s. 6d.; truck, 45s. Delivered free on to rail or within 6 miles.

THOS. HODGES AND CO., Eagle Steam Fibre Works, Hatcham Road, Old Kent Road; and 81, Bishopsgate Street Without, London, E.C.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1s. 6d. and 3s. per bottle—1s. 9d. and 3s. 4d. per bottle, if packed for travelling, of the Manufacturers,
EWING AND CO., Norwich.

BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass. Retail 1s. 6d. and 2s. 6d. per bottle, of the Sole Manufacturers,
BELL AND SON, 10 and 11, Exchange Street, Norwich.

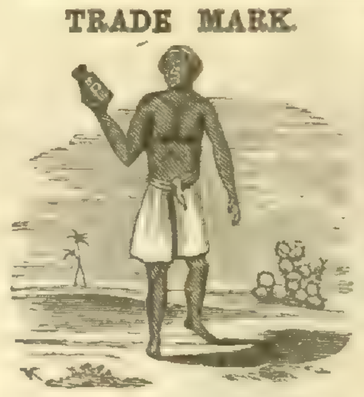
GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6s. Supplied to Seedsmen and Chemists.

Prepared by JOHN KILINER, Wortley, near Sheffield.

TRADE MARK.



Entered at Stationers' Hall.

F. STEVENSON'S ABYSSINIAN MIXTURE, Warranted to Destroy Mealy Bug, and all Insects infesting Plants. Unequalled as a Winter Dressing for Vines and Fruit Trees.

Sold by all Nurserymen and Seed Merchants, in Bottles, 1s. 6d., 3s., 4s. 6d. & 5s. 6d. each.

Inventor and Sole Manufacturer,
F. STEVENSON,
STAMFORD ST., ALTRINCHAM, CHESHIRE.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100s.; Petersburg, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; packing Mats, 20s., 30s., and 35s. per 100; and every other description of Mat at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton; and the late Professor Lindley, &c.

MADE of PREPARED HAIR and WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 4d. and 1s. 10d. per yard.

"FRIGI DOMO" CANVAS.

2 yards wide	1s. 10d. per yard run.
3 yards wide	3s. per yard.
4 yards wide	3s. 10d. per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens, sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of
CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

Labels—Secure Tree and Plant Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3s. 6d. per 1000, or 30s. per 10,000; if eyeleted, 4s. per 1000. Vellum Cartridge, 4 inches long, 3s. per 1000 for 10,000. Sample Labels sent on receipt of postage stamp. Orders delivered free in London.

JOHN FISHER AND CO., Label Works, Boston.

Under the Patronage of the Queen.

J. SMITH'S IMPROVED METALLIC LABELS.

The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

Samples and Price List free.

Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

JOHN MATTHEWS, The Royal Pottery, Weston-super-Mare, Manufacturer of TERRA-COTTA VASES, FOUNTAINS, ITALIAN BASKETS, BORDER TILES, GARDEN POTS, of superior quality, from 1 to 30 inches diameter, stand the frost, and seldom turn green. ORCHID, FERN, SEED, and STRIKING PANS, RHUBARB and SEAKALE POTS, &c. Price Lists Post Free.

Sheet of Designs, 6d. Book of Designs, 1s.

NOW READY,

NURSERY CATALOGUES FOR 1875-76.

WILL BE SENT POST FREE UPON APPLICATION.

THE LAWSON SEED AND NURSERY COMPANY (LIMITED),

EDINBURGH,

AND

54, BISHOPSGATE STREET WITHIN, LONDON, E.C.

BUSINESS ESTABLISHED, 1770.

GILBERT'S NEW MELON—A. F. BARRON.

W. & J. BROWN

Are favoured with sending out the above NEW MELON, being assured that it is in advance of any preceding it.

Received a First-Class Certificate at the Stamford Horticultural Show,

And has been grown this season by Mr. Hobday, Ramsey Abbey, who speaks of it in the *Gardener*, October 23, 1875, in the following terms:—

"Through the kindness of Mr. Gilbert I received a packet of this New Melon for trial last spring, and can confidently recommend it as one of the best green-fleshed varieties that has come under my notice. It has a hardy, vigorous constitution, and will do well in a frame without much artificial heat, beyond a little in which to start. It sets its fruit freely, and the flavour has been pronounced by all who have tasted it first-rate. As regards weight, it varies from 3 to 6 lb., according as the plants are lightly or heavily cropped."

Mr. JACKSON, *Gardener to* Lord Kesteven, *says*:—

"I have never grown any other Melon but Gilbert's. I have repeatedly told Mr. Gilbert when he could raise a better flavoured Melon than Victory of Bath, Selected, I would thank him. Although it goes hard to discard the old true friend, still I must admit A. F. Barron to supersede all Melons I ever tasted."

Dr. HOGG, *in the "Journal of Horticulture," October 7, 1875, speaks of A. F. Barron Melon in the following terms*:—

"We have received from Mr. R. Gilbert, The Gardens, Burghley, a fruit of his new green-fleshed Melon, A. F. Barron, The fruit was of bluntly oval shape, and weighed about 6 lb. It was regularly ribbed, beautifully netted, and was very handsome in appearance. The fruit was over-ripe, yet it was of excellent quality. It had a thin rind, thick flesh, and remarkably small seed cavity. It was singularly juicy, sweet, and possessed a delicate aroma. It sustains Mr. Gilbert's reputation as a successful raiser of Melons."

Retail Price, 3s. 6d. per Packet. **Trade Terms on Application.**

WILLIAM AND JAMES BROWN,

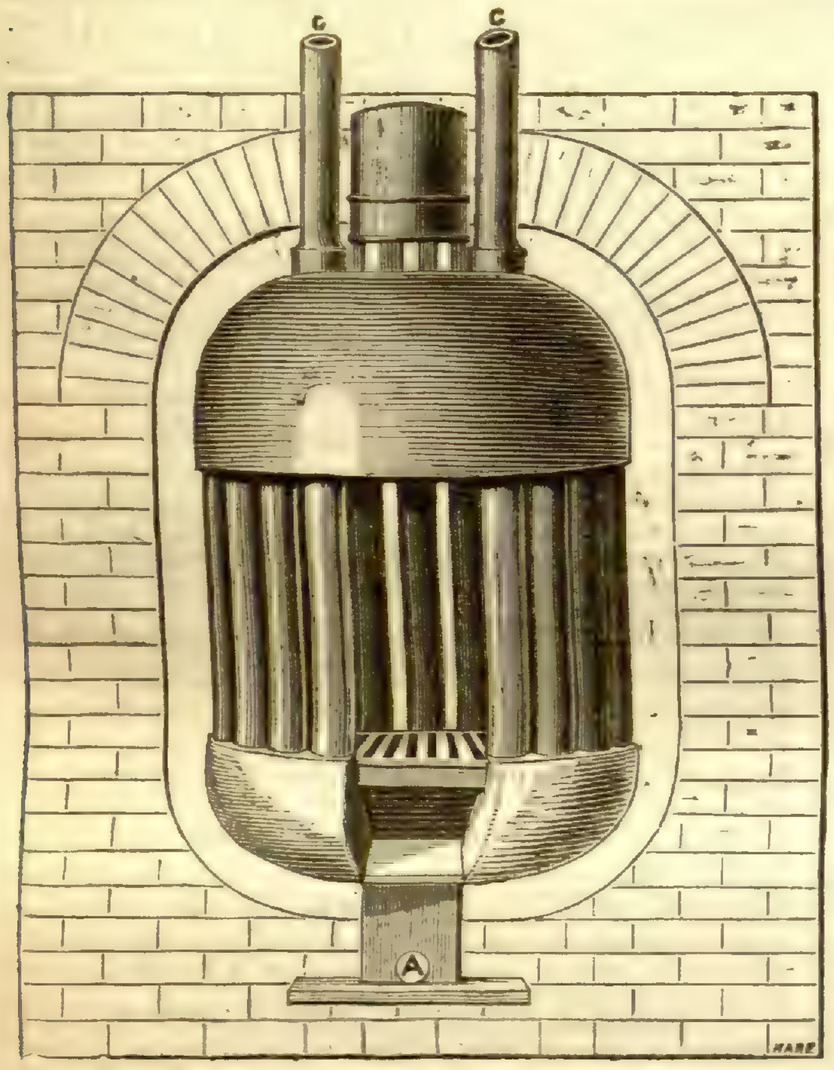
NURSERYMEN, SEEDSMEN, AND FLORISTS,

STAMFORD AND OAKHAM.

ALL LETTERS TO BE ADDRESSED HIGH STREET, STAMFORD.

ORMSON'S

PATENT UPRIGHT TUBULAR CORNISH BOILER.



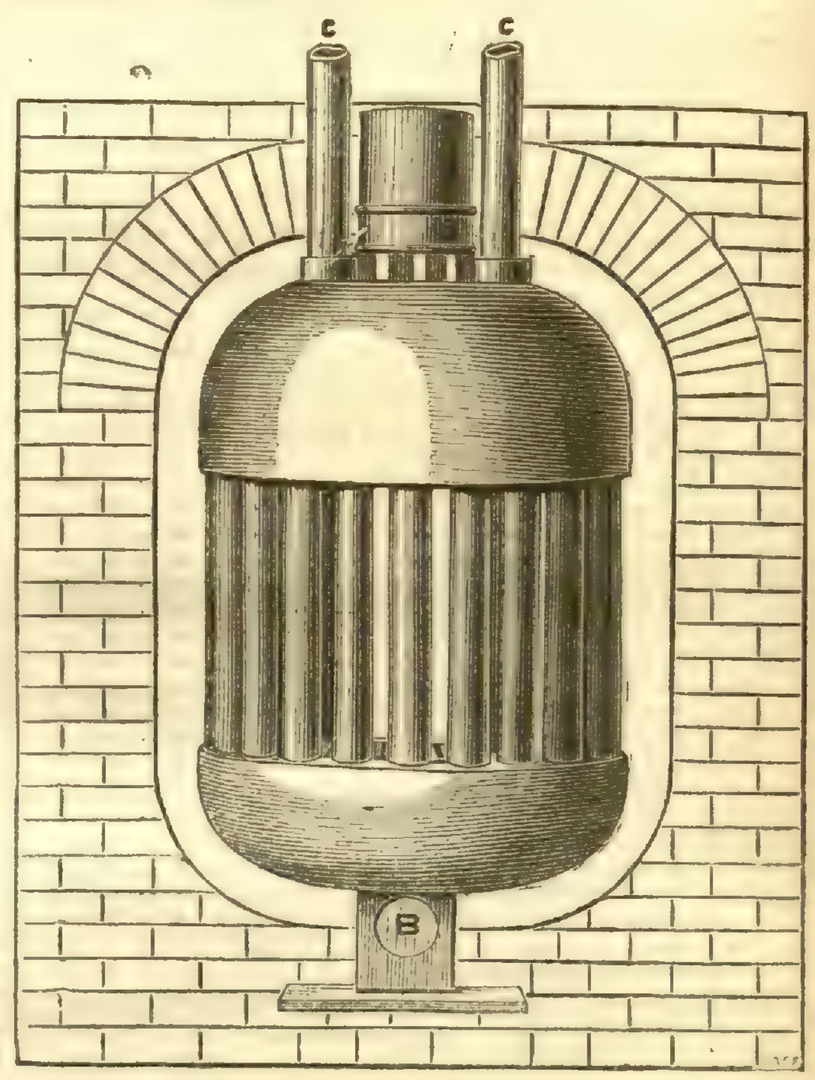
THIS BOILER IS VERY STRONGLY RECOMMENDED.

REFERENCES.

A. Pipe with Tap at end for cleaning out sediment.

B. Return Pipe.

C C. Flow Pipes.



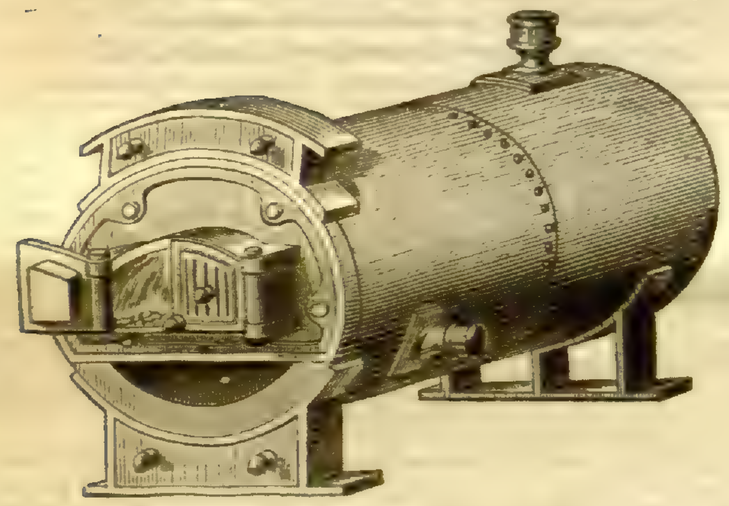
The Advantages of this over all other forms of Cast Iron Tubular Boilers are as follows, viz. :—

Its dome top, against which the fire strikes with immense force, instead of rushing direct up the chimney—a fault in all other Tubular Boilers.

Its great facility for cleaning out sediment, all of which will fall into the leg below boiler, marked A, from whence it will pass through a pipe with tap at end, by turning which the sediment will fall into stokehole drain, leaving the boiler perfectly clean.

It can be fed either at top or bottom.

The following and other Boilers are also kept in Stock:—

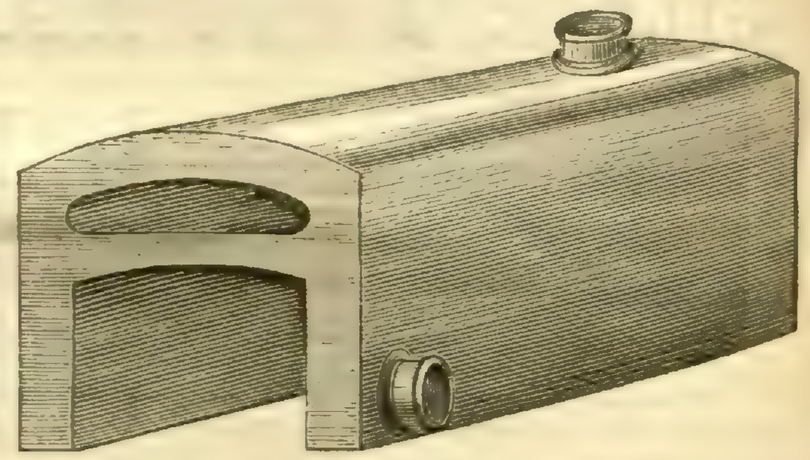


IMPROVED TRENTHAM CORNISH BOILER.

ALSO

INDEPENDENT BOILERS,

REQUIRING NO BRICKWORK.



TERMINAL END SADDLE AND FLUE BOILER.

HOT-WATER PIPES, BOILERS AND CONNECTIONS AT WHOLESALE PRICES.

THE TRADE SUPPLIED.

PLEASE TO WRITE FOR ILLUSTRATED PRICED LISTS.

Estimates given for fixing Hot-water Apparatus in any part of the United Kingdom or Abroad.

H. ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

WELLINGTONIA GIGANTEA

AUREA VARIEGATA.

	Feet.	Inches.
Height	24	6
Circumference of Branches ...	32	6
„ of Trunk	3	4
Season's Shoot	1	6

Originated at the Lough Nurseries, Cork.

They have been Planted by the following Royal and Noble Hands :—

His Royal Highness the Prince of Wales, at Sandringham.
Her Royal Highness the Princess of Wales, at Blenheim (to mark her visit).
His Royal Highness the Duke of Edinburgh, at the Vice-Regal Lodge.
His Excellency the Lord Lieutenant, at Althorpe.
His Grace the Duke of Devonshire, at The Castle, Lismore.
His Grace the Duke of Leeds, at Gog-Magog, Cambridge.
Her Grace the Duchess of Manchester, Belfast Botanic Gardens.
His Grace the Duke of Manchester, at Tangragee and Kimbolton Castle.
His Grace the Duke of Marlborough, at Blenheim. [House.
His Grace the Duke of Wellington, at Strathfieldsaye and Apsley
Most Noble the Marquis of Waterford, at Curraghmore.
Right Hon. the Earl of Abergavenny, at Eridge Castle, Tunbridge Wells.
Right Hon. the Earl of Annesly, at Castlewellan, County Down.
Right Hon. the Earl of Aylesford, at Packington Hall, Warwick.
Right Hon. the Earl of Bective, at Underly Hall, Westmor-
Right Hon. the Earl of Cork, at Marston Hall, Frome. [land.
Right Hon. the Earl of Clancarty, at Garbally, Ballinasloe.
Right Hon. the Earl of Devon, at Powderham Castle, Exeter.
Right Hon. the Earl of Ducie, at Sarsden House, Chipping-Norton.
Right Hon. the Earl of Dunraven, at Adare Manor, County Limerick.
Right Hon. the Earl of Harrowby, at Sandon Hall, Staffordshire.
Right Hon. the Earl of Powis, at Walcot Park, Dumbartonshire.
Right Hon. the Earl of Sefton, at Croxteth Hall, Liverpool.
Right Hon. the Earl of St. Germans, at St. Germans, Cornwall.
Right Hon. the Earl of Warwick, at The Castle, Warwick.
Right Hon. the Earl of Wicklow, at Shelton Abbey, Arklow.
Right Hon. the Countess of Kingston, at The Castle, Michelstown.
Right Hon. Lord Berwick, at Attingham Hall, Shrewsbury.
Right Hon. Lord Doneraile, at The Court, Doneraile.
Right Hon. Lord Otho Fitzgerald, at Oakley Park, Windsor.
Right Hon. Lord Hawkshaw, at Hollycombe, Hants.
Right Hon. Lord Huntingfield, at Heveningham, Suffolk.
Right Hon. Lord Kenlis, at Virginia Lodge, County Cavan.
Right Hon. Lord Poltimore, at Poltimore Park, Exeter.
Right Hon. Lord Powerscourt, at Powerscourt, County Dublin.
Right Hon. Lord Skelmersdale, at Lathom House, Ormskirk, Lancashire.
Right Hon. Lord Wrottesley, at The Hall, Staffordshire.
Right Hon. Lady Langdale, at Eyewood, Herefordshire.
Right Hon. Lady Russell, at Chequer's Court, Herts.
Right Hon. Lady Pollen, at Redenham Hall, Andover.
Right Hon. Lady Rolle, at Bicton, Exeter.
Right Hon. Lady Tennisson, Carrick-on-Shannon, County Long-
Sir Thomas Acland, Bart., at Killerton, Exeter. [ford.
Sir Henry Becher, Bart., at Ballygibben, Mallow.
Sir James Colquhoun, Bart., at Rosshhu, Dumbartonshire.
Sir C. Mills, Bart., at Hallingdon Court, Uxbridge.
Sir D. Norreys, Bart., at The Castle, Mallow.
Sir Richard Wallace, Bart., at Sudbourn Hall, Suffolk.

And by the leading Nobility and Gentry in the Kingdom.

The last-named had 40 splendid Trees for Avenue planting.

PRICES.

*1st	Size—	Grand Specimens	5 feet	£5	5	0
2d	„	Splendid Plants .	4 „	3	3	0
3d	„	Very fine ...	3 „	2	2	0
5th	„	Stout and good...	2 „	1	1	0
6th	„	Nice little Plants	1 „	0	10	6

* From the first set of plants, and same as those at Sandringham, Blenheim, Althorpe, and had by the Nobility chiefly.

All removed Spring 1875.

RICHARD HARTLAND,
LOUGH NURSERIES, CORK.

SATURDAY, NOVEMBER 20, 1875.

RUE.

"For you there's Rosemary and Rue ; these keep
Seeming and savour all the winter long :
Grace and remembrance be with you both."
Winter's Tale.

WE are fast approaching the time when only such plants as "keep seeming and savour all the winter long" can urge anything like a fair claim upon our notice, if we admit the truth of the proverb which says "Out of sight, out of mind." The invaluable Chrysanthemums are already past their prime, and the "last Rose of summer," although still appearing here and there, has a melancholy look about it, as if it would rather remind us of "the summer-time that was" than claim any notice or admiration for itself. So looking round for a peg whereon to hang a little floral chat, our eye falls upon the trim bush of Rue, and we take it as our text.

The date of the introduction of Rue to our gardens is not known ; but there is little doubt that it was familiar to the monkish herbalists of mediæval times, who united in themselves the function of physician and relieving officer in addition to their spiritual duties. In Parkinson's time it was "common enough through all this realm ;" and Shakspeare's repeated allusion to it shows that it must have been a familiar plant in his days. In Anglo-Saxon times, indeed, it was a well-known remedy for many widely different diseases, such as carbuncles, lethargy, dimness of the eyes, "sore of the man," "bloatedness," and bleeding at the nose, and was applied, as we learn from Mr. Cockayne's *Leechdoms*, externally as well as internally. But this catalogue of its virtues pales and becomes utterly insignificant before that contained in the *Garden of Health*, where we find no less than two hundred and sixty-four cases in which Rue may be beneficially employed, some of them of a most amusing description—*e.g.*, "plant one near Sage and todes will not sit under the Sage, where they delight to be" ; "eate it after Garlicke and Onions, to put away their smell ;" and so on for every imaginable or unimaginable ache or pain which "flesh is heir to." It seems strange that in spite of such a catalogue of good qualities Rue now-a-days finds no place in our pharmacopœia, so far as a professionl recognition of its merits is concerned ; it is, however, still employed in rustic pharmacy, and "rue tea" is a popular remedy for various complaints, which would be very efficacious should it be as beneficial as it is nasty.

Some of the uses of Rue in former days are of historical notoriety. It was, for instance, the principal ingredient in the celebrated antidote against poison of Mithridates of Pontus, the formula for which, as found in his own handwriting by Cneius Pompeius after that king's defeat, runs as follows :—"Take two dry Walnut kernels, as many Figs, of Rue twenty leaves ; stamp all these together into one mess, with a grain or corn of salt. Whoever eats of this confection in a morning fasting, no poison shall hurt him that day." In more recent days, Rue formed one of the component parts of the celebrated French prophylactic known as the "vinaigre â quatre voleurs," which was supposed to be an efficacious remedy against the plague. In this capacity, indeed, Rue was in great repute among ourselves. It was long, and probably still is, the custom to strew the dock of the Central Criminal Court at the Old Bailey with Rue ; and in Lawrence's *Life of Fielding* we are told that this use arose after a contagious disease, known as the "gaol distemper," which had been engendered by the foul atmosphere there, in or about 1750, after which herbs sprinkled with vinegar were strewn about to avoid the recurrence of a similar catastrophe. Those who can recal the *cause célèbre* of the murder by the Mannings will remember how the unhappy woman, after one of the speeches of the opposing counsel, gathered up some of the sprigs of Rue which lay before her, and flung them at his head. The Neapolitans have a similar belief in the efficacy of the plant against foul air, and on this account bear it about with them as a nosegay. Possibly it was similarly employed in England in Shakspeare's day. He makes "Lafeu," in *All's Well that Ends Well*, say that Rue is not a salad herb, but a nose herb ; but its scent is not sufficiently agreeable to induce any one on that account so to classify it. Coles says that its smell alone has been known to keep off infection in times of pestilence. Charles V. of France had a formula, founded apparently on that of Mithridates already given, by which he supposed he was kept in good health, and which he disclosed only to a few of his most intimate friends. Four branches of Rue were taken at sunrise, with some Juniper, a Nut, a dried Fig, and a little salt, and of these a compound was formed which was eaten fasting. According to the old naturalists, animals as well as men were aware of the potency of Rue against poison ; thus an old translation from Macer says :—

"Weezels teach it can withstand strong poyson's spite,
Which, when they are about with serpents black to fight,
In wondrous sort do first of all Rue nibble, eat, and bite."

It would appear that Rue was esteemed by the Romans for imparting a taste to wine ; Pliny mentions that when Cornelius Cethegus was elected Consul with Quintus Flaminius, he gave to the people a *largesse* of new wine flavoured with Rue.

The name "herb of grace," or "herb grace," by which "Ophelia" designates the Rue, has led to some speculation. It is usually stated in books of reference that it was so called in allusion to its having been employed as an aspergillum, or holy-water-brush, in the ceremony known as the "Asperges," which usually precedes the Sunday celebration of High Mass ; but for this supposition there is no ground, as there is no authentic record that the plant was ever so used. Jeremy Taylor refers to an employment of Rue in exorcisms, which plant, he says, "from thence, as we suppose, came to be called herb of grace ;" and this passage seems to have been the *fons et origo* of all kindred and subsequent explanations. It does not appear to be generally known that this name "herb of grace" was in Shakspeare's time or thereabouts applied also to another plant, probably Wormwood ; but in a letter of Edward Alleyn, the actor, dated August 1, 1593, he advises his wife, among other remedies against the plague which was then raging, to have in her windows "good store of Rue and herbe of grace"—the conjunction clearly indicating that two distinct plants were intended. That both Wormwood and Rue were regarded as protecting from plague is clear from Tusser's lines :—

"What savor is better, if physicke be true,
For places infected, than Wormwood and Rue?"

Miller's hypothesis as to the origin of the name is a good example of an improbable derivation. He says :—"If I am not mistaken, it is to this day called Ave-grace in Sussex, in allusion doubtless to *Ave Maria, gratiâ plena*"!

The name of the plant suggested various puns, not only to Shakspeare, but to other

authors of his period. "Rue, even for ruth," says Shakspeare; and Beaumont and Fletcher, in the *Island Princess*, play upon the word in connection with the Christian name Ruy: "This man, this herb of grace, Ruy Diaz." Among ourselves, as has been already observed, its reputation has almost gone, although, as a poultry medicine, Rue leaves are still in repute. It is, or has been, eaten as a salad between bread and butter both in this country and in France, Italy, and Germany, but this mode of employing it is not unattended with risk. In the time of Aristotle, Rue was worn about the neck as an amulet against witchcraft, and in Bohemia there is a superstition that if it is boiled with Vervain, and the liquid poured upon a gun-flint, the shot is certain to take effect. An ancient superstition was to the effect that Rue flourished all the better if stolen from a neighbour's garden. Greek gardens were frequently bordered with it, and hence arose a proverbial expression, applied to those who were about to embark in an undertaking, but had not yet commenced it, "You have not yet arrived at the Parsley and Rue." It was supposed to prevent drunkenness, and on this account was frequently taken by the Romans before engaging in a drinking bout.

Heylin mentions an historical incident in which Rue plays a part. He says that in 1180, Bernard of Anhalt, Duke of Saxony, desired the Emperor Frederick Barbarossa to add some difference to the ducal coat, by which he and his successors might be distinguished from those of the former house. The Emperor took a chaplet of Rue, which he was then wearing, and threw it across the buckler of the Duke, who at once had this plant added to his coat of arms.

From a botanical point of view the Rue presents many features of interest. We have, however, so extended our sketch of its historical and legendary associations that space to enter upon its botanical aspect is wanting. *B. M.*

BRITISH GARDENERS.—XXX.

WILLIAM HUTCHISON.

MR. HUTCHISON, the subject of our present portrait, writes as follows of his horticultural career:—

"I was born at Spittalfield, in the parish of Caputh, Perthshire, on February 8, 1815. The parish school was in the same village, and there I got the rudiments of my education. In after life, when I began to work, I at all times attended the night school if an opportunity occurred. I first felt a great desire for gardening when about eleven years of age, when I began to bud Roses, and succeeded in growing several varieties on an Ayrshire that was rambling over the west end of my father's cottage; and two years after, with no little pride and pleasure, I pointed out my success to my schoolfellows. The following year I began to graft the Apple on the Whitethorns that were growing in the adjacent plantations. In this I did not succeed so well the first year, being too impatient, for if I could perceive a bud of the scion swelling, I could not resist removing the ligature to ascertain if a union had taken place, the consequence of which was death; however, I determined to try again the following spring, and this time, after waiting more patiently, I had the satisfaction to see that one-third were growing, and some ten years after I had the pleasure of seeing them flourishing in a cottager's garden, to which they had been transplanted. Fortunately, I took great delight in learning architectural drawing, which I continued to practise for many years after, and which I have found to be of inestimable value. At the age of thirteen I was apprenticed to Mr. Henderson, Delvine, the splendid seat of Sir Alexander Muir Mackenzie, Bart. Mr. Henderson was an excellent gardener, and an old practitioner, who was looked up to as one of the most eminent in Perthshire. I was first placed in the office of kitchen boy, which I continued to fill for two years. This is a good practice for a youth, as it enables him to learn the names and characters of the different varieties of vegetables, herbs, &c., and to know when they are in season. After this I was placed at the usual routine work with the men. The kitchen and flower gardens and pleasure grounds were extensive, and kept well stocked. Mr. Henderson was second to few in the culture of the Heath, which at that time was considered a more difficult task than it is now. Such a selection of stage Auriculas, Pinks, and Carnations I have never since had the pleasure of seeing. I was very much interested with the herbaceous and alpine plants, which were all named—a grand chance for those who felt inclined to embrace the opportunity of studying them.

"In January, 1835, I went as journeyman to Kinfauns Castle, the seat of Lord Gray, the gardens being under the management of Mr. Robertson. There I found a good and useful kitchen and fruit garden; the most fruitful Peach wall I had seen, producing annually fine crops of fruit; Grapes and Pines moderate, the latter similar to what were grown at Delvine, for in those days gardeners were too fond of shaking out, root-pruning, potting, and plunging into a bottom-heat much too high for the well-being of the plants. Mr. Robertson was a good British botanist, and by his help and the advantage of a long border of herbaceous and alpine plants, already alluded to by Mr. Cramb, I added considerably to my previous knowledge of hardy plants.

"My next change was in January, 1836, to Oxenford, then the seat of Sir John Dalrymple, now the Earl of Stair's, the gardens there being under the superintendence of Mr. W. Henderson, who improved the flower garden and walks in the pleasure grounds. There the Pines were in a more satisfactory condition than any that I had previously seen; Vines not so,

their bad state being attributable to carrion having been placed in the borders. Mr. James Dodds succeeded Mr. Henderson in November, 1836, and again left in November, 1837, to go to Scone Palace, while I went to the Glasgow Botanic Gardens, where Mr. Murray gave me the charge of the houses. We passed the ordeal of the most severe winter (1837-38) I ever remember—a continuous frost of six weeks' duration, and to keep up the temperature with a steam boiler to near the required degree was not an enviable task. While here I had the privilege of attending Sir William Hooker's botanical lectures in the College and in the gardens, as well as other advantages in the way of learning.

"About this time Mr. Murray was applied to for a young man to go to the Cape of Good Hope to collect plants and seeds, and decided to recommend me for the situation; but the sad death of David Douglas was too sensibly felt to permit me to take that or any similar engagement. Later in the same year Mr. Henderson of Delvine recommended me to this situation, and as a matter of course I consulted Mr. Murray, who demurred, and said it would be more to my advantage to follow the botanical branch of gardening. However, I did not take quite the same view of it as Mr. Murray, and made up my mind to engage with A. L. Gower, Esq., the proprietor of this place. I had, previous to my engagement, been made acquainted with the then state of the place, and that great alterations and improvements were about to be carried out, but when I arrived on August 22, 1838, and found everything so different from what I had been accustomed to, I began to fear I had made a mistake in not following Mr. Murray's advice; but, after I had had an interview with Mr. and Mrs. Gower, I found that I had got a generous-hearted gentleman and an amiable lady of a very refined taste for my employers. Every requisite as to men and means was freely granted, so that the work of improvement progressed rapidly.

"Before proceeding with a description of the place, which must be brief, it is necessary that I should indicate the whereabouts of this locality. The grounds of Castle Malgwyn border the River Tivy, which forms the boundary line between Cardiganshire and Pembrokeshire. The house is a modern building pleasantly situated, 3 miles from Cardigan, and 7 from New Castle Emlyn, on a beautiful projecting slope, lying between the River Tivy and a retired pastoral stream, the Morgeneau, that runs murmuring through a naturally most romantic glen which has been much improved by art. The River Tivy forms one of the chief features of interest; this has its rise at the Teife Lakes in the north of Cardiganshire, and flowing through a beautiful country passes by New Castle Emlyn to Cenarth, where it falls turbulently over the rocks, continuing its course through delightful meadows to the old picturesque bridge of Llechryd, the latter about three-quarters of a mile from the west end of Castle Malgwyn. Here the meadows disappear, and on both sides steep hills rise from the river bed, which entirely fill the opening, leaving only space for a walk at the base of the south or Castle Malgywn side of the stream. The banks on either side are clothed with trees feathering down to and overhanging the water. The walk above alluded to was in course of construction when I came to Wales, and extends for about a mile towards the town of Cilgerran, all the while following the course and natural curves of the river—a charming and cool retreat from the mid-day sun, and presenting to view a series of the most fascinating landscapes imaginable.

"Having followed the course of the river to the farther side or west end of the town, I must retrace my steps to Llechryd Bridge; and in doing so inform your readers that towards the close of the last century, and during the earlier part of the present, this place was the residence and property of Sir Benjamin Hammet, who formed the plantations with judgment. Llechryd Bridge unites the two counties, Cardigan and Pembroke. At the south end and west side of the bridge is the entrance gate and lodge. From the latter to within 100 yards of the mansion the river and road run side by side, the river being on the north, and the park on the south. The park is fenced off at a considerable distance from the drive by a wire fence placed at the foot of a sloping bank, and which is not visible to the eye from the road. This approach is of a most pleasing description, being overshaded by trees and graceful in line; it crosses a bridge over the Morgenau brook, and takes a sharp turn to the south, then to the west, and ascends to the front of the mansion, which faces the east, commanding a fine view of the park and the lovely vale of the Tivy. The lawn on the east side extends to the brook Morgenau, which forms the boundary line between it and the park. On the south it skirts the plantation on the upper bank of the glen; the undulations on this side are delightful. A lawn more favourably disposed and from which all appearance of art is banished is rarely to be seen.

"Advancing from the front of the mansion we ascend a series of stairs, first to the south and again to the north, where a walk leads past a small flower-garden on the north side. Here is a picture for the admirer of Nature in all her forms—a delightful and picturesque composition and captivating landscape of rock, wood, and water. Here the noble Tivy makes a bold sweep to the south, as if to show her magnitude and supremacy over the scene—flowing along deep and silent, apparently loth to leave her lovely surroundings. From this spot the lawn and walk descends to the water's edge, and here stand out prominently the Purple Beech and the Birch, there the Lime and the Oak. Yonder in the far distance, on the south bank, where the river turns to the north and is about to bid a last farewell, high on the bank, the Oak is capped with a group of Scotch Fir, and another, a crown of the same still higher in the horizon, terminates the picture. Leaving the position and advancing on the same walk a little further, past a knoll of Rhododendrons on the right, then turning to the left and ascending to a level walk near the top of the bank, fine views of the lower grounds and rock on the other side of the river, picturesque in the extreme, are obtained. A little further on, among a thicket of shrubs and trees, we approach all of a sudden on a very secluded spot, an arch erected with large boulder stones. This arch is known as the Dry Arch, and was built in the time of Sir Benjamin Hammet, no doubt for a twofold purpose—the one to obviate the necessity for crossing a public road, which at that time led to Cilgerran, and the other to diminish the descent by a walk to the Morgenau brook. This interesting brook enters the glen at about a hundred yards from the bridge over which the drive is carried on its way to the mansion. The glen extends in a southerly direction for about three-quarters of a mile. The

course of the stream is wild, rugged, and rocky; the rocks rising abruptly to a considerable height, but so well clothed with wood and Ferns that their points are only now and then visible. The bank on the west side is so very steep that a walk was built up from the bed of the stream, and follows its course to the top of the glen. This is a very interesting walk, of unrivalled beauty and variety, the light and shade every moment producing the most astonishing changes. High up on the east bank of the stream there is another walk, and where practicable, at convenient intervals, the two walks are united by four rustic bridges of as many different designs, and by a romantic stone bridge. On the sides of this bridge and at top the builder, at my request, introduced a spadeful of loam in different parts in which to plant Ivy and the smaller varieties of Ferns, such as the Asplenium, Adiantum-nigrum, &c. It is only nine years since this bridge was built, and, by this mode of garnishing it has for some years past attained the apparent age of ninety-and-nine, the Ivy having grown down to the surface of the water, on which it floats as if fishing for trout. Altogether this is a very beautiful and picturesque feature. Here, and for some 20 yards higher up, the course of the stream is very impetuous over precipitous rocks. A few coniferous trees have been planted at various times where fitting situations could be found for them, as well as two groups of the Cedrus Deodara—the latter high up on the bank, and having a very striking effect, giving a light and charm to the dark regions below. This part is very secluded, and would form a suitable abode for a hermit. There are Ferns innumerable: on the rocks Polypodium vulgare, bifidum, serratum, &c., and on the margin of the stream varieties of Athyrium Filix-fœmina, and Lastrea dilatata gracefully drooping over the water's edge, while the noble Osmunda regalis takes up a conspicuous position; and higher up are the varieties of Polystichum angulare. Mrs. Gower is a sister of the celebrated geologist, Sir William Logan, Knt., whose death we have had recently to deplore, and who, ever mindful of his sister's love for the Fern race, on his return visits from Canada brought a great variety, that were planted in groups among our natives, one of which, the Adiantum pedatum, I will especially notice. It was planted in a sheltered nook, between two rocks near the stone bridge, where it prospered as if in its native home. This plant was never passed unobserved by Mrs. Gower; but no later than the beginning of last July some night owl or dawning hawk carried off this long-loved treasure, and, in order to facilitate his flight, and more easily conceal it under his wing, divested it of its fronds. As this is not the first or second time such depredations have been committed, I should be very glad to get this night marauder under safe keeping. To walk through this glen on a calm summer's morning, when foliage and frond, drooping with dew, blend in interminable variety, is a picture of stillness and repose, the beauty so enchanting as to induce one to imagine himself in fairyland.

"The garden is situated in the south-east corner of the park, and three-quarters of a mile distant from the mansion. On my arrival here it only comprised within its walls 1½ acre. Plans were prepared for making an addition of 4½ acres, part to be devoted to flowers margined with shrubs. Owing to the very unequal state of the ground, which had to be worked into several different levels, this was the work of several years, and for the present, at least, I will defer giving a description of its parts. Suffice it to say that the ground is of a most unusual form, being that of an inverted arch, consisting of inclines, levels, and terraces, more agreeable to the eye than to the backs of the men who do the work of wheeling manure, &c. During the time the garden was being made the work of improvement was going on all over the grounds; hedge banks were levelled, and wire fences substituted where necessary; new roads and new walks were made and the lines of the old ones improved, clumps of trees were planted in the park, and banks and belts wherever an improvement could be devised.

"In 1842 a range of new houses was constructed, and the garden was completed the following year. I must say nothing about the produce, seeing that the monster bunches of Grapes which have been exhibited of late years cast our productions in the shade; but our Grapes were such as the late Dr. Lindley highly approved in 1847-48. The following year death took from us, at a comparatively early age, a most kind master, who thought of other's comfort before his own, and who was missed and mourned by those amongst whom he lived. This sad event naturally enough stayed our improvements for some years, and having been all my life a lover of Ferns, and being placed in a Fern country, I occupied my spare time in collecting all the varieties that were to be found for many miles round. Of rarities I found the Blechnum Spicant imbricatum on a hedge bank near Pontyderrie, six miles to the south of this place, Polypodium Dryopteris on the Priscelly hills, Polypodium vulgare var. bifidum and var. semilacerum on a wall near Cilgerran, the var. serratum in the glen, Lastrea æmula near Nivern, Scolopendrium vulgare var. multifidum and var. ramosum near Cilgerran, and var. variabile near Nivern. These with many more were treasured and potted, and their wants duly attended to, in the hope that at some future and not very distant day I might have the pleasure of designing and making a hardy fernery. Long ere this Mrs. Gower had taken great delight in Ferns and Fern collecting, and could readily name at sight three-fourths of the British Ferns. On a journey to Cardigan she was one day fortunate enough to find a beautiful plant of the Scolopendrium vulgare crispum latum; this has been grown under glass, and has attained the noble size of a specimen 7 feet in circumference—the admiration of all who have seen it. The locality has been searched in vain for another plant.

"About this period the Tivyside Horticultural Society sprung up, at which we became constant exhibitors, and for many years carried off the leading prizes for collections of fruit—Pines, Grapes, stove and greenhouse plants, Ferns, &c., to the number of twenty or thirty annually; but as a feeling of jealousy began to spring up, and the journeyings did not improve the appearance of the plants, exhibiting was discontinued at Cardigan. I, however, possess a 1st prize medal for a Pine-apple, awarded by the Royal Horticultural Society, bearing date June 17, 1863, and subsequently obtained another 1st prize at Carmarthen for a Pine-apple, and have not since exhibited.

"What I consider to be my greatest achievement was the devising and constructing a new road, which had been in contemplation before I came to Wales, and was intended to lead through a plantation on the upper and west side of the lawn, then through a field of some 60 acres of pasture land on the heights of the south bank of the River Tivy, and to take a south-westerly direction towards Cilgerran. On those heights there could be no cause for much diversity of opinion, the only apparent difficulty being how to bring the road from the plantation just mentioned to the front of the mansion—whether down the side of the glen or skirting the south-west side of the lawn, one or the other of which courses must be adopted. The latter I objected to for this reason—that the lawn being beautifully undulating and picturesque, rising from the mansion at an angle of from 3° to 5°, every yard of the road would be seen from the house, while the breaking up of the lawn would be most objectionable. Many opinions were asked, and the general conclusion was, that the only way was down the lawn, the route through the glen being impracticable. I vigorously protested against such a course, and the result was that no road at all was made. About the same period a number of small plants of Cedrus Deodara were procured and planted in the garden; they grew fast: in the course of a few years they were again transplanted, and in a short time they attained the height of from 7 to 8 feet, quite large enough to be planted in their final resting-place. The question now arose where to plant them, and this brought the long-talked-of new road into farther consideration, and I was instructed to stake it out through the plantation, to cut and root out the old trees, and to form the road, and at the same time to bring the line into such a position as to permit of its being continued through either lawn or glen. This done, the Deodars were planted so as to form an avenue. The trees prospered amazingly, and towards the end of July following I met Mrs. Gower at the Deodar avenue, which was greatly admired. When speaking again of the line of road and its difficulties I said that if she would find me the means I would make the road down the side of the glen, to her satisfaction and that of every one else. Her response was, "Go on." The route was marked out the next day, so that no striking feature or object of interest should be passed unobserved through the whole line, great care being at the same time taken that the course should be as pleasing and natural as possible. Commencing near the bridge that crosses the Morgenau, the line was made to follow the course of the brook just low enough to keep the road out of view from the front lawn and the park, to where it enters the glen. Here there is an artificial waterfall, and the bank takes a serpentine direction, leaving the walk on the margin of the brook to follow its course. This point rising from the walk at an angle of 55°, was fixed for the beginning of the ascent. A number of quarrymen were employed to cut and quarry the stones on the right-hand side of the line, while masons were engaged to build it up on the left. This continued for about a hundred yards, one half the width of solid masonry; and the line constantly winding and changing, brought us to the south-east side of the dry arch, built of boulders, previously alluded to, and on the same level as the walk that passes through it. Here the angle of the bank was only 35°, the curvature of line less, and no more building was required at this part. Mrs. Gower was a daily visitor, very frequently remaining from mid-day till dark, and taking the greatest interest in all and every operation performed. Though there was no more building required, there remained on the higher side rock to the depth of 15 feet to be cut and carried away. Of course as we advanced the depth decreased, and, the men being placed in three companies, the progress was great, so that early in November we arrived safe and sound on the heights in the avenue of Deodars. Thus far two companies of the men advanced, while the third was retained to complete the marginal lines.

"During the progress of the work I had been considering what sort of a fence would be the best to erect on the precipitous side, there being a margin varying in width from 3 to 7 feet. I considered a wall would be heavy looking, an iron or wooden fence too artificial in appearance, and not in unison with the surrounding scenery; and it occurred to me that the upturned roots of trees would form the best fence, and, these being plentiful, they were placed at intervals of from 3 to 5 yards, the small and fibry portion cut off, some of the most prominent mossed over, and Polypodium vulgare and its varieties, with other small-growing Ferns, planted. Loam to the required width and depth was laid over the stones, and the intervening space planted with Polystichum aculeatum, P. angulare and its varieties, such as subtripinnatum, Lastrea dilatata and Lastrea Filix-mas paleacea, &c.—all noble Ferns, the latter giving the place quite a tropical appearance. The marginal line, and all open spaces between roots and Ferns, were planted with the Glow-worm-grass, Luzula sylvatica, brought from the rocks on the banks of the River Tivy—a beautiful evergreen, quite hardy, and one which will flourish on any rock or wall where other plants would perish, claiming no more than from 1 to 2 inches of soil. This plant is quite a gem for the margins of wilderness drives or walks, the edges requiring to be clipped only once every spring. On either side of the walk leading from the arch to the road was formed a hardy fernery, planted with a most interesting collection of British Ferns, one side being interspersed with Yucca gloriosa—a most striking feature. On the summit and base of the rocky side, Ivy, Lonicera aureo-reticulata, and the common Woodbine were planted and interwoven with each other; and to complete all a few rustic seats were placed on the margins at convenient intervals. Thus ends this portion of a most romantic and interesting drive.

"Advancing to the summit of the southern bank of the Tivy the view commands one of the loveliest and most varied landscapes on which the eye can feast. Looking to the north the first recognisable feature is Cilbronne, the lovely seat of R. D. Jenkins, Esq., and of which his ancestors have been residents from time immemorial. It is beautifully situated, nestling and towering among trees as if grown up from amongst their midst, and in the remote distance is seen the fine conical bank of Warron, which, from whatever point, is always a principal object among the undulating forms of the adjacent hills. On the above bank Warron Gruffydd, son of Rhys ap Tewdur, soon after death of King Henry I., by a furious onset gained a signal victory over the English army in the year 1135. There is a small farm near there, now called "Cuwch Saeson," which evidently derives its name from its association with the English who were so defeated there—the word "Saeson" signifying "English." To the east, and next in succession, is the villa of Mrs. Phillips, of Glenorberth, prettily situated on an eminence overlooking Castle Malgwyn Park and the bridge and village of Llechryd. Further to the north-east, and higher up, is Penlan, the noble mansion of Morgan Jones, Esq. In the distance, and still higher, the picturesque and wooded knolls of Blaenpant, the seat of Mr. Brigstock. To the south a delightful picture opens out, in view of the wooded banks and lovely valley of Rhosygilwen, interspersed with trees. Turning to the west is the magnificent remains of Cilgerran Castle, a fortress supposed to have been erected by Roger Montgomery about the year 1094, and here displayed in a very picturesque and favourable point of view, occupying the crown of a lofty and precipitous rocky promontory, standing boldly out into the River Tivy. From this point the road descends, and terminates with a rustic entrance adjacent to the public road which leads to Cilgerran.

"I have omitted to state that all through the line rustic seats mark the chief points of view.

"At the expiration of my thirty years' servitude Mrs. Gower presented me with many valuable articles, among which were a purse of money, a beautifully-bound large album, containing a portrait of my late esteemed master, together with one of herself and those of Sir William and Mr. Edmond Logan; also views taken from the new road and the rustic bridges in the glen, &c. On the frontispiece, written with her own hand, is recorded the date of presentation and time of service. More substantial testimony was not wanting. These are a few among the many tokens of kindness I have received from the hands of this most amiable lady. May she long be spared the blessings of health to enjoy the fruits of her labour."

AUTUMN TINTS OF TREES.*

OCTOBER is well known to be the month when the foliage of trees exhibits the greatest variety of rich colouring. Some, however, as in the case of the Ash, Walnut, Elder, &c., only assume a dingy green tint. On October 30 many trees had their foliage still on, and in some cases quite green; amongst these were the Oriental Plane, Alnus cordifolia, Quercus fastigiata, Sorbus vestita, Rhamnus catharticus, and others with smooth leaves, but which eventually fall off more or less coloured. Other kinds then in leaf, but with foliage more or less hairy, generally fall off in their green condition, such as the Celtis occidentalis, black and white Mulberry, common Fig, Catalpa syringæfolia, &c.

During the whole of October this year the tints of foliage on ornamental and forest trees have been highly interesting, perhaps more so than they have been seen at Edinburgh for a long time—some of a rich crimson or red hue, some in all shades of brown and yellow, while others have all the tints more or less on the same tree, such as the Sugar Maple, Liquidambar, and the Virginian Creeper. The Tulip tree, when it first goes off, has its leaves equally divided between green and yellow. Afterwards they all become quite yellow, in which condition they remain for eight or ten days, and ultimately assume a darkish brown hue, in which state they fall off. During October the yellow tints were the most prominent on the Acer monspessulanum, A. campestre, Cratægus heterophylla, common Horse Chestnut, Quercus pannonica, Q. pyramidalis, Mespilus grandiflora, Carpinus Betulus, Betula alba, B. pontica, Castanea vulgaris, Sorbus Aria, &c. Some species retain their leaves for a long time in their coloured condition, while others fall immediately the yellow tint comes on them, as observed on the various species of Lime and Wych Elm. When leaves go off of a dark red or deep brown hue, they generally remain much longer on the trees than many of the yellow tints. This is observed in the American Oaks, particularly the Quercus rubra, Amelanchier vulgaris, and some varieties of the common Beech.

The ordinary Purple Beech generally parts with its leaves early, and when going off the colour is scarcely discernible from the decaying foliage of some of the green Beeches, particularly the thick-leaved sorts. A variety of the purple-leaved Beech, not uncommon in the gardens at Corstorphine, comes out in spring of a greenish tint; during summer it is of a rich dark purple; towards autumn it again assumes a greenish hue, and ultimately goes off of a dark brown colour, not unlike the green varieties, but retains its leaves much longer than the ordinary purple form.

The Corstorphine Plane (Acer Pseudo-Platanus var. lutescens) is known all over Europe during the spring months from the yellow tint of its leaves. During summer they become as green as those of the ordinary Acer Pseudo-Platanus. In autumn no difference is observed in the falling foliage from the ordinary green sorts, being generally of a dingy yellow green. In the variety cultivated under the name of Acer Pseudo-Platanus var. purpureus, although no difference is observed in the leaves when they first come out, the purple tinge peculiar to the under-side of the leaf becomes very conspicuous during summer. When the leaves fall from the tree in autumn the purple tinge is distinctly visible, although the surface of the leaf has the greenish yellow hue peculiar to the typical species.

The silver or variegated Acer Pseudo-Platanus generally comes out in spring of a pale green colour; during early summer the variegated or white portions become distinctly visible; when the leaf falls in autumn the variegated or white parts are of a golden or yellowish hue, and the green portions of the dingy yellow-green colour peculiar to the species.

The Cratægus Oxyacantha lutescens comes out in spring of a rich yellow, and continues so for many weeks; during summer the leaves become perfectly green, and were so on October 30.

The Scotch Laburnum was noticed in my report for July as having the points of all the top shoots of a rich golden-yellow, contrasting admirably with the dark green leaves—the trees have now a golden-yellow tint nearly all over, but no leaves are yet down (Oct. 30). Although no flowers were produced in the garden on the Scotch Laburnums this year the trees have made up for the loss by the charming masses of tufted yellow foliage, particularly when seen growing in a position where the rays of the setting sun have access to them. A similar effect is also produced during some years when covered with fruit, which hangs down in thick yellow-green masses long before the ripening of the seed.

The foliage of the Pavia flava and Amelanchier vulgaris has been remarkably fine this autumn, as they retained their coloured leaves for a much longer time than most other trees. The former was of a rich yellow colour, while the latter was of a deep red hue. As both appear in perfection about the same time they ought to be extensively cultivated as foreground trees, for producing autumn landscape effects.

During the month of August many leaflets fell from the Locust trees (Robinia Pseud-Acacia), all of a deep yellow colour, as noticed in my report on vegetation for that month, probably at a period when some changes were taking place in the juices of this tree. In September the foliage of the Robinias all assumed a peculiar blue-green tint. In due time they fell off, of a dark green colour.

Owing to the rich and varied tints, and the peculiar circumstances attending the change in the colour of the foliage of certain trees, it would be highly desirable to have some eminent chemist to analyse the fluids contained in the leaves, so as to afford us a clue to the various colours which many of them generally assume.

Although the tints of the arborean vegetation at Edinburgh have this year been remarkably fine, it does not always follow that the same varieties show the same richness of colour in other soils and situations. During a recent tour through a portion of England and Ireland (early in October) I was surprised to find many of the varieties of trees here enumerated in their normal green condition, although many were coloured at Edinburgh before I left. Being further south, and therefore better ripened, I certainly expected to find the autumn tints in advance of this country; perhaps this may be accounted for by the comparatively dry weather experienced at Edinburgh during the summer compared with other parts of Britain. Although showers frequently prevailed here, the under-stratum or subsoil has been excessively dry, owing to the rains not being sufficient to penetrate.

Nothing could exceed in richness the foliage of the Virginian Creeper as seen in many parts of England this autumn, more particularly on the old College and other buildings at Oxford. The Ampelopsis Veitchii and A. trifurcata were also gorgeous in several places, but not cultivated to the extent they justly deserve.

November set in with much rain, attended with high winds, and afterwards severe frost, which has denuded the trees of their leaves, and therefore depriving us of longer enjoying many of their beautiful autumnal tints. *James McNab, Royal Botanic Gardens, Edinburgh.*

* Read at the November meeting of the Edinburgh Botanical Society.

RUSTIC BRIDGES.

THE ornamentation of water and its borders is one of the most important features of the landscape gardening of our times. Bridges, and the different manners of constructing them, have been above all things the objects of study. Unhappily, good taste does not always preside over these arrangements, and a heavy appearance is the principal fault in these constructions. We reproduce here two examples from the pencil of M. André, the landscape gardener who furnished the designs for Sefton Park, Liverpool, and whom our readers may know as the editor of the *Illustration Horticole*.

An inspection of the drawings will show the style of these bridges; they may be constructed of wood or iron. Iron rods for this purpose are made by M. Jacquemin, of Paris, and have been successfully employed by M. Méry-Picard, an engineer, who exhibited many samples at Cologne recently. When bridges are made of wood it is necessary to use it rather thick, for fear of giving too slender an appearance, which only accords with iron. The bridge in fig. 133 is in three divisions, the supports are made of strong joists of Oak resting on piers of masonry ornamented with rockery. The three bent arches are made of Beech, or, what is better, of Chestnut. The bridge in fig. 134 is more simple, and we can recommend it for adoption. Made of wood, the horizontal piece at the bottom can be strengthened, and only one used instead of two, as shown in M. André's design. The sides of the arches of the bridge should be profusely planted. Ivy on the north rocks, Ampelopsis on those facing the sun, would have an excellent effect. One or two Willows or weeping Sophora are suitable for this purpose. Cotoneaster buxifolia and microphylla, Juniperus squamata and Sabina, Periwinkles, and Hypericum calycinum between the rocks, make a charming appearance from the slope of the bridge to the edge of the water.

FIG. 133.—RUSTIC BRIDGE.

ROSE CULTURE IN POTS.*

THE Rose is at all times strikingly beautiful, but more particularly so during spring and the early summer months. Valuable at all times and seasons, it is especially so for the ornamentation of the conservatory, and I know of no more pleasing sight than that of a house furnished with well balanced plants bearing deep green luxuriant foliage. So well do they associate and harmonise with other spring subjects, that it is of their culturre in pots for this purpose, as well as for exhibition, that I narrate the method I have hitherto adopted with success, considering the limited means at my disposal.

Nearly all the Hybrid Perpetuals, Hybrid China, and Tea Roses do well in pots, and those who wish to procure a collection in the shortest space of time would do well to go to some nursery where this favourite is made a *specialité*, and select as many from the subjoined list as means or convenience will admit. A very good time to procure them is in the month of September, when well established, and useful plants can be purchased in 8-inch pots. As soon as possible after receiving them from the nursery examine their roots, for it may be found that many of them will be benefited by a shift into 10-inch pots. This operation will also enable you to ascertain whether the drainage is in good order or not—a point that cannot be too strongly urged, for the Rose is very impatient of stagnant moisture at the root.

The following mixture of soil will be found suitable to them:—Good strong turfy loam, three parts (if laid up for twelve months, so much the better), the other part well-decomposed cow manure, leaf-mould, and silver sand; a sprinkle of bone-dust may be added

* A paper read at the Wimbledon Gardeners' Discussion Class, November 8, 1875.

with advantage, if at hand. Chop and mix the compost well together, and pot firmly. Place the plants in a cold frame or pit, taking care to give plenty of air by tilting the lights, and on all favourable occasions draw the lights entirely off. It is not warmth that is required, but a place of shelter from the heavy autumnal rains and very severe frosts. In these quarters they can remain until wanted to start into growth. It takes from eight to eleven weeks generally to bring Roses into full bloom from the time they are started, and, if wanted in bloom during May, which is the month in which pot Roses are usually exhibited, the first week in March will be found early enough to start them. About the middle of February prune away all weak or watery growing shoots, and shorten the points of all the shoots, more especially such as are not well-ripened; it is not necessary, however, to prune as hard as you would for a plant growing out-of-doors. Have at hand a ball of cord and some bast or other tying material, in readiness for training the plants. Begin by placing a string around the rim of each pot, then bring gently down the point of each shoot to the string, so that when all the branches are brought down they may be likened to an umbrella turned inside out: this training or bringing down of the branches and twigs is indispensable, as it regulates the sap and causes them to break right back, thereby laying the foundation for good plants in future years.

If plants are not wanted to bloom until May they can be grown in a cold frame; they must be encouraged into growth by keeping them close and syringing two or three times a day with tepid water. If rain-water is not procurable always, stand some pots of water in the sun to prevent that sediment which is so often found on the foliage of plants after using hard water. Keep them near to the glass in order to obtain as much light as possible, and keep them close until the buds begin to burst strongly all over the plants, when air must be given as weather permits. Carefully avoid cold currents, and always shut up early to husband the natural heat. In the morning you will be rewarded by finding the edges of the leaves covered with beads of dew, and all bearing a fresh and thriving appearance.

About this time the anxious grower will have to keep more than an ordinary look-out for that most hateful of all pests (to the rosarian)—the Rose maggot—which coils itself in the half-expanded leaves, and, if not detected, drills its way into the hearts of the flower-buds, which are more or less injured, and fall off; besides, the foliage will present a riddled and unsightly appearance. Wherever a curl appears there the enemy will be found lurking, and a simple pressure between the forefinger and thumb is the best way to settle him. Greenfly will sometimes be found troublesome, and if they cannot be kept under with the syringe, a smoking or two will soon settle them. I have invariably found, as the plants gained strength, that a good wash from a tolerably coarse rose watering-can was more effectual than syringing.

As soon as the buds appear well above the foliage the plants should be trained into a pyramidal shape, taking care to distribute regularly the flower-buds all over your plants. First have some neat sticks at hand, such as small Osiers used in the making of baskets, which are suitable from their light green appearance. Place some of these sticks in a slanting position on the rim of the pot, and bring the lowest and most forward buds down to the sticks, carefully cutting away all the ties made when the plants were first pruned. Continue to bring each of the growing shoots to the sticks placed equally all over your plant, from the rim to the summit, until a nice pyramidal shape is attained. This training again balances the sap throughout the whole plant, and the result is a quantity of blooms at the same time, which is every exhibitor's aim, and which result could not be obtained were the plants allowed to take their course; the stronger would outgrow and rob the weaker, and consequently bloom first. Should any of the buds show colour before the rest many of the varieties will allow of something being tied around the bud, thereby to delay its opening, and in some cases cause an otherwise flat bloom to become cupped, as in the case of Anna Alexieff. From the time the buds first appear manure-water may be given freely, for when roots are well established the Rose is able to absorb strong stimulants. I generally give a mixture of the following:—Cow-dung, horse-dung, sheep-dung, a basket of each to about a peck of soot, and a 6-inch pot of guano; the whole is put into a large tub and well stirred; when settled it is fit for use. If strong I dilute with water, and my plants have hitherto thriven well and carried good foliage as well as good blooms. As the plants come into bloom they will be benefited by a little shading from the sun.

FIG. 134.—RUSTIC BRIDGE.

When the plants have done blooming plunge them out-of-doors in a bed of coal-ashes or some other suitable material, cut off all dead flowers, and give copious supplies of manure-water, or a mulching of rotten dung around them will answer the same purpose, for the watering and rains will wash it in. Most of the plants, if they have made good growth, will require a shift. This operation is best done from July to September, especially with the Tea Roses, although it can be performed up to the middle of October.

At the commencement of this paper I said that the quickest method of getting a collection was to purchase established plants in pots; but plants obtained as follows, although not fit for early blooming the first year, still may carry a fair supply of blooms. The first step is to take up from the garden or purchase some dwarf Roses and put them in 8-inch pots well drained. Plunge the pots to the rim in a partly spent hotbed, and keep them close for a few days; give one good soaking with clear water, and dew them over with a syringe on fine days, and in the course of a fortnight they may have air and be treated as recommended for the established ones, only that these should be pruned hard back in the spring.

If it is required to have flowers earlier in the season it will be necessary to prune them sooner than already stated, and also to introduce them into a genial temperature of 50° or 60°, and, if convenient, a slight bottom-heat of 10° more will materially assist, but hard forcing should be avoided at all times, for it will be found detrimental to good blooms, the flowers coming very sparingly and puny.

There are three other enemies to the Rose besides greenfly, and the Rose maggot spoken off, which are the common mildew, the black mildew, and orange fungus. Sulphur is recommended for the first; for the second I know no cure, though it may sadly disfigure some of the foliage; for the third, less moisture and more air will, I think, prevent its spreading.

In conclusion, let me say to those who propose specimen growing, that they must possess great patience, and be exceedingly watchful, for a specimen pot Rose requires a great amount of attention to arrive at perfection. Some plants I purchased, as recommended at the commencement of this paper, two years since, are now in 13-inch pots, and from 3 to 4 feet in diameter; and I have bloomed them twice in succession in a cold Melon pit.

I append a select list of thirty varieties:—Anna Alexieff, H.P.; Beauty of Waltham, H.P.; Camille Bernardin, H.P.; Centifolia Rosea, H.P.; Countess of Oxford, H.P.; Duke of Edinburgh, H.P.; Duke of Wellington, H.P.; Edward Morren, H.P.; Général Jacqueminot, H.P.; John Hopper, H.P.; La France, H.P.; Madame Lacharme, H.P., white; Madame Victor Verdier, H.P.; Madame Thérèse Levet, H.P.; Maréchal Vaillant, H.P.; Marguerite de St. Amand, H.P.; Miss Ingram, H.C.; Paul Verdier, H.C.; Victor Verdier, H.P.; Charles Lawson, H.C. Teas: Céline Forestier, N.; Cheshunt Hybrid, Madame de St. Joseph, Madame Falcot, Madame Willermoz, Marie Van Houtte, Perfection de Mont Plaisir, Madame Bravy, Souvenir d'un Ami, Souvenir de la Malmaison. *J. W. Moorman, Gr. to the Misses Christy, Coombe Bank, Kingston-on-Thames.*

ANDRÉ LEROY.

ANDRÉ LEROY, born at Angers August 30, 1801, the day sacred to St. Fiacre, patron saint of gardeners, was both son and grandson of nurserymen. He lost his father at the age of seven, and entered the Lyceum, which he left when eighteen to study practical gardening at home. He then went to Paris to extend his knowledge, bearing a letter from M. Pilastre to his friend, André Thouin, Member of the Institute, and Professor of Culture at the Museum of Natural History at Paris. This gentleman received him kindly, and introduced him to his nephew, Oscar Leclerc Thouin, gardener-in-chief, and who afterwards became Professor of Agriculture at the Conservatoire des Arts et Metiers. The two young men studied together, and conceived a great friendship for one another. Through André Thouin, his nephew, Oscar Leclerc, and the celebrated naturalist Bosc, he made the acquaintance of several botanists, pomologists, and naturalists, with whom he continued to associate even to the last. After passing some years at the Jardin des Plantes at Paris, André Leroy returned to his mother, took charge of her house, and put into practice the excellent lessons he had received, and had the satisfaction of seeing his work crowned with success. Founded in 1780, at a period in which little was done as regards great plantations, the establishment of M. Leroy, sen., only comprised a hectare of ground. The nurseries, although enlarged by his mother, seemed to her son to be still too small; he extended them until they became the largest then known. But his task was not yet complete. He undertook numerous journeys, both for his own instruction and for commercial purposes, to see for himself what was done in other countries, and to bring back notions by which both science and his numerous clients might profit. He visited the large horticultural establishments of France, England, Belgium, Holland, Germany, and Switzerland, &c. He always procured all the new plants and trees he could meet with. These journeys also provided him with hints with regard to landscape gardening. The obligations which Anjou, Vendée, and Poitou owe to him for works of this kind are not sufficiently appreciated. His vast nurseries increased out of proportion to the business done, André Leroy therefore conceived the idea, in 1847, of founding an establishment at Paris. He was contracting for a piece of ground on which to construct his office at the outbreak of the Revolution of 1848. He had to give up his long-cherished plans, and being obliged to seek another place for his trees turned his thoughts to America, to which country he sent M. Baptiste Desportes, with instructions to open a large arboricultural establishment at New York. Thither thousands of cases of trees were sent annually. Each case contained 300 fruit trees, or a number of two-year seedlings.

From that period M. A. Leroy's nursery became the richest and largest in the world. It extended over more than 200 hectares, and not less than 300 workmen were employed on it. Its fruit trees numbered over 3000 varieties, and the number of trees and plants cultivated in the open air was also very considerable.

We have seen several thousand plants of Araucaria imbricata, more than 10,000 Cedrus Deodara, Cryptomeria japonica, Abies Morinda, Pinus excelsa, Cupressus torulosa, and others by thousands. M. A. Leroy published in 1865 his *Descriptive Catalogue in Five Languages*, and in 1866 appeared the first volume of a popular work on pomology in five volumes, all the more valuable because M. A. Leroy was placed under peculiarly favourable conditions for the publication of such a dictionary, possessing as he did in his nurseries a type of every species. Three other volumes have appeared, and the fifth, on *Stone Fruits*, is now in the press. M. Leroy took a large part in horticultural affairs, and was a member of numerous societies both in France and elsewhere. [Extracted from a notice, by M. Alph. Lavallée, in the *Journal de la Société Centrale d'Horticulture de France*, Sept., 1875.]

HAUTEVILLE HOUSE, GUERNSEY.

YOUR able correspondent, the Rev. Thos. C. Bréhaut, is noted as an orchardist (*vide* his six remarkably fine fruit of Uvedale's St. Germain Pears (class 59) at the Royal Horticultural Society's Show last week), but I fear that as a geographer he is hardly to be trusted.

The best Nectarine I ever tasted in my life, and the largest—I forget its exact size, but I know we measured it, and it was divided into two—was from one of the orchard-houses at Richmond House, Guernsey, and if I were about to build orchard-houses I should certainly take Mr. Bréhaut's opinion next to that of Mr. Rivers; yet I should be very sorry to trust a yacht for him to pilot into the harbour at St. Peter Port. Your readers will wonder what all this leads to—it is this. I notice in the *Gardeners' Chronicle* of October 30 (a date, by-the-bye, in which I have some interest, it being my natal day) an interesting notice of the inflorescence of an Agave americana in the garden of M. Victor Hugo at Hauteville. Mr. Bréhaut, as "the gardener *pur et simple*," says nothing with which I can find fault, I not being a gardener, and far from *pur et simple*; but it is when he comes to talking of the points of the compass and the aspect of the coast from Hauteville House that, as a Fellow of the Royal Geographical Society, I feel bound to criticise the well-intentioned and poetic, but, alas! inaccurate description of the reverend pomologist.

First of all, "This gallery, overlooking the garden southwards at a great height," &c. Now the garden face of Hauteville House, of which a cut from M. Garnier's photograph is given in your journal, faces as nearly as possible direct east—the same aspect as Richmond House, if I mistake not.

Next, "Before, five leagues away, lie the twin Douvres," &c. Like Sam Weller of renown, "I have a pair of eyes, and that's just it. If they wos a pair o' patent double million magnifyin' gas microscopes of hextra power, p'raps I might be able to see through a flight o' stairs and a deal door, but bein' only eyes, you see, my wision's limited." I defy any one to see the Douvres rocks from Hauteville or any other part of the town of St. Peter Port or its immediate vicinity. The fact is that the Douvres lie five leagues away to the south of the island of Guernsey, opposite Plainmont Point, the south-west extremity of the island, and in quite another direction to the view from Hauteville House. "A cinq lieues environ en pleine mer, au sud de Guernesey, vis-à-vis la pointe de Plainmont, entre les îles de la Manche et Saint Malo, il y a un groupe d'écueils appelé les rochers Douvres. Ce lieu est funeste."

Lately, it may be noted, an iron lighthouse has been built by the French authorities on the Douvres rocks. This is visible (plainly through a telescope) from the south coast of Guernsey, but not from Hauteville House.

Again, "Seawards is the rock with the Celtic appellation from which Gilliat," &c. If Mr. Bréhaut can distinguish the Corne de la Bête where the Chaise Gild-Holm-'Ur is, I should much wish to have the spot pointed out to me on the chart, as I have often visited the rocks in that neighbourhood on purpose to identify if possible the exact rock, and never satisfactorily been able to fix upon the site so graphically depicted by Victor Hugo. It must lie between Fort Doyle and Bordeaux Harbour, but whether it is "Homtole" or La Pierre, or Moulliere, or one of the rocks on the Haute Banque, they are all equally invisible from Hauteville House—St. Sampson's and Vale Castle intervening. I fear that there must have been a sea-fog on the day of Mr. Bréhaut's visit, or otherwise he must somehow have become enwrapped in that crepuscular atmosphere in which M. Hugo's writings are so often bathed.

Before I finish, I will add to Mr. Bréhaut's notice of the garden of Hauteville House two inscriptions, which were once to be found there, and although, perhaps, now overgrown (as I have not seen them for three years) probably yet survive. On the pedestal with the terra cotta vase, near the tranquil basin of, in my time, pellucid water is inscribed

OÙ EST L'ESPOIR, LÀ EST LA PAIX.

Behind, again, is a trellised alcove, covered with Fig trees, whilst Arbutus Unedo, Ilex, and tree-like Fuchsias and Veronicas flourish luxuriantly about it. Here, over against a stone seat on a wall, over which droops the sweet smelling leaves and odorous branches of a huge Aloysia citriodora, half hidden under moss and Ivy, is recorded,

IMMENSITÉ, DIT L'ETRE.
ETERNITÉ, DIT L'ÂME.

It was the good fortune of the present writer to reside for three years next door to Hauteville House, in fact, almost under the same roof, as Hauteville House is only semi-detached. It was during the period of exile of the poet, when the most neighbourly kindness and hospitality was exhibited by the distinguished author.

Guernsey, however (with a few noble exceptions), did not appreciate the honour she possessed of the presence upon her soil of one of the greatest literary intellects in Europe, and left him in the solitude of profound oblivion—a species of second exile, professedly indifferent to his presence or absence, and blissfully ignorant that for ages to come the name of Victor Hugo will impart a portion of the halo of his glory to the small island where he found a shelter.

On my first reaching Guernsey, and taking up my abode so close to the great dramatist, I was warned against my dangerous neighbour as a malignant Red Republican (Communists were not then invented), a vile conspirator, and the friend of assassins, and as likely to insult on the shortest notice any one who had the misfortune to call himself an Englishman. What was the truth? Why there is no place in the world (and I have been over a great portion of it) where I could find greater sympathy and thoughtful kindness than I and my family have experienced at the hands of M. Victor Hugo and his family circle. In the dry season our tank would sometimes run dry, M. Hugo's inexhaustible reservoir was at our service. Did we want fruit or flowers? flowers and fruit were alike lavishly offered. Our garden was small: would not our children like to play amidst his larger *parterres?* The *entrée* of his garden was heartily afforded to us, with one Victor-Hugo-like reservation, "that the children were not to play too near to the basin and *jet d'eau*, lest they should tumble in;" whilst we were made most agreeably welcome in the *salons* and at the table of our illustrious neighbour. *S. P. Oliver, Pallant House, Havant, Hants.*

A NATIONAL HORTICULTURAL SOCIETY.

MR. FISH has kindly favoured us with a copy of his paper—"Suggestions for the Formation of a National Horticultural Society"—read at a meeting of the Lindley Club on November 10, from which we have made the following extracts, the subject being dealt with at too great a length for us to give the paper in its entirety. After alluding to the importance of the subject and difficult nature of the work to be done, Mr. Fish points out that many societies have done, and are doing, good work; that a national society would not supplant or supersede any, but would help all to do more and better for horticulture; and continues:—

"Should any society, high or low, forswear loyalty to horticulture, and bow down to the idols of rank, frivolity, or fashion; and, forgetting its weightier and nobler duties, degrade horticulture into a mere thing of flare and glare, of idle lounges, fashionable promenades, military music, floral bazaars, trade ventures, and exclusive privileges, ending in a dead-lock of financial difficulty, and a land-blocked channel of class localism; then it would assuredly be the duty of all true horticulturists to give a long pull, a strong pull, and a pull altogether, to drag the old vessel that has made many a prosperous voyage, and done good service to horticulture in its day, off the treacherous rocks of financial disaster, or out of the miry clay of class exclusiveness. But should the cables snap, or the society refuse to take again to the open sea of national or international usefulness, or, in other words (and to drop figures and state facts), should reconstruction be resisted from within, or prove impossible from without, the old society must go to its own place, and another, younger, stronger, more daring, more wise, more national, more cosmopolitan, be launched forthwith to carry the love, the knowledge, the best products of our grand old art, and noble and right-honourable profession, into every nook and corner of the land."

Dealing next with the name which a society, having such broad national objects, should bear, Mr. Fish comments pretty strongly on certain shortcomings and mistakes made by the Royal Horticultural Society, and with reference to the attempt being made "to raise, I think, £8000 per annum from subscriptions to satisfy Her Majesty's Commissioners, and thus purchase their forbearance," he well remarks, "Such compromises are, we fear, but paltry patches that will finally make the rent worse. What the Society needs to fit her to lead the horticultural enterprise, science, and practice of the day, is freedom of action, emancipation from debt, independence, and large and wide views of its duties to the nation, and the world at large."

Avoiding "the evils of localism in the old society," Mr. Fish is of opinion that "a national society must embrace the nation, and should be so constituted as to encourage and include all other societies. These might all be affiliated with it, the central helping and supporting, and being helped by all other societies."

As regards the managing body of such a society, Mr. Fish suggests "That the Council should be composed of the following classes, in equal numbers, for the reasons assigned:—The capitalist, for he finds the money; society, for it brings the patronage; the scientist, for he gives the reasons; the literatist, for he writes its records and pictures its possibilities; the nurseryman, for he furnishes the material; and the practical gardener, for he is encouraged by the patrons to spend the money that embodies the reasons, that makes the records, that fulfils the prophecies, that utilises and augments the material which covers the earth with overflowing plenty, and clothes it with satisfying beauty. Having placed the right men in the right places by a careful selection of 'discreet' Fellows, we must guard against the serious danger of allowing the same men to remain too long in office, or return to it too soon. Frequent change is the law of vigorous life, with societies as with our physical frame. The following simple arrangement would provide for constant change, while also ensuring a continuity of experienced councillors to govern the Society. One third of the Council to retire annually, such retiring members not to be eligible for re-election till after the term of three years. The Council would thus have a large annual accession of new blood which would renew alike its youth and vigour. The simplest possible means should also be devised for the nomination of councillors, so as to keep that body in complete accord with the wants and wishes of the Society."

Forestry.

SALE OF THE CROP.—Another branch of forestry, of nearly equal importance with that of cultivating and growing trees, is that of disposing of the crop when ready for the market. As there are, however, so many ways of doing this, each adapted to its own peculiar condition and circumstance, I shall only relate the method practised here in the meantime, and refer to others at a future time. On this estate there are two auction sales annually, the one about the latter end of August, the other about the middle of October. The former consists of the thinnings of young Pine and Fir plantations, which are principally purchased by the farmers for stackyard purposes and farm fences, and by the peasantry for fuel to burn along with peat or coal. The number of lots exposed vary from 250 to 350 at each sale, that being about the number for which there is proper demand at a time. In arranging and making up the lots, only the stems or poles are collected, and laid in heaps of one good cartload each, observing that only one kind and quality of trees is put separately into each lot, so that when the purchase is made the purchaser may feel satisfied that the whole of the lot will turn out to be what its surface indicated, there being no inferior or different quality in the centre to that on the outside. As the prunings and all inferior growths and dead trees are bought by the poorer class of people for fuel, or by the tenantry for similar or subordinate purposes, they are not collected into lots, but a rough estimate is made of the number of cartloads upon a certain area of ground, and stakes 3 feet high are driven in to indicate the boundaries and divisions of the lots. In this state the prunings can be sold at less money than if collected, which to that class of purchasers is no small consideration.

The number of poles in each lot vary from one to three dozen, less or more, and the prices vary with the quality and description of wood. Larch is usually sold at double the price of Scots Pine of equal size, and Spruce, unless clean grown and suitable for ladders or fencing, about one-fourth less than Scots Pine, but if clean and well grown it sells dearer by about one-third.

The other annual sale is held about the second week of October, and consists of a general assortment of wood and timber, principally old and mature. The two principal descriptions of wood diposed of consist of burnwood for curing fish, and timber for boat-building purposes. The former is principally Beech, which is esteemed above all other sorts for the purpose, and the latter Oak, Elm, and Ash. In the building of boats there is also great demand for Larch and Scots Pine of good quality and large dimensions for deck planking—a new feature in boat-

building. At this sale there are also considerable quantities of Sycamore, Birch, Willow, Poplar, Alder, Lime, &c. The sale comprises from 400 to 450 lots, and realises on an average from 20*s.* to 25*s.* per lot. Some trees are sold at from £12 to £16 each, or, what gives a better indication of prices—Oak, 2*s.* 6*d.* to 3*s.* 6*d.* per cubic foot; Elm, 2*s.* to 3*s.*; Ash, 2*s.* to 3*s.* 6*d.*; Larch, 1*s.* 6*d.* to 2*s.*; Scots Pine, 10*d.* to 1*s.* 2*d.*; Silver Fir, 8*d.* to 1*s.* 4*d.*; Spruce, 9*d.* to 1*s.* 2*d.*; Beech, suitable for keels and other purposes in boat-building, 1*s.* 6*d.* to 2*s.* 6*d.* per cubic foot; and burnwood of the same species, which consists of limbs and other growths unsuitable for boat-building and carpentry, at 18*s.* to 25*s.* per lot of about 25 cwt. each lot.

The timber and most valuable descriptions of wood are thrown by means of the felling saws, while the less valuable and smaller trees are cut with the axe. The woodland gone over for each autumn sale is so treated that no trees will require to be cut on the same ground till the next crop is ready for clearing, probably sixty years hence, and which will consist of Larch and a small mixture of hardwood. The trees left upon the ground to preserve the beauty of the landscape are the healthiest and best of their respective kinds (chiefly Oak), and such as are likely to remain healthy and sound till the next clearance is effected. As August is the best time for the former sale, both on account of accommodating the farmers with wood at the commencement of harvest and doing least damage by way of destroying or disturbing the game, which is highly esteemed by the proprietor, so October is the most convenient time for the latter, as at that season the burnwood (which is best when newly cut) is in greatest demand by the fish curers. Boat-building, too, is commenced soon after the herring fishery is over, hence timber is in great demand to allow the work to proceed.

The sales are both well advertised in the local newspapers and also by handbills about three weeks previous to taking place, so that all who intend purchasing may be duly apprised and prepared. The conditions are read over by the auctioneer at the commencement of the sale, the principal of which are:—Four weeks' allowance to clear the whole of the wood, under penalty of forfeiture of the lot or lots; only such roads to be used as are pointed out by the forester; all damaged trees to be paid for at three times their market value, and none of the lots to be removed till paid for.

On each lot being sold the purchaser is supplied with a small ticket bearing a corresponding number to that upon the lot bought. This is found a great convenience in removing the wood, and prevents mistakes in taking wrong lots—by no means an unfrequent occurrence without such provision. *C. Y. Michie, Cullen House, Cullen, Nov.* 15.

Notices of Books.

PROFESSOR DYER has done excellent service in reprinting from the *Quarterly Microscopical Journal* his papers on the *Classification of the Lowest Types of Vegetation* (*Thallophytes*). Professor Dyer has therein put before the English reader in a few pages a lucid summary of the hitherto more or less isolated and disjointed labours of Sachs, Pringsheim, De Bary, Van Tieghem, and others. The life-history of these lower forms has necessarily had to a great extent to be studied piecemeal and not continuously. The consequence has been that though discoveries have been frequent and important, the ordinary naturalist not specially devoting himself to these plants found himself quite unable to see the co-relation and significance of the facts discovered; all seemed confusion and intricacy. Taking Sachs' classification as a basis, Professor Dyer has pieced together various facts made out by numerous observers at home and abroad, and has laid before the English reader a classification which Sachs himself would be the first to admit is artificial and provisional, but which, nevertheless, is a great advance on previous classifications, and which commands the assent of outsiders by bringing together in a rational, intelligible way most of the newly gained facts. Two great divisions are formed, the one consisting of plant-cells without chlorophyll, the other of plant-cells with chlorophyll. These two parallel series are further each divided into three groups; in the first multiplication takes place by division of the cell only, and sexual reproduction does not exist or has not yet been observed. In the second group not only is there cell division but also sexual reproduction, contact of separate sexual organs being required, but the two forms are of the same size and apparently identical in shape. In the third group the development of sexual difference is more complete, as the two sexes differ materially in form and size. In the fourth group, the part of the fruit which produces the spores is surrounded by a protective investment analogous to the pericarp.

—— Mr. W. Hope, V.C., has published a trenchant letter on *Food Manufacture* v. *River Pollution*, addressed to the newspaper press of England. Mr. Hope is, as is well-known, an advocate of the intermittent downward filtration method, and a sarcastic opponent of all precipitation schemes. He comes before the scientific reader with the unanswerable statements that he has cut 80 tons of Italian Rye-grass per acre in one year, and has an average of 50 tons per acre of Mangel. On the other hand, his balance-sheet is far from favourable, and this he attributes to the Local Board of Romford, who miscalculated the amount of sewage he would have to deal with. Of course he is very wroth with local boards, and not without reason. We have no doubt whatever that, under existing circumstances, the plan advocated by Mr. Hope is the best, but in the face of the fact made clear to us by chemists, that of the large quantities of nitrogen in manure applied to the soil but a relatively small proportion is ever regained in the crop, we do not wonder that brains should be exercised in the attempt to produce better results, and we do not see that any honest endeavour in this direction is fairly open to such severe rebukes as those administered by Mr. Hope. At the same time we would wish more strength to his back, or that of any one else who will check the awful waste of plant food, and the frightful defilement of watercourses, small and large, which are now going on.

—— The illustrations contained in the October number of the *Botanical Magazine* are Delphinium cashmirianum, a large-flowered violet-purple species, inhabiting the western Himalayas at a great height. The specimen figured was raised by I. A. Henry, Esq. Masdevallia Davisii, as figured here, has golden-yellow flowers with a few orange bars at the base of the perianth, externally thus varying considerably from the colours originally described in our columns for 1874, vol. ii., p. 710. The plant is a striking one, and was flowered by Messrs. Veitch. It is a native of Peru. Tulipa Eichleri, figured from a specimen raised by Mr. Elwes, has a gorgeous flower of a deep scarlet colour, having at the base wedge-shaped violet-blue spots edged with yellow. The plant is a native of Georgia, where it was discovered by the traveller whose name it bears. Heteranthera limosa is a pretty blue-flowered stove water plant, allied to Pontederia, and introduced from New Granada by the late M. Endres. Oxalis arenaria is a species with umbels of violet-purple flowers. Its habit is tufted, leaves trifoliate. It is a native of Chili, and will probably survive the winter out-of-doors if the tubers are covered with litter. Crassula Bolusii is a small-flowered blotched-leaved species from Graaf Reinette.

—— The report of the *Botanical Locality Record Club*—Phœbus, what a name!—has been lately published. The object of the Club is to gather materials towards perfecting the plant census of the British Isles, and, so far, is a laudable one. It may be well to suggest that the mere indication of localities is of much less consequence than the indication of conditions under which found, elevation, climate, soil, &c. It is well, no doubt, to correct the misstatement that Gagea lutea is found in a wood in Oxfordshire, the truth being that the wood is a mile or two over the border of Berkshire; but if the recorders could do something towards telling us why it is in that particular wood, and in no other in the neighbourhood, the information would be of greater consequence.

—— The last issued parts of the *Flore des Serres* (October) contain figures of H.P. Rose Peach Blossom, Campanula Scheuzeri, Alocasia plumbea, a handsome Aroid, with the under-sides of its cordate ovate leaves of a dull violet colour, grown in gardens under the names of Gonatanthus cupreus or Alocasia cuprea, Puschkinia sicula, Araucaria Bidwilli (cone) Corylus Colurna. We do not allude to the numerous other plates, because they are for the most part copies of others which have appeared in other periodicals, or figures of old and well-known plants. The editor is, however, as honest as he is witty, and every copied plate is indicated as such, and its original source indicated, except in the case of the Peach Blossom Rose, which is copied from the *Florist*. The text, "original and selected," is of the usual pleasant character, despite a sarcastic allusion here and there.

—— Two numbers of the *Album van Eeden* are before us, published by A. C. Van Eeden & Co., Wagenweg, Haarlem. They contain quarto plates of two single Hyacinths, Willem I. and Ida, the former of a dark violet-purple, the latter primrose-yellow; × Gladiolus Brenchleyensis, Richardia africana, Amaryllis Belladonna, Ixia viridifolia, two varieties of Turban Ranunculus, two or three dwarf hybrid Gladioli, Sulphur Kroon Narcissus, Bravoa geminiflora, various hybrid Amaryllids, &c. The plates are chromo-lithographed, and are faithful, not sensational, which is a great advantage in such cases.

—— The *Bulletin de la Fédération des Sociétés d'Horticulture* for 1874, recently published, contains in addition to the usual reports of the affiliated societies an excellent biographical notice of Charles de l'Escluse (Clusius), by Professor E. Morren, from which we should be tempted to quote did our space allow. In this number is also contained the very useful *Correspondance Botanique* or list of the principal botanical establishments of the world and their *personnel*. This has been also issued separately, and is very serviceable as a directory.

—— Two numbers of the *Revue de l'Horticulture Belge* are before us; that for October contains a coloured figure of Duchesse de Vallombrosa Rose, a hybrid perpetual, said to have been raised from Jules Margottin. Its habit and growth are described as good. The flowers are large, of good form, the recurved petals deep rose-coloured within, shading off into rosy white on the exterior. In the November number is figured Rhododendron Auguste Van Geert, an old variety, but one worth figuring, from its good qualities as an early flowering variety. The section entitled *Melanges et Nouvelles* is this month particularly varied and interesting.

—— The numbers of the *Gartenflora* for August and September, the latest that have yet reached us, contain coloured plates of Staphylea colchica, Rubus Roezlii, Zygopetalum cerinum, Wallisia princeps, Fritillaria aurea, Thibaudia Hendersoni, Calochortus glaucus, and Ranunculus amplexicaulis. In the September number is an interesting article on the geographical distribution of certain cultivated plants, by Herr Hoffmann. The author, however, repeats the old error, that the timber roof of Westminster Hall was constructed of the wood of the Sweet Chestnut (Castanea vesca).

—— We are pleased to announce that Mr. Baker's *Elementary Lessons in Botanical Geography*, which appeared from time to time in these columns, have been published by Reeve & Co. separately. As they are reprinted almost exactly in their original form it would be superfluous for us to do more than recommend them to all young gardeners and others, whose business or pleasure it should be to know something about the distribution of plants, and the agencies affecting and controlling the same. So much trustworthy information on this interesting subject, compressed into about 100 small pages, it is impossible to find elsewhere. Most books treating of this subject are too diffuse, and, perhaps, too philosophical to be intelligible to the general reader.

—— The third volume of Boissier's important *Flora Orientalis* (Williams and Norgate), containing the orders from Caprifoils to Heaths, has lately been published. The first portion of the fourth volume, comprising the orders from Primulaceæ to Boraginaceæ, has likewise been issued. Botanists will receive this substantial instalment of a standard work with great satisfaction.

—— Colonel Wilder's presidential *Address to the American Pomological Society* at its meeting at Chicago furnishes another of those zealous and eloquent discourses on the position, progress, and prospects of pomology in America, which we are accustomed to receive, and always with as much pleasure as surprise at the progress made.

—— Baron Ferd. von Müller has published, under the title of *Census of the Plants of Tasmania*, a list of all the flowering plants and Ferns known to be natives of Tasmania, with authorities and references.

—— *Villa Gardening*, by "Practical Hand" (*Bazaar* Office), consists mainly of a calendar of monthly operations, with some introductory pages, of which draining, path-making, choice of soils, selections of trees, shrubs, and annual and perennial flowers, occupy the greater portion, while an appendix contains a few common-place garden designs, of which the remark applied to one may be quoted for all—"they look 'very well, considering.'"

—— The *Tenth Report of the Quekett Microscopical Club* shows that the popularity and usefulness of the Club is steadily increasing.

PUBLICATIONS RECEIVED.—Le Moniteur Horticole Belge.—Revue Horticole.—Report of the Fruit Growers' Association of the Province of Ontario for 1874, to which is appended the Report of the Entomological Society for 1874.—Sur la Méthode des Sommes de Tempèrature appliquée aux Phénomènes de Végétation. Par M. Alph. De Candolle. We shall advert to this important communication on another occasion.—Variation desordonnée des Plantes Hybrides, et Déductions qu'on peut en tirer. Par Charles Naudin. This also is a paper to which we must allude at greater length on another occasion.—Timber and Timber-trees, Native and Foreign. By Thomas Laslett, Timber Inspector to the Admiralty. (Macmillan & Co.)

THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 20, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 22	Institution of Surveyors: A Paper on Fruit Culture will be Read by Mr. G. Webb, at 8 P.M. Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Nov. 23	Sale of Natural History Specimens, at Stevens' Rooms.
WEDNESDAY,	Nov. 24	Sale of Greenhouse Plants from Ghent, at Stevens' Rooms.
THURSDAY,	Nov. 25	Royal Horticultural Society of Ireland: Private Winter Show. Sale of Orchids, at Stevens' Rooms.
FRIDAY,	Nov. 26	Sale of Scientific Instruments, at Stevens' Rooms.
SATURDAY,	Nov. 27	Cheetham Hill Horticultural Society's Chrysanthemum Show. Sale of Roses, Shrubs, Bulbs, &c., at Stevens' Rooms.

THE question of the removal of the BOTANIC GARDEN, OXFORD, to a new and, in some respects, more favourable site, is one which has been lately raised in the University, and which has interest for a much wider circle than that of the University magnates who will shortly be called on to decide it. It is one in which the whole community of botanists at home and abroad are concerned. It is one in which horticulturists also are at least indirectly concerned. It is to be hoped, therefore, that the authorities will not take up this question hastily, or decide it upon narrow grounds. For years—indeed, we may almost say from its foundation—the garden has languished for want of funds, or has been indebted to the liberality of wealthy and munificent Professors and others for means to carry on its ordinary work, or to make those additions and alterations which the progress of botanical science has demanded. To the late Professor DAUBENY, indeed, are due several of the existing houses, and his purse was always open to supply deficiencies, or eke out the scanty endowments of the garden; and his zealous love for his *alma mater* in general, and the establishment he directed in particular, are gratefully remembered by those who were privileged to witness them.

It is obvious, however, that to have to depend on private munificence in a case like this is a real discredit to the University, or rather to the College (Magdalen) to whom the present establishment really belongs. The first question, then, we should be inclined to ask is, in the event of the present establishment being abandoned and a new garden formed, what provision does the University intend to make to maintain it? Nothing can be more disheartening to the Professor and his subordinates than to have to maintain a garden—whose poverty cannot be concealed—with insufficient means. If the University is not disposed to put financial matters on a satisfactory footing, both as regards the maintenance of the garden, the income of the Professor, and the salaries of his subordinates, outsiders would say it would be far better to leave things as they are.

We suppose that the main reasons for advocating the change may be sought in the following considerations:—1, The desire on the part of the University to have the garden establishment in its own hands, instead of allowing it to remain, as it now is, an appanage of a particular college; 2, the wish to have the garden in proximity to and in association with the Museum and its splendid and well equipped library and laboratories. Again, if we are not mistaken, a portion of the "Parks" around the Museum was some years ago planted with trees and shrubs so as to constitute, not only a pleasure ground, but also the nucleus of a scientific arboretum, for which the space in the existing garden is far too limited.

The first reason is, doubtless, a valid one, but it might readily be met if Magdalen College would undertake to supply the necessary funds for a more suitable residence for the Professor, for what reconstructions may be requisite, and for the future maintenance of the garden on a more liberal scale. Next comes the desire to concentrate the scientific establishments of the University—a desire natural enough if not outweighed by other considerations. With reference to this point we may ask whether the soil and site near the Museum are suitable for the purpose? If our recollection be accurate there is but little depth of soil above the arid oolitic limestone rock, and if this be so it is certainly not a favourable site to select for a botanic garden. It is fair also to ask what real inconvenience, if any, arises from the position of the garden, less than a mile away from the Museum? The existing garden, though small and requiring renovation, is complete in itself. It has an excellent library, a good herbarium, and adjoining it is a laboratory belonging, we believe, to Magdalen College—a laboratory which was the scene of the late Professor DAUBENY'S experiments on the action of light on plants, and of numerous other observations on vegetable physiology and agricultural chemistry made by that indefatigable and pure-hearted man. Moreover, if further space be required it would, we imagine, be easy to acquire more land in the direction of Christ Church Meadow.

In the case of Cambridge, of Edinburgh, and of sundry Continental botanic gardens, change of site has been necessitated from the encroachments of houses, the progressive deterioration of the atmosphere, and a general intensification of the conditions hostile to plant culture. Is this so at Oxford? We venture to think not. The present garden is not likely, we imagine, to be more encroached upon that it is already, even now it is hardly more so than the "parks," in which the Museum is situated, and the outskirts of which are occupied by a daily increasing population.

If no garden were in existence it would, doubtless, be preferable to select a site nearer to the other scientific establishments of the place. The existing garden is small, and requires renovating; but, small as it is, it is probably large enough for purely scientific purposes—always the first consideration in a botanic garden proper; and the "Parks" could be utilised for the growth of such things for which there is no sufficient space, or for which the soil is not suitable in the present garden.

On æsthetic grounds the present site has incontestable advantages. Every visitor feels the charm which the beautiful little garden overlooked by the graceful tower of Magdalen College has; but probably if it ceased to be the botanic garden it would still be maintained as a pleasure-ground, so that that objection would fall to the ground.

Lastly, there remains a sentimental reason why the site of the garden should not be lightly changed. The Oxford garden is, by virtue of its history and associations, the heritage, not only of its legal owners, but of all botanists. A certain shock would be experienced were a change made. Nevertheless, it is a shock which must be endured in this, as it has been in other cases—Edinburgh to wit—if it were once shown to be necessary. As in some other disagreeable things, the bitter flavour gradually vanishes or ceases to be remarked, and we doubt not, in course of time, the associations connected with the old would be transferred gradually but irresistibly to the new.

So far as we can judge, the balance of evidence seems to be in favour of renovating and improving the financial position of the present garden rather than of uprooting it and starting afresh. In any case, we sincerely trust that no hasty or ill-considered decision may be arrived at.

IN the face of a great disaster it is a common experience that men, by blind unreasoning panic, intensify the ills they seek to shun, or rush into others which in the end prove even more formidable. An instance of this is afforded at the present moment by the steps which the Italian Government has taken to prevent the importation of the dreaded PHYLLOXERA into Italy, and by the measures adopted for the same object by the French Government in the case of their Algerian dominions. Both Governments have, with the best intentions of course, ordained measures which will be quite ineffectual for the purpose intended, and which will give rise to an amount of loss and inconvenience more serious in the long run than the introduction of the Phylloxera itself. The Italian Government has actually prohibited the entrance into its territory of any living plant whatever, and the French Government has, we believe, issued an equally severe edict as regards its colonial possessions in Algeria. Now, see the stupidity of all this. It is well known that the Phylloxera is special to the Vine—it can live on no other plant—this has been proved by M. LICHTENSTEIN. This, then, is a reason for prohibiting the passage of Vines over the respective frontiers—or, better still, of taking the utmost precaution that healthy Vines only are imported. But it is no reason for prohibiting the introduction of Roses, fruit trees, or stove plants. Are the Governments in question so ill-informed that they do not know that all such precautions must be futile? Could they stretch a vast net all along the frontiers to catch the winged insects as they fly, it might be advisable for them to try it. Could they stop all transit of merchandise, all ingress of travellers, all currents of foreign and infected air, they might hope to keep out Phylloxera by Acts of Parliament; as it is, they enact regulations which are as absurd and as futile as if a householder, whose doors were off their hinges, or which could not be shut, were to command that his windows should be firmly closed to prevent the inroads of burglars! Is it worth while—can it be worth while—to check commerce, injure agriculture, well nigh destroy some branches of trade, and inflict unnecessary inconvenience on peaceful citizens on such grounds as these? Of course, the law will be evaded, and law-abiding men will be turned into law-breakers. Travellers may, and doubtless do, smuggle in plants in their personal baggage, or in their pockets, or in a hundred different ways; and the *douaniers* cannot possibly prevent it entirely, and, if not entirely, then *à quoi bon* is it to attempt it at all? Besides, Custom-house officers are, as a rule, not entomologists, and, with all their sharpness, they might fail to recognise a Phylloxera in the mud on a passenger's boot.

As an illustration of the absurdity of the whole thing, we may narrate an incident of whose truth we were lately assured on the spot, and which, indeed, is probable on the face of it. It appears, then, that the railway-goods manager at one of the frontier stations of Italy, on receiving a parcel of Vines from France to be forwarded into Italy, knowing that the Customs' authorities would prohibit such transit, appropriated the Vines to his own use, and planted them in his own garden! Who knows but what the Custom-house officers may now and then do the same thing. There is always some comfort in know-

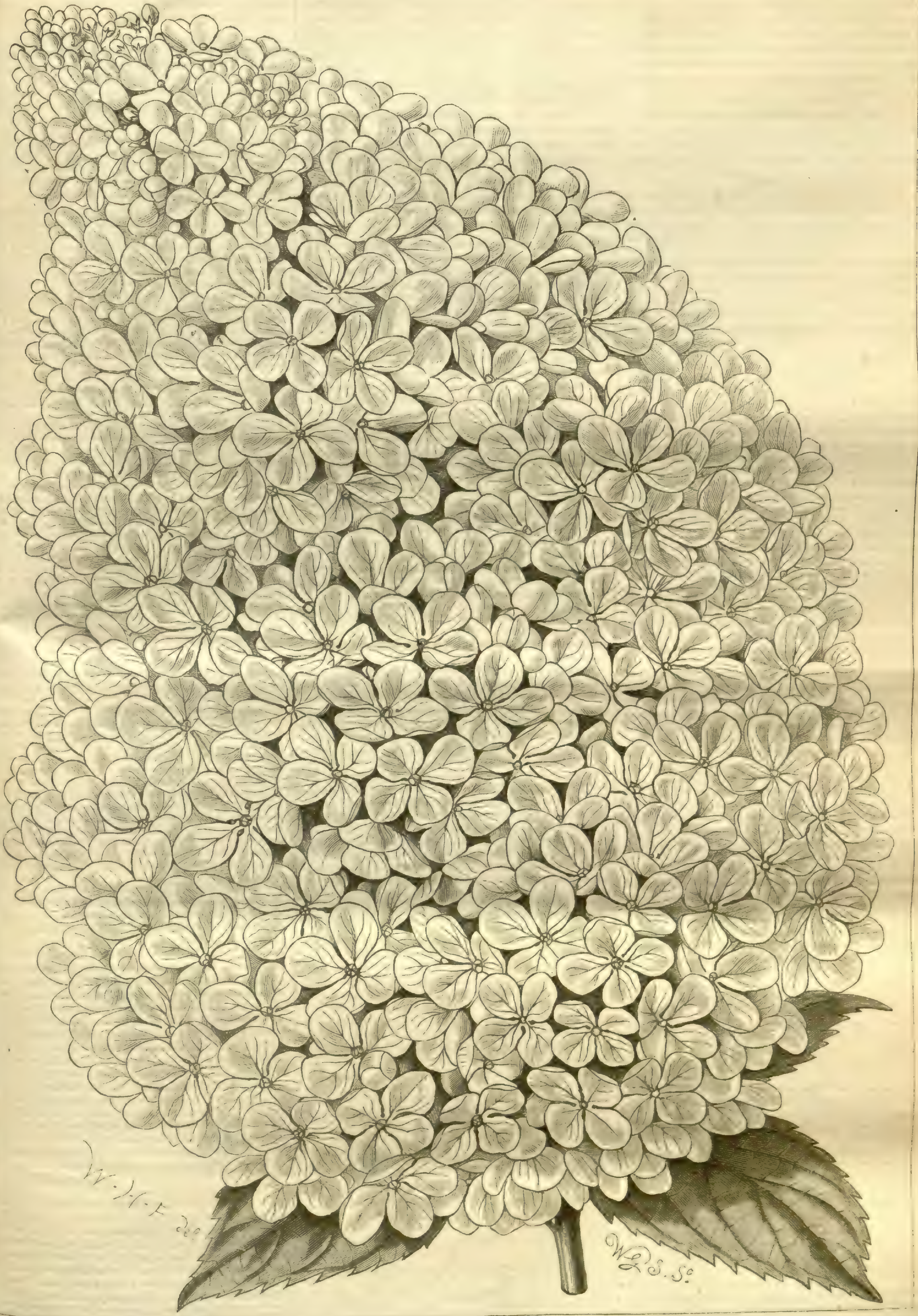


Fig. 135.—Hydrangea paniculata grandiflora.

ing that we are no worse than our neighbours. We often in this country have reason to lament the want of some minister or council of scientific advisers, whose opinion should be asked before action is taken, but now we know that the paternal Governments of the Continent make as great blunders as are made under our own free institutions.

—— THE *Morning Post* of Saturday last contains a letter from a "former member of Council" of the ROYAL HORTICULTURAL SOCIETY, relating to the circular lately issued by the present Council, and which, coming from such a source, is inexcusable. We have nothing to say at present about the writer's opinions as to the terms of the circular. These are fairly open to criticism. Neither can we complain of the proposal to institute honorary rewards instead of money prizes; all that is matter for discussion. So are the regulations for flower shows, and the sooner something is done to revise these regulations the better, as it is impossible to avoid seeing that abuses are creeping in which will, if unchecked, tend materially to diminish the confidence of the public. What we do complain of are the gross misstatements made in the letter. The writer says:—"The real fact is, that the money is not required to keep up the gardens, nor to pay the rent, but it is required to give away the large money prizes to the trade, who are so strongly represented on the present Council." Now, the first part of this statement is palpably untrue, and it is a direct insult to the trade, who have done their best, and in these later times, at any rate, without fee or reward, to "make a show for the Society," and would, we doubt not, be prepared again to make almost any sacrifice to sustain the Society if it were managed by horticulturists, and with horticulture as its main aim. The second part of the statement is absolutely false, as there is not a single commercial horticulturist on the Council, nor has there been for many years. If the local Fellows want the garden at Kensington, they must pay for it. It is of no use to horticulture except as a meeting-place, as we have so often pointed out, and it is nothing but a drag and incumbrance. If the local residents, however, insist upon its retention, they should at least pay for it as they would do for the use of a West End square.

—— According to the promise made in a former number, the *Revue Horticole*, in its issue of the 16th inst., reverts to the question of the new AGAVE, figured by us at p. 484. From this article we learn the following particulars, in addition to those we have already given. The plant is a native of Texas, being found near Monterey. The first specimen was introduced by M. CONSIDÉRANT in 1872, and was exhibited at the general exhibition held by the Central Horticultural Society of France in that year (May 25—30). A silver medal of the first class was then awarded to it, and a general description of the plant given by M. DUCHARTRE in the *Journal* of the Society. The original plant died in the course of the winter, and it was not till 1874 that M. CONSIDÉRANT (we observe that the name of this gentleman is sometimes written CONSIDÉRANT, but we are not aware whether it is correct to use the accented "é" or not) was enabled to procure twelve other plants of the same species, which were deposited in the Jardin des Plantes. Various negotiations were entered into for the sale of these specimens or some of them, but none were carried out to the end until M. DE SMET in August last bought seven of the twelve plants for 350 francs. Another was sold to M. GUEDENEY, one other was presented to the Jardin des Plantes, the remainder are, or were, in the possession of M. CONSIDÉRANT. Such is, in brief, the statement made by our contemporary — the *verité vraie* as he says, but with us truth is truth and needs no qualification. It is clear, then, that the plant was known as far back as 1872, and we have no doubt also that it was intended to give the provisional name of A. Consideranti to it. The fact remains, however, that no such name has been published, and none was attached to the plant when we saw it for the first time at Cologne, and deemed it new. The question turns on the point whether the description of the plant given by M. DUCHARTRE is a description sufficient, in the absence of any name—for none is attached to it—to convey the rights of priority. With all deference to the *Revue Horticole*, whose courtesy we most thoroughly reciprocate, we venture to think not. The description in question is a general one for horticultural purposes only, and is not such as a professed botanist would make use of in describing a new plant in technical terms. For all that we should have accepted at once M. DUCHARTRE'S description, as that of an eminent botanist, had it been accompanied by a name. We are exceedingly sorry that such confusion should have arisen, but we cannot see that we were to blame in the matter. Neither can we admit that "publication," in the usual sense of the word, has been made; and therefore we do not feel ourselves called on to withdraw the name we gave to the plant at the suggestion of Mr. PEACOCK.

—— We are requested to state that the next dinner of the HORTICULTURAL CLUB will take place at the Club house, 3, Adelphi Terrace, on Wednesday, December 1. Members have the privilege of bringing a friend, but they are particularly requested to notify their intention of dining to the honorary secretary not later than the 29th inst. On the last occasion some inconvenience was experienced through the non-observance of this regulation.

—— From Mr. WILDSMITH we have received a fine bunch of GROS COLMAN GRAPES, a fair sample of the general crop growing at Heckfield. "Though in every sense of the word a late Grape," Mr. WILDSMITH writes, "you will observe that at this early season it is very good in quality, and its appearance all that could be wished. It keeps as long as Lady Downe's, is much thinner in the skin, and must eventually become as popular as that kind."

—— We are requested to state that a great INTERNATIONAL HORTICULTURAL EXHIBITION will be held IN DUNDEE, on September 7, 8, 9, 1876. One thousand pounds are offered in prizes, and the Schedules, which will be ready shortly, may be had on application to Mr. JAMES HARDIE, Treasurer, 73, Nethergate, and to Mr. R. MCKELVIE, 26, Euclid Crescent, Secretary.

—— After a protracted delay the award on the "OPIUM ESSAYS" has been announced. The committee of examination consisted of Sir C. E. TREVELYAN, Sir BARTLE FRERE, and Sir LOUIS MALLET. The first prize is £200, and the second £100, and the donor is Mr. EDWARD PEASE, of Darlington, who invited the competition with a view to elucidate and expound what is known as the Opium trade, and the connection of our Government with the same. Mr. PEASE is an active member of the Anti-Opium Society, and it was chiefly through the medium of the Society that the Opium debate was introduced into the House of Commons last June. On that occasion Mr. J. W. PEASE, M.P., most ably expounded the subject. The first prize has been awarded to Mr. SPROAT, Agent-General for British Columbia; and the second to the Rev. F. S. TURNER, secretary of the Anglo-Oriental Society for the Suppression of the Opium Trade. *London and China Telegraph.*

—— The ANNUAL REPORT OF THE BRISBANE BOTANIC GARDEN, drawn up by the Director, Mr. WALTER HILL, is a lengthy but interesting document, especially so to those whose duty and pleasure it is watch the increasing usefulness to the colonies of these institutions, and the zeal and self-devotion of their managers. Mr. HILL complains, and properly so, of the amount of work thrown upon him, and of the scanty resources placed at his disposal. We did not need this report to convince us of the truth of Mr. HILL'S statements, and we trust the Colonial Government will show their appreciation of the utility of the garden, and of the zeal and ability of its curator, by largely increasing the revenues of the establishment. Mr. HILL is able to refer, with justifiable pride, to the number and value of the commercial products of Queensland which owe their establishment and development to the Brisbane Botanic Garden. It is a cruel injustice that so valuable a public servant should have to complain in no measured terms of the dampness of his residence, and the way in which his house, his library, and his property have been destroyed by white ants. From these causes the Director's residence is rendered almost uninhabitable.

—— The *Moniteur Horticole Belge* of the 17th ult. contains a brief but interesting note on the arboretum established by M. LAVALLÉE, on his property at Ségrais (Seine et Oise). More than 2000 species and varieties of trees and 2500 shrubs are there cultivated. Of Quercus 115, and of Conifers 300 varieties are grown. The shrubs are grown in sixty-six parallel beds. Great care is taken in the determination and nomenclature of the plants, M. LAVALLÉE being assisted in this matter by M. HÉRINCQ, one of the *aides* at the Paris Jardin des Plantes. A catalogue is about to be published, and a series of coloured plates, with descriptions of new and rare species. We shall look forward with the greatest interest to the appearance of these publications.

—— A copy of the *Report of the Horticultural Society of Victoria* for the year ending June 30, 1875, has been forwarded to us. It shows that, in spite of bad weather and other drawbacks, the Society has increased in public favour and general usefulness. Great care seems to be exercised in obtaining and distributing the best and most suitable varieties of fruits, and in securing correct nomenclature.

—— The *Revue Horticole* mentions a case of a seedling Peach, one half of which had the velvety covering of the Peach while the other had a smooth skin like a Nectarine.

—— The condition of the POTATO CROP in all the large Potato growing States of America is reported in the monthly report of the Department of Agriculture to be very favourable. In the case of FRUITS, however, the season has proved disastrous.

—— Not long since we had occasion to mention the alleged power of TOMATO LEAVES in banishing wasps. We now learn, from the *Bulletin of the Central Horticultural Society of France*, that Tomato leaves, or an infusion of them used as a wash, are destructive to aphides (greenfly). The editors of the above named journal point out that this property has been long known in Germany.

—— We extract the following passages from a letter on HYBRIDISATION addressed by M. J. SISLEY, of Lyons, to the editor of the *Illustration Horticole*, and published in that journal:—

"I sowed a number of seeds of Pelargonium oblongatum on May 26, and they came up on June 8. The original plant lost its leaves during the flowering season, and after the seeds were ripe the flower stems fell away from the tuberous root-stock. Respecting Geranium platypetalum, I applied pollen artificially this spring to a hundred flowers under glass, by taking the pollen of one flower to the pistil of another, but without obtaining any seed. Can it be a sterile hybrid? Mr. ELLACOMBE states that it seeds freely with him, but, so far as I can judge, the packet of capsules he has just sent me contains no seeds. There are many curious plants of this sort. You are aware that the greater part of my time is taken up with the artificial fertilisation of Pelargonium zonale. Well, I often find a difficulty in fertilising certain varieties—among others Soule des Hesperides, from which three years ago I obtained Victoire de Lyon. For the past two months I have been trying daily to fecundate it without success. The same with Oracle, Beauté de Suresnes and Notre Dame de Beaunaud. Last year, however, I got two seeds from the last, but the plants raised therefrom have not yet flowered. You have doubtless seen the article by my friend HENRI BEURIER on fertilisation without crossing. What do you think of it? I do not altogether believe it, though I have observed something similar in some of my experiments. The zonal Madame Vaucher is an instance. This variety is easily fecundated with pollen from double or single varieties of other colours, but it almost invariably gives birth to single white-flowered varieties, not, however, identical with itself. I have used its descendants, fertilising them with their male parents. In this way I raised Aline Sisley, a double white, from a white-flowered daughter of Madame Vaucher and a double scarlet father: as a rule, my experience is that the male exercises greater influence on the character of the progeny than the female.

"All this is extremely interesting, but I have no botanical knowledge to help me. You know most botanists maintain that hybrids are sterile. This appears to be generally true; witness the hybrids between P. zonale and peltatum raised by WILLS, which seem to be barren. PETER GRIEVE wrote me the other day that he had not been able to obtain seeds from them, though LAXTON informed us last year that he had secured seeds, but they exactly reproduced the mother. PEARSON contends that WILLS tried a thousand times before he succeeded in getting the cross. On the other hand, we have the natural hybrid, which sprang up in a bed at Nice planted with the two species, and this seeds freely. I should be happy if I could raise a new race of Pelargoniums. LOWE pretends to have raised hybrids between P. zonale and Geranium pratense. I have his bantlings, but, judging from the leaves, they are true zonals! Shall I, like WILLS, have to try a thousand times before I succeed?"

—— Professor BERNARDIN, of the College of Melle, near Ghent, Belgium, who has already done good service to the cause of science and culture, by the valuable information he has published and diffused from time to time on the various PLANTS OF COMMERCE,* has just made a further contribution, which cannot fail to be eminently useful to many investigators, in a supplementary list of about sixty to the former enumeration of tanning substances, and about thirty-six to the caoutchoucs and gutta-perchas, and he furnishes a new descriptive list of about forty plants yielding saponine, which are commercially used for this property. M. BERNARDIN draws attention to the fact that a company has been formed in London, Western Canada, to utilise Euphorbia corollata, by obtaining caoutchouc from it, the milk of this plant yielding about 4 per cent. The plant, partly decomposed, is treated by steam and naphtha, and this when distilled leaves a solid residue of caoutchouc. The Euphorbias abound in South Africa, and a colonist in Natal proposes to coat the hull of iron steamers with this sap, to prevent incrustations. The saps of the Euphorbia have much analogy to gutta-percha, but are deficient in elasticity, but the addition of boiling linseed oil might be beneficial. In his list of saponaceous plants, M. BERNARDIN draws attention to the peculiar properties of the nutty juice of the Carica Papaya, the leaves of which are used as soap in Panama and the West Indies. The alleged properties of the Papaw to render meat tender have been much disputed, but there is no doubt that it has remarkable properties. The subject is very fully dis-

* Nomenclature de 550 Fibres textiles vegetales. Classification de 250 Matures tannaules. Classification de 100 Caoutchoucs et Gutta-perchas. Classifications de 160 Huiles et Graisses vegetales.

cussed in Simmonds' *Technologist*, vol. ii., p. 16, and in Drury's *Useful Plants of India*, under Carica. M. Bernardin quotes in detail some recent experiments of Dr. G. C. Roy.

—— In the raising of new varieties of garden flowers it is as well now and then to hark back and get a fresh infusion of blood from some of the distinct types. We hope the Pelargonium Society may be the means of promoting this renewal in the case of Pelargoniums. Recently we had before us a batch of Seedling Fuchsias, in which Mr. E. J. Lowe has been operating upon some of the best of the modern varieties with pollen of Fuchsia fulgens. The seedlings show an encouraging amount of variety, though nothing very startling as to novelty. Of what may be called the florists' type, Sieva (fulgens ♀, Sultan ♂) appears to us to be the best; it is a grand Fuchsia, with short tube, broad recurved crimson-red sepals, and very large magenta corolla, "the largest corolla," observes Mr. Lowe, "I ever saw: it has been very grand." Zizie (same parentage) has similar crimson-red tube and sepals, and a violet-purple corolla, large, but not so large as in Sieva. Concordia (Wave of Life ♀, fulgens ♂) has smaller flowers, with much reflexed brilliant crimson sepals, and purple corolla, its chief peculiarity being that "it blooms in a dense cluster, like fulgens, very different to the blooming of ordinary Fuchsias," and Mr. Lowe thinks highly of it. Of another type, and probably very showy as decorative plants, are Zulieka (fulgens ♀, conspicua ♂), which has long-stalked large flowers, with a long tube, narrow recurved sepals of a pinkish-rose colour, and a bold corolla of a rosy-tinted mauve; and Adria (same parentage), which is similar in size and general appearance, but has the tube and sepals of a deeper rosy red, the latter being spreading, not recurved. Two or three others may be mentioned as curiosities: Bellona (fulgens ♀, Venus Victrix ♂), a small, solid-looking flower, with very deep crimson tube and sepals, the latter recurved, and an obsolete corolla; The Peri (same parentage), a misshapen small double, remarkable for having white edges to the purple corolla; and Titania (Venus Victrix × pyramidalis), a dwarf grower with small leaves and flowers in the way of the old Thompsoniana.

—— We are pleased to hear that Mr. W. H. Rogers, the well known nurseryman, of Red Lodge, Southampton, has just been elected to the dignified position of Sheriff of his native town. As a practical horticulturist his professional knowledge renders him a specially useful member of the Southampton Town Council, a body that has under its care several hundred acres of beautiful parks and public lands.

—— The next meeting of the Institution of Surveyors will be held on Monday evening, at 8 P.M., when a paper will be read by Mr. G. Webb, entitled "Fruit Cultivation and Management in Kent."

—— Mr. Bloxham, the Gardens, Brickhill Manor, Bletchley, has sent us a fruit of the Marie Louise Pear weighing 11 oz.—a very fine fruit indeed, from a tree 25 years old.

—— A system prevails, more or less, in all wine-producing countries, but especially in Spain, of what is known as "Plastering" the Wines. In some notes on the chemistry of tartaric and citric acid, in a recent number of the *Journal of the Chemical Society*, Mr. R. Warington gives some interesting particulars relating to this plastering. It consists of treading in with the Grapes a kind of plaster known in Spain as "yeso," about 10 lb. being added to the quantity of Grapes required to make a butt of wine (108 gallons). The "yeso" reduces the acidity, and "is used equally for red and white wines, but is not employed in the preparation of the sweet wine, 'vino dulce,' made from over-ripe Grapes for the purpose of tempering sherry." Besides plaster, other substances are sometimes added to wine, and affect the composition of the lees. A substance known as Spanish earth is commonly employed in Spain for fining the wines. This earth is also occasionally used by English wine merchants for a similar purpose. This so-called Spanish earth has a somewhat soapy feel, easily impressed by the finger-nail, but containing sometimes fragments of slates. "When rubbed in the hands under water the earth is resolved into an unctuous paste, and it is in this condition applied to the wine which it is destined to clarify."

—— Mr. H. Russell has resigned his situation at Brandon Lodge, Coventry, and has been appointed agent and general manager of the estate, gardens, &c., belonging to the Right Hon. Lord Templemore, near to Basingstoke, Hants.

—— Mr. Gerald Raoul Perry, H.M. Consul at Réunion, during a useful public career in the Navy and in the Consular Service, has, says the *Geographical Magazine*, been distinguished for the zeal he has always shown in furthering useful projects in the interests of his country. When he stopped at Aden, on his way to Réunion last year, he was struck by the absence of all vegetation, and by the utter desolation of the place. On reaching Réunion he noticed the strength and hardihood of the Filao trees (Casuarina laterifolia), and the idea occurred to him that they were peculiarly adapted to the arid soil of Aden, and that their introduction into that place might possibly be effected with success. Mr. Perry has now forwarded to H.M. Political Agent at Aden a case containing from 1000 to 1045 young Casuarina trees, and a good supply of seeds, with full instructions for sowing and treatment.

HYDRANGEA PANICULATA GRANDIFLORA.

This Hydrangea is undoubtedly one of our finest hardy deciduous shrubs. The accompanying woodcut (fig. 135, p. 653) represents a branch cut from a bank of young plants last August in the nursery grounds at Knap Hill, where Mr. Anthony Waterer, who has a keen eye for detecting meritorious novelties amongst hardy trees and shrubs, cultivates it somewhat extensively. Such a bank as we then saw of it presented quite a striking feature, and rivetted attention, though surrounded by a variety of subjects calculated to divert the interest of the observer. It forms a moderate-sized bushy-growing shrub, and is perfectly hardy. The great paniculate inflorescence is crowded with large white flowers; and not only does the branch itself terminate in one of these great panicles, but the lateral branchlets also bear at their apices others which are but slightly smaller, so that the vigorously developed shoots for the greater part of their length become literally enveloped in blossoms. The grand effect of such masses of flowers can be well imagined. *T. M.*

Home Correspondence.

Smith's Curly versus Hogg's Coldstream Early.—Again, in reply to "A Reader" (p. 591), I beg to say that I fully considered the Potato in question at the time I first received it as being a *bonâ fide* seedling of Mr. Thomas Hogg's, of Coldstream. I have searched through his correspondence relative thereto, and I can find nothing convincing to the contrary. I proved the sort carefully during two seasons, and the result I gave fully to the public of nine and ten years ago. I find I have retained one of Mr. Hogg's circulars of the day, and if you will oblige me by printing a paragraph or two from it, it may prove a means of setting "A Reader's" mind at rest, in so far as the subject brings my name into question. These be troublous times though, my masters! If the raiser of the old Cobbler's Lapstone was in the flesh, how his mind would have cause to rankle at me even, in the matter of my graft hybrid Perfection, because it is in fact a Lapstone Kidney, dwarfed, and made to become more precocious in its ripening by some three weeks than Haig's. But are there not many natural selections from the old strain-named sorts very like the old original? This is to be deplored perhaps, but they may be really *bonâ fide* new seedlings nevertheless—distinctions with very little difference. I won't take up your space with stating what I should think of the dastard who would immediately pawn off a seedling of mine as his own—that would be quite another matter from issuing a seedling improved by selection. It has cost me more in time and money by beating about the bush in that way with no real result than it has since by cross-breeding with sure results, though I fear my fortune does not hinge upon either for the invention. *Robert Fenn.* [Some documents placed in our hands by Mr. Fenn bear out his statement. Eds.]

The Relations between Master and Servant.—As you have reported the trial of Williams *v.* Leslie in full, and have also given a leading article on the subject, will you allow me to make one or two observations as they present themselves to my mind. The first has reference to the relationship existing between master and servant. If it should be decided that a gardener is to be allowed to pledge his master's credit to any extent he pleases for several years, buying expensive plants for exhibition with which he gains prizes, and which he afterwards sells by auction [This does not appear to have been the case. Eds.], and that a nurseryman is justified in continuing to supply such plants, not only without any direct authority from the master, but with a knowledge that the gardener has already exceeded the limits of the sum which he is allowed to spend, some other system of business must be adopted to protect the purse of the employer, and the character of nurserymen, than that which now prevails. I have put the question hypothetically, because I see that a new trial has been moved for [and refused. See p. 659. Eds.]. The point which turned the scale in the judge's mind seems to have been the fact that Mr. Leslie, when he found the extent to which his credit had been pledged without his consent, did not write to Mr. Williams and direct him to fetch away the plants. But the question arises, How was Mr. Leslie to know which they were? Were they there at all? The gardener had had a sale [?]—might he not have sold them? Besides which, whilst there are some persons so fond of their garden that if a plant is removed, or even altered in position, they detect it at once, there are others who would walk through their garden and scarcely observe anything in it, except that such a bed looked pretty, and such a plant handsome, and such a flower smelt sweet, but how it came there, what time it required to attain its present size, whether it was worth 10*d.* or £50, they would not have the smallest idea. It is not improbable that this was the case with Mr. Leslie, in addition to which he was absent from home from January to September. There has been more than one instance of late of a gardener setting his master completely at defiance, and when instructed not to grow a plant continuing to do so in spite of his orders, until he was dismissed. If a master's authority is thus to be set at nought and confidence in the servant shaken, the pleasant relations which have hitherto subsisted between a gardener and the members of the family to which he is attached will sadly suffer. Another point to which I wish to call attention is the system which I fear prevails to some extent of exhibiting at our flower shows. Mr. Leslie declared that "to buy things of a nurseryman and exhibit them as his productions in competition with his neighbours would, in his estimation, have been dishonest," and the Judge added, "And I should think so too." But in how many cases is this done? so that there is no proof of skill in cultivation on the part of the gardener, but only of the length of the master's purse or the dishonesty of the servant. If exhibitors are to compete on equal terms there ought to be some rule limiting the age of the plant and the size of the pot, and requiring a declaration that it had been grown by the exhibitor from a cutting or seed, or bought as a young plant of a certain age. As it is, there seems to be nothing to prevent such a practice as the following:—A. offers a silver cup, value £20, for the best specimens of certain plants sent out from his nursery. B. visits the said nursery, and buys the best specimens he can find at a cost of £200, and has them put down to his master, who is an easy-going, wealthy man, and does not trouble himself much about his garden, so long as his house is well supplied with fruit, flowers, and vegetables. The plants are duly sent in, with an invoice made out in the master's name, but addressed to the gardener. The day of exhibition arrives. All that B. has had to do has been to keep in health for a few weeks the plants which he has bought of A.—a stretch of skill to which any booby would have been equal. He of course wins the cup, and when the bill is paid a year or two afterwards, by the rich man's steward, A. makes B. what he euphoniously terms a present of £10; and this is the last point I wish to notice. In your leading article you say—"We are glad to find the plaintiff repudiated the equivocal practice of giving discount." But did he? Did he not acknowledge that he made a present, and that this was a rule of the trade? He gave 73*s.* in return for £72 6*s.* 6*d.*, and if so what, I ask, is the difference whether, when I pay a bill for £200, I am allowed a commission of 5 per cent. or receive a present of £10. Would not a Rose be as sweet though bearing another name?—and is not the present as sweet to the recipient, though not called a commission, especially if equal in amount?—and is not the purpose of the donor in giving it just the same? This may be a custom of the trade, but it is nothing less than a bribe to the servant, which comes out of the master's pocket. *Justitia.*

Have we a Horticultural Society?—This may seem a strange inquiry to make, and it is to such as have horticultural interests at heart certainly a humiliating one; nevertheless it is forced upon the public by the very extraordinary appeal to them in *formâ pauperis* issued by the body so long known as the Royal Horticultural Society. This Society, founded unquestionably for the purpose of encouraging horticulture, and professing to represent not a mere parish or district, but the nation at large, and which at one time did unquestionably honourably attempt to represent the nation, has now by its own admission degenerated into an association of amateurs and gentlemen for merely supporting a kind of subscription suburban garden! What else are we to infer from the following paragraph from the recently issued circular? "They (the Council) have carefully inquired into the causes why the income of the Society has not increased in proportion with the increase in the population, wealth and importance of the neighbouring districts; and they are satisfied that this is due to the practice of transferring tickets, by which the use of the gardens is to a very large extent enjoyed by those who contribute nothing to its funds." Now the question naturally and inevitably suggests itself. Ought the prosperity of a Royal Horticultural Society

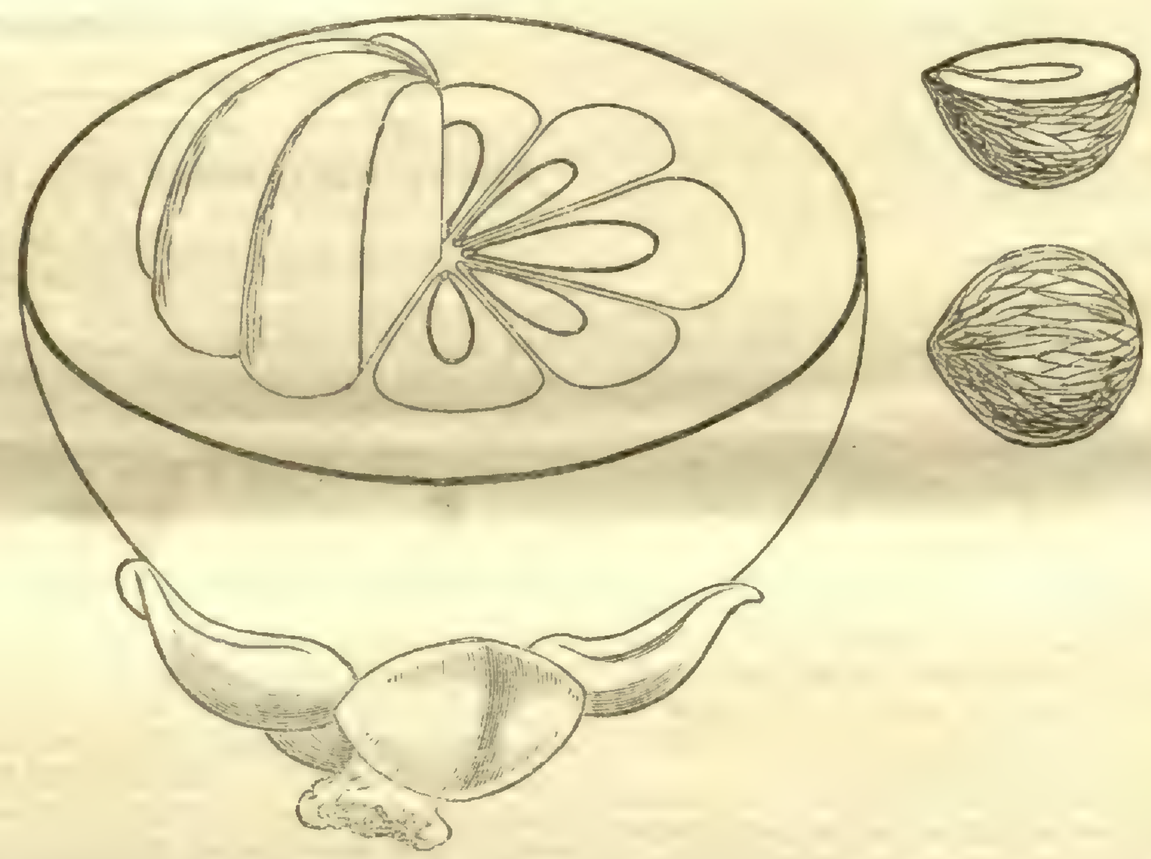
to depend upon the caprice of neighbouring districts? And then again comes the far more important query—How is it that a Society which has for many years been established under the highest patronage, and which represents so important a national interest as that of horticulture, should have sunk so low in prosperity and public esteem as to be forced to make so pitiable an admission of virtual failure. Is it not that this Society has neglected its obvious duties, which were formerly understood to comprise, among other functions, those of introducing to this country new and valuable botanical productions, and of training gardeners on the most approved principles of horticultural science. That this Society was once of great public utility, all who are conversant with its history willingly admit, but it is so no longer. The assertion, therefore, that "if this appeal should prove unsuccessful the failure would be most disastrous both to the interests of horticultural science and to those of the residents of that part of the metropolis who now enjoy the many benefits resulting from the existence of these spacious and beautiful gardens," can only be accepted as accurate with regard to those suburban residents. Horticultural science now, unfortunately, seems entirely disconnected from the Horticultural Society. They no longer send collectors to discover the botanical treasures of strange lands, nor do they train gardeners, nor do they, save at intervals, hold provincial exhibitions. True they have in the course of the season a few flower shows to serve as a fashionable lounge, and they support a subscription garden at South Kensington, which may be, and no doubt is, serviceable as a promenade for nursemaids and their interesting charges. Beyond these noble functions, the Royal Horticultural Society is now unknown to fame. Now is this a state of things creditable to the country, or which ought to be tolerated? Let the so-called "Royal Horticultural Society" no longer misuse a name once held in honour, but abdicate a position it is no longer able to uphold, and acknowledge itself to be, what it really is—a harmless association for the support of a suburban pleasure ground, and let us have in its stead a Horticultural Society of Britain worthy of the intellectual and commercial greatness of our country, and of which an Englishman need not feel ashamed when he may hear it compared with similar institutions on the Continent. *G.*

Mignonette Dying off.—Can any one suggest a cure for Mignonette always turning red and dying off just as it begins to flower? I have tried different times of sowing, also thinning it well out, and leaving some of it as thick as it came up, but the result has always been the same, sometimes worse but seldom better. In the winter of 1874-5 I cleared every particle of soil out of the beds to a depth of 18 inches and refilled them with good yellow loam from an old field recently broken up. The only difference was that the Mignonette stood a few weeks longer green, but ultimately went off as usual, and this season, in the same beds, it commenced going off before it had made two rough leaves, so that we had none with the exception of a single plant here and there, a great distance apart. I can fancy some one saying any common labourer can grow Mignonette: I once thought so myself, but since I took charge of the gardens here, a few years ago, I have had reason to change my opinion of it. *J. S. M.*

Sunken Stokeholes.—It is seldom that I rush into print, and should not venture to do so upon this occasion were it not that my friend Mr. Bennett in his last letter has made a pointed allusion to the stokeholes at Mr. Miller's, Bishops Stortford, which, if allowed to pass unnoticed, may create an erroneous impression as to their cost of construction. It so happens that the rendering waterproof of these dry tanks—for such in reality they were—came under my own personal supervision, and consequently I feel both entitled and enabled to speak with some little authority respecting them. I wish, however, to preface my observations by stating that I fully acquit Mr. Bennett of any intention or desire to give currency to an incorrect or exaggerated statement, and I do not lose sight of the fact that his statements are to be taken in a general sense and not as absolute facts. Generalities, however, have a tendency sometimes to mislead, especially where they are a little too highly coloured. As Mr. Baines has wisely observed, if the construction of waterproof stokeholes be entrusted to competent hands there is little risk or difficulty of success, and it is chiefly when they are undertaken by men of little experience that failure occurs. This was the case with the first stokehole at Mr. Miller's, and it was only by lining it with 4½-inch brickwork in cement up to the water-line that it was rendered effectual. The total cost of the building and lining I am unable to furnish. With reference to the second stokehole, the whole of the labour having been supplied by us, I am in a position to give more accurate details. Turning to our business journal I find the amount charged for labour of setting three large-sized boilers, constructing one stokehole, various chambers for pipes, and connecting to three flues, was £39 19*s.* 6*d.* Now a fair apportionment of this amount would be as follows:—Setting three boilers, building chimney, flues, and chambers, also making good, £24 19*s.* 6*d.*, leaving for labour to stokehole £15. Add to this the cost of 10,000 bricks, cement, and sand, £24, and we have £39 the cost of stokehole—an amount which falls very short of that suggested by Mr. Bennett. In submitting these facts I venture to intimate that the cost is not so great nor the difficulties so insurmountable in the construction of waterproof stokeholes as Mr. Bennett would have us believe. I have confined my observations to the Bishops Stortford stokeholes, but can furnish other and more recent proofs if necessary. *George Deal, J. Weeks & Co., Chelsea.*

The Mangosteen of Singapore.—We have recently received from Mr. Prestoe, of the Botanic Gardens, Trinidad, fruits of the Mangosteen, accompanied by the following letter:—

"I forward by sample post, this mail (September 24), a small box containing two ripe fruits of the rare Mangosteen of Singapore, for your inspection and acceptance, and I shall esteem it a great favour if you will be kind enough to make known in the columns of the *Gardeners' Chronicle* the condition in which these fruits reach you. The formation and consistence of the fruit are of such a nature as to lead me to the conclusion that the Mangosteen might be grown in the West Indies and transmitted to England in a perfectly fresh state. The prospect, however distant it may be, of such a delicious fruit becoming a common article of English dessert will, I think, be a sufficient excuse for my troubling you upon this matter. I may mention that the two fruits sent are of medium size, and were gathered two days ago. On keeping the fruits for two or three weeks they turn a fine black-purple colour—in which state I expect these now sent will reach you. I could wish a prospect would open up for transmitting to England our fine varieties of East Indian Mangos, which are now getting common in the island. Amongst these Mangos exist flavour and consistence to match every one of the leading English fruits, and in some the flavour of two or three of these combined, without the slightest trace of the customary tow and turpentine character."



136.—THE MANGOSTEEN—GARCINIA MANGOSTANA: SECTION OF FRUIT.

The fruits referred to in the above communication, and of which one is represented in the annexed drawings (figs. 136, 137), were of globose form, 2¼ inches in diameter, with the four blunt lobes of the calyx persistent at the base, and the six lobes of the sessile stigma adherent at the apex. The rind, which was fully three-tenths of an inch thick, was of a chestnut-brown, and had become hard and dryish. Within this, filling up the cavity, was a mass of semi-transparent, semi-gelatinous, semi-fibrous pulp, separating into segments like those of an Orange, and of a very agreeable, sweetish flavour. These segments were set round a central axis, from which they separated freely. The segments or sections of pulpy matter no doubt each surround a seed when the fruit is properly nurtured, but in this case only one of them contained any semblance of a seed. As regards the question of their introduction to this country in a fresh state, suitable for dessert purposes, we may report very favourably on Mr. Prestoe's experimental sample. EDS.

Veitch's Autumn Giant Cauliflower.—I had three packages of this super-excellent Cauliflower this year, and sowed them at three different periods; all the seeds have come quite true to name. Plants from the last sowing I am now cutting, and the heads, although not so large as some cut in the summer, are more useful. The only fault that this Cauliflower has is, that it opens its leaves so much that no protection is given to the heads in the autumn, when frosty weather occurs. The finest crop of this Cauliflower I have ever seen was at Thoresby Gardens, last August, when Mr. Henderson showed me plenty of heads of it from 10 to 12 inches across. Another instance of immense heads of Cauliflower occurred to me when a gardener in Ayrshire; the variety was then the Late Asiatic. The soil they grew on was a peat bog that had been well drained and trenched, with plenty of sand and lime added to it, and well manured with dung and rotted seaweed. Some of the heads of these Cauliflowers were enormous in size, and a quantity of Drumhead Cabbages planted alongside of them were likewise giants in size, for many of their heads, when cut, weighed from 40 to 50 lb. each. *William Tillery.*

—— In reply to Mr. Ward's inquiry at p. 622 respecting the above Cauliflower, permit me to say that out of a batch of about 500 this year I do not think there was 2 per cent. rogues. This has been my experience with this Cauliflower ever since it was introduced. Two years ago this autumn I saw, in a neighbour's garden, a large flat, and not 10 per cent. were of the true kind. They were not like Mr. Ward's Early London, but a mixture of various sorts, some of which never were of any use. In that case the seed was not supplied from the firm whose name it bears, nor yet in sealed packets bearing their name, in which form I have all along procured my stock. *H. J. C. Grimston.* [We have received several letters of the same nature as Mr. Ward's. It would be interesting to know who sent out the seeds. EDS.]

The Theft at Kew Gardens.—In your issue of November 6, p. 590, you report a conviction before the Richmond magistrate of Mary Anne Hurford, for stealing cuttings of plants from Kew. Most likely ninety-nine out of every hundred of your readers have never thought a second time of this conviction, and it has probably passed out of their minds as soon as read; these ninety-nine readers I would ask to refer to p. 590 and read the paragraph carefully, or pardon me if I beg you to reprint the sentence to which I wish to call their attention:—"Time was allowed for payment, and prisoner handed in an envelope with her address, at the back of which was an address of a nurseryman on the Continent." Query. What is the name of this nurseryman, where does he hail from, and how came his address in the possession of Mary Anne Hurford? A domestic servant goes into Kew, her simplicity and commonplace demeanour gain her admittance, without any suspicion, into the grounds, houses, &c., and she takes her opportunity of secreting cuttings of valuable succulent plants—what could she want with these queer, uncouth forms of vegetation? Had she stolen a Rose-bud or a Pink to place in her hair one could understand her choice, but a piece of Cactus or Rhipsalis one fails to comprehend! It points in an ugly manner to the address of that nurseryman on the envelope, and I naturally ask—Has this Cactus-stealing any reference to that address? and also has it any reference to the cuttings of my Golden Thujopsis stolen from South Kensington Council-room on October 6 last? These questions are of immense importance to me, and I flatter myself they are interesting to the nurserymen of England; shall I add that they may be interesting to the nurserymen of the Continent, and specially to the one whose address was found on the envelope? *Charles Noble, Bagshot.*

Peaches and Nectarines.—On the whole I have had a good season. I began August 29 with

Early Louise, the best very early Peach, and ended November 1 with fine specimens of Lord Palmerston and the Princess of Wales, out-of-doors; and with the Golden Eagle under glass, without fire-heat. I am sure that I express the gratitude of the whole pomological world to Mr. Rivers for this great extension of the season of the two noblest of the out-of-door's fruits. The spring was very bad here, but the trees, 144, have done well for me. The Royal George, much given to mildew under glass, but not out-of-doors, is my main dependence. Taking the three aspects of south-east and west, it is the surest card. It has one of the greatest virtues in the nearness of leaf to leaf. It is, moreover, a good setter under difficult circumstances. The following also are good setters:—Orange Nectarine, Pine-apple Nectarine; the finest of all Peaches—Noblesse, Royal George, Early Louise, Bellegarde, Dr. Hogg, Early Alfred, Grosse Mignonne, Barrington, Nectarine Peach, the best late Peach that will ripen out-of-doors; Princess of Wales, and Lord Palmerston. The two last have the finest flowers of any, and are the largest and handsomest of any Peaches. I sent to the bazaar at Bridport fifteen Peaches, of Barrington, Princess of Wales, Lord Palmerston, and Nectarine Peach. I am told that the "sweet ladies" blessed me. The two specimens of the Princess of Wales were 10½ inches. I also sent some Pears—Beurré Hardy being the cynosure—a most admirable Pear on Quince stock. Owing to the cold, wet summer, and sunless autumn, the established Peach and Nectarine trees have made but little fruit-bearing wood; but a lot of removed and root-pruned trees have made famous fruit-bearing wood; this shows, under certain circumstances, the benefit of removal or root-pruning. Wood of the size of a slate-pencil, well ripened, is best for success. If wood is strong it must be cut down to the triple eyes nearest the base. I must remove or root-prune a great many of my established trees. I will now say a word on American commodities I have three "funny" fellows not yet proven—the Snow Peach, white blossoms and white skin; Tippicanoe, and "Stump the World," which is not to be compared with the Nectarine Peach. With regard to the golden-flesh Peaches, the Golden Frogmore is the handsomest and best here; but neither the golden nor lemon-fleshed are so good as the other colours of flesh. Noblesse and Grosse Mignonne, in my opinion, are still the best; their season being in their favour. Very early or very late fruits are seldom as good as the mid-season. I recommend persons wishing to have a good lot of Peaches and Nectarines to select from the following:—Peaches: Early Louise, Dr. Hogg, Early York, or Early Victoria, much alike; Early Alfred, Early Ascot, Grosse Mignonne, Royal George, Noblesse, Bellegarde, Barrington, and Nectarine Peach. You cannot burn your fingers. Walburton Admirable is excellent, but a shy bearer. Magdala, Crimson Galande, Alexandra Noblesse, Mr. Radclyffe, Early Beatrice, Tippicanoe, Snow Peach, Lord Napier, and Gregory's Late, are not proven. *W. T. Radclyffe, Nov.* 13.

Reports of the Royal Horticultural Society's Shows.—If the Council of the Royal Horticultural Society are really desirous to improve their position in the public esteem, I would advise them to endeavour in the future to secure better reports of their exhibitions in the daily papers. In no case is the saying, "How not to do a thing," better exemplified than in the way in which our metropolitan papers present their readers with reports of the South Kensington shows. The writer, invariably ignorant of all that pertains to horticulture, takes a flying view through the show, and dotting down here and there something or other that might strike his fancy, proceeds to write his short and insignificant paragraph, and in it will be certain to make prominent something that is in a technical point of view comparatively valueless, whilst the great features of the show are left unnoticed. As a result, that portion of the public who are really lovers of horticulture at once conclude that the exhibition is altogether valueless, and not worthy a visit, whilst—as was the case with the show on the 10th—it might really be a display of horticultural produce of an almost unrivalled character. The great shows of July 21 and of the 10th inst. plainly evidence how small is the interest felt in the South Kensington shows by the great London public. To hope that better things would result under the present plan of reporting is out of the question. I heard not long since of one well-known reporter, who, having been carefully coached up in the then show, went away suffering a complete collapse of memory, as no mention of the show appeared in his paper on the next or subsequent mornings. What the Council should do, is to engage the services of some really competent and able horticultural writer to act as its own reporter, care being taken by arrangement beforehand with the editors of the half-dozen metropolitan dailies that space to the extent of at least half a column was granted when requisite, and without doubt such an arrangement would be readily acceded to. A good report, such as should present all the most striking features of the show, at the same time dealing fairly with the exhibits of all the competitors, written in a clear and attractive style, might be furnished in time to admit of half a dozen copies being prepared in the Society's office, and thus next morning the great world of readers of the daily papers would know how the science of horticulture was progressing at South Kensington. In the provinces a terrible hash is sometimes made of a flower show report, but equally often the report is well done, because the local papers show a real interest in all local matters. In special cases, however, it is customary to employ a professional writer, and in such cases the work is invariably well done. *A. D.*

Fruit Awards.—There can be no doubt that awarding prizes to certain specified varieties of Potatos is one of the most difficult things judges have to contend with at the present day, yet there are some varieties people at all acquainted with Potatos cannot be mistaken in; take, for instance, the Hundredfold Fluke, the Red and Purple Ashleaf, Skerry Blue, &c., and if prizes were offered for these, and were awarded to other varieties, there is not only an error in judgment, but a want of knowledge. The same remarks apply to Apples and Pears. Such varieties of the former as Wellington, Hawthornden, Ribston, Quarrenden, King of the Pippins, &c., are varieties well known, and should receive just awards; whilst such varieties of the latter as Winter Nelis, Beurré Diel, Uvedale's St. Germain, Louise Bonne of Jersey, are also equally well known. If separate prizes are offered for any of these varieties, and are awarded to others, there is not only an error in judgment, but a want of knowledge, and this error did occur at the meeting on the 10th inst. No doubt you will hear more from the disappointed exhibitor. The judges had more to do than time would permit, and this may account for the error. *E. Bennett, Rabley, Herts.*

Parasitic Fungus on Pears, &c.—The parasitic fungus alluded to by Mr. Andrew Murray at the meeting of the Scientific Committee on the 10th inst., as having infested Pears, is doubtless the same as has infested many Apples also, especially where grown upon cold clay soils. The fungus appears as a brown rust in spots on the skin of the fruit, and gradually extends itself over nearly the whole surface, contracting the growth, and either inducing early decay or else cracking, caused no doubt by Nature in its efforts to produce growth, which is impeded by the tightly set skin. Such a fine variety as the Alfriston, that in previous years produced fine healthy fruit, has during the past season had all its fruit rendered useless. It would be interesting to know how far this parasite may be identical with the brown rust that occasionally attacks Grapes, producing exactly similar results. Probably in all cases it is induced by defective root action. *A. D.*

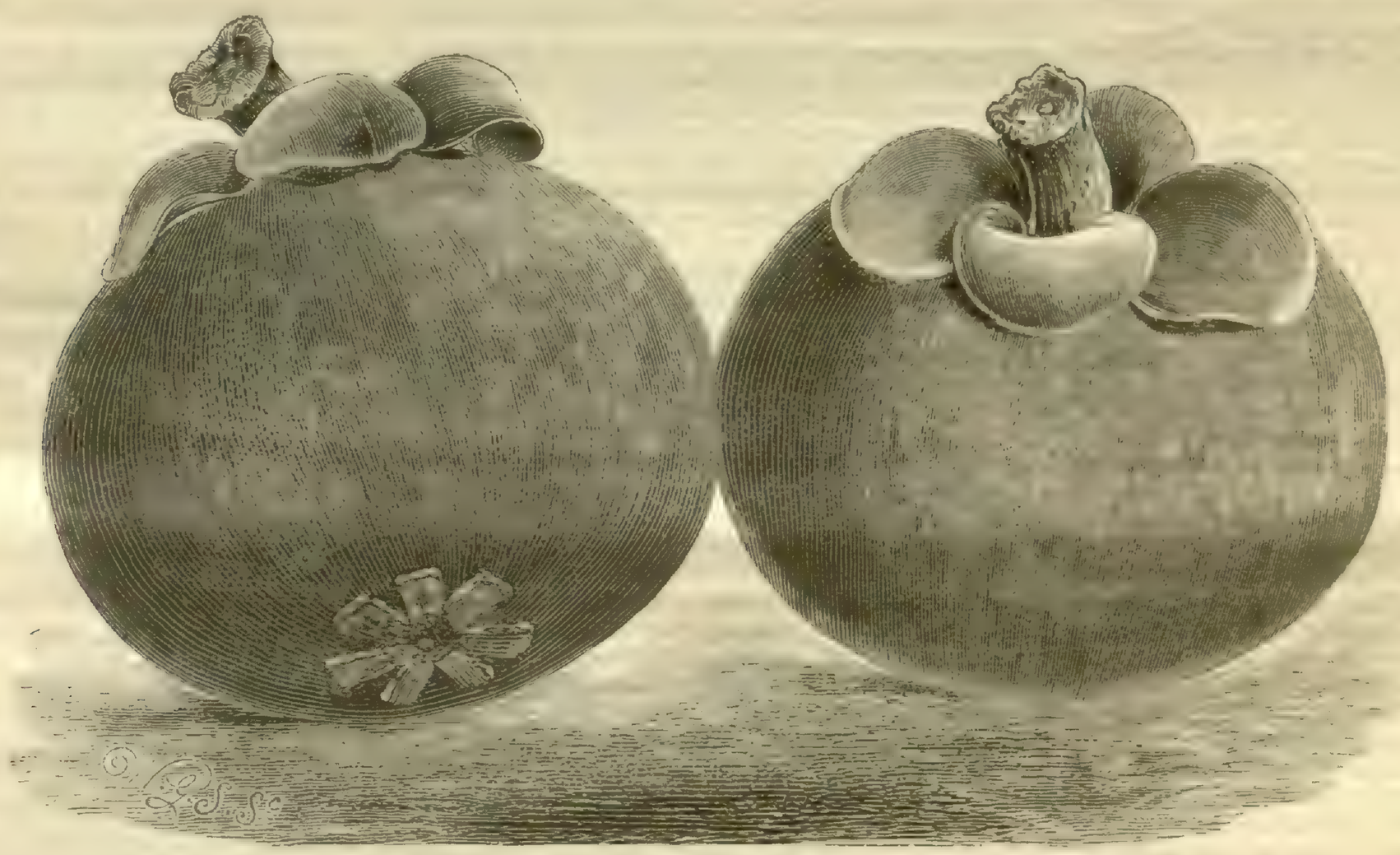


FIG. 137.—THE MANGOSTEEN—GARCINIA MANGOSTANA.

Rolling Wet Lawns.—Allow me again to ask a question that I addressed to your journal two or three years ago—Does rolling a well-drained lawn of porous soil accelerate the drainage of it? I am satisfied that it does. My own, on the new red sandstone formation, is 40 yards by 30, exactly level, and has four rows of drainpipe laid under it 4 feet deep, with a quantity of loose stones and potsherds thrown in over them. After a night's heavy rain I find it in a slop. The gardeners wait till the water has subsided below the surface, and then roll it with a 6 cwt. roller, and in an hour or two it is dry. Yesterday, for instance, after a rainfall of .87 inch measured off the day before, and .12 inch that morning, it was so firm in the afternoon that ladies (with heelless boots) might have played a game of croquet upon it without injury to the turf or inconvenience to themselves. It appears to me that the water must be squeezed out below, and find its way into the drains, as when we press on a wet sponge. Be the explanation what it will, as it is often of great consequence to get a lawn ready for a garden party after a night's rain, I beg to bring my experience, local and small as it is, to the notice of your readers. *P., Halse, near Taunton.*

Rooks and Walnuts.—It is by no means an uncommon thing for rooks to take Walnuts from the trees—to, in fact, destroy the whole crop. Here we have an especial illustration of the fact annually; the same may be considered more or less general. There is one peculiarity connected with the practice worthy of note—viz., they do not molest them until the kernels have attained to consistency. I examined the trees here one day this present autumn, upon

which a good crop existed, and found they had just assumed that state, but that for keeping purposes and "hodding" they would be better if left one more week upon the trees, thinking Mr. Rook had by some oversight for once missed his crop. To my surprise, however, three mornings following this, at about 7 A.M., I was apprised by near and noisy cawing of something unusual, and, going outside, observed a whole colony of rooks attacking both trees. They cared not for me singly, but when I introduced a gun-barrel to their notice they quickly left amidst a chorus of expletives, which perhaps 'twere well I did not understand. Whether they ascertain when the nuts are "ready" by instinct, or whether it is a purely mechanical impulse, solved by an "old one's" occasional test, applied *à la* Priestley, it is difficult to say. "Bozz" may rely on the fact, however, that each takes his nut down on to the land anywhere contiguous to the tree from whence it is plucked. There it is broken in twain, and the kernel taken out, the operation being done both slovenly and inconsiderately. A tree once commenced has all the crop taken in an incredibly short time. *William Earley, Valentines.*

The Improvement of Poor Sandy Soils.—I shall feel deeply indebted to any of your readers who have succeeded in permanently improving poor sandy soils, such as the Bagshot Sands, for their advice as to the best time to dig and manure, and the best kind of manure to use. Real, genuine advice, derived from practical experience, is the thing I require, and not theories. I had a theory of my own when I first took possession here. Before that time it had been my lot to contend with a cold, stiff clay, which was wonderfully "holding," both of water and manure—also of good crops, if we could only effect the cultural preparations at the right moment. I employed the usual means for its improvement, digging in all manure in as fresh a state as possible, making use of all the "char" I could make, and occasionally robbing the stokehole of coal to burn a little clay for a choice crop; and my theory for the improvement of sandy soils was to leave all these things undone, to apply the manure when well decayed, to tread the ground as firm as possible, and give a dressing of clay now and then if convenient. I have worked according to this idea, and am dissatisfied with the results; hence this application. *B. G.*

The Snowflake and Eureka Potato Competition.—Can anything be more unsatisfactory than the awards of the judges in this case? The prizes were offered for one thing, and given to another. I cannot see that any satisfaction can be given to any one, with the exception of those to whom the prizes have been awarded, and they, of course, will not complain. Messrs. Hooper distinctly offered the prizes for the greatest quantities that could be grown from single pounds of seed, and, good or bad not having once been mentioned, quantity was the only aim of all competitors. Such being the case, I am at a loss to know on what grounds the awards have been made, it being a certainty that they have not been made in conformity with the circular sent to all competitors by Messrs. Hooper. To a certain extent I consider Messrs. Hooper responsible for the way in which the awards have been made, for, after offering prizes for a specified object, they ought to have taken such measures as would ensure the most successful competitors receiving the proper awards. No discontent could possibly have been caused if the prizes had been given for what they were offered. Another thing I cannot quite understand is the uncertainty that evidently existed in the minds of Messrs. Hooper and the members of the Fruit Committee [The Fruit Committee declined to have anything to do with the matter. EDS.] as to whom the prizes were justly due to—to those who had grown the greatest weight, or to those who could send most sound tubers to Kensington. I asked Messrs. Hooper's advice about sending all the Potatos, good and bad, to London; they replied that they could in no way advise me, but if I wished for a decision I was to apply to the secretary of the Fruit Committee, as that body would be responsible for the awards made. The reply I received from Mr. Barron was, "The Fruit Committee has nothing whatever to do with any conditions." Under these circumstances I determined to send only the soundest of my Potatos, but at the same time I forwarded to the Fruit Committee and to Messrs. Hooper certified reports of the quantities grown here from single pounds of seed, and expressed my readiness to forward the remainder of the crops if they were required. The weight of Snowflake Potatos grown here was 638 lb., and of Eureka 1082 lb., and as these are the greatest quantities recorded, I consider myself the winner of both first prizes. *Fredk. Ford, Capesthorne, Chelford, Crewe.*

The Yellow King Potato.—The two great Potato exhibitions are now over, but where was the wonder of wonders, the Yellow King Potato, so extensively advertised by circulars in the spring, with other astounding novelties? Certainly not to be seen at either exhibition. A deep yellow Potato would be a fine boon to those who exhibit large collections. How it would contrast with the reds, &c., and set off the collection! Had this made its appearance, and it was equal in colour to the drawing issued with the circular, we might have hoped for a sky-blue one in time. As none of these novelties have made their appearance at any of the exhibitions, would some of your correspondents who forwarded their post office orders for these novelties enlighten us on the subject? *Edward Bennett, Rabley, Herts.*

Celery Fly.—A fact may be worth noting in connection with the Celery fly as having occurred here this season. The crop of Celery within the old garden walls here is exceptionally clean and free from this pest; not so, however, about a thousand plants growing in a makeshift slip of ground adjoining a Potato field, where it was planted for want of more eligible space within. These last were attacked by the fly in such a manner as I have never before witnessed, and hope never to see again, and afford a proof that the fly is "at home" beyond garden walls, though how he provides for his progeny when no Celery is near it is difficult to surmise. *William Earley.*

Rooks and Walnuts.—I can add my testimony to the fact of rooks taking Walnuts from the trees. I have several Walnut trees close to my house, and not a quarter of a mile off is a large rookery. The rooks attack the trees as soon as, or almost before, the Walnuts are ripe; they carry them off on the points of their beaks, which they thrust into the green husk; this I have observed for years. So fond are they of Walnuts that it is impossible to keep them off without having a person constantly on the watch. I have never seen the rooks actually eating the Walnuts, but I often find pieces of the shell broken, and half shells with the kernel scooped out on the ground between the Walnut trees and the rookery; and I have a small Walnut tree that came up under shelter of a fence without being planted, doubtless from a Walnut dropped by a rook. The rooks must break the shell on the ground, and it is very probable that some shells are too hard for them, and that they prefer the Walnuts before the shell is quite hardened. My Walnuts have rather thin shells, which will account for the extreme fondness the rooks show for them. *William Wickham, Binsted-Wyck, Alton, Hants.*

An Aged Apricot Tree.—There is growing in the gardens here, on a wall with a south-east aspect, a notable old Apricot tree. It is notified in the *Norfolk Directory*, and supposed to have been planted at least a century ago. To an ordinary observer there is nothing remarkable in the appearance of the tree until minutely examined, and then it seems surprising how it continues to exist under the unfavourable circumstances, much more mature its fruit. I gathered from this old tree about fifteen dozen Apricots, which were ripe three weeks earlier than any other tree, though on the same wall other trees are planted. The growth of the tree is scarcely visible, yet it appears in good health, and when closely inspected at the base it is entirely decayed, only leaving about 1 inch of live wood and bark to bring its fruit to maturity. *J. Clarke, Gr., Melton Constable, East Dereham, Norfolk.*

Ivy and Young Trees.—A subject that often astonishes and distresses me, in my walks in the country, is to observe how careless many owners of property are in allowing Ivy to grow over the young trees in plantations, because it is a well known fact that the close embrace of this climber prevents the proper expansion of the bark of the tree, and I believe that the use of the pocket-knife might often save the life of a valuable tree. Another shrub also seems equally destructive to hedges. Birds drop a seed of the common Elder (Sambucus nigra), it germinates and grows, no notice is taken of it for years, the hedge is trimmed at the usual times and in the usual manner, the Elder at the same time, and in due course you have an ugly gap, for nothing will grow near this strong and rampant shrub,—from what cause I do not pretend to say, but such appears to be the case. Whether you will think this slight notice worth insertion I do not know; but it appears to me, as to many others to whom I have spoken on the subject, to be one worthy of consideration and ventilation. *John E. Daniel, 6, The Terrace, Epsom.*

Variegated Double-flowered Lily of the Valley.—In looking over Philip Miller's *Gardeners' Dictionary*, published in 1731, I find "Lilium convallium: latifolium, flore-pleno variegato, Tourn., broad-leaved Lily of the Valley, with a double variegated flower;" and it is also added that "the double sort was brought from Holland some years since, but whether it was obtained from seeds originally, or found by accident, I can't say." I have frequently met with a variegated-leaved variety, but not a variegated-flowered. Can any of your botanical correspondents say if they have met with it? *Convallaria.*

Mushroom Beds.—On visiting a garden in the suburbs of London recently, I saw the young men preparing to make a Mushroom bed, by putting a thick layer of fresh leaves on the bottom. The horse-droppings were then put together in the usual manner. The gardener, a well-known horticulturist, assured me that he found this plan succeeded well. This being an entirely new idea to me, in the growing of Mushrooms, it will be interesting if any of your readers who have tried the experiment would also kindly let us know the results. *N. P., Kensington.*

Porter's Excelsior Potato.—In your report of the Potatos at South Kensington on the 10th inst. you express astonishment at the appearance there of this variety in the competing collections. A recent advertisement might lead to the inference that something else was being shown under that name, but it is a fact that this Potato is already widely distributed in the North, and directly after the International Potato Show we were offered stock of it by a grower near Aberdeen, and thus it has come into our possession. After Mr. Porter had allowed a quantity of his stock to pass out of his hands it was exceedingly unfair on his part, when disposing of his present stock to a well-known firm, to endeavour to mend his position by striving to throw the shadow of dishonesty on all who might be possessors of his Excelsior. *Alex. Dean.* [Our astonishment was expressed, not as to how exhibitors became possessed of tubers of this Potato, but at their temerity in so openly exhibiting that which they could not have grown. EDS.]

Reports of Societies.

Linnean: *Nov.* 4.—J. G. Allman, Esq., M.D., F.R.S., President, in the chair. Sir John Lubbock communicated a paper confirmatory of previous observations to the effect that ants and bees, having found a store of food or a heap of larvæ, do not communicate the intelligence to their comrades. Other experiments indicating a lower degree of intelligence than is usually conceded to these creatures were mentioned. In the case of bees it was shown that they soon associate the presence of honey with particular colours. Sir John placed a drop of honey on some green paper, where it was found and taken by the bees. Then the position of the green paper was changed—red or yellow paper being substituted, but the bees always went to the green paper. Wasps seem to be even more indefatigable workers than bees.

Mr. Alfred Bennett made some observations on the extremely rapid growth of the flower-stalk of Vallisneria spiralis, and detailed his method of observation, and specially with reference to the portion of the stalk where the maximum of growth takes place. Mr. Bennett's plan is different from that of Professor Sachs, and, as it would appear, leads to more accurate results.

Law Notes.

DOM LOUIS I., KING OF PORTUGAL, *v.* CARRUTHERS AND ANOTHER.—In the High Court of Justice, Chancery Division, before Vice-Chancellor Sir C. Hall.—This cause first came on for hearing on March 22 last, when it was, upon the suggestion of the Vice-Chancellor, directed to stand over generally, in order to see whether some arrangement could not be made between the parties. No arrangement having been effected, the case came on again on May 31, when it was again ordered to stand over to give the plaintiff an opportunity of verifying a translation of documents written in Portuguese. This having been done the case once more came on, and was argued on July 8 last, when it was once more directed to stand over, in order that a proposition for an arrangement (the terms of which we mentioned in our report of July 9) might be considered. The case having been so frequently mentioned in our columns, it will be sufficient now to remind our readers that the bill was filed by the King of Portugal against Mr. Carruthers, of the British Museum, and a Mr. Justen, as the executors of the late Dr. Welwitsch, an eminent botanist of Austrian extraction, in order to obtain a declaration that the King was entitled, as part of the public property of the kingdom of Portugal, to certain collections of botanical specimens and natural objects made by Dr. Welwitsch, in the course of his explorations in the African provinces of the kingdom of Portugal, while in the employment of the Portuguese Goverment, including his notes and descriptions explanatory thereof. These explorations covered a period of seven years—from 1853 to 1860. In 1861 Dr. Welwitsch returned to Portugal; and in 1863 he obtained permission to come over to this country with his collections, in order to get further scientific assistance from our museums and institutions, and particularly from the officials at Kew Gardens, in arranging and classifying them. He continued to reside here, engaged in his work, and from time to time reported to the Portuguese Government, who,

considering that sufficient time had been given him for completing his work, in February, 1866, suspended his salary. He remained here until his death in 1872, and by his will he disposed of his collections in favour of various persons and bodies, directing his "study" collection of African plants to be offered to the British Museum at the rate of £2 10*s.* per century (100 species), and giving two sets to the Portuguese Government gratis; one set, each gratis, to the Botanical Museums of Berlin, Lisbon, Vienna, Paris, Copenhagen, Rio de Janeiro, Carinthia in Austria, and one set to the English Government, gratis, for the use of Kew Gardens, and making other bequests of collections and objects to scientific persons and institutions. He concluded his will by saying that he made this disposition of his collections in the hope that all the bequests made to museums might be considered as made to them by the Portuguese Government, through whose assistance and liberality some of the collections were made. The collections were said to be in some respects unique, and the most valuable was the "study set." This "study set," as we have already explained to our readers, is the collection of the original type or standard specimens of the new plants met with, named and described by the botanist.

The cause was again mentioned by special order, when, after some discussion, the following decree was made by the Vice-Chancellor :—

Declare that the plaintiff in right of his Crown, and as part of the public property of the kingdom of Portugal, is entitled to the collections of botanical specimens and natural objects made by Frederick Welwitsch in the course of his employment in Africa by the Portuguese Government, including as part thereof the notes and descriptions from time to time made by the said Frederick Welwitsch explanatory thereof or in reference thereto. And the plaintiff of his grace and favour being willing to give to the British Museum the best set next after the study set of the said collection, with a copy of the notes and descriptions, on condition of the British Museum contributing to the cost of such separation and transcriptions as after mentioned, to the extent hereinafter appearing, and the Court being of opinion that the separation of this set and the study set from the general bulk of the collections and the transcription of the notes and descriptions will be best made in England, let this separation and transcription be made forthwith by Dr. Joseph Dalton Hooker on behalf of the plaintiff, and Mr. William Philip Hiern on behalf of the British Museum; and in case of the inability or refusal of either to act, by some other person to be appointed in his stead by the plaintiff or the British Museum, as the case may be, and to be approved by the other party; and, in case of difference as to either of these appointments, or between the persons appointed, let the matter be settled by the Judge in Chambers, or by an umpire to be appointed by him; and let either party pay the expenses of the person appointed by him or them, and let all other expenses of this separation and transcription be borne by the plaintiff and the British Museum in equal shares. Let the plaintiff pay to the defendants within two months from the date of the decree the sum of £600 in full of all demands; and, upon this payment being made, and the separation and transcription as aforesaid being accomplished order the defendants forthwith specifically to deliver the said collection, except the said best set next after the study set, and to deliver the said original notes and descriptions to the plaintiff, or to whom he shall appoint, and to deliver the said best set next after the study set and the transcription of the said notes and descriptions to the trustees of the British Museum as from the plaintiff. Declare that the will mentioned in the pleadings of the said Frederick Welwitsch raises no question of election as against the plaintiff. And let all proceedings in this suit be stayed except for the purpose of enforcing the decree. *Times.*

WILLIAMS v. LESLIE, M.P.—In the High Court of Justice, Exchequer Division. — Sittings in Banco, before the Lord Chief Baron and Barons Cleasby and Amphlett.—The Lord Chief Baron said :—In this case, which was tried before my brother Bramwell, a verdict was found for the plaintiff for £426, being £98 above the sum paid into Court. A motion has been made for a new trial on the grounds of misdirection and that the verdict is against the weight of evidence. The case is peculiar, and requires and deserves consideration. The plaintiff is a florist in England at a distance from the defendant, who is a gentleman of position and fortune in Ireland. Some hundreds of pounds are annually expended on the defendant's gardens, and great quantities of goods are purchased. There seems to have been unlimited confidence placed in the gardener to order plants. While this credit is going on a series of purchases was made from the plaintiff's nursery. At one time, when the plaintiff applied to the gardener, the gardener wrote a letter in which he directly stated the limits of his account, and that this amount had been exceeded. The dealings, however, went on, and now the jury have given a verdict for those goods supplied. Two questions arise—whether the learned Judge misdirected, and whether, on the whole, the verdict is against the weight of evidence. The learned Judge ruled rather favourably to the defendant when he said that when the gardener had communicated the fact of his having exceeded his limit it was incumbent on the plaintiff to inquire as to whom he supplied goods. That was fair to both parties, especially the defendant, as it tended to show that he would not be liable if the plaintiff had gone on giving credit without asking. The two questions left to the jury seem satisfactory to the Court. We must assume that the articles were frequently seen on the spot by the defendant. As to their number and description he made no inquiry or observation until the question came as to the payment. The defendant might have ascertained about the goods, or he might have returned them. There has been no misdirection, as the questions were left to the jury in a favourable light to the defendant. I proceed to consider whether on the whole case and its peculiar nature the verdict was against the weight of evidence. Speaking for myself and for the Court, there are reciprocal duties imposed in this class of business. This is a case where the expenditure was large—some hundreds of pounds, and where the master had to trust entirely to his gardener's honesty. The master may fix a limit, yet he gives no intimation to the tradesman, nor takes any means to warn the seller that, though the gardener has a large, it is not an unlimited authority. The defendant does not seem to have done that. The gardener made an intimation to the plaintiff of his own accord, and the plaintiff knew by this vague intimation that there was a limit. But it was not an authoritative notice by the gardener or his master that no goods were to be supplied beyond that limit. Undoubtedly the plaintiff ought to have ascertained on whose credit he was supplying the goods. But the jury have had an opportunity of judging whether the balance of imprudence and want of caution lay on the plaintiff or the defendant. They have come to a right conclusion. There was undoubted evidence that the defendant must have seen quantities of these articles in such a large supply. However, he does not inquire or communicate with the plaintiff, and he makes no offer to return them. The non-performance of the duty appears grave in the defendant. We think there ought to be no rule in the case. *Times.*

The Villa Garden.

WINDOW BOXES.—It is worthy of notice how long the summer occupants of window-boxes in London retain something of their beauty and freshness, when the months of September and October are at all genial and bright. It was the case this autumn to a considerable extent, and up to the hurricane and fierce beating rain of a week ago, some boxes that had been tended with a little care looked very pleasant indeed, notwithstanding signs of decay had set in, as might reasonably be expected. The wind and rain gave the finishing-stroke to what the autumn had commenced. A change of occupants is now absolutely necessary, and the question arises what to plant for winter.

There are some exterior window-boxes that are planted permanently with nice little evergreen bushes summer and winter. When a nice selection of plants is made, varying in character or growth, form of leaf, and tint of foliage, and the planting is done in a manner calculated to promote the well-being of the plants, a cheerful and pleasing appearance is maintained. On a hot, sunny day, when the roadways and pavements appear to give forth a fierce heat, it is refreshing to look upon a box of evergreens, especially so if their foliage is kept clear of any of the sooty deposits that are inseparable from cities and towns.

It must not be supposed that boxes of evergreen plants can bear neglect any more than those filled with tender flowering plants. If they are suffered to want water, and the soil at the roots becomes dry like powder, or baked hard like bricks, there will be a loss of a healthy hue in the foliage, the leaves will turn yellow, and fall off. It should never be forgotten that window boxes, especially when they face the south or west, are much exposed to the drying influences of sun and air, and it is necessary that summer and winter alike they should be carefully tended, and supplies of water given as required. Sprinklings overhead should be frequently applied, as they tend to keep the leaves clear and bright, and they give no offence to the observant foreigner who complains of "great guillotine-like windows opening on to balconies covered with pots of smoky flowers." This picture is, no doubt, a little overdrawn, because Kensington is given as the locality; and the description of the residence would tally with one of the fine residences on the east side of the Exhibition Road.

We recommend that boxes should be planted with evergreens at this season of the year, such as Aucubas, Portugal Laurels, Rhododendrons, Laurustinus, Arbor-vitæs, both green and golden, and such-like hardy subjects. A line of dwarf shrubs, 12 to 18 inches in height, can be arranged in a single line in an ordinary window-box, and this would allow of space between, and a space also for a line of small plants of a hardy character along the front. At this time of the year there can be obtained quite dwarf plants of Chrysanthemums, generally of the Pompon section, which have been raised from the top shoots of the plants taken off in August and struck in a gentle heat. In the act of striking root they throw up their flower-buds, and when in bloom they are miniature plants—dwarf bushes—at once attractive to the eye and highly decorative. A few of these could be put into the spaces between the evergreens, and unless very severe weather set in the flowers would last nearly up to Christmas.

Along the front of the boxes should be planted a few Scillas, Crocuses, and Snowdrops; set sufficiently deep in the earth to admit of plants being planted above them, such as double Daisies, Primroses, alpine Auriculas, &c. These are early-flowering subjects, and would nicely succeed the bulbs, while they are of a thoroughly hardy character. Such a mode of planting might appear a little hackneyed, but it must be remembered that the planter is actually shut up to but a comparatively few subjects that are likely to stand through the winter. Bulbs and spring flowers might be dispensed with, and variegated and green Ivies planted to fill in the spaces and hang down gracefully over the front of the box; or Sedums, Saxifrages and Sempervivums might be introduced, as they are generally of a very hardy character. The Golden and Silver Stonecrops might be planted so as to hang down over the front of the box in the form of a fringe, and thus secure an attractive foreground.

It is not difficult to design elaborate arrangements; the difficulty lies in using subjects that will stand the exposure of a winter in London, for it is to London that these remarks more particularly apply. In addition to the intense coldness of the atmosphere during a time of severe frost, the severity is intensified when currents of air are put in motion, and they sweep along streets bounded on either side by houses with remarkable keenness, sorely trying to the endurance of plant life; that is why it is that we counsel the placing in exposed window-boxes of only the hardiest plants. They should be planted firmly in the boxes, and the soil need not be rich—an ordinary yellow loam will suit. As the roots are more exposed to the action of the frost than when growing in the ground, water should be withheld as soon as there are signs that a spell of wintry weather is imminent, and this caution should be borne in mind by all those who grow evergreens in pots for a little decorative display during winter. Thuja aurea is a plant that is much grown for the purpose, as well as Rhododendrons, Aucuba japonica, and others. If frost suddenly succeeds heavy drenching rain, it will sometimes, by reason of its exhaustive action, cause the pots to split asunder; and terra-cotta and other wares are subject to this also. The plants should be put aside under the shelter of a south wall or some such place, and the pots imbedded in ashes or any litter that would protect them from the destructive action of frost. Nicely grown specimens that have been tended for years and done excellent service are surely deserving of this attention, and that is an additional reason for impressing this caution on town gardeners.

The Weather.

DURING the week ending Saturday, November 13, in the neighbourhood of London, the reading of the barometer at the level of the sea increased from 29.33 inches at the beginning of the week to 29 49 inches by the morning of the 7th; decreased to 29 04 inches by the early morning hours of the 8th; increased to 29.62 inches by the night of the same day; decreased to 28.70 inches by the morning of the 10th; increased to 29 20 inches by the afternoon of the same day; decreased to 28.63 inches by the early morning hours of the 11th; increased to 29.99 inches by the morning of the 12th, and decreased to 29 34 inches by the end of the week. The mean reading for the week was 29.43 inches, being 0.33 inch below that of the preceding week; and 0.59 inch below the average.

The highest temperatures of the air observed by day ranged from 56° on the 13th, to 47½° both on the 8th and 11th, the mean value for the week was 51¼°. The lowest temperatures of the air observed by night varied between 31¼° on the 9th, and 43½° on the 10th, with a mean for the week of 36¾°. The mean daily range of temperature in the week was 14½°, the greatest range in the day being 20¾° on the 13th; and least 10½° both on the 7th and 11th.

The mean daily temperatures of the air and the departures from their respective averages were as follows :—7th, 44°.6, —0°.1; 8th, 39°.7, —4°.6; 9th, 40°, —3°.9; 10th, 48°.3, +4°.8; 11th, 42°, —1°.2; 12th, 43°, +0°.1; 13th, 46°, —3°.3.

The mean temperature of the air for the week was 43°.4, being 0°.2 below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in rays of sun, were 77¼° on the 7th, and 71¼° on the 12th; the mean for the week was 65½°. The lowest readings of a thermometer on grass with its bulb exposed to the sky, was 51° on the 9th; the mean of the three low readings was 33°.

The direction of the wind was variable, and its strength brisk. The weather during the week was frequently fine, often very dull and wet. Rain fell on five days, the amount being 2 inches nearly.

On Saturday the 13th instant the temperature at 3 P.M. was 49°.1, it increased to 55°.9 by midnight, and to 57° early on the morning of the 14th.

In England the highest temperatures of the air observed by day at 4 feet above the ground were 58° at Truro and 57° at about London; at Hull the highest temperature in the week was 47°; the mean average value from all stations was 52½°. The lowest temperatures of the air observed by night were 27° at Nottingham and Manchester, at Truro 38° was the lowest temperature in the week; the mean from all stations was 31°. The mean range of temperature in the week was the largest at about London, 27½°, and the smallest at Hull, 17°; the mean range from all stations was 21½°. The mean of the seven high day temperatures was the greatest at Truro, 55°, and the least at Manchester and Hull, both 44¾°; the mean value from all stations was 47½°. The mean of the seven low night temperatures was the largest at Truro, 44½°, and the smallest at Manchester, 33½°; the average value from all stations was 36°. The mean daily range of temperature in the week was the greatest at about London and Bristol, both 14½°, and the least, 9½°, at Liverpool, Bradford, and Hull; the mean daily range from all stations was 11½°. The mean temperature of the air for the week was 41¼°, being the same as that for the corresponding week in 1874. At Truro the mean temperature was the largest, viz., 49¼°, and at Manchester it was the smallest, viz., 38½°.

Rain fell on every day in the week at Liverpool and Eccles, and on five or six days at all other stations. The heaviest falls in the week were 4 inches at Truro, 3¾ inches at Bristol, and 2¼ inches at Norwich, Sheffield, and Manchester; the least falls were at Bradford and Leeds, both eight-tenths of an inch. The average fall over the country was 2 inches nearly.

The weather during the week was fine, but dull and showery.

In Scotland the highest temperatures of the air ranged between 55° at Greenock and 44° at Aberdeen; the mean value from all stations was 48°. The lowest temperatures of the air varied from 18° at Perth to 26° at Greenock. The mean from all stations was 23°. The mean range of temperature in the week was 25°. The mean temperature of the air for the week was 36°, being 7¼° lower than the value for the corresponding week in 1874. The highest was 38° at Greenock, and the lowest 35° at Glasgow and Perth. The fall of rain during the week varied from 1¼ inch at Leith to eight-tenths of an inch at Glasgow, Dundee, Greenock, and Leith; the average fall over the country was nine-tenths of an inch.

At Dublin the highest temperature was 52°, the lowest 24½°, the mean 39°, and fall of rain 2.08 inches.

JAMES GLAISHER.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, NOV. 17, 1875.

Month and Day.	Barometer.	Temperature of the Air.						Hygrometrical Deductions from Glaisher's Tables 5th Edition.		Wind.	Rainfall.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 18 Years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Dew Point.	Degree of Humidity. Sat. = 100.	Average Direction.	
Nov.	In.	In.	°	°	°	°	°	°			In.
11	29.17	−0.63	47.6	37.1	10.5	42.0	− 1.2	38.4	88	WNW: N.W.	0.46
12	29.71	−0.08	50.6	36.4	14.2	43.0	+ 0.1	36.6	79	W.	0.00
13	29.38	−0.40	57.0	36.2	20.8	46.0	+ 3.3	43.9	93	N.E.	0.61
14	29.15	−0.62	50.2	43.0	7.2	46.3	+ 3.8	41.4	84	S.: S.S.W.	0.18
15	30.04	+0.28	50.5	32.9	17.6	41.6	− 0.7	35.8	80	WSW: S.W.	0.00
16	29.84	+0.09	52.3	33.1	19.2	42.7	+ 0.5	37.1	81	S.: S.W.	0.05
17	29.86	+0.13	54.2	40.1	14.1	46.0	+ 4.0	42.6	89	S.W.	0.12
Mean	29.59	−0.16	51.8	37.0	14.8	43.9	+ 1.4	39.4	85	S.: S.W.	sum 1.42

Nov. 11—Overcast, dull day. Rain in early morning.
— 12—A very fine bright day.
— 13—Overcast, dull and wet day (maximum temperature at 3 P.M. was 49°.1; and it rose to 57° by midnight).
— 14—Overcast and dull. Occasional rain till evening. Gale of wind.
— 15—A very fine clear day.
— 16—Fine till 1 P.M., overcast after. Occasional rain in evening.
— 17—Fine, but dull till 2 P.M. Rain fell in early morning, and occasionally in afternoon and evening.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—Where the system of cultivation is such as to make the most of stove plants by a long season of flowering, through starting them into growth with a higher temperature soon after the commencement of the new year, as opposed to the old usage of long resting and not encouraging them into growth until the spring was further advanced, the stove should now and until the end of the year be kept at the lowest point; what this is exactly to be should be determined by the nature of the plants grown. There are no subjects cultivated that will furnish such a quantity of flowers for cutting, or, if allowed to remain on the plants, for the gay appearance of the house they are grown in, as the different varieties of *Ixora*, *Dipladenia*, and *Allamanda*, provided they receive the treatment they require—one of the principal essentials of which is that they never are kept colder than they like. This especially refers to the different species of the two former genera, which do not like being below 65° in the night. No doubt they will bear being kept cooler than this, but if made to submit to such for long, their energies become crippled, and they make little progress for some time, even after more heat is given them. To have *Gardenias* in a condition to produce their greatest quantity of flower they should not be kept lower than this. On the other hand, if there is nothing grown that demands more heat than *Stephanotis*, *Hoya*, *Cyrtoceras*, *Hexacentris*, *Medinilla*, *Franciscea*, *Rondeletia*, *Clerodendron*, and *Passiflora*, the temperature will do 6° or 8° lower, with a little drier atmosphere than that requisite for the former plants, as these last mentioned are excited with less heat than is required by the others.

Where there exists the convenience of two houses wherein to grow stove plants, the difficulty is easily got over, or in a single house of say 40 feet long it is worth while to have a partition put in dividing say one-third off at the warmest end, for the things that want most heat; by this means all can be accommodated. This is the more apparent where a quantity of plants such as *Poinsettias*, *Sericographis*, *Justicias*, *Plumbago rosea*, *Aphelandras*, *Centradenias*, *Eranthemums*, *Thyrsacanthus rutilans*, *Streptocarpus biflorus*, and winter-flowering *Begonias* are grown. A portion of all these should now be brought into the stove or forcing-pit, the latter much to be preferred to a general stove, as in it the winter-flowering subjects can just receive the treatment they need without interfering with the requirements of the general occupants of the stove. Do not use more heat than is necessary to bring them into flower, as all above this will cause them to be more tender and their blooms to last a shorter period. We have before urged the necessity for subjecting the winter blooming plants to every possible ray of light: the importance of this cannot be over-rated. Light and the consequent near proximity to the glass—all but touching the roof if possible, where there is always, no matter how close the glazing, a motion in the atmosphere—in a great measure compensates them for the necessarily reduced amount of external air allowed to them during the season of short days. The remaining portions of the above plants intended for being flowered in succession later on, must not be neglected or allowed to remain where they will be so cool as to get chilled or the roots injured, for where this is allowed to occur they bloom meagrely afterwards. If there is no separate place, such as an empty pit, where they can be kept sufficiently warm without the flowers being excited, they must be placed at the coolest end of the stove, and not have more water given them than is neeedful to keep the leaves and roots from suffering.

Epiphyllums that have completed their growth early, should now be placed in heat, as also should *Euphorbia jacquiniæflora*; the latter will bear a good deal, but must be kept in the lightest situation the house will afford, or the flowers when opened will be of an orange-red instead of an intense bright colour for which the plant is so much esteemed when well managed. Should there happen to be a deficiency of winter-flowering subjects, a portion of the bulbous-rooted *Begonias* that have through the summer been kept in a greenhouse temperature may be put in heat, and if much root-bound, moved into pots a couple of inches larger, using good rich soil; so treated they will push up more growth, and keep blooming for a considerable time. Their drooping, brilliant-coloured flowers are peculiarly adapted for the decoration of vases and epergnes, looking remarkably well by artificial light.

Solanum Capsicastrum and *S. Pseudo-Capsicum*, if their berries are backward in colouring, may now be put in a little heat, which will soon have the effect of ripening and giving them colour, but for this purpose they must not be kept too hot; 50° at night is enough. If too much heat is used, the plants are induced to make growth, which is anything but desirable, as, when this takes place, they do not retain their freshness so long. *T. Baines.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—The loss of the summer occupants will have imparted a naked appearance to this department, unless their places have already been supplied by some of the many beautifully-variegated foliage plants that show to such great advantage at this season, when there is so little in the flower way to attract notice or share honour with them. These always command a certain amount of admiration, but their beauties are not half so much appreciated as they are after the loss of gay flowers, a time when we are glad to fall back on them to fill up the void. The present season has done much to enhance the value of this class of plants, and, if we wish to prolong the season of our summer gardens, a still greater use will have to be made of such as are comparatively hardy. These may be used in various ways, either for centres of beds, edgings or marginal lines, and in this way the beds would not be entirely denuded, as they now are, by the first frost that occurs. By an arrangement of this kind, and by placing such plants in beds at regular intervals, gardens would still remain partially furnished and somewhat attractive long after the destruction of such things as are now generally in use. The places of the more tender might then be readily occupied by the additional use of other plants remarkable for the beauty of their foliage; an enumeration of some of the principal of which has been given in a former Calendar. These, and a few early spring blooming plants that may be used in combination, will afford something of fresh interest almost continuously till the time again comes round to refill for the summer display. The eye becomes so accustomed to what one sees daily, that, without extreme watchfulness, places quickly assume a very untidy appearance at this season, and may pass unnoticed by those in charge, but which is quickly observed by any one coming fresh to the scene. The eye should, therefore, be ever on the alert to detect anything that would strike others as defective, or detract in any way from the neatness and perfect order that should characterise all gardens with any pretensions to a state of high keeping. Falling leaves will keep the broom in constant use for some time to come, although it is hardly to be expected where deciduous trees are numerous, and the leaves constantly falling, that grounds in their immediate vicinity can just now be kept in good order. Much may, however, be done by apportioning the necessary labour to sweep up and collect what are down every morning before they are scattered over the place.

The roll, too, should not be allowed to stand idle at this season, as the walks, however good, are sure to be benefitted, both in appearance and comfort, by having it frequently passed over them. By keeping the surfaces of walks thoroughly smooth and firm they become nearly impervious to wet, which, if allowed to penetrate, would soon cause them to be loose and subject to the action of frost, when in a dry state it would have but little effect. Lawns, as well as walks, can scarce have too much of the roll, as just now they are in a soft, elastic state and stand in need of consolidating. Besides improving the quality and texture of the grass it is a quicker and better way of getting rid of the wormcasts than it would to employ a broom for the purpose. It may yet be necessary on some lawns to pass the machine over them at least once more, as the grass is apt to grow knotty and irregularly at this season, thus presenting an untidy appearance. Where it is intended to make new plantations of Roses orders should be given at once, so as to secure good healthy plants, as later in the season the chances of obtaining such are not so good, on account of early planters getting the pick. If the soil of the beds or borders intended for their reception is at all light it may be greatly improved by mixing in a good quantity of clay during the process of trenching. This should, if possible, be obtained in a dry state, and before mixing it in with the natural soil it should be thoroughly broken up into small lumps, that it may the more readily mix in the beds. Clay buried in this way is very retentive of moisture, and Roses are particularly fond of it, as is evidenced when they are taken up for removal from beds so prepared by the roots always being found clinging tenaciously to it. Where soil is naturally stiff Roses on the Briar stock will be found to succeed better than any other, and should be chosen in preference; but where it is of a contrary character then those on their own roots are preferable, or, failing these, the most suitable in the case of worked plants are those on the Manetti. This stock succeeds better on light, porous soils than any other, on account of the immense number of small fibrous rootlets it throws out, which are in the proportion of at least ten to one of any other stock. It must, however, be borne in mind that the Manetti is only fit for dwarf Roses, and should in no case be seen above the ground, as it is quite useless for forming even the shortest of stems. Cuttings of these

should at once be made and got in for supplying stocks for budding or grafting next season. These should be made about 6 or 8 inches long, and every bud, except the top one, should be cut clean out, or they will be constantly throwing up suckers. When so prepared they should be thrust into soft, fresh, dry ground in rows, about 8 inches apart, leaving only the tip of the cutting above the soil. The drying winds of winter and early spring have no effect on cuttings so inserted, and almost every one will grow. The wood of Roses being now thoroughly ripe, cuttings may be prepared and inserted in the same way, except that the buds should not be removed as advised in making the Manetti, as for Roses it is desirable to preserve the lower buds, that they may break from below should the tops receive injury from severe frost, which is frequently the case. Briars should be collected as early as possible, so as to give them plenty of time to become thoroughly established, as much of next season's success in budding depends on this. In collecting Briars for stocks make choice of the best varieties, as they vary much in freedom of growth. I always prefer such as have smooth grey stems tolerably free from spines. These are always free-growing, and are sure to develope fine heads. In planting, give plenty of room between the rows, to allow free access at budding time, and afterwards mulch heavily with good half-rotten dung, so as to enrich the soil and save them from drying winds and frosts. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

VINES.—By reason of the excessive rainfall, and consequent saturation of both earth and atmosphere, this has been a terrible autumn for the damping off of Grapes, and particularly Hamburghs; however, the worst is now past, and what ripe fruit remains may be expected to keep better. Now that the foliage is off one great cause of damp is removed, and light and air have freer access. Slight fires (not much, or the Grapes will shrivel prematurely) should be kept constantly going, to maintain as equable a temperature as possible, for, next to thorough ripeness, regularity of temperature is the best guarantee for good preservation. The borders should be covered neatly with straw or mats, which serves two purposes; first, prevents the cracking of the soil, and, second, keeps down some little moisture that might otherwise prove injurious. Of course it is presumed that outside borders have been protected from rain by shutters, lights, &c., long ago. The houses from which all the fruit is cut, if not used for plants, should be left open night and day, and the Vines exposed to all weathers. A few degrees of frost does not harm them, and they rest much more effectually. They are best pruned before exposure. Remove, right down to the roots, the inert top soil of borders, and replace with good loam and a few half-inch bones. Frequently turn over the litter in early houses, and replenish as the heat declines by working in a load of fresh manure direct from the stables. The same remark applies to outside borders, and which should be covered, to throw off heavy rains or snow, which chill the roots and predisposes the Vines to shanking and other ills. Pot Vines and the earliest started houses will in many cases now be showing signs of vitality, so that the temperature may be increased a few degrees with advantage, at the same time the supply of atmospheric moisture should be proportionately increased. Very little ventilation will be necessary for some time, but when it is requisite it should be given at the apex of the house only. *W. Wildsmith, Heckfield.*

KITCHEN GARDEN.

FORCING DEPARTMENT.—Active operations will be requisite here now in order to give a liberal supply of such things. Commence *Asparagus*, *Seakale*, and *Rhubarb* at once; if preparatory measures were taken for this object at the time advised in this Calendar with regard to these subjects, and they were allowed to develope and mature in early growth, an advantage will be secured in forcing, inasmuch the crowns will break freely with less pressure, and the growth and produce be much more satisfactory. *Asparagus* and *Seakale* also do better at this early forcing period when subjected to the stimulating influence of heat which arises from matter in a state of fermentation, than by other means. For *Asparagus* pits capable of holding sufficient materials to generate and preserve for a considerable time a temperature of from 70° to 80° is necessary; they should likewise have a hot-water pipe passing through them, and have movable lights, so that at suitable times an abundant supply of air can be afforded, as without this element the vegetable will be very insipid—a circumstance by no means uncommon under these conditions, which greatly tends to depreciate the value of this estimable vegetable. During the forcing season, if a supply of it be required for Christmas, a bed composed of about half stable manure and leaves should be made now; this should be trodden firm, 2 or 3 inches of light rich soil laid over the surface, and at the degree of warmth referred to above the roots spread out and well incorporated with another 2 or 3 inches of similar soil amongst them, watered with tepid water, and 2 or 3 inches of finely-sifted spent tan added to elongate and blanch to the requisite height. *Seakale* in quantity can be forced in this way, but in this case a temperate heat will be more suitable, and a covering sufficient to exclude air will be necessary. *Rhubarb* also can be obtained in this way, but we prefer the Mushroom-house for this subject; and where Chicory is used for salading a few pots should also be introduced here. Make an occasional sowing of *French Beans*, according to the space at command for this purpose. If *Potatos* are required very early sets should be inserted in leaf-mould for sprouting preparatory to being planted out in pots; a bed with a gentle warmth in it will be necessary for these at this season. Dwarf growing kinds of *Peas* are sometimes cultivated, but unless ample accommodation in the way of an orchard-house or similar structure is at command, the return from these is not commensurate with the labour involved. *Little Gem* and similar varieties are best adapted for the purpose. It is important where forcing operations are extensively carried on to have on hand a good supply of fermenting materials in a warm state fit for immediate use: now that leaves are obtainable this matter should not be neglected. Under favourable conditions continue to ventilate freely frames which contain *Radishes*, *Cauliflowers*, *Lettuces*, &c., and keep up a supply of *Mustard* and *Cress* and *Australian Cress* according to the demand. *G. T. Miles, Wycombe Abbey Gardens.*

Enquiries.

He that questioneth much shall learn much.—BACON.

79. JOSEPHINE DE MALINES PEAR.—*J. M.* asks if the Josephine de Malines Pear requires a different soil to other Pear trees. He has a young tree growing amongst others on which the leaves look unhealthy, and fall off in summer, yet the tree makes strong shoots: all the other trees are doing well.

Answers to Correspondents.

*** Professor Reichenbach requests us to state that, on his return from Italy, he found the dried contents of an English tin box, containing Cœlogyne speciosa, Lindl.; Bulbophyllum umbellatum, Lindl.; Oncidium reflexum, Lindl. No numbers, no initials, no reference were given, the handwriting of the address was unknown to him, and the post-office stamp obsolete.

ADIANTUM FARLEYENSE AND THE DOUBLE PRIMULA: *J. O.* The first-named is sometimes fertile, but does not reproduce the cristate state for which the variety is so much prized. Some of the semi-double Primulas produce seed.

AVENUE TREES: *W. Mount.* Almost any ornamental deciduous trees will answer the purpose—Planes, Limes, White Poplar, Norway Maple, Aspen, such Elms as the Jersey or Huntingdon, the Horse Chestnut, the Tulip-tree, or Robinia Bessoniana. For the interior some of the Conifers would be more appropriate.

BOOK FOR A YOUNG GARDENER: *A. B.* Thompson's *Gardener's Assistant* (Blackie & Co.). A new edition is, we believe, in preparation, and we would recommend you to wait until it is published. In the meantime you would do well to get a copy of Lindley's *Theory and Practice of Horticulture* (Bradbury, Agnew & Co.).

BOOKS: *Glaucus. Thomson on the Grape Vine* (Blackwood).

BORAGE: *J. B.* Received with thanks, and in preparation.

DRACÆNAS: *H. J. C.* There is no special difficulty in fertilising Dracænas, only as the flowers are small they need very delicate manipulation.

GRASSES: *Hoy.* Consult the Seed Catalogues, which will shortly be issued in abundance. Those of the larger firms always contain a good selection.

MEALY BUG ON VINES: *A. D.* "Being a gardener of some experience," what a happy man you must have been up to now—never having had to deal with mealy bug on Vines. We always thought that every gardener of experience knew how to cope with the woolly enemy, and what Gishurst Compound and perseverance would do towards its eradication.

NAMES OF FRUIT: *W. H. Apple:* Fearn's Pippin.—*A. Royle.* Probably Chaumontelle, but fruit much bruised.—*W. S.* Your Grape, No. 1, is Madresfield Court, not Alicante; No. 2 is West's St. Peter's.—*Wm. Francis. Apples:* 2, Gravenstein; 3, Cox's Orange Pippin; 5, King of the Pippins. *Pears:* 1, Vicar of Winkfield; 6, Huyshe's Victoria.—*Nemo. Apples:* 1, Cellini; 2, Court of Wick; 3, Christie's Pippin. *Pear:* 2, Catillac.—*John Dimmick.* Your Pear is Calebasse Bosc.—*A. C. Pear:* Beurré Clairgeau; it can be procured at any nursery.—*A. B. H. C. Pear:* Beurré Superfin.—*Z. Apple:* Winter Strawberry.—*W. P. Pears:* 1, Beurré Diel; 2, Beurré Rance; 3, Passe Colmar; 5, 10, 11, 12, 16, and 17, Glou Morçeau; 6, Louise Bonne of Jersey; 7, 8, and 9, White Doyenné; 13 and 15, Easter Beurré; 14 and 18, Beurré Superfin; 19, Beurré Bosc.—*Thomas J. Jones. Apples:* 2, Beauty of Kent; 3, Court of Wick; 9, Sam Young; 23, Hawthornden. *Pears:* 5 and 11, Easter Beurré; 8, Swan's Egg; 14, Glou Morçeau; 15, rotten; 18, Beurré Rance; 19, Duchesse d'Angoulême.—*A. J. Sanders. Apples:* 2, Court of Wick; 5, Dutch Mignonne. *Pears:* 1, Ne Plus Meuris; 2, smashed; 3 and 4, Beurré Rance; 5, Vicar of Winkfield; 6, Glou Morçeau.—*J. Heaman. Apples:* 6, Hollandbury; 7, Kerry Pippin. *Pears:* 1, Beurré Diel; 2, Althorp Crassane; 4, Figue de Naples; 5, Beurré de Capiaumont. *Plum:* Coe's Late Red.—*J. Oldham. Apple:* Dutch Fullwood.—*H. & Co.* Your Apple is Kerry Pippin.—*Agher.* Your Pear, when received, was quite rotten.

NAMES OF PLANTS: *Cook's Ferry.* The plant which grows close by the edge of the Thompson River, British Columbia, and the fibre of which, after maceration, the Indians use for their finest fishing-lines, is Asclepias Douglasii.—*Sir W. C. T.* Bupleurum fruticosum.—*G. Channing.* 1, Fagus sylvatica, var. heterophylla; 2, probably Tilia alba, Ait., N. America, not the European T. alba, but we have no herbarium specimens of it; if you will send flowers in the spring we can then make certain of the name.—*Miller.* We really cannot undertake to name plants from such scraps. There are some 300 or more species of Eucalyptus, and "Miller" sends a single leaf of one, without any information whatever.—*A. H.* Your Conifer has puzzled us, the more so that the cone is only half-grown; but after a careful comparison with the specimens in the Kew herbarium the nearest we can find to it is Pinus pumilio, var. rotundata. *A. M.—J. Lawrence.* A small form of Adiantum concinnum. — *A. Boyle.* Liriodendron Tulipifera.—*S. P. O.* Cypripedium insigne.—*T. D., Dublin.* The plant you sent is Triticum repens. The Bunch-grass is Elymus condensatus—*J. C. R.* 1, Polygala Chamæbuxus; 2, Vaccinium Vitis-Idæa; 3, We are unable to name: send it again when in flower.

OIL FOR A SMALL STOVE: *J. E. H.* Paraffin.

PINES: *W. P. Hill.* No.

ROSE TREES: *A. D.* Dust the stems when damp with sifted wood ashes. We should think the Briar would suit your district best. How does it grow in the hedge-rows?

SEEDLING PEAR: *G. Swailes.* Your seedling Pear is of the true Bergamot character, highly perfumed. The flesh is somewhat too gritty and wanting in juciness to be esteemed amongst our present large supply of much superior sorts.

STOVES: *A. D.* 1, Yes; 2, No—not if judiciously used.

VARIEGATED CRESS: *J. E. H.* Barbarea vulgaris variegata.

COMMUNICATIONS RECEIVED.—G. B.—J. M.—H. W. A.—J. Hill.—D.—F. D.—G. L. R.—J. T. B.—R. Wrench.—R. P.—W. T. T.—H. N. E.—J. A. B. & Co.—T. C.—J. B.—J. O.—R. Warner (next week).—S. H.—W. E.—E. M.—H. J. V. (many thanks).—H. E.—J. T. H.—J. G.—J. Sadler.—R.—J. M. G.—W. G. S. (the hieroglyphic too obscure, but will be made plainer shortly).—C. L. (with thanks).—J. D.—H. W.—W. W. S.—G. S. (Milan).—M. L.—C. W. D.—W. F. (Isle of Man).—C. P. (with thanks).—S. P. O.—L. L. (Queensland).—Constant Reader.—G. B. W.—C. E.

*** IMPORTANT NOTICE.—*On and after the 6th of* DECEMBER *the* AGRICULTURAL GAZETTE *will be* PUBLISHED *on* MONDAYS, *in time for the Evening Mails, containing a Full Report of the London Markets, and of all other Agricultural Intelligence up to the hour of going to press.*

Markets.

COVENT GARDEN, November 18.

A more varied supply of imported fruits is now coming into the market, such as New Town Pippins, Tangierine Oranges, Lady Apples, Pomegranates, Prickly Pears, Bananas, and Medlars, together with a large supply of St. Michael Pines, direct from the island, which have been sold at low prices. Among English Apples we are now receiving large quantities of Blenheim Oranges, which are realising fair prices considering the crop. A good sprinkling of Kent Cobbs has been placed upon the market, but medium samples have not maintained the value of last week, while high-class goods have been sought after. *Jas. Webber, Wholesale Apple Merchant.*

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0	12 0	Heaths, in var., doz.	12 0	30 0
Bouvardias, do.	12 0	18 0	Heliotrope, per doz.	6 0	12 0
Chrysanthemum, do.	4 0	9 0	Hyacinths, Rom., do.	12 0	30 0
Coleus, do.	4 0	6 0	Mignonette, do.	3 0	6 0
Cyclamen, do.	12 0	24 0	Myrtles do.	3 0	9 0
Cyperus, do.	6 0	12 0	Pelargoniums, dble.,		
Dracæna terminalis	30 0	60 0	per doz.	4 0	12 0
— viridis, per doz.	12 0	24 0	— Scarlet, do.	3 0	9 0
Epiphyllums, do.	18 0	42 0	Primula sinensis, do.	4 0	12 0
Ficus elastica	1 6	7 6	Solanums, do.	6 0	24 0
Fuchsia, per doz.	6 0	12 0	Veronica, do.	4 0	12 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, 12 sprays	1 6	4 0	Narcissus, per dozen	3 0	6 0
Camellias	4 0	12 0	Pelargoniums, 12 spr.	1 0	2 0
Carnations, 12 blooms	1 6	4 0	— Zonal, do.	0 6	1 6
Chrysanthem., 12 bl.	1 0	4 0	Primula, dbl., p. bun.	1 0	1 6
— 12 bunches	4 0	12 0	Roman Hyacinths,		
Cornflower, p. doz. bun.	3 0	6 0	12 sprays	3 0	6 0
Cyclamen, 12 blooms	0 3	0 6	Roses, indoor, p. doz.	2 0	6 0
Epiphyllum, p. doz.	1 0	3 0	— outdoor, 12 bun.	9 0	12 0
Eucharis, per doz.	4 0	12 0	Spiræa, 12 sprays	1 0	3 0
Gardenia, per doz.	4 0	9 0	Stephanotis, 12 sprays	6 0	12 0
Heliotropes, 12 spr.	0 6	1 0	Tuberoses, per doz.	2 0	4 0
Mignonette, 12 bun.	3 0	6 0	Violets, 12 bunches	1 0	3 0

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 6	Oranges, p. 100	6 0	12 0
Cobbs and Filbts., lb.	0 6	0 9	Pears, per doz.	1 0	4 0
Grapes, per lb.	1 0	5 0	Pine-apples, p. lb.	2 0	6 0
Lemons, per 100	6 0	10 0	Walnuts, p. bush.	8 0	12 0
Melons, each	2 0	5 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Herbs, per bunch ..	0 2	0 4
— Jerusalem, p. lb.	0 3	..	Horse Radish, p. bun.	3 0	5 0
Asparagus, per bund.	30 0	40 0	Leeks, per bunch ..	0 2	0 4
Beans, Scarlet Runners, per lb. ..	0 6	..	Lettuces, per score..	2 0	..
— French, per 100	2 0	3 0	Mint, per bundle ..	0 4	..
Beet, per doz. ..	1 0	2 0	Mushrooms, per pott.	1 0	2 0
Brussels Sprouts, lb.	0 4	..	Onions, young, bun.	0 4	0 6
Cabbages, per doz. ..	1 0	2 0	Parsley, per bunch..	0 4	..
Carrots, per bunch..	0 6	..	Radishes, per bunch.	0 2	0 4
Cauliflowers, p. doz.	2 0	4 0	— Spanish, doz. ..	1 0	..
Celery, per bundle ..	1 6	2 0	Salsafy, per bundle..	0 9	..
Cucumbers, each ..	1 0	1 6	Seakale, per punnet..	2 0	3 0
Endive, per doz. ..	1 0	2 0	Shallots, per lb. ..	0 3	..
— Batavian, p. doz.	2 0	3 0	Tomatos, per doz. ..	1 0	2 0
			Turnips, per bundle.	0 4	..

Potatos—Rocks, £5; Regents, £6 to £7; Kidneys, £7 to £8 per ton.

SEEDS.

LONDON: *Nov.* 18.—Extreme dulness now characterises our seed markets. In Clovers of all descriptions there is very little doing, the trade having apparently resolved to await fuller information concerning the new crop before going into stock. There has been some inquiry for fine samples of yearling Trefoil. In Canary seed values show no noteworthy alteration, the high level at which this article has now for so long stood naturally restricts consumption. White Millet, on account of its scarcity, realises high rates: for the small quantity of yearling Hemp seed on the spot an advance of 4*s.* to 5*s.* per quarter is easily obtained: a supply of new seed will shortly be to hand. There is no improvement in the trade for either white or brown Mustard. Rapeseed fully maintains the late rise. Blue boiling Peas do not offer freely. In Linseed the tendency of quotations is upwards. For Konigsburg spring Tares there is a fair demand at full rates. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane, on Monday, prices were rather flat for Wheat, though no actual decline can be quoted, the larger proportion of the produce offered being out of condition, and therefore worth less. Factors, however, were more inclined to sell, and in most of the sales effected buyers had some advantage. Barley was in some instances a little easier. Malt was nominally unaltered. Oats declined from 6*d.* to 1*s.* per quarter, though a moderate inquiry prevailed for sound corn. Maize was pretty steady in tone, and full prices were given for Beans and Peas. The flour market was weak, especially for country marks.—Trade on Wednesday was very slow, and, owing to the bad condition of the produce, prices were somewhat irregular. The few samples of fine dry Wheat offered realised full terms, and choice qualities of Barley were held pretty firmly. Malt was nominally unchanged. Oats were slower where forced for sale, and the value of Maize and flour had a drooping tendency. Beans and Peas were in short supply, and consequently no cheaper.—Average prices of corn for the week ending November 13:—Wheat, 47*s.* 8*d.*; Barley, 38*s.* 7*d.*; Oats, 25*s.* 9*d.* For the corresponding week last year:—Wheat, 43*s.* 9*d.*; Barley, 42*s.* 7*d.*; Oats, 28*s.* 6*d.*

CATTLE.

At the Metropolitan Market on Monday there was a short supply of beasts and the average quality very inferior, prices for choice qualities consequently continued high. In sheep the trade was more active, and prices advanced a little. Choice calves were scarce and dear. Quotations:—Beasts, 4*s.* 4*d.* to 5*s.* 4*d.* and 5*s.* 10*d.* to 6*s.* 4*d.*; calves, 4*s.* 8*d.* to 6*s.* 8*d.*; sheep, 6*s.* to 6*s.* 4*d.* and 6*s.* 10*d.* to 7*s.* 4*d.*; pigs, 4*s.* 4*d.* to 5*s.* 8*d.*—Trade was dull for beasts on Thursday, and Monday's figures were not quite realised on the average. The demand for sheep was small, and in the face of a large supply prices had to give way and a clearance was not effected.

HAY.

The Whitechapel report states that all classes of fodder were in fair supply and request, with rates ruling as follows:—Prime Clover, 100*s.* to 157*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 140*s.*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 50*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 130*s.* to 140*s.*; inferior, 90*s.* to 110*s.*; superior Clover, 150*s.* to 160*s.*; inferior, 115*s.* to 130*s.*; and straw, 46*s.* to 52*s.*

POTATOS.

The Borough and Spitalfields markets report states that trade has been steady, and full rates given for all sound Potatos, the supplies of which were moderate:—Kent Regents, 115*s.* to 125*s.*; Essex ditto, 100*s.* to 120*s.*; Victorias, 110*s.* to 140*s.*; rocks, 80*s.* to 90*s.*; flukes, 120*s.* to 135*s.*; kidneys, 100*s.* to 120*s.* per ton.—The arrivals of foreign Potatos into London last week consisted of 5545 bags and 18 packages from Antwerp, 603 bags 34 packages and 16 casks from Rotterdam, 1362 bags 112 sacks and 2 cases from Hamburg, 7334 bags from Harlingen, 189 tons from Caen, 75 tons from St. Malo, 140 tons from Dahouet, 1561 bags and 641 sacks from Dunkirk, 1060 bags from Bremen, 90 sacks from Boulogne, 600 bags from Rouen, and 497 bags from Brussels.

COALS.

The market on Monday was flat, and house coals fell 1*s.* per ton. Wednesday's market was fully supplied with house coals, and sellers had to give way 1*s.* per ton. Quotations:—Hastings Hartley, 20*s.* 3*d.*; Walls End—Hetton, 22*s.* 6*d.*; Hetton Lyons, 20*s.* 3*d.*; Hawthorn, 20*s.* 3*d.*; Lambton, 22*s.*; Newbottle, 19*s.*; South Hetton, 22*s.* 6*d.*; Tunstall, 20*s.* 3*d.*; Hartlepool, 22*s.*; Kelloe, 20*s.* 6*d.*; East Hartlepool, 22*s.* 3*d.*

QUEENSLAND.—Intending Emigrants to Queensland are specially requested to note that the *Western Monarch*, leaving London on November 30, is the last ship this year for Brisbane.

For Free or Assisted Passages apply to the Agent-General for Queensland, 32, Charing Cross, London, W.C.

GOVERNMENT EMIGRATION.

SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s.*

NOTICE.—The next Ship, "Earl Dalhousie," will sail from Plymouth on the 15th of this month. For passages and further information apply to the AGENT-GENERAL, 3, Westminster Chambers, Victoria Street, S.W.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

WATSON'S PATENT PORTABLE BOILER STOVES, also GAS STOVES for Small Greenhouses, Conservatories, Offices, Workrooms, &c. Prize Medals awarded, International Exhibition and Birmingham; First-class Certificates, Manchester, York and Leeds.

London Agents: HASKELL AND CO., 280, Oxford Street, London, W. Prospectus for stamp.

READ BROS., Sole Manufacturers, St. Albans, Herts.

LAWN SWEEPING, COLLECTING, and ROLLING MACHINE, Patented.—Worm-casts are Rising, Leaves are Falling, Sweeping and Rolling is now the order of the day, and working the above Saves the Labour of Three Men. Illustrated Price Lists on application.
SINCLAIR AND CLAYTON, Ripley, Leeds.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

Metallic Hothouse Builder to Her Majesty.

HENRY HOPE (late Clark & Hope, formerly Clark), HOTHOUSE BUILDER and HOT-WATER APPARATUS ENGINEER,
55, Lionel Street, Birmingham. Established A.D. 1818.
BOOKS of DESIGNS, 5*s.* each.

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ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS'S Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,
THOMAS ROBERTS, 112, Victoria St., Westminster, S.W.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.

HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

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Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

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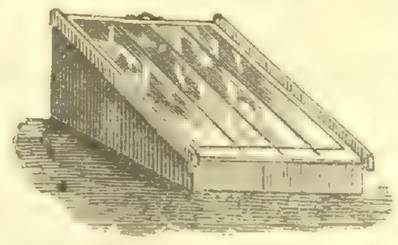

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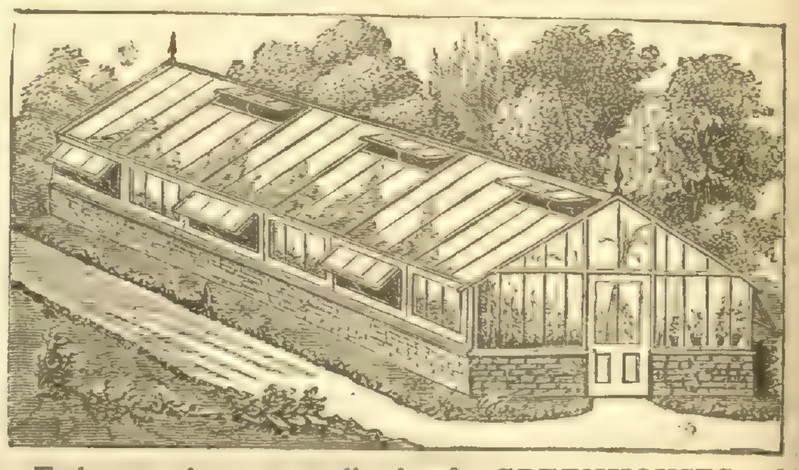

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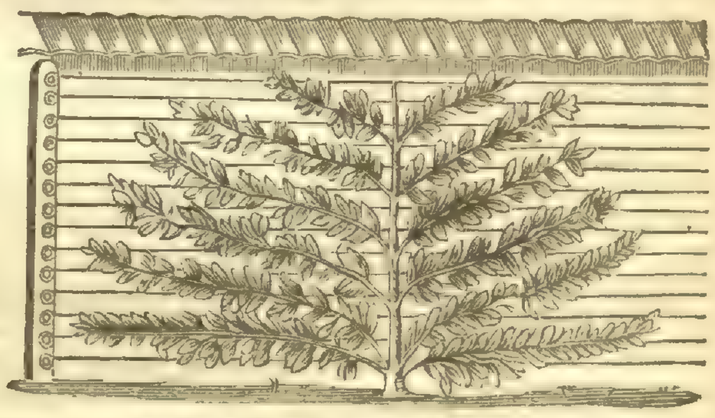


R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

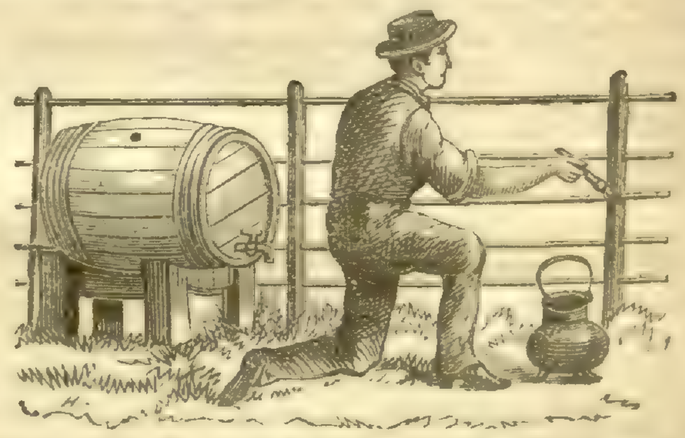
For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.

For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.

Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

Oil Paint No Longer Necessary.



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Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any Station in the Kingdom.

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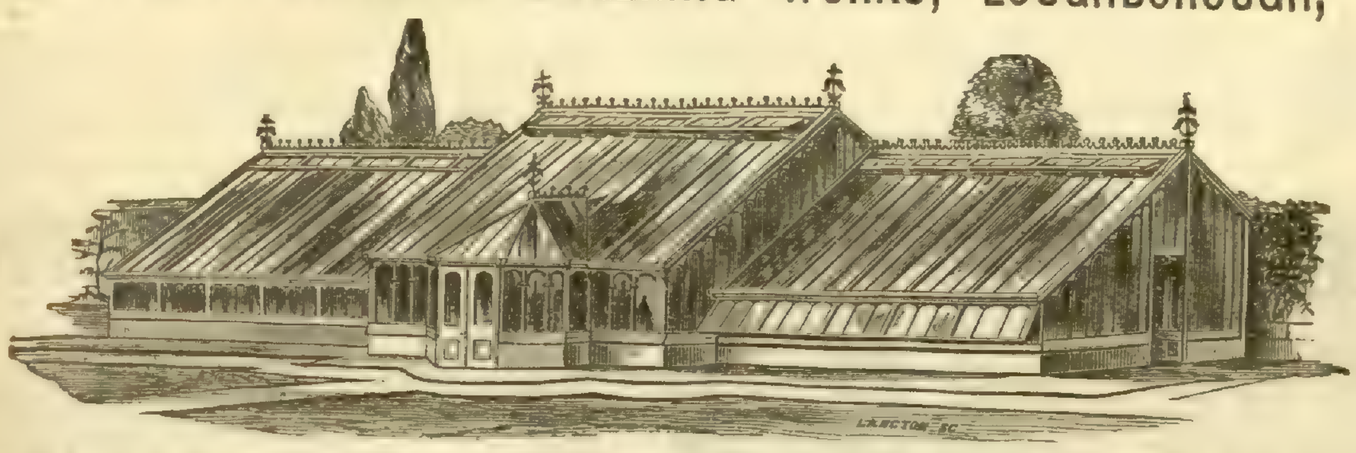
Apply to HILL AND SMITH, Brierly Hill Ironworks, near Dudley; and 118, Queen Victoria Street, London, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

MESSENGER & COMPANY,

CONTRACTORS, MIDLAND HORTICULTURAL BUILDING AND HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH,



Beg to inform their numerous Patrons and the Public generally, that having erected new, more extensive, and commodious works, fitted with the best steam-power machinery, for the construction of Horticultural Buildings in wood or iron, plain or ornamental, large or small, they are in a position, from their great facilities and experience, to carry out with dispatch, in the best manner, at very moderate cost, the orders with which they are entrusted. Only thoroughly well-seasoned timber used. Glasshouses erected on Messenger's patent principles are, owing to mechanical arrangements, very strong, *most durable*, light, *elegant; perfect efficiency* for purpose intended is *guaranteed;* are economical in cost and maintenance. Messenger's Patent Boilers, Flexible Jointed Hot-water Pipes and Valves, are now in use in many thousands of instances, with the greatest success. Particulars on application.

Plans and Estimates forwarded. Ladies and Gentlemen waited upon. The Plans of Architects and others carried out.

Richly Illustrated CATALOGUE post free for 33 Stamps. Illustrated CIRCULAR free.

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THE BEST and CHEAPEST Portable Hot-water CIRCULATING BOILER

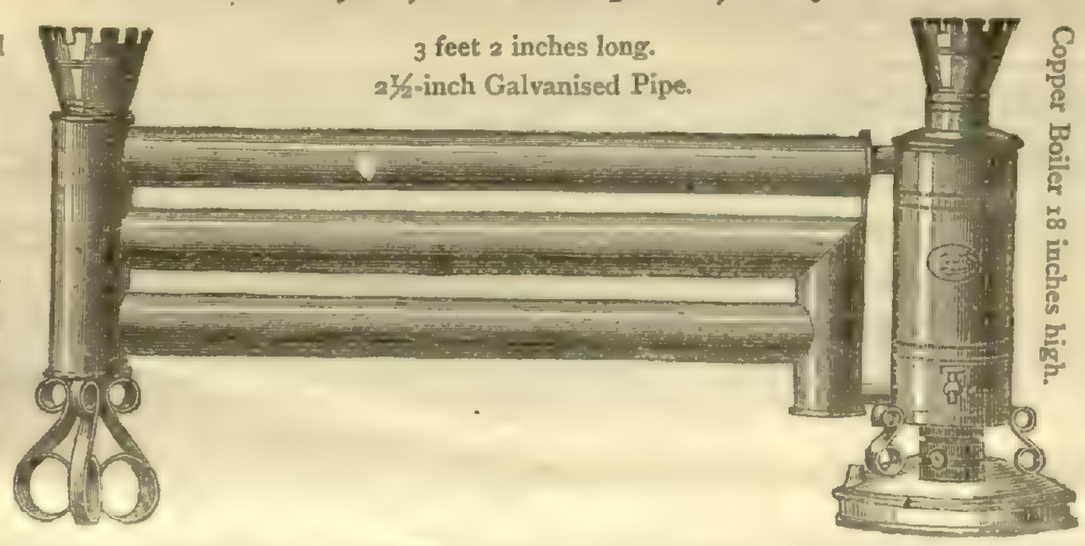
EVER OFFERED TO THE PUBLIC.

To Burn Petroleum Oil, or, when required, may be Heated by Gas.

Made in several sizes—

SAFE, EFFECTIVE, ECONOMICAL, AND PORTABLE.

Suitable for Warming Small Entrance Halls, Conservatories, Bed Rooms, Offices, Saddle Rooms, Ship's Cabins, &c.



There is no smell, smoke, dust or danger in using this Apparatus. It will burn for THIRTY HOURS without attention, at a cost of less than ONE FARTHING per hour.

For Drawings, Price List and Addresses of Agents, apply, enclosing *2d.* in stamps, to

HEAPS & WHEATLEY, Aire and Calder Stove Works, BROTHERTON, YORKSHIRE.

Inventors, Patentees, and Manufacturers of the "Perfect Cooking Stove."

☞ HEAPS & WHEATLEY have been awarded Prize Medal for the Special and General Utility of their Portable "Perfect Cooking and Heating Stoves," at the Yorkshire Exhibition.

BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities, of

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B. & S. have always a large Stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., in 16 oz. and 21-oz.

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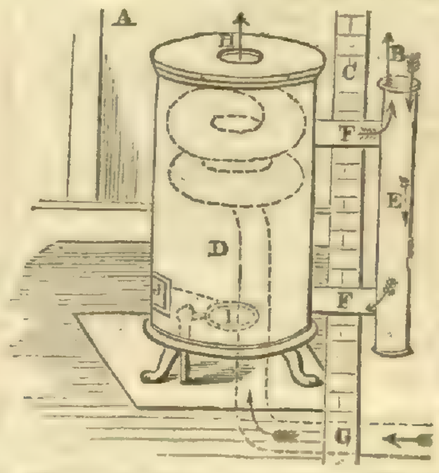
FOR

Warming and Ventilating Small Conservatories.



The only Gas Stove in which the product of combustion is entirely excluded from the Conservatory.

Made in Wrought Iron, £3 3s.

Made in Copper, £5.

Height, 28 inches; diameter, 14 inches.

It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).

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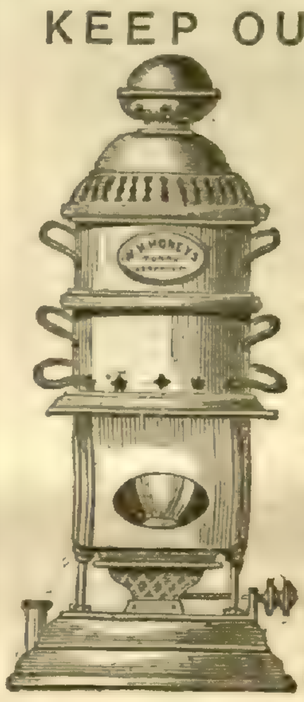

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Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

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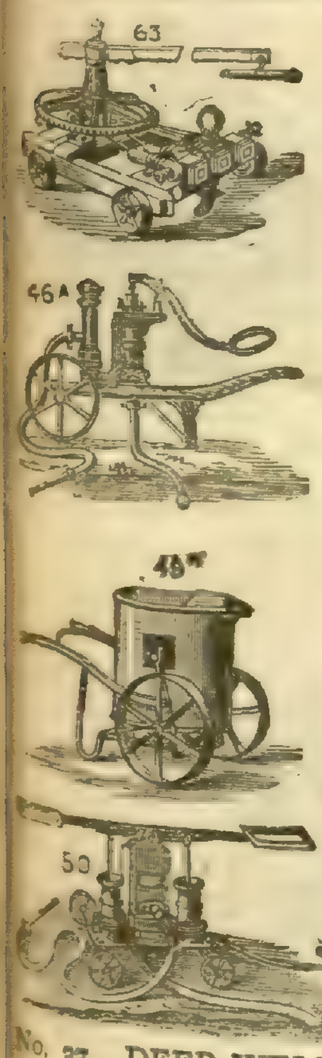

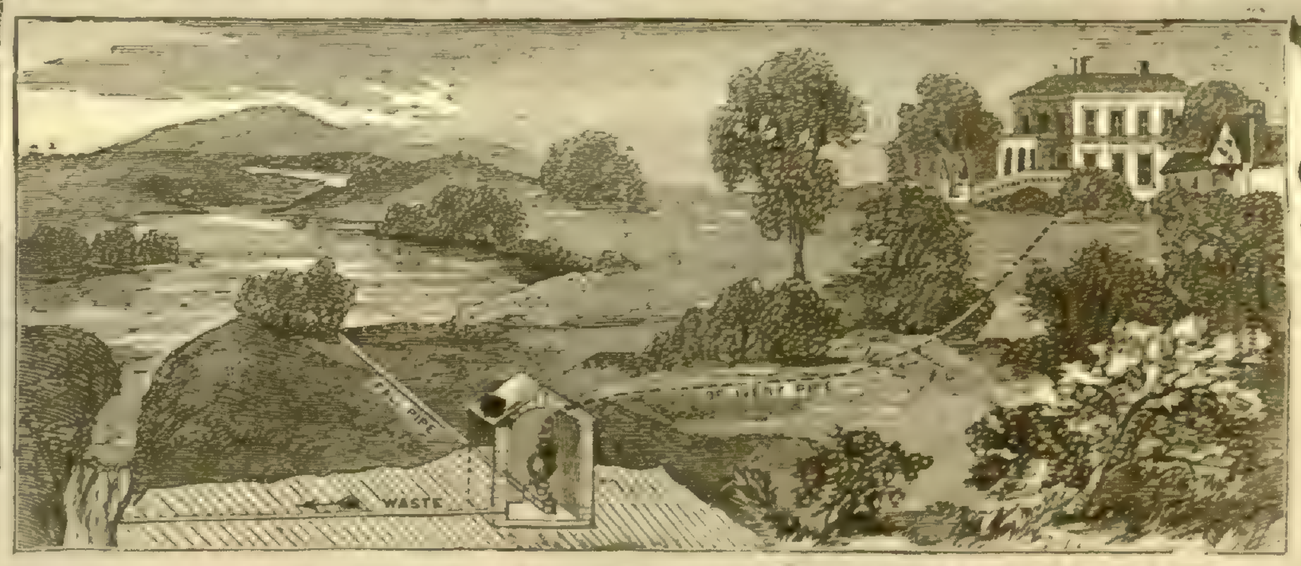

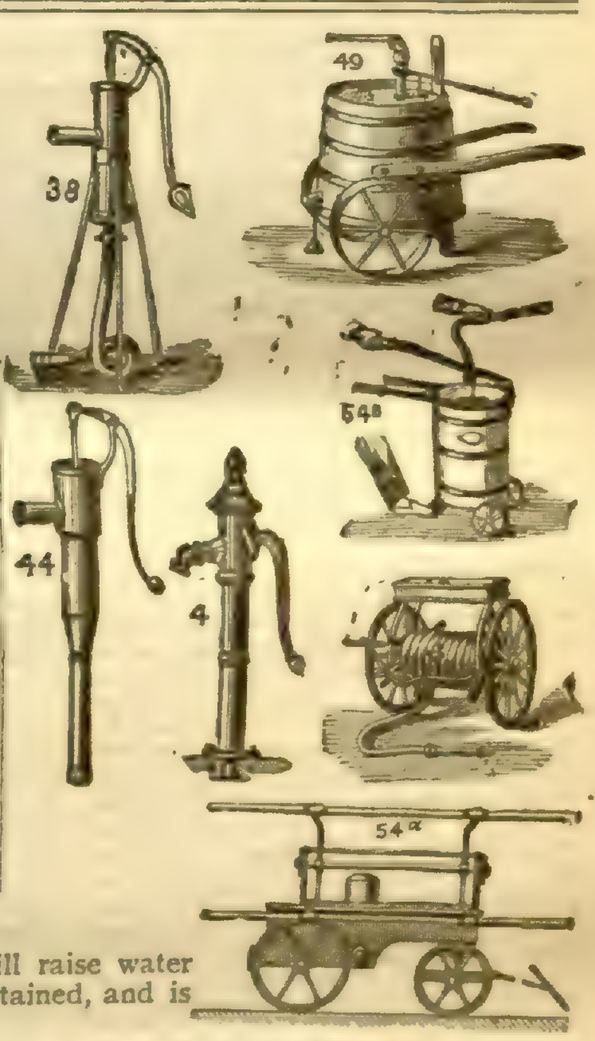

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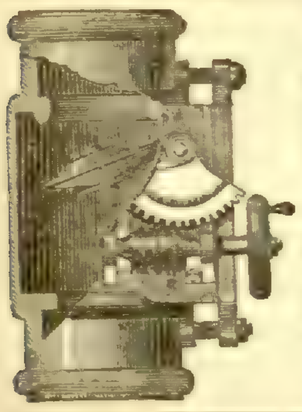

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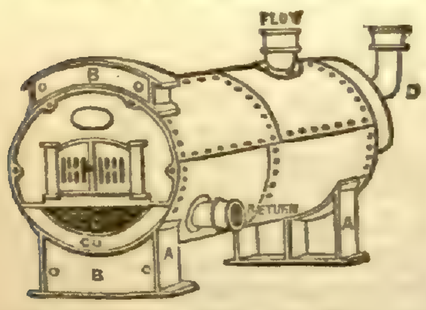

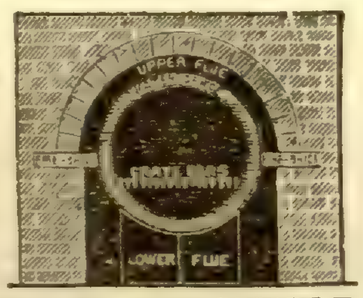

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Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

☞ Our Boilers are the ONLY ones made with the sanction and under the inspection of the inventor, Mr. Stevens — all others being base imitations.

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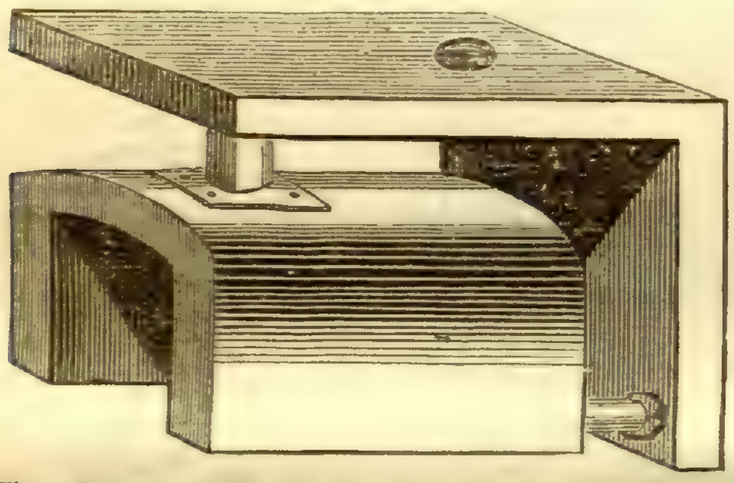

These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought iron, are not liable to crack. They are made of the following sizes:—

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20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries, Balham Hill, S.W., May* 29, 1873.

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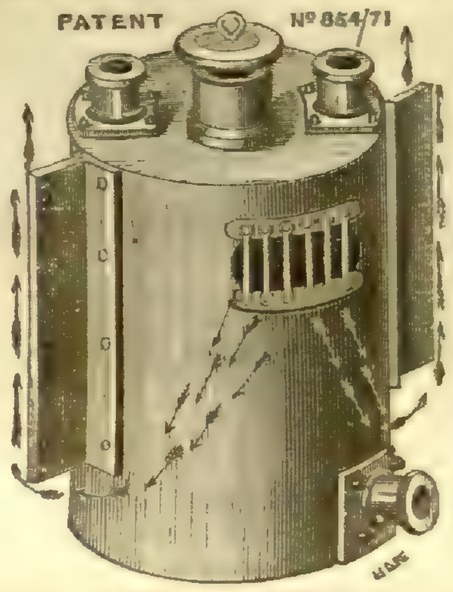
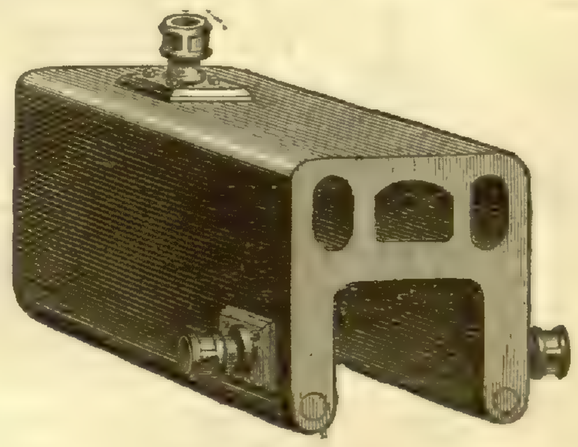


("EXCELSIOR" BOILER.)



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IMPORTANT NOTICE.

The next number of the AGRICULTURAL GAZETTE *will be* PUBLISHED *on* MONDAY, December 6, *in time for the Evening Mails, containing a Full Report of the London Markets, and of all other Agricultural Intelligence up to the hour of going to press.*

ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.
NOTICE.—FRUIT and FLORAL COMMITTEES' MEETINGS, on WEDNESDAY NEXT, December 1, at 11 o'clock. GENERAL MEETING at 3 o'clock. Admission 1s.

ROYAL HORTICULTURAL SOCIETY.
South Kensington, S.W.
NOTICE.—It being advisable in view of sundry objections offered to the Circular of November 3 that a SPECIAL GENERAL MEETING of the Fellows of the Royal Horticultural Society be called—a Meeting will accordingly be held in the Council Room, South Kensington, on THURSDAY, December 9, at 3 o'Clock P.M., for the purpose of explaining the scheme of the Council and of giving the Fellows an opportunity of stating their opinion on its details.
The President trusts that it will be convenient for Fellows to attend, as the subject to be discussed is of the greatest importance to the interests of the Society.

SMITHFIELD CLUB CATTLE SHOW.
Agricultural Hall, Islington, N.
MONDAY, December 6, at 2 o'Clock P.M. Admission Five Shillings.
TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY at 9 o'Clock A.M. Admission One Shilling.

A GRAND INTERNATIONAL HORTICULTURAL EXHIBITION will be held in Parker's Square, and Drill Hall, DUNDEE, on SEPTEMBER 7, 8, and 9, 1876. ONE THOUSAND POUNDS offered as Prize Money. Open to all competitors free.
Prize Schedules may be had from JAMES HARDIE, 73, Nethergate, Treasurer; and WM. R. McKELVIE, 26, Euclid Crescent, Secretary.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c. Free by post for one stamp.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

HANDSOME BEARING MULBERRIES.—One hundred to select from, 800 smaller sizes in stock. Apply to WOOD AND SONS, 172, Old Kent Road, S.E.

Mulberries, Mulberries.
PONSFORD AND SON can supply the above by the dozen, 100, or 1000. Prices on application to Loughborough Park Nurseries, Brixton, Surrey.

Splendid New Apple,
LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, 3s. 6d. each, 21s. for seven; 2-yr. plants, 5s. to 7s. 6d. each.

To the Trade.
DWARF-TRAINED PEARS.—All the best leading kinds, both as Horizontal and Fan-trained. Magnificent Trees—cannot be excelled. Price moderate.
FRANCIS & ARTHUR DICKSON & SONS, "Upton" Nurseries, Chester.

Pyramidal Pears.
H. LANE AND SON have a large stock of transplanted bearing Trees of all the leading kinds to offer at a reduced price, as the ground must be cleared by Christmas.
The Nurseries, Great Berkhamstead, Herts.

Well Transplanted Forest Trees.
LARCH, OAK, POPLAR, LIMES, SPRUCE, &c. Samples and prices on application,
W. JACKSON AND CO., Nurseries, Bedale.

LARCH, fine, 2 to 2½ feet, 25s.; SCOTCH, 1½ to 2 feet, 14s.; SPRUCE, 1½ to 2 feet, 14s.; OAK, 4 to 5 feet, 25s. per 1000; Green HOLLY, with leaders, 1 to 1½ foot, 15s. per 100; Standard ROSES, fine, 70s. per 100. Samples free.
H. JACKSON, Nursery, Kidderminster.

Green Screens, for Shutting Out Unsightly Objects.
LOMBARDY POPLARS, fine large, 20 to 30 feet high, 3s. to 5s. each. Delivered on Rail.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

BEECH—3 to 3½ feet (well-rooted), 7s. 6d. per 1000. PORTUGAL LAURELS, AUCUBAS, LAURUSTINUS, HOLLIES, and other Shrubs to offer, cheap. Special Trade LIST upon application.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

BEECH, BEECH, BEECH—2 to 3 feet, and 3 to 3½ feet, well rooted, at 7s. 6d. per 1000.
LAURUSTINUS, splendid stuff, 2½ to 3 feet, bushy and well rooted, 25s. per 100.
SAMUEL BALE, Westacott Nursery, Barnstaple.

SPRUCE FIR, fine specimens, 4 to 10 feet; AUSTRIAN PINE, specimens, 4 to 6 feet; LARCH, 2 to 3½ feet; ASH, PURPLE BEECH, WEEPING ASH, &c. W. GROVE, Tupsley, Hereford.

To the Trade.
ASH, 1-yr Seedling, 1s. per 1000, 90s. per 100,000, on application to
THOMAS PERKINS, 42, Drapery, Northampton.

Novelties.
NEW SWEET-SCENTED RHODODENDRONS now offered for the first time, the most novel and beautiful ever raised. NEW INDIAN AZALEAS and a fine collection of AZALEA MOLLIS. A Descriptive Priced LIST forwarded to any address on application to
ISAAC DAVIES, Nurseryman, Ormskirk.

QUEEN PINE SUCKERS, 100 clean and healthy for Sale. Address,
HORTUS, British Workman, High Street, Wandsworth, S.W.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium.
CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.
Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

CHRYSANTHEMUMS. — Choice rooted cuttings, 4s. per dozen. Early orders will greatly oblige.
CATALOGUE on application to
V. LANGLOIS, Nurseryman, 92, St. Saviour's Road, Jersey.

T. VANDER SWAELMEN, NURSERYMAN, Gendbrugge, Ghent, Belgium, offers, at the lowest price, a nice collection of the finest LILIES, from California, Caucasus, and Japan; also a large quantity of SPIRÆA JAPONICA, at 12s. per 100.
Priced CATALOGUE post free upon application.

To the Trade.
OUR LIST of NOVELTIES of sterling merit only is now ready, and may be had on application to
F. SANDER AND CO., Seed Growers, St. Albans.

STUART AND CO., SEED GROWERS, Nice, France: London Offices—5, Tavistock Row, Covent Garden, W.C.
TRADE CATALOGUE, containing all the leading Novelties of the Season, and other choice Seeds, is now in the Press, and will be forwarded shortly, or sent post free on application.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., having a large stock of unusually fine and sound DUTCH BULBS, will be pleased to submit Special Prices to Buyers on application.

Bulbs.—To Nurserymen and Others.
HYACINTHS.—To be Disposed of, a Bargain, about 1000 Hyacinths, good named sorts; also a few thousand CROCUS, &c. For particulars address
W. S., 299, Goswell Road, E.C.

To the Trade.
DEUTZIA GRACILIS, DEUTZIA GRACILIS.
JOHN PERKINS AND SON beg to offer fine strong plants of DEUTZIA GRACILIS, at 20s. per 100, fine for potting.
Address—52, Market Square, Northampton.

WANTED, CUTTINGS of SERICOGRAPHIS GHIESBREGTIANA. State number and price per 100 to
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

WANTED, HOLLY, YEW, and PORTUGAL LAUREL BERRIES, OAK ACORNS, and BEECHMAST. Lowest cash prices to
D., *Gardeners' Chronicle* Office, W.C.

WANTED, 30,000 LARCH, 2 feet high.
Send sample, with price, to
J. CLOUD, Nurseryman, Monmouth.

Fruits.—Roses.
A. M. C. JONGKINDT CONINCK'S Wholesale TRADE LIST of FRUITS and ROSES is now ready, free on application.
Large quantity of home-grown, very sound bulbs of LILIUM AURATUM.
Tottenham Nursuries, Dedemsvaart, near Zwolle, Netherlands.

WM. POTTEN can still supply FRUIT TREES and ROSES, as advertised in the *Gardeners' Chronicle*, Nov. 6. W. P.'s LIST will be sent to all applicants.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

To the Trade.
DWARF ROSES, splendid Plants, and good leading varieties, 30s. per 100; Standards, fine heads, 90s. per 100. CYCLAMENS and EPIPHYLLUMS, beautiful plants, just coming into bloom, 9s. and 12s. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

THE MILE ASH ROSES are recommended as specially hardy and healthy. The plants are superb this season. LIST free on application.
EDWIN COOLING, Mile Ash Nurseries, Derby.

ROSE SHOWS, 1875.—50 First Prizes, 25 Guinea Silver Challenge Cup, and other Premier Prizes. See Cranston & Mayos' DESCRIPTIVE ROSE CATALOGUE for 1875. Address,
CRANSTON'S Nurseries, King's Acre, Hereford.

Standard Roses.
H. LANE AND SON have a very large Stock to offer, Wholesale and Retail.
Priced CATALOGUE Free on application.
The Nurseries, Great Berkhamstead, Herts.

The Oxford Roses, on Cultivated Seedling Briar.
GEORGE PRINCE'S Priced and Descriptive CATALOGUE now ready. All Roses are grown exclusively on the above stock at this establishment.
14, Market Street, Oxford.

To the Trade, &c.
ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Roses, Fruit Trees, &c.
WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
The Ottershaw Nursery, Chertsey.

Roses.
CHARLES TURNER'S carefully prepared CATALOGUE is now ready, and may be had on application. The stock, of all heights, is very large and most healthy.
The Royal Nurseries, Slough.

Special Culture of Fruit Trees and Roses.
THE DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS (by Thomas Rivers) is now ready; also CATALOGUE of Select ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

BOX EDGING—10,000 nursery yards, at 2½d. per yard, or £9 per 1000; 100,000 CABBAGE PLANTS, at 2s. 6d. per 1000. Cash with order.
J. B. YOUNG, Landscape Gardener, Bridge of Allan.

NEW ENGLISH CATALOGUE.—Extract of my German General Catalogue, for Agricultural, Vegetable, and Flower Seeds, is now ready, and to be had post free on application.
MARTIN GRASHOFF, Seed Merchant, Quedlinburg, Germany.

Fruit Trees.
CHARLES TURNER'S DESCRIPTIVE CATALOGUE for the present season is now ready, and may be had on application. The Trees are extra fine this season. The Royal Nurseries, Slough.

Mangel and Swede.
JOHN SHARPE can furnish, on application, his quotations for the choicest Stocks of the above, selected and grown by himself.
Bardney Manor, Lincoln.

RHUBARB.—Baldry's Scarlet Defiance, Linnæus and Prince Albert, extra fine stools, £1 per 100, £8 per 1000.
F. SANDER AND CO., Seed Growers, St. Albans.

To the Trade.
SEED POTATOS.—AMERICAN EARLY ROSE and EXTRA EARLY VERMONT. Price per ton on application to
MINIER AND CO., 60, Strand, W.C.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

SALES BY AUCTION.

Exeter.

HIGHLY IMPORTANT SALE of an unusually large and choice Collection of SPECIMEN CONIFERÆ and EVERGREENS and also of an immense quantity of younger stock, at Messrs. Lucombe, Pince & Co.'s Nurseries.

MESSRS. PROTHEROE AND MORRIS beg to announce that this great SALE, which commenced on Tuesday last, will be continued on MONDAY, TUESDAY, and WEDNESDAY NEXT. No reserve whatever. Now on view, and Catalogues had.

Dutch Bulbs.—Extensive Consignment of the finest named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, GLADIOLUS, &c., for absolute Sale, lotted to suit the Trade and Private Buyers.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on MONDAY next, at the Mart, Tokenhouse Yard, E.C., at half-past 11, about 700 lots of the above.

On view morning of Sale, and Catalogues had.

EXTRAORDINARY GREAT SALE of NURSERY STOCK, November 23 and nine following days.—By order of the Executors of the late Mr. John Standish.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to submit for unreserved SALE by AUCTION, on the Premises, the Royal Nurseries, Ascot, Berks, opposite Ascot Grand Stand, the Valuable NURSERY STOCK, ranging over 80 Acres, consisting of the extensive and extraordinary rich assortment of Evergreen, Coniferæ, and Deciduous Shrubs, varying all sizes, including many thousands of specimens which have been transplanted within the last eight months, and are adapted for immediate effective purposes; also millions of smaller stock too numerous to specify; 20,000 Green and Variegated Hollies, 15,000 common and other Laurels, 4000 Aucubas, 20,000 Berberis, 1000 Euonymus, 1000 Cedars, 600 Yews, 3000 Ligustrum ovalifolium, 1000 Wellingtonias, 1000 Abies, 2000 Piceas, 17,000 Cupressus, 1500 Thujopsis borealis, 2000 Thujas, 2500 Junipers, 10,000 Retinosporas, 100,000 choice named Hybrid and Pontica Rhododendrons, 18,000 Apples, Pears, Plums, and other Fruit Trees, 7000 Gooseberries and Currants, 40,000 Spruce and other Firs, 10,000 Roses, collection of Clematis and other Climbers, &c.

Sale to commence punctually at 12 o'Clock each day, luncheon for intending purchasers at 11.30. Goods may be transmitted from Ascot Railway Stations to all parts without change of truck.

Now on view. Catalogues had on the Premises; at the "London," 22, St. George's Place, Knightsbridge; and of the Auctioneers.

Ascot, Berks.

By order of the Executors of the late Mr. John Standish.
Important to the Nobility, Gentry, Trade, and Others largely Engaged in Planting.

MESSRS. PROTHEROE AND MORRIS are requested to announce that this extraordinarily Great and Unreserved SALE of NURSERY STOCK will be continued during the whole of next week, commencing each day at 12 o'Clock punctually. Luncheon at half-past 11 o'Clock. Sale to commence at 12 o'Clock punctually.

Now on view. Catalogues may be had at the Estate Offices, 98, Gracechurch Street, E.C., and on the premises.

Spring Flowering Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, Importations of first-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, GLADIOLI, and other BULBS, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

Lilies and Other Roots.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on TUESDAY, November 30, at half-past 12 o'Clock precisely, nearly 5000 MISCELLANEOUS BULBS and TUBEROUS-ROOTED FLOWERS, including forty kinds of Lilies from Japan, Peru, California, Bolivia, North America, and other localities, and the following among them :—

Doryanthus Palmeri	Coburgia of sorts
Spigelia splendens	Tree Pæonies
Gastronema sanguineum flammea	Gladiolus dracocephala
Amaryllis pardina	Dielytra spectabile alba
,, ,, purpurea	Hardy Cyclamens
,, procera	Anemone fulgens
Godwinia gigas	Iris Kæmpferi, fine
Iris iberica	Griffiana of sorts
Colchicum album plenum, pure white	Eurycles amboinensis
Anthericum liliastrum major, fine	Hæmanthus, in varieties
American hybrid Lily, Melpomone	Ismene of sorts
	Curcuma of sorts
	Lilium tenuifolium
	,, pulchellum
	Gloriosa of sorts

Those which are hardy for the Flower Garden are distinguished separately in the Catalogue.

On view morning of Sale, and Catalogues had.

Lilium auratum, just arrived from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 30, 5000 fine BULBS of LILIUM AURATUM, just arrived from Japan, in the best possible condition.

On view the morning of Sale, and Catalogues had.

Guilford Nursery, Whitfield, near Dover.

CLEARANCE SALE of the Valuable NURSERY STOCK.
To Landowners, Builders, Nurserymen, and Others.

MESSRS. WORSFOLD AND HAYWARD have received instructions to SELL by AUCTION, upon the Ground, on THURSDAY, December 2, the whole of the Valuable NURSERY STOCK, comprising 6000 healthy Standard Pyramid and Trained Fruit Trees; over 20,000 Forest Trees, of sorts; 12,000 thriving Evergreen and Deciduous Shrubs and Coniferæ of choice varieties; 3500 first-class Dwarf and Standard Roses; 6000 Fruit Bushes and Canes; several thousand Fruit and Manetti Stocks, &c.

On account of the large number of Lots, the Sale will commence punctually at 10 o'Clock.

The Stock may be viewed the day prior to Sale, and Catalogues had of Messrs. WORSFOLD AND HAYWARD, Auctioneers and Surveyors, Market Square, Dover, and 11, Queen Victoria Street, London, E.C.

Spring Grove Nursery, Isleworth.

CLEARANCE SALE.

MR. WOODS has received instructions from Mr. Trotman to SELL by AUCTION on MONDAY and TUESDAY, November 29 and 30, the land being required for other purposes, the NURSERY STOCK, comprising several thousand Fruit Trees of the most approved kinds, Apples, Pears, Plums, Peaches, and Cherries, Standard and Dwarf Roses, large quantity of fine grown Evergreens and Ornamental Trees, twenty bushels of Double White Narcissus, &c.

On view three days prior to Sale. Catalogues at the Nursery and of the Auctioneer, Hounslow.

The Preston Road Nurseries,

One mile from Yeovil, Somerset.

IMPORTANT SALE of NURSERY STOCK.

MESSRS. CROSS AND SON will SELL by AUCTION, on MONDAY and TUESDAY, December 20 and 21 next, and following day if necessay, the entire and thriving NURSERY STOCK (unless previously disposed of by Private Contract, of which due notice will be given), which comprises a valuable collection of Coniferous and other Plants, Fruit Trees, Standard and Dwarf Roses, hardy and well-rooted Avenue, Park, and other Trees, a large variety of choice Greenhouse Plants, Garden and Agricultural Seeds, Bulbs, &c.

Further particulars in due course.

N.B.—See advertisement below.

Dated, Yeovil, Nov. 18.

THE PRESTON ROAD NURSERIES,

One mile from Yeovil, Somerset.

TO BE LET or SOLD, with Immediate Possession, all that FREEHOLD CLOSE of LAND, now used as Nurseries, pleasantly situate on the Preston Road, in the parish of Yeovil, containing nearly 7 acres, having a southern aspect and commanding extensive views, together with the substantial Dwelling-house, Lawn, Hothouses and Forcing-pits, Seed-stores, and other convenient offices adjoining.

N.B.—Two-thirds of the purchase money may remain on mortgage of the Property.

For Price or terms of letting, apply to Messrs. CROSS AND SON, Auctioneers; or to Messrs. WATTS, Solicitors, Yeovil.

Dated, Yeovil, Nov 18.

To Nurserymen and Florists.

TO BE SOLD, the LEASE (nineteen years), GOODWILL, and STOCKS of the Old Established NURSERY, situated on Knight's Hill, Norwood, comprising a Four-roomed Cottage and Outhouses, Shop, Five Greenhouses, Potting Shed, &c.

For particulars apply at the Nursery.

Surrey.

FOR SALE, a FLORIST'S BUSINESS (19 miles south from Waterloo Station), in a first-rate village for trade. Cash required about £600, or to go by valuation. Apply to

PROTHEROE AND MORRIS, 98, Gracechurch Street, City, E.C.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

TO BE LET (on March 25 next), a first-class LIGHT LAND FARM, of about 570 acres. Situation healthy. Farm in good condition, with excellent house, and all local conveniences, good Markets, &c. For particulars apply to

EDWARD SEARGEANT, Esq., Stafford Old Bank, Lichfield, Staffordshire.

To Potato Salesmen.

THE GUARDIANS of the KINGSTON UNION are desirous of receiving TENDERS for the SUPPLY of POTATOS to the Workhouse from December 30 next to June 24, 1876.

Tenders must contain the various names of each class of Potatos, together with the price per ton thereof.

The person whose Tender is accepted will be required to deliver the Potatos, carriage free, on the Workhouse premises, which are opposite the Norbiton Station, London and South-Western Railway.

The Guardians do not bind themselves to accept any Tender.

Tenders must be sent, under cover, to me not later than MONDAY, the 29th inst.

JAS. EDGELL, Clerk to the Guardians.
Board Room, Workhouse, Kingston-on-Thames, Nov. 16.

Seakale.

MR. A. ATWOOD, 5, Simpson Street, Battersea, S.W., can supply any quantity of SEAKALE ROOTS, for forcing, at 80s. per 1000; single hundreds at 9s. ASPARAGUS of all ages, and RHUBARB.

FOR SALE (owing to want of room), STEPHANOTIS, GARDENIAS, HOYAS, and MARECHAL NIEL ROSES, all large Specimen Plants, established in pots and tubs. Apply to

W. HOWITT, Ilford, Essex.

To the Trade.

STANDARD APPLES, STANDARD APPLES,
By the Dozen, Hundred, or Thousand.

JOHN PERKINS AND SON beg to offer fine STANDARD APPLES, 5 to 6 feet stems, good heads, and all the best sorts, at 70s. per 100.

Address—52, Market Square, Northampton.

THORN QUICKS, strong, twice transplanted, vigorous and full of growth, 3 to 4 feet, 2s. 6d. per 100, 20s. per 1000. PRIVETS, Evergreen, strong, 3 to 4 feet, 4s. per 100, 35s. per 1000; Oval-leaved do., extra strong, 2½ to 3 feet, 7s. 6d. per 100; Golden Variegated do., 3s. per dozen. HOLLIES, Green, full of roots, clean and good, 1 to 1½ foot, 15s. per 100. The above for cash. A sample 100 sent on receipt of Post Office Order.

FIELD BROTHERS, Tarvin Road Nurseries, Chester.

SCOTCH FIR, fine Standard trees, 8 to 10 feet; HORNBEAM, strong Standards; PRIVET, strong, cut back. Cheap.

W. GROVE, Tupsley, Hereford.

TO BE SOLD, by Private Contract, a COLLECTION of ORCHIDS, the property of a foreign Nobleman, and consisting of upwards of 220 plants, in various genera. The plants are in good health, and some of them are fine specimens, e.g., Vanda Lowii, V. Batemanni, V. suavis, Phalænopsis, Saccolabium, Aerides, &c.

For further information address, in the first instance, to *Z., Gardeners' Chronicle.*

Planting Season.

CHARLES BURGESS begs to offer the following:—Strong Standard, Pyramid and Dwarf-trained FRUIT TREES, ROSES, Evergreen and Deciduous FLOWERING SHRUBS, English OAKS, ELMS, and LIMES, up to 10 feet; Larch, Spruce, and Scotch FIRS, and a general Nursery Stock. Prices on application.

The Nurseries, London Road, Cheltenham.

Cooling's Matchless Broccoli.

GEORGE COOLING, NURSERYMAN and SEEDSMAN, Bath, has to offer his usual supply of carefully saved SEED of this unequalled variety of SPRING BROCCOLI, and will be glad to quote price of the same to the Trade. Retail price, per packet, 1s. 6d.

To the Trade.—Seed Potatos.

H. AND F. SHARPE are prepared to make Special Offers of SEED POTATOS grown on their own Farms from the finest selected stocks. Their List this season comprises all the English and American varieties worthy of cultivation. The prices will be found very moderate.

Seed-growing Establishment, Wisbech.

New Cucumber.

COOLING'S KING of the CUCUMBERS, a cross between Long Gun and Telegraph, combining the best qualities of both varieties. Fruit 18 to 24 inches; colour deep glossy green, very smooth and handsome; flesh, crisp and solid, very free bearer. The best Cucumber ever sent out. Price, 2s. 6d. per packet. Trade terms on application.

Mile Ash Nurseries, Derby.

Superb Double Hollyhocks.

WILLIAM CHATER begs to announce that he can supply fine Seedlings with colours named, from 9s. to 12s. per dozen.

Unbloomed Seedlings, from 6s. to 9s. per dozen. Named Varieties, once bloomed, from 18s. per dozen.

W. C. strongly recommends Autumn Planting.

The Nurseries, Saffron Walden.

General Nursery Stock.

WOOD AND INGRAM'S General Descriptive CATALOGUE of the above, including FRUIT TREES, Hardy CONIFEROUS and TAXACEOUS PLANTS, EVERGREENS, ORNAMENTAL TREES and SHRUBS, HARDY CLIMBERS, FOREST TREES, ROSES, &c., is now ready, and will be sent free on application.

The Nurseries, Huntingdon.

Vines, Vines, Vines.

B. S. WILLIAMS begs to announce that his stock of VINES is now in fine condition, and ready for sending out. It comprises all the leading kinds, strong Canes of Pearson's Golden Queen.

For prices and description see BULB CATALOGUE.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

To the Trade.

Home-grown GARDEN and AGRICULTURAL SEEDS.

H. AND F. SHARPE'S Wholesale Special Priced LIST of the above Seeds of 1875 growth is now ready; it comprises all the best sorts in cultivation. The quality is very fine, and the prices will compare favourably with those of other growers.

Seed Growing Establishment, Wisbech.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.

Highgate Nurseries, London, N.

J. BOOTH, FLORIST, Failsworth, Manchester, has to offer to the Trade the finest varieties of CARNATIONS and PICOTEES in cultivation, at the following prices, for cash :—

100 Finest Show Carnations and Picotees, in 30 sorts, 30s.
200 ,, ,, ,, in 40 sorts, 55s.

CATALOGUES on application. Selection left to me.

Haws.

M. GRANT, NURSERYMAN, Newry, Ireland, has about 100 tons of clean, freshly-gathered HAWS for Sale, in lots to suit purchasers. Lowest price per ton on application.

Also, about 150,000 splendid 1-yr. CRAB, from 6 to 15 inches.

Samples, &c., on application to above address.

Hyacinths.

W. F. BOFF offers named HYACINTHS, good Bulbs, leading varieties, at £1 per 100, 3s. per dozen. CROCUS, Yellow, Blue, White, and Striped, 1s. 6d. per 100. W. F. B. also offers, for want of room, a few dozen choice ORCHIDS, at 21s. per dozen. No objection to any kind of choice FRUIT in EXCHANGE.

203, Upper Street, Islington, N.

Araucaria imbricata.

WILLIAM BRYANT begs to offer, as above, in well-furnished plants, transplanted spring, 1874, at the following prices :—

1½ to 2 feet .. 24s. per doz.	2½ to 3 feet .. 40s. per doz.
2 to 2½ feet .. 30s. ,,	3 to 3½ feet .. 48s. ,,

The Nursery, Rugby.

TO LARGE PLANTERS and the Trade.

Some thousand of good English YEWS, 2½ to 3½ feet; and LIMES, 6 to 8 feet; also a quantity of SYCAMORES, 10 to 14 feet; and LAURELS, 2 to 3 feet; WELLINGTONIA, 9 feet. Special prices given on application to

GODWIN AND SON, Ashborne, Derby.

WORCESTER PEARMAIN APPLE.

Awarded a First-class Certificate by the Royal Horticultural Society, October 6, 1875.

Fruit 2¾ inches wide, and same in height, conical; skin smooth, brilliant red, with minute fawn-coloured dots; flesh very tender, crisp, juicy, and sweet, with a very pleasant flavour, perhaps the most valuable of all for market. The tree is as productive as Lord Suffield Apple, and one of the handsomest fruits in cultivation. Ripe end of August, and will keep till Christmas.

Maiden Trees, 10s. 6d. each; Pyramid or Trained Trees, 21s. each. Coloured Plates, 6d. each.

RED HAWTHORNDEN APPLE.—Dr. Hogg describes this as large, oblate, and angular; skin smooth, greenish yellow, with a red blush next the sun; flesh white, tender and juicy, with a sprightly and agreeable acidity. A very early and valuable culinary Apple; ripe August and September. Maiden trees, *7s. 6d.* each; Pyramid or trained trees, *10s. 6d.*

YORKSHIRE BEAUTY APPLE.—Dr. Hogg, in his *Manual*, says this fruit is 3½ inches wide and 3 inches high, roundish, flattened, and angular; skin bright yellow, with a bright red blush on the sunny side; flesh tender and juicy, with an agreeable acidity. A first-rate culinary Apple for August and September, the great size and excellent quality ought to commend it as a good orchard fruit for the market. Maiden trees, *5s.* each; Pyramid or trained trees, *7s. 6d.*

NEW GOLDEN LABURNUM.—Unquestionably the finest hardy golden-leaved tree known, of immense value for park and garden scenery; it will take a foremost position among pictorial and garden trees; the foliage is a brighter golden-yellow than the flower of the ordinary Laburnum. First-class Certificate awarded by the Royal Horticultural Society, August 4, 1875. Price *10s. 6d.* each; Standard and extra strong trees, *21s.* Coloured plates, *6d.* each.

OTHERA JAPONICA.—A new and beautiful evergreen shrub. One of the most distinguished Japanese travellers says this is perhaps the prettiest evergreen they have in Japan; it grows about 20 feet high, has dark green leaves and a profusion of bright red fruit; it is very effective and perfectly hardy. Price *10s. 6d.* each; extra strong, *21s.*

CLIMBING ROSE, COUNTESS of OXFORD.—The old variety in all respects, except in being a free climber. *7s. 6d.* each.

FIFTY ACRES OF FRUIT TREES.

Standard and Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, very fine trees for walls.

Standard, Pyramid, Dwarf, Bush, and Cordon APPLES, PEARS, PLUMS, and CHERRIES.

ORCHARD HOUSE TREES, Established in Pots, for Immediate Fruiting.

PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, APPLES, FIGS, ORANGES, and MULBERRIES.

VINES, Planting Canes, 3*s.* 6*d.* to 5*s.* each; Extra Strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* each.

All the above of superior quality, perfect in form, roots, and health, and true to name. See Descriptive Price List.

TWELVE ACRES OF ROSES,

Standards and Dwarfs, all the popular sorts; 80,000 choicest Tea-scented and Noisette Roses, in pots. Extra strong Hybrid Perpetual Roses, in pots for immediate forcing. Climbing Roses in great variety. *See Descriptive Price List.*

FOR SHRUBBERIES.

	Per 100.
LAUREL, Colchic, the best hardy variety	3 to 4 feet, 35*s.*
,, Portugal, very fine	1½ to 2 feet, 35*s.*
,, Portugal, very fine	2 to 2½ feet, 50*s.*
,, Caucasian, very fine	2 to 3 feet, 50*s.*
,, Round-leaved, extra fine	2 to 3 feet, 70*s.*
,, Six distinct and beautiful vars.	2 to 3 feet, 50*s.*
COTONEASTER SIMONSII, fine	3 to 4 feet, 35*s.*
PYRUS JAPONICA	2 to 3 feet, 50*s.*
EUONYMUS RADICANS VARIEGATA	1 foot, 40*s.*

	Per 100.
CISTUS LAURIFOLIA, in pots	1½ to 2 feet, 50*s.*
ARBUTUS (Strawberry tree)	1½ to 2 feet, 60*s.*
,, (Strawberry tree)	2 to 2½ feet, 75*s.*
CEPHALOTAXUS DRUPACEA	1½ foot, 60*s.*
TREE IVIES, full of flower	1 to 1½ foot, 75*s.*
LAURUSTINUS	1 to 1½ foot, 40*s.*
BROOMS, White and Yellow	2 to 3 feet, 30*s.*
YEW, English, bushy	1½ to 2 feet, 40*s.*
,, English, bushy	2 to 2½ feet, 60*s.*
,, English, bushy	2½ to 3 feet, 80*s.*
,, Golden, bushy	1 to 1½ foot, 90*s.*

	Per doz.
JUNIPER, Chinese	4 to 5 feet, 36*s.*
,, Chinese	5 to 6 feet, 42*s.*
OAK, Austrian Evergreen	2½ to 3 feet, 30*s.*
,, Austrian Evergreen	3 to 4 feet, 42*s.*
,, Ford's Evergreen	3 to 4 feet, 36*s.*

	Per doz.
CRYPTOMERIA ELEGANS	2 to 2½ feet, 21*s.*
PICEA PINSAPO	2 to 2½ feet, 36*s.*
,, PINSAPO	2½ to 3 feet, 42*s.*
YUCCA GLORIOSA PENDULA	12 to 15 in., 12*s.*
,, GLORIOSA PENDULA	15 to 18 in., 18*s.*

	Per 100.
IVY, strong, for climbing	3 to 4 feet, 40*s.*
VIRGINIAN CREEPER	3 to 4 feet, 40*s.*

	Per 100.
ROSES, Climbing, in variety	3 to 4 feet, 40*s.*
HONEYSUCKLES, in variety	3 to 4 feet, 40*s.*

JUNIPERUS CHINENSIS.—One of the hardiest and most ornamental Shrubs in cultivation, and especially valuable to the landscape gardener. In spring it is quite golden with its numerous flowers, which, when shaken with the wind, give off a cloud of yellow dust; and if the plant be kept closely pruned, the young growth becomes so luxuriant and leafy that it gives an entirely different, but equally pleasing effect in its silvery tinge and rigid outline. When left to its own growth it forms a noble green pillar, highly suitable to stand in pairs by a garden walk. Eight to 9 feet, 10*s.* each; £4 4*s.* per dozen.

PICEA PINSAPO.—A very handsome, densely branched tree. The branches are very thickly placed in whorls and spread horizontally, thus giving a singularly beautiful appearance. It is one of the most distinct and desirable trees for ornamental planting, especially for a lawn. Its perfect symmetry of form is so striking that it should have a place in every collection. Eight to 10 feet, 25*s.* each; £12 per dozen.

ABIES DOUGLASII.—This, the most noble of Evergreen Firs, is of rapid growth, hardy, produces valuable Timber, close, heavy, and free from knots, of the colour of Yew wood. It is a native of California, where it grows upwards of 300 feet high, with a trunk 10 feet through. The flagstaff at Kew is of this tree, and was, when growing, 309 feet high. There is at Dropmore (Bucks) a specimen measuring at the present time 100 feet high, and 90 feet through the branches, with a trunk 9 feet in circumference at 4 feet above the base. It was raised from seed sown by Mr. Frost, the present gardener, in 1828, and is now a model of beauty. 12 to 15 feet, 12*s. 6d.* each, £5 per doz.

THE SILVER CEDAR of MOUNT ATLAS.—Now is the time to plant this eminently beautiful tree, unsurpassed for majestic grace and picturesque grandeur even by the Cedar of Lebanon, which it much resembles; and many consider it a variety, but its leaf is more silvery, it grows twice as fast, and its timber is very valuable. Noble trees, 10 to 12 feet, 25*s.* each, £12 per dozen.

DECIDUOUS FLOWERING SHRUBS in 50 beautiful varieties, 30*s.* per 100.

AVENUE AND ORNAMENTAL TREES, many thousands in great variety. See Priced Lists.

STANDARD ORNAMENTAL TREES.

If less than Six of any kind are Ordered an increased Price will be charged.

	Per doz.—*s.*	*d.*
ACACIA, Decaisneana, pink	24	
,, Bessoniana, crispa, hispida (Rose Acacia), monophylla, sophoræfolia, viscosa, weeping white	21	0
AILANTUS, glandulosa	18	0
,, glandulosa, extra strong	36	0
ALDER, cordata, incana, macrophylla, and quercifolia	12	0
ALMOND, fruit bearing	21	0
ASH, common, 10 to 12 feet, 60*s.* per 100	9	0
,, aucubæfolia, cucullatus, flowering	18	0
,, juglandifolia, monophylla, orange-barked	18	0
,, salicifolia, small twigged, spectabilis	18	0
,, Waterer's variegated	18	0
,, weeping, and gold-barked weeping	42	0
BEECH, purple-leaved, 8 to 10 feet	42	0
,, purple-leaved, 10 to 12 feet	60	0
,, crested-leaved, Chestnut-leaved, Fern-leaved	42	0
,, Oak-leaved, variegated	42	0
BIRCH, Fern-leaved, silver, weeping, 8 to 10 feet 300*s.* per 100	42	0
,, silver, weeping, 9 to 12 feet 90*s.* ,,	12	0
,, silver, weeping, 14 to 16 feet 125*s.* ,,	18	0
BIRD CHERRY, Virginian	12	0
BROOM, golden, yellow Spanish, white Portuguese	18	0
BROUSSONETTIA, papyrifera	48	0
CATALPA, syringæfolia, and Kæmpferi	42	0
CHERRY, double-blossomed	24	0
,, Mahaleb variegata	21	0
,, hortensis rosea, pendula, and latifolia pendula	30	0
CHESTNUT, Spanish	18	0
,, American, Fern-leaved and variegated	30	0
COLUTEA, red and yellow	12	0
CORNUS, mas variegata	21	0
COTONEASTER, Simonsii	21	0
CYTISUS, austriacus, elongatus, elongatus purpureus	24	0
,, nigricans, purpureus major, sessilifolius	24	0
,, stricta and Weldonii	24	0
ELM, Camperdown, weeping	42	0
,, campestris aurea variegata, Kaki (fine), montana pendula	36	0
,, elegantissima pendula 150*s.* per 100	24	0
,, English, 10 to 12 feet 100*s.* ,,	15	0
,, English, 14 to 16 feet 150*s.* ,,	21	0
,, Chichester, 10 to 12 feet 100*s.* ,,	15	0
,, Chichester, 14 to 16 feet 150*s.* ,,	21	0
,, Berardii, betulæfolia, emarginata, filicifolia	21	0
,, myrtifolia, monumentalis, purpurea	21	0
,, pyramidalis, Dampieri, plumosa, silver var.	21	0
,, suberosa microphylla, suberosa pendula	21	0
,, viminalis pendula, viminalis fol. variegatis, Webbiana, Wheatleyi	21	0
GENISTA, anxantica, præcox, and purgans	30	0
GUELDER ROSE	21	0
HORNBEAM, cut-leaved and weeping	24	0
HORSE CHESTNUT, scarlet, 7 to 8 feet	24	0
,, ,, scarlet, 10 to 12 feet	36	0
,, ,, scarlet, extra strong stems	60	0
,, ,, white, 9 to 10 feet	18	0
,, ,, discolor, double white, double red	30	0
,, ,, macrostachya, Memmingerii, ohioensis, rubicunda nana, variegated and yellow	30	0
JUDAS TREE, purple and white	42	0
KOLREUTERIA, paniculata, 5 to 6 feet	30	0
LABURNUM, Alkengerii, English, Scotch, purple, quercifolia	18	0
,, weeping	30	0
LARCH FIR, 8 to 10 feet	9	0
,, ,, 10 to 12 feet	12	0
,, weeping (true)	42	0
,, microcarpa and japonica	18	0
LILAC, Charles X., Persian red and white, Siberian and white	30	0
LIME, red twigged, 9 to 10 feet 140*s.* per 100	18	0
,, red twigged, 10 to 11 feet 175*s.* ,,	24	0
,, red twigged, 11 to 12 feet 200*s.* ,,	30	0
,, red twigged, 12 to 14 feet 250*s.* ,,	36	0
,, red twigged, extra strong stems 42*s.* to	60	0
,, weeping	42	0
,, latifolia alba, Beaumontea (weeping)	30	0
,, dasystyla, yellow-twigged, Fern-leaved and vitifolia	30	0
MAGNOLIA, acuminata, 5 to 6 feet	42	0
MAPLE, campestre punctata	42	0
,, colchicum rubrum	30	0
,, negundo, 5 to 6 feet 40*s.* per 100	6	0
,, ,, 8 to 10 feet 60*s.* ,,	30	
,, ,, variegata, 5 to 6 feet stems 125*s.* ,,	18	0
,, ,, ,, 7 to 8 feet stems 175*s.* ,,	24	0
,, campestre, laciniatum, pennsylvanicum rubrum	18	0
,, rubrum, striatum, tataricum rubrum, virginicum rubrum	18	
MOUNTAIN ASH, 9 to 10 feet 70*s.* per 100	10	0
,, ,, large-berried and yellow-berried	18	0
,, ,, weeping and variegated weeping	36	0
OAK, scarlet	30	0
,, Turkey	24	0
,, weeping	42	0
PEACH, double-blossomed	30	0
PEAR, weeping	30	0
POPLAR, grandidentata pendula	30	0
,, Black Italian, Lombardy, Ontario, and silver-leaved 84*s.* per 100	12	0
,, ,, ,, ,, extra strong 100*s.* ,,	18	0
PRIVET, golden variegated weeping, longifolium and weeping	30	0
PYRUS, Aria (White Beam), hybrida, tomentosa pendula	18	0
,, Malus floribunda, spectabilis	18	0
,, albo-plena, imperialis, Kaido, Riversii	18	0
,, spectabilis, Tenorei, carnea nervosa, Fontainebleau	18	0
SIBERIAN CRAB, scarlet and yellow-fruited	18	0
SNOWY MESPILUS, botryapium, florida, grandiflora, ovalis	18	0
SUMACH, typhina (Stag's-horn)	18	0
SYCAMORE, 10 to 12 feet 75*s.* per 100	12	0
,, extra strong 18*s.* to	30	0
,, purple-leaved and variegated	24	0
THORN, Paul's double crimson, double pink, 150*s.* p. 100	21	0
,, double white, single scarlet, and in great variety to name	21	0
TULIP TREES	42	0
WILLOW, caprea tricolor, Kilmarnock, weeping	30	0
,, Wolseyana, weeping	30	0
,, American weeping, Babylonian weeping	24	0
,, Solomon weeping, and Vitellini	24	0
,, extra strong, weeping 30*s.* to	60	0

RICHARD SMITH, NURSERYMAN and SEED MERCHANT, WORCESTER.

SEEDLING BRIARS
and ROSES on SEEDLING BRIARS.
SEEDLING BRIARS, 2s., 4s. and 6s. per 100.
HYBRID PERPETUAL ROSES, on Seedling Briars, 100, in 50 varieties, 75s.
TEA ROSES, on Seedling Briars, 100, in 50 varieties, 90s.
CATALOGUES on application to
WILLIAM CORP, 54, High Street, Oxford.

VENN'S SEEDLING BLACK MUSCAT
combines all good qualities of a Grape. First-class Certificate Royal Horticultural Society, Kensington; also wherever exhibited. Patronised by the principal Grape growers in the kingdom, also by Prince of Wales. Abundant bearer, delicious flavour, thrives equally in hot or cold houses. Hangs perfect until March. Fine planting Canes now on sale, reduced price 15s., delivered to order on receipt of Cheque or Post Office Order, payable to
THOMAS V. VENN, Sneyd Park, near Bristol.

Cranston's Nurseries.—Established 1785.
THE FOLLOWING CATALOGUES
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CRANSTON AND MAYOS, King's Acre, near Hereford.

Evergreen Hedges.—Box, Green Hollies, and LIGUSTRUM OVALIFOLIUM.
R. NEAL, having a very large Stock of the above, can offer the same by the 100 or 1000 at a very low rate.
Also 10,000 ACER CAMPESTRIS, from 5 to 8 feet in height, clean-grown stuff.
Price on application.
The Nurseries, Wandsworth Common, S.W.

To Noblemen, Gentlemen, and Others who are *REPLANTING this AUTUMN.*
R. NEAL begs respectfully to call the attention of the above to his large and varied stock of Hardy SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS, CLIMBING PLANTS, &c., which are now in fine condition for removal. An early inspection invited.
CATALOGUES may be had on application.
The Nurseries, Wandsworth Common, S.W.

Richmond Nurseries, Richmond, Surrey.
To GENTLEMEN, NURSERYMEN, LARGE CONTRACTORS, LANDSCAPE GARDENERS, and OTHERS.
G. AND W. STEELL beg to call the attention of all Planters to their very extensive and fine grown NURSERY STOCK, consisting of an excellent selection of Ornamental Evergreen and Deciduous Shrubs and Trees, Standard and Dwarf Rose Trees, Standard and Dwarf Variegated and Green Hollies of the newest and best varieties, Standard and Dwarf Fruit Trees, &c., which they can highly recommend for their fine growth and moving qualities.
N.B.—Where large quantities are required they can be supplied at very low prices.

To the Trade.
WILLIAM RUSHFORTH, Woodhouse Hill Nurseries, Leeds, offers as below, all of good quality:—

1000	Strong Dwarf MOSS ROSES	per 100	20s.
2000	Strong DIELYTRA SPECTABILIS	,,	20s.
1000	Strong SPIRÆA JAPONICA	,,	20s.
5000	DOUBLE SULPHUR PRIMROSES	,,	15s.
4000	Good SEAKALE	,,	5s.
1000	LABURNUMS, 6 to 7 feet	,,	18s.
1700	ALGIERS IVY, strong, in pots	,,	40s.
3000	VIRGINIAN CREEPERS	,,	8s.
300	ARALIA SIEBOLDII, in pots	,,	50s.
4000	TREE BOX, 2 feet	,,	15s.
100	SWEET BAYS, 3 to 4 feet	per doz.	24s.

To Gentlemen, Nurserymen, and Others.
R. COLLYER, Cart House Lane, Woking Station, Surrey, has to offer for sale, for Cash:—

10,000	HOLLIES, Green, 6 to 24 inches, stout.
5,000	,, Green Stocks, to work Stripe on.
1,500	,, Variegated, 1 to 3 feet; also Standard, 3 to 5 feet.
10,000	YEWS, Common, 6 inches to 3½ feet; also Gold and Silver Variegated.
100	CHINESE ARBOR-VITÆ, 5 to 6 feet.
2,000	LAURELS, Common, 2½ to 4 feet, bushy.
2,000	,, Portugal, 2 to 8 feet, bushy and good plants for specimens, &c., all removed in Spring, 1874.
500	IVIES, Irish, staked, 3½ to 5 feet.
1,000	CUPRESSUS LAWSONIANA, 3 to 4 feet.

All the above plants are good, and have been removed since Autumn, 1873.

SPRING FLOWERS
and SWEET VIOLETS.

	P. doz.	P. 100.
DAISIES, large crimson, pink, Red Rover, and white	35s. per 1000	
AUCUBÆFOLIA	1 6	10 0
PANSY, Cloth of Gold, in pots	3 0	16 0
,, Mrs. Felton, in pots	3 0	16 0
,, Blue King, large roots	3 0	16 0
,, Purple King, large roots	3 0	16 0
AUBRIETIA PURPUREA, large	2 0	16 0
,, ,, GRANDIFLORA	3 0	20 0
GENTIANA ACAULIS	6 0	40 0
PRIMROSE, Purity, single white	3 0	20 0
,, Magenta Queen, single	3 0	20 0
,, double yellow	3 0	20 0
POLYANTHUS, King Theodore, double black	4 0	30 0
,, Jack-on-Ape, scarlet	3 0	20 0
,, best gold-laced, large roots	1 6	10 0
ROCKET, double purple	3 0	20 0
VINCA MAJOR VARIEGATA	3 0	20 0
VIOLETS, Brandyanum, double purple	4 0	30 0
,, The Czar, one of the best single	2 0	15 0
,, Neapolitan, double lavender	4 0	30 0
,, Marie Louise, double blue, white centre, the best Violet in cultivation	6 0	40 0

These Violets have been well grown, and suitable for potting.
CATALOGUE free on application.
FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

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OF
Trees, Shrubs, Roses and Fruit Trees,
ALSO
CLEMATIS, &c., for 1875-76,
Free by Post on application to
GEORGE JACKMAN AND SON,
WOKING NURSERY, SURREY.

FIRST PRIZE ROSES,
FROM
CRANSTON'S NURSERIES, HEREFORD.

Try our One Guinea, Two Guinea, and Three Guinea Collections.

ONE GUINEA COLLECTION contains
Thirty Selected First-class Show Roses.

TWO GUINEA COLLECTION contains
Sixty Selected, Distinct, and all First-class Show Roses.

THREE GUINEA COLLECTION contains
One Hundred of the Finest Roses, New or Old, in cultivation, Selected from upwards of 600 Varieties.

Either of the above Collections will be carefully packed and forwarded, on receipt of Cheque or Post Office Order payable to
CRANSTON and MAYOS,
HEREFORD.

HOLLIES.
Twenty Thousand of the Finest Varieties of
GREEN AND VARIEGATED HOLLIES,
4, 5, 6, 7, 8, and 10 feet.
The Plants are all handsomely Grown and properly Rooted.
ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

TO THE TRADE.
JAS. GARAWAY & CO.
OFFER

ALMONDS, standards, fine,	15s. per dozen.
BAYS, 1 to 2 feet,	6s. per dozen; 2 to 3 feet, 9s. per dozen.
CHESTNUTS, Scarlet, 6 to 8 feet,	10s. per dozen; 8 to 10 feet, 15s. per dozen.
ELMS, Chichester, 3 to 4 feet,	20s. per 100; 4 to 6 feet, 30s. per 100; 6 to 8 feet, 50s. per 100.
,, ,, extra fine, 8 to 10 feet,	75s. per 100; 10 to 12 feet, 100s. per 100; 12 to 16 feet, 120s. per 100.
ESCALLONIA MACRANTHA, in pots,	9s. per dozen.
LAUREL, Portugal, 2 to 3 feet, bushy,	10s. per dozen.
LIMES, 8 to 10 feet,	9s. per dozen; 10 to 12 feet, 18s. per doz.
OAKS, Evergreen, in pots, 2 to 3 feet,	9s. per dozen, 60s. per 100; 3 to 4 feet, 12s. per dozen, 90s. per 100.
PÆONIES, Moutan, Tree,	12s. per dozen.
WILLOWS, Kilmarnock Weeping,	18s. per dozen.

Fruit Trees.
Leading sorts, good trees, our selection.

APPLES, dwarf-trained,	15s., 18s., and 21s. per dozen.
,, standards,	15s. per dozen.
APRICOTS, Maidens,	9s. per dozen, 60s. per 100.
,, dwarf-trained,	30s. and 36s. per dozen.
CHERRIES, Mayduke and Morello, dwarf-trained,	24s. per dozen.
NECTARINES, Maidens,	9s. per dozen, 60s. per 100.
,, dwarf-trained,	30s. and 36s. per dozen.
PEACHES, Maidens,	9s. per dozen, 60s. per 100.
,, dwarf-trained,	30s. and 36s. per dozen.
PEARS, dwarf-trained,	18s. and 21s. per dozen.
,, pyramids, 3 to 4 feet,	12s. per dozen, 75s. per 100; 4 to 5 feet, 15s. per dozen, 100s. per 100.
,, standards,	18s. per dozen, 125s. per 100.
PLUMS, dwarf-trained,	18s. and 21s. per dozen.
,, pyramids, 4 to 5 feet,	12s. per dozen; 5 to 6 feet, 15s. per dozen.
,, standards,	15s. per dozen.

JAS. GARAWAY AND CO.,
Durdham Down Nurseries, Clifton, Bristol.

THE KNAP HILL CYPRESS,
Cupressus Lawsoniana erecta viridis.
ANTHONY WATERER
Will be happy to supply beautiful specimens of this famous hardy Evergreen, at the following prices:—
3 feet high, 2½ feet in circumference, 30s. per doz.
4 feet high, 3 to 4 feet do., 42s. to 60s. per doz.
5 feet high, 4, 5 and 6 ft. do., 10s. 6d., 15s. to 21s. each.
6 and 7 feet high, 6 to 7 and 8 ft. do., 21s. to 31s. 6d. each.
No cuttings have been taken from the plants here referred to, which are simply perfect in growth and splendidly rooted.
KNAP HILL NURSERY, WOKING, SURREY.

LIMES, ENGLISH and IRISH YEWS, &c.
LIMES, of all sizes up to 12 and 14 feet, the larger sizes frequently transplanted, and suitable for avenues, &c.
COMMON YEW, all sizes up to 3 and 4 feet; 2½ feet, bushy, £7 10s. per 1000.
IRISH YEW, all grown to single stems and finely furnished, any size up to 5 feet, by the 100 or 1000; 3½ to 4 feet, 50s. per 100, extra fine specimens, 12 to 14 feet in height, perfect pyramids, 21s. to 30s. each.
GOLDEN YEWS, of all sizes, by the dozen or 100; Golden Yews grafted on specimen Irish Yews, with fine heads.
RETINOSPORAS, of all sizes.
JUNIPERUS, fragrans, excelsa, Irish and others.
GOOSEBERRIES and CURRANTS, very strong, per 100 or 1000.
PICEAS.—A few very fine specimens of Picea nobilis glauca, 9 to 10 feet, and finely furnished; also Picea lasiocarpa and grandis, 10 to 12 feet; amabilis, 3 to 6 feet.
CATALOGUES on application.
R. MORRISON, Nurseryman, Elgin, N.B.

New Roses.
WM. PAUL AND SON beg to offer the following NEW ROSES:—
STAR of WALTHAM, 7s. 6d. to 10s. 6d. each.
QUEEN of WALTHAM, 5s. to 7s. 6d. each.
These have been acknowledged by many of our first Rose amateurs, who had seen them blooming in the Nurseries here, to be two of the best novelties of the season.
Coloured Plates, free by post, 1s. each.
250,000 ROSES, new and old, now on Sale, of superior qualities, at very reasonable prices. Priced Descriptive CATALOGUE free by post.
PAUL'S Nurseries, Waltham Cross, Herts.

To Noblemen, Gentlemen, and Others Engaged in PLANTING.
JOHN PERKINS AND SON beg to call particular attention to their large Stock of the following, the whole of which are stout and well rooted:—
ASH, 2 to 3 feet.
BEECH, 2 to 3 feet.
BIRCH, 2 to 3 feet.
FIR, Balm of Gilead, 2 to 3 and 3 to 4 feet.
PINE, Austrian, 1½ to 2, 2 to 3, and 3 to 4 feet.
CHESTNUT, Spanish, 2 to 3, 3 to 4, and 4 to 5 feet.
ELM, Wych, 2 to 3, and 3 to 4 feet.
,, English, grafted, 3 to 4, and 6 to 8 feet.
,, stricta, grafted, 3 to 4, and 6 to 8 feet.
HAZEL, 2 to 3 feet.
HORNBEAM, 1½ to 2, and 3 to 4 feet.
LARCH FIR, 1½ to 2, and 2 to 3 feet.
OAKS, English, 3 to 4, and 4 to 5 feet.
SCOTCH FIR, 1½ to 2, and 2½ to 3 feet.
SPRUCE FIR, 1½ to 2, and 2 to 3 feet.
PINE, Weymouth, 2 to 3, 3 to 4, and 4 to 5 feet.
PLANTS SUITABLE FOR GAME COVERTS, &c.
BERBERIS AQUIFOLIA, 1 to 1½, and 1½ to 2 feet.
BLACKTHORNS, fine, 1½ to 2, and 2 to 3 feet.
BOX, Tree, 1½ to 2, and 2 to 3 feet.
GORSE, 1-yr.
HOLLY, Green, 1½ to 2, 2 to 3, and 3 to 4 feet.
LAURELS, common, 2 to 3, and 3 to 4 feet.
,, Portugal, 1½ to 2, 2 to 3, and 3 to 4 feet.
PRIVETS, Evergreen, 1½ to 2, 2 to 3, and 3 to 4 feet.
SNOWBERRY, 2 to 3 feet.
WHITETHORN or QUICKS, strong, 1½ to 2, and 2 to 3 feet.
YEWS, English, 1½ to 2, 2 to 3, and 3 to 4 feet.
Descriptive CATALOGUES of General Nursery Stock on application to
52, Market Square, Northampton.

STEPHEN BROWN, Weston-super-Mare, has much pleasure in offering fine roots of the following SUPERB LILIUMS:—

	Each—s. d.
AURATUM, fine bulbs	2s. 6d. to 7 6
BROWNII	10 6
BUSCHIANUM	7 6
CALLOSUM	7 6
CANDIDUM FOL. AUREA STRIATA	3 6
CARNIOLICUM	2 6
COLCHICUM	2s. 6d. to 3 6
FULGENS INCOMPARABILE, splendid,	7s. 6d. p. doz. 0 9
,, SANGUINOLENTUM	1 0
,, eight others, fine and distinct	6d. to 0 9
HUMBOLDTII	3s. 6d. to 7 6
LEICHTLINII	7s. 6d. to 10 6
MARTAGON DALMATICUM	10 6
,, white, scarce	3 6
PARDALINUM	3s. 6d. to 7 6
PHILADELPHICUM	3 6
PULCHELLUM	5s. to 7 6
PUBERULUM	3s. 6d. to 7 6
PURPUREUM	7s. 6d. to 10 6
TENUIFOLIUM	5 0
THUNBERGIANUM PLENO.	3s. 6d. to 5 0
,, SPLENDENS	5 0
,, five others, fine and distinct	6d. to 5 0
TIGRINUM FLORE-PLENO	5s. to 7 6
,, SPLENDENS	5s. to 7 6
WALLICHIANUM	21 0
WASHINGTONIANUM	3s. 6d. to 7 6
,, PURPUREUM	7s. 6d. to 10 6

Also an extensive collection of others, choice: selections, 5s., 9s., 12s., 18s., 24s., and 36s. per dozen.

IXIAS, 12 beautiful named varieties, three of each, 6s.
SPARAXIS, 12 beautiful named varieties, three of each, 5s.
TRITONIAS, 6 beautiful named varieties, three of each, 3s. 6d.
GLADIOLUS COLVILLEI, THE BRIDE, fine pure white, very early, 9d. each, 8s. per dozen.
,, 12 splendid dwarf varieties, flowering June, July, 7s.
,, 12 splendid ramosus hybrids, flowering July, August, 3s. 6d.
,, Gandavensis hybrids, extensive collection of newest and best; selections, 3s., 5s., 9s., 12s., 15s. 20s., and 30s. per dozen; fine mixed, 12s. per 100.
ACHIMENES, 12 beautiful varieties, strong tubers, 6s.
IRIS RETICULATA, striking and brilliant dwarf bulb, 6 to 9 inches in height, flowering February and March, 1s. each, 10s. per dozen.
TRITELEIA UNIFLORA, a great favourite among spring bulbs, flowering February to May, pure white and blue tinge, 9d. per dozen, 5s. per 100.
Choice HYACINTHS, TULIPS, CROCUSES, ANEMONES, RANUNCULUSES, and very large collection of other bulbs.
DESCRIPTIVE CATALOGUE sent free on application.

VEITCH'S AUTUMN GIANT CAULIFLOWER.

GUARANTEED TRUE ORIGINAL STOCK.

HURST & SON

HAVE A LIMITED QUANTITY OF THE ABOVE

To offer to the Trade. Price on application.

☞ H. & S. have Posted their NOVELTY LIST to all their Customers, but as Book Packets are frequently miscarried in transit, they will feel obliged to any who may not have received a copy to let them know, when another shall be forwarded.

6, LEADENHALL STREET, LONDON, E.C.—November 27, 1875.

GRAND NEW HARDY EVERGREEN FLOWERING SHRUB, &c.

HYPERICUM PATULUM (Thunb.).

This magnificent shrub is a grand acquisition to our scanty list of hardy flowering species; its individual flowers, which are produced in bunches, are pale yellow in colour, and of great substance, resembling much in appearance the beautiful Gordonia javanica of our stoves. It continues long in perfection, commencing to flower in June, and has been in fine perfection till the first week in November. We can endorse all M. CARRIÈRE says of it in the *Revue Horticole* of May 1, 1875 (it is also figured there):—"This is a species we feel convinced is destined to create a sensation in the horticultural world; it seems in fact to unite all the qualities desirable in a plant—hardiness, vigour, fine evergreen foliage, flowers large and numerous, a free flowering habit, prolonged from June without interruption till the frost comes." We have a fine stock of flowering bushes, from 2 to 3 feet in height.

See Catalogue, free on application.

DIOSPYROS KAKI (New Fruit).

Of this New Japanese Fruit we have introduced from Japan four of the best cultivated varieties. The ripe fruit resembles much in appearance that of an Apricot, having a bright orange colour, covered with a delicate bloom, and attaining a size of from 2½ to 3 inches in diameter. The flavour approaches that of an Apricot, gradually passing into that of a Medlar, and when fully ripe is very pleasant. A Fruit was exhibited at the Fruit Committee of the Horticultural Society, November 10, 1875. We have a fine stock of two-year-old grafted plants of our own growing, fit for training against a wall or to grow as bushes.

For further particulars, see our Catalogue, free on application.

THE NEW PLANT AND BULB COMPANY,

LION WALK, COLCHESTER.

NOW READY,

NURSERY CATALOGUES FOR 1875-76.

WILL BE SENT POST FREE UPON APPLICATION.

THE LAWSON SEED AND NURSERY COMPANY (LIMITED),

EDINBURGH,

AND

54, BISHOPSGATE STREET WITHIN, LONDON, E.C.

BUSINESS ESTABLISHED, 1770.

LILIES AND OTHER ROOTS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 30, at half-past 12 o'Clock precisely, nearly

5000 MISCELLANEOUS BULBS and TUBEROUS ROOTED FLOWERS,

including from forty to fifty kinds of LILIES from Japan, Peru, California, Bolivia, North America, and other localities, and among them the following:—

DORYANTHUS PALMERI,
SPIGELIA SPLENDENS,
GASTRONEMA SANGUINEUM FLAMMEA,
AMARYLLIS PARDINA,
" " PURPUREA,
" PROCERA,
GODWINIA GIGAS,
COBURGIA, of sorts,
IRIS IBERICA,
COLCHICUM ALBUM PLENUM (pure white),
ANTHERICUM LILIASTRUM MAJOR (fine),
AMERICAN HYBRID LILY, "MELPOMONE"
TREE PÆONIES,
GLADIOLUS DRACOCEPHALA,
DIELYTRA SPECTABILE ALBA,
HARDY CYCLAMENS,
ANEMONE FULGENS,
IRIS KÆMPHERI (fine),
GRIFFINIA, of sorts,
EURYCLES AMBOINENSIS,
HÆMANTHUS, in varieties,
ISMENE, of sorts,
CURCUMA, of sorts,
LILIUM TENUIFOLIUM,
" PULCHELLUM,
GLORIOSA, of sorts.

Those which are hardy for the Flower Garden, are distinguished separately in the Catalogue.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

Lilies by the 100 or 1000.

For Planting in Borders, Shrubberies, among Rhododendrons, Massing in Beds, or Grouping among Shrubs.

MR. WILLIAM BULL, being an annual importer from their native habitats of immense numbers, can offer Choice and New LILIES, also the well-known ordinary showy sorts, at very low prices when taken in quantity. Special quotations on application.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

AVENUE TREES.

	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 "
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 "
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 "
" Scarlet, 10 to 14 feet high	8 to 10 "
" Double, 10 to 14 feet high	8 to 10 "
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 "
ELMS, 15 to 18 feet	7 to 9 "

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots. They are unquestionably the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.

Knap Hill Nursery, Woking, Surrey.

SPECIAL OFFER

to the Trade.

40,000 GOOSEBERRIES, best sorts.
20,000 Northumberland Fillbasket RASPBERRY CANES.
10,000 Red and White CURRANTS.
100,000 EVERGREEN PRIVETS.
50,000 WYCH ELMS.
50,000 STRAWBERRY PLANTS.

Also a large quantity of HORNBEAM, LIMES, OAKS, POPLARS, SYCAMORE, MOUNTAIN ASH, ALDER, BIRCH, TREE BOX, LAURELS, ENGLISH YEWS, BROOM, HONEYSUCKLE, SWEET BRIARS, LILACS and SYRINGAS of all sizes. Price on application to JOSEPH GREEN, The Nurseries, Garforth, near Leeds.

Bulbs, Bulbs.

THE HEATHERSIDE NURSERIES COMPANY (LIMITED), 59, Queen Victoria Street, London, E.C.; Nurseries—Bagshot, Surrey.

Illustrated CATALOGUES Gratis.

Our special Guinea Collection contains:—

9 Hyacinths, choice named.	12 Anemones, finest single.
9 do., in 3 colours for beds.	3 Lilies.
18 Daffodils, double.	25 Ranunculus.
18 Tulips, mixed, choicest double.	18 Narcissus, double, white.
18 do., mixed, choicest single.	18 do., Poeticus.
6 Jonquils.	18 Tulips, Duc Van Thol.
6 Triteleia uniflora.	6 Polyanthus Narcissus, choicest varieties.
50 Crocus, large blue.	9 Violets, Dog's-tooth.
25 do., large white.	9 Iris, English.
50 do., large yellow.	12 do., Spanish.
25 do., large striped.	25 Snowdrops.
12 Anemones, finest double.	

Packing and Carriage Free.

Gladioli.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), has the honour to inform his numerous Friends and the Public that he will be prepared to supply them, on and after November 15 next, at the lowest possible price, with all they may require in Gladioli.

NEW VARIETIES for 1875-76 (Souchet's):—

Amaranth	Leandre
Camille	Miriam
Christophe Colomb	Niobe
Esther	Phœnix
Fiammetta	Rosita
Hecla	Titania.

The Twelve Varieties for £3 12s., carriage free to London.

CATALOGUES will be forwarded on application, about the end of October.

Gladioli.—New Roses.

EUG. VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Paris (and from January 1, 1876, at 37, Rue Clisson, Gare d'Ivry, Paris), will place in commerce, in November next, the following magnificent ROSES, obtained by him from seed, and which gained a Silver-gilt Medal at the Paris Exposition in June:—

HYBRID PERPETUALS.

Abel Carrière	Guillaume Kolle
Dingee Conard	L'Etincelante
Duchesse de Chartres	Mme. Grandin-Monville
Edmund Wood	Mme. Prosper Langier
Général de Cissey	Mdlle. Berthe-Sacavin
Général Duc d'Aumâle	Mdlle. Emilie Verdier.

The Twelve Varieties for £10 16s., carriage free to London.

IMMENSE STOCK of GLADIOLI.

CATALOGUES of Gladioli and of all the New Roses may be had on application, about the end of October.

Surplus Nursery Stock at Reduced Prices.

THOMAS PERKINS has great pleasure in offering the following, which, having been regularly transplanted, are fine and healthy:—

MAHONIA AQUIFOLIA, 1 to 1½ foot.
CEDRUS DEODARA, 1 to 1½ and 1½ to 2 feet.
GARRYA ELLIPTICA, very fine, from pots.
LAURELS, Portugal, 1 to 1½ and 1½ to 2 feet.
BIRCH, fine Standards, 12 to 14 feet.
CHESTNUTS, Horse, Standards, 8 to 10 and 10 to 12 feet.
MAPLE, Norway, Standards, 10 to 12 feet.
LIMES, Standards, 8 to 10, and 10 to 12 feet.
ELMS, Huntingdon, Standards, 8 to 10 feet.
OAKS, English, Standards, 8 to 10 feet.
THORNS, Double Pink, and Paul's New Scarlet, 6 to 8 feet.
ALDER, 2 to 3 feet.
LARCH FIR, 2 to 2½ feet.
SPRUCE FIR, 1 to 1½ and 1½ to 2 feet.
HORNBEAM, 3 to 4 and 4 to 5 feet.
EVERGREEN PRIVET, 2 to 3 and 3 to 4 feet.
BLACKTHORN, fine, transplanted.
WHITETHORN, fine, transplanted.

Special prices of the above on application to 42, Drapery, Northampton.

To the Members of the Royal National Tulip Society and Others.

WILLISON'S CELEBRATED TULIPS.—In consequence of the decease of Wm. Willison, of Newgardens Whitby, this large and valuable Collection, comprising 1300 varieties, is now offered to the public, amongst which are many first-class Seedlings never sent out, also a large quantity of the old named sorts, all in boxes and carefully ARRANGED CORRECT TO NAME. The whole or any quantity for Tenders, and all Tenders must be in by the 30th instant. CATALOGUES on application to

ALEXANDER WILLISON, Esk Place, Whitby.

Dwarf and Standard Roses, &c.

ROSES, splendid Dwarf, as fine as can be bought, 6*s.* and 9*s.* per dozen, 50*s.* per 100; Standards, 12*s.* and 15*s.* per dozen, 100*s.* per 100, all good leading varieties. GOOSEBERRIES, Lancashire Show, 3*s.* and 4*s.* per dozen, 20*s.* per 100. CURRANTS, Red, White, or Black, 3*s.* per dozen, 18*s.* per 100. Trade Price on application.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

LILIUM AURATUM.—Plump and sound English-grown bulbs at 30*s.*, 42*s.* and 60*s.* per dozen. Large importations from Japan are shortly expected, when they will be supplied at 18*s.*, 24*s.* and 30*s.* per dozen.

As Mr. WILLIAM BULL annually imports many thousands of Lilies direct from their native habitats in various parts of the world, he can supply all the choicest sorts at very moderate prices. Good and varied selections can be made by Mr. W. B. at 18*s.*, 30*s.* and 42*s.* per dozen.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

CABBAGE PLANTS for SALE.—Good strong Plants of Early Battersea, Enfield Market, Improved Nonpareil, and Robinson's Champion Cattle Cabbage, can be supplied at 3*s.* per 1000. Package free for cash with order.

The above are all well-rooted stuff, growing on red sand, and cannot fail to give satisfaction.

S. BIDE, Alma Nursery, Farnham, Surrey.

Lilium auratum (Imported).

THE NEW PLANT and BULB COMPANY beg to announce the arrival of their first consignment of the above, in magnificent condition, at very low prices. Lion Walk, Colchester.

Lilium auratum (Home-grown).

THE NEW PLANT and BULB COMPANY have still on hand splendid bulbs, at very low prices. Lion Walk, Colchester.

Lilies, all Known Kinds (Home-grown).

THE NEW PLANT and BULB COMPANY invite intending purchasers to send for one of their CATALOGUES, which, in addition to Lilies, contains a selection of the best Hardy Flowering and other Plants in cultivation, all remarkably good, and such as will give a fine effect next season. The Trade liberally dealt with.

Lion Walk, Colchester.

ANDROMEDA FLORIBUNDA.—Nice bushy plants, from 2½ to 3½ feet high, same through, well set with bloom, splendid stuff for forcing or planting for immediate effect, 10*s.* 6*d.* to 15*s.* 6*d.* each.

RHODODENDRONS, Hybrid Seedlings, 2 to 3 feet, 15*s.*; 3 to 4 feet, bushy, 24*s.* per dozen.

„ RHODODENDRONS, Ponticum, 2 to 2½ feet, very bushy, 15*s.* per dozen.

GHENT AZALEAS, fine named varieties, well set with bud, 1 to 1½ foot, 21*s.*; 1½ to 2 feet, 24*s.* to 30*s.* per doz.

JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

Red Lodge Nursery, Southampton.

W. H. ROGERS begs to call attention to this extensive Nursery, which offers unlimited supplies of FRUIT, FOREST, and ORNAMENTAL TREES, SHRUBS, and AMERICAN PLANTS of every size and description. For Specimen CONIFERS, Hardy Scarlet and other choice RHODODENDRONS the Nursery is unrivalled.

Priced CATALOGUES and every information may be had gratis on application.

Novelties of Sterling Merit Only.

MESSRS. F. SANDER AND CO. beg to inform the Trade that their LIST of NOVELTIES is now ready, and may be had on application. It contains among others a New Scarlet-flowering Silene, Dahlia Maximilliana, a new Yucca, Salvia carduacea, Frasera Parryi, Pentstemon ternatus, P. clevelandi, Tritoma Macowani, Best of All French Bean, New Autumn Broccoli Sander's White Mammoth, St. Alban's All Heart Cos Lettuce, &c.

SANDER AND CO., Seed Growers, St. Albans.

CHOICE WINTER FLOWERS.

RHODODENDRON MULTIFLORUM, with 100 to 200 bloom-buds, 2*s.* 6*d.* to 3*s.* 6*d.* each.

„ PRÆCOX, 1*s.* 6*d.* to 2*s.* 6*d.* each.

AZALEA DAVIESI, 2*s.* 6*d.* to 5*s.* each.

„ HYBRIDA ODORATA, 2*s.* 6*d.* to 5*s.* each.

All nice bushy plants, covered with flower-buds.

A Descriptive Priced LIST of these and other Novelties free on application to

ISAAC DAVIES, Nurseryman, Ormskirk.

ORANGE TREES, CAMELLIAS, FERNS, AZALEAS, and HOTHOUSE PLANTS for SALE.—A Gentleman, having a fine collection of the above, wishes to Dispose of them by Private Contract. All are specimen plants of the first quality, and well worthy the attention of Noblemen and Gentlemen. The Orange trees are in full bearing, and have frequently taken prizes at the Crystal Palace. The Camellias and Azaleas in season are one mass of flower. Apply, by letter, to

L. R., Mr. G. Street, 30, Cornhill, E.C.

Gilbert's New Melon—A. F. Barron.

W. AND J. BROWN are favoured by Mr. R. Gilbert, Burghley Gardens, with sending out the above New Melon, being assured that it is in advance of any preceding it. Received First-class Certificate at the Stamford Horticultural Show: see *Gardeners' Chronicle*, November 20. Price per packet, 3*s.* 6*d.*; trade terms on application.

Nurseries, Stamford and Oakham.

VENN'S BLACK MUSCAT.

JOHN KEYNES

Has a few first-rate Fruiting Canes of this magnificent variety. It is unquestionably the finest Black Grape in cultivation for growth and flavour: 21*s.* each. No Planting Canes. J. K. can also supply a few other kinds grown from last year's eyes, for which he is so celebrated. Fine fruiting well-ripened Canes, 10*s.* 6*d.* each. None left for the Trade.

ROSES.

Fine well-ripened not overgrown plants as usual. These Roses, not having been forced, will grow on any soil.

CATALOGUES now ready. Amateurs, try them.

Castle Street, Salisbury.

HANDSOME LAWN TREES and EVERGREENS.

PICEA MAGNIFICA, true, 2 to 5 ft., 21*s.* each and upwards.

„ AMABILIS, true, 2 to 3 feet, 10*s.* 6*d.* each and upwards.

„ NOBILIS, 1 to 6 feet, 2*s.* each and upwards.

„ NORDMANNIANA, selected varieties, 5 feet, 7*s.* 6*d.* each and upwards.

„ PARSONSI, 4 to 10 feet, 15*s.* each and upwards.

„ NOBILIS GLAUCA 2 to 5 ft., 7*s.* 6*d.* each and upwards.

CUPRESSUS LAWSONIANA, in fine selected variegated and other varieties.

RETINOSPORA, in great variety, variegated and others.

THUJA, CUPRESSUS, CEDRUS, and ABIES, in many varieties, and nearly every variety of CONIFERÆ, offered at very low prices, to effect a clearance.

Some of the above, being selected seminal varieties, are very magnificent specimens. They have been carefully transplanted and grown for Sale.

Application, either personally or by letter, at the Gardens, Whitchurch Rectory, Edgware, N.W., will receive every attention.

COCOA-NUT FIBRE REFUSE (newly made), 20 bushels, 6*s.* 8*d.*; 20*s.* per 100 bushels, 45*s.* per 300 bushels. Larger quantities contracted for.

J. STEVENS, Fibre Works, High Street, Battersea, S.E.

COCOA-NUT FIBRE REFUSE—Sure Protection against Frost—invaluable for all Gardening purposes. Twenty bushels 6*s.* 8*d.*, 50 for 12*s.* 6*d.*, truck, 45*s.* Delivered free within 6 miles, or on to any rail.

THOMAS HODGES AND CO. (late H. WRIGHT), Eagle Steam Fibre Works, Hatcham Road, Old Kent Road, S.E.; Warehouse, 81, Bishopsgate Street Without, London, E.C.

PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17*s.* per ton. A small sample will be sent by Post, free.

W. TARRY, "Golden Farmer," Bagshot, Surrey.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.

BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.

FRESH SPHAGNUM, 10*s.* 6*d.* per sack.

WALKER AND CO., Farnborough Station, Hants.

THE LONDON MANURE COMPANY

(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—

WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

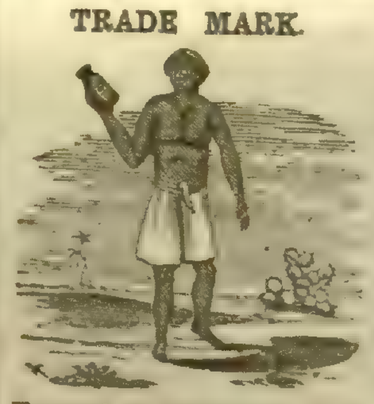
BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass. Retail 1*s.* 6*d.* and 2*s.* 6*d.* per bottle, of the Sole Manufacturers,

BELL AND SON, 10 and 11, Exchange Street, Norwich.

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1*s.* 6*d.* and 3*s.* per bottle—1*s.* 9*d.* and 3*s.* 4*d.* per bottle, if packed for travelling, of the Manufacturers,

EWING AND CO., Norwich.

TRADE MARK.



Entered at Stationers' Hall.

F. STEVENSON'S ABYSSINIAN MIXTURE, Warranted to Destroy Mealy Bug, and all Insects infesting Plants. Unequalled as a Winter Dressing for Vines and Fruit Trees.

Sold by all Nurserymen and Seed Merchants, in Bottles, 1*s.* 6*d.*, 3*s.*, 4*s.* 6*d.* & 5*s.* 6*d.* each.

Inventor and Sole Manufacturer,

F. STEVENSON,
STAMFORD ST., ALTRINCHAM, CHESHIRE.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

GOVERNMENT EMIGRATION.

SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s.*

NOTICE.—The next Ship, "Earl Dalhousie," will sail from Plymouth on the 15th of this month. For passages and further information apply to the AGENT-GENERAL, 3, Westminster Chambers, Victoria Street, S.W.

QUEENSLAND.—Intending Emigrants to Queensland are specially requested to note that the *Western Monarch*, leaving London on November 30, is the last ship this year for Brisbane.

For Free or Assisted Passages apply to the Agent-General for Queensland, 32, Charing Cross, London, W.C.

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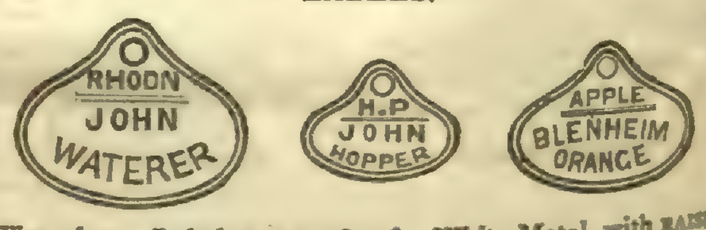

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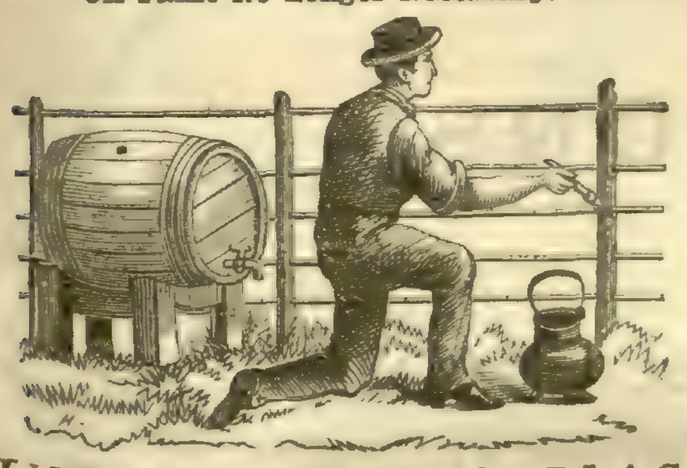

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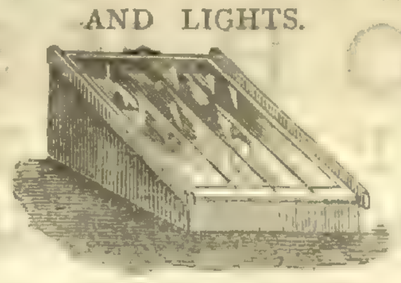

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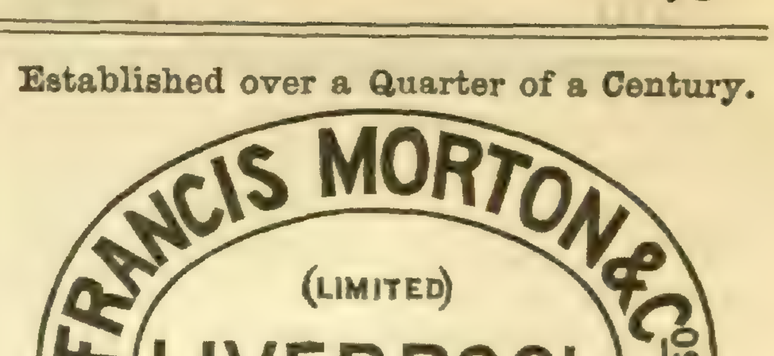

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SATURDAY, NOVEMBER 27, 1875.

THE SHEPHERD'S PURSE.

THERE are few subjects which present more points of interest to reflective minds than is afforded by the distribution of weeds. What constitutes a weed may perhaps be difficult to define in precise terms, although every one knows off-hand what is meant when we speak of a plant by that uncomplimentary title, and one of their disagreeable peculiarities has passed into a proverb—"Ill weeds grow apace." But the real puzzle is as to where they came from in the first instance. What, for instance, is the native country of any one of our common weeds? Who has seen the Shepherd's Purse, for example, in any locality where it is not dependent upon, or an accompaniment of, cultivation? If we recollect rightly, Dr. Hooker mentions having encountered this with two or three other weeds of civilisation wherever cultivation was found in his various travels; but we should seek in vain to determine its native country—a region where it exists apart from and independently of cultivation. In America, Dr. Asa Gray says, it is now "the commonest of weeds," but he speaks of it as "naturalised from Europe." In a country like America, the progress of the establishment and spreading of introduced plants can be traced with some degree of certainty, and in some instances the date of the first appearance or introduction of a plant is definitely or approximately known. This, for instance, is the case with the Yellow Toad-flax (Linaria vulgaris), by means of which a Mr. Ransted has "built himself an everlasting name," and gained, also, the execrations of American farmers. The former is evidenced by the fact that this Toad-flax bears in the States the name of this person (a Welsh settler in Philadelphia, who introduced it as an ornamental plant), being commonly known as Ransted, or Ransted Weed. As to the latter, an American writer, as long ago as 1758, is sufficiently explicit when he says:—"It is the most hurtful plant to our pastures that can grow in our northern climate. . . . Never was a plant more heartily cursed by those that suffer from its encroachments." It would not be difficult to cite instances of similar introductions in the history of the botany of any country, our own small island not excepted; but we shall seek in vain for any indication as to where our Shepherd's Purse or Groundsel first appeared in England, or as to the country from which they were introduced, if they are not indigenous to the soil.

Weeds as they are, and insignificant as they appear, the above-mentioned plants are among those which are to be collected at all seasons of the year; even in the depth of winter they may be found in blossom, and at such a time are more likely to obtain notice than when other and more attractive plants claim our attention. Let us look a little into the popular history of the Shepherd's Purse, which, although now a plant of no importance, was not without its admirers in the days when every plant had its "vertues," and when faith was more lively than it is in this age of railroads and electric telegraph.

The Shepherd's Purse appears to have been especially esteemed as a styptic: Langham, in the *Garden of Health*, says: "Bursa pastoris; bloud to staunch, hold thy hands full of it: nose-bleeding, binde it about thy neck, and hold thereof in thy hand, and also use it in thy meats." It was not only medicinally that the plant was used with "meats." Barton says that in Philadelphia the young root-leaves are brought to market and sold as greens in the spring of the year; and Mr. Fortune says that it is exposed for sale on stands in front of the shops of Shanghai. Langham gives twenty-nine cases in which it may be beneficially employed, from which we cite one which may be tried by any of our readers who may happen to be plagued with that dreadful infirmity—"a sad raging tooth." For "teeth ach," he says, "grind it with Sage and kinds and like much [such?], and put it in a linen bag, and hold it to thy teeth, and shut thy mouth while one may say three *Pater nosters*, then open thy mouth, and let out the glutt, and do so as often as need is." "The juice alone doth heale a new wound, and stoppeth bloud;" in fact, many of its uses point to the power, real or supposed, of the plant as a vulnerary, and it is rather remarkable that this property is not referred to in any of its popular names, which, as we shall see shortly, are both varied and numerous. "Toothwort," however, a name given by Gerard for the plant in his "supplement or appendix" of names "gathered out of antient written and printed copies, and from the mouthes of plaine and simple country people," no doubt refers to its above-mentioned use in cases of toothache.

The form of the pod, to which the Shepherd's Purse owes its English and Latin names (Capsella Bursa-pastoris), has suggested similar titles in all or almost all the languages of the Continent: thus the Italians call it Borsa di Pastore; the French, Bourse à Pasteur; the Germans, Hirtentasche; and the Spaniards, Bolsa de Pastor.

Its older English names mostly refer to the same feature, although two or three embody other allusions. "The seeds of it," says Coles in his *Art of Simpling*, "resemble the leatherne bagge wherein shepherds put their victuals;" and in Buckinghamshire it is called Shepherd's Pockets, in Moray Witches' Pouches, and in the Eastern Border district Ladies' Purses. Some of its older names point, although less obviously, to the same idea; "Caseweed," for instance, is, says Dr. Prior, from "the French *caisse*, Latin *cupsa*, a money-box;" and "Clappedepouch," on the same authority, is a nickname, meaning clap or rattle pouch, from clap, in Dutch *klaffen*, and alludes to the licensed begging of lepers, who stood at the crossways with a bell and a clapper. "The lepers would get the name of rattle-pouches, and this be extended to the plant in allusion to the little purses which it hangs out by the wayside." "Pickpurse" or "Pickpocket," by which names the plant is known in several counties, points again to the similarity of the seed vessels to a purse or pouch, perhaps with a covert allusion to the injury done to the farmer by so common a weed. In the quaint old name, "Poor man's parmacetie," Dr. Prior sees "a joke on the Latin name *bursa*, a purse, which to a poor man is always the best remedy for his bruises;" but Coles' explanation of the name, that the plant is "in some not effectual for the same things Parmacetie is," although prosaic, is probably the correct one.

Among the oddest of the ways in which the Shepherd's Purse is employed, is that in which it is used by the London children. A boy will pluck a stem and offer it to a comrade, requesting him to pull off a seed-vessel, and should he do this, he is told he has picked his mother's heart out! A childish game, certainly, and hardly worth mention, except that, trivial as it is, it finds an echo in widely distant lands, and is thus one of those small connecting links which bind mankind together, and point to a common origin. In England, indeed, the practice is not confined to London children, it is found at Birmingham, where the plant is

called "Mother's heart;" and in Lancashire it is known by the same name. The superstition extends yet further north, as the following quotation from Johnston's *Botany of the Eastern Borders* will show. He says: "Children have a sort of game with the seed-pouch; they hold it out to their companions, inviting them to 'take a head o' that.' It immediately cracks, and then follows a triumphant shout, 'You've broken your mother's back.'" In Hanover, Dr. Seemann tells us, a child will ask its playmate to pluck off a seed-vessel, and will then say, "You have stolen your father's purse of gold;" and in each of these cases the trick, if such it can be called, was doubtless suggested by the shape of the pod. But one distant echo of this childish game comes across to us from the New World, associated indeed with a different plant, one of the commonest of tropical weeds, but affording a striking and unmistakable coincidence. The Venezuelan vernacular name of Ageratum conyzoides is "Rompes araguëlo," which, Mr. Ernst says, "is explained by some as 'Rompes á tu abuelo' ('You tear your grandfather'), with reference to a child's play. One child takes hold of the lower part of a leaf, another of the upper. If one pulls so hard as to tear the leaf, the other exclaims, 'Rompes á tu abuelo.'" It is only fair to say that Mr. Ernst does not support this derivation of the name, although he proposes no other; but the existence of such a custom among the children of Venezuela is certainly a remarkable coincidence. In England this idea of some misfortune to a parent resulting from the plucking of a particular plant is found in other cases. In some parts of Yorkshire, for instance, the children say that if you gather the Germander Speedwell (Veronica Chamædrys) your mother will die within the year; while in Cumberland the Red Campion (Lychnis diurna) is called "Mother-dee," from a belief that, if plucked, some serious misfortune to the parents of the gatherer will result as a consequence. *B. M.*

CORNUS STOLONIFERA.

SEEDS of the plant represented by the annexed engraving (fig. 138) were sent by a correspondent, from the Rocky Mountains, under the above name to Messrs. Veitch & Sons, of Chelsea, by whom they were raised. Subsequently, by some misadventure, the name of Cornus capitata got attached to the plants, and they have distributed specimens under this name which have been noticed by some of our contemporaries. The plant can, however, have nothing to do with C. capitata, which is an involucrate species from the mountains of India. It will be seen that the plant comes near Cornus alba, and as C. stolonifera is quoted as a synonym of that species, it is probably the plant described under that name by Michaux. The abundance and beautiful effect of its white berries seem to have led to its being supposed to be a novelty. Whether or not there may be anything in the habit of the plant at all distinctive, we have had no opportunity of ascertaining; or whether it is more fructiferous under equal cultural conditions than C. alba, we cannot say. It is certainly a very ornamental deciduous shrub alike in summer when blossoming freely, in autumn when laden with berries, or in winter when, stripped of its leafy honours, its bright red bark becomes conspicuous.

SALAD HERBS IN 1669.

A VARIETY of good kinds of salad herbs is so very desirable that the recent remark at p. 550 of the *Gardeners' Chronicle*, as to the diet of our forefathers, suggested whether something might not be found to restore to the number of those now used, in the catalogue laid by Evelyn before the Royal Society (published in 1669) under the title of *Acetaria—a Discourse of Sallets*.

The list includes no less than seventy-three different species of plants, with a few lines, or in some cases a more lengthened notice of each attached, and a slight mention of several others occurs in the general remarks, but the perusal certainly leaves the impression that the salad bowl of the present day, though holding only a few favourites, is preferable to the selection endowed with such various virtues that the proportion admissible into what is termed by the author "the composition" had to be adjusted with great care, that the composing parts might counterbalance each other in effect. In the skilled hands of their commentator, his *Acetaria* were doubtless most safely mingled, but many of the herbs if only imaginarily possessed of such powerful qualities, are better absent from the table, and many of the others would be distasteful to most palates.

The list is headed by the buds and tops of Alexanders (Smyrnium Olusatrum); Basil, Balm, Blite (Chenopodium Bonus Henricus), and Borage are recommended for their tops and leaves.

Buds of various plants, "such as Ashen keys," Broom buds, &c., are to be sprinkled over the salad, and Chervil tops "are never to be wanting in our salads (as long as they may be had)."

Clary, Cleavers (Galium Aparine), and Cresses (Nasturtium) are followed by Cucumber, with the observation that not long since this was thought "little better than poyson."

The Daisy is mentioned for its roots, and Earth-nuts as being eaten "crude by rustics," and Elder leaves, though "somewhat rank of smell, and so not commendable in salad," yet as being of most "sovereign vertue."

Endive and the tops and stems of Fennel are mentioned, with a general recommendation of the "aromatick esculents." Garlic is most proper for "our northern rustics," and the root of Goat's Beard (Tragopogon) and buds of Hop are followed by Hyssop, Thyme, Marjoram, and Marigold as "of faculty to comfort and strengthen, prevalent against melancholy"—very desirable, one would imagine, after the previously mentioned selections, especially the Elder, of sovereign virtue and bad smell.

Jack by the Hedge and Leeks precede a long and interesting note on Lettuce, with the mention of eighteen kinds then known.

Mallow is noticed as formerly (poetically) being the representative of all salad, with a doubt whether "Holi-hocks" that bear the broad flower, are not the best, but by reason of their clamminess not desirable; and Mint is supposed good when gently pressed.

Mushrooms appear to have been held in such utter abhorrence by the author, on account of the "funest accidents" caused by their use, that he purposely forbears mentioning how to prepare them, instead (as a farther deterrent) referring the reader to Dr. Lister's account of the venomous insects found in a specially favourite kind.

Buds and leaves respectively of Nettles and Orache, young seedling Oranges from the hot-bed, young pods of the Sugar Pea, Parsley leaves, young growths of Purslane, roots of Rampion, tops of Sage, Samphire, and Scurvy-grass lead on to Celery, apparently the most esteemed of the whole collection. The "Sellery," he tells us, "for its high and grateful taste, is ever placed in the middle of the grand sallet at our great men's tables and proctor's feasts, as the grace of the whole board."

Sorrel, Sowthistle, and Stonecrop all appear with the doubtful recommendation to Chicory of it being more "grateful to the stomach than the palate," a remark which possibly might apply to Tansy also.

Tarragon is mentioned as never to be left out, and the young stalks of the Blessed Thistle are "wholesome," and the list concludes with Vine tendrils, Viper's-grass, and Sorrel.

Many other plants are mentioned, some of which are now used, as Beet and Radish; others, as Cabbage and Turnip, seem scarcely to come within the limits of the author's definition of a salad, as "a composition of edule plants and roots of several kinds, to be eaten raw or green, blanched or candied." Some plants are mentioned as "gone out," as the Tulip bulb, though "the young bulbs are sweet and high of taste;" and the use of the great number of plants in the salad appears to have only arisen about the time of writing the treatise, as Evelyn remarks in his note on the various kinds of Lettuce, that "besides three or four sorts of this plant and some few of the rest, there was within our remembrance rarely any other salletting served up to the best tables."

When the plants commonly used at the present day are removed from the list, a large proportion of the others appear to have been selected rather for their aromatic taste, or some peculiar pungency (finding its climax in the Cicuta, which the author especially warns his readers against as being "certainly mortiferous" in our climate), than for the cool crisp succulence that is the charm of our own salad, which, though of few kinds of plants, yet has the advantage of being a safe addition to the table, and pleasant to most palates, and in its pure white, deep red, and varied green tints, capable of very ornamental arrangement.

Looking at Evelyn's high rank as a practical worker, as well as a scientific horticulturist, any question on the subjects he loved so well would have been so certain to bring out all his stores of knowledge for the pleasure of those round him, that a short abstract of what *in extenso* occupies more than eighty-eight of his 4to pages may perhaps be of interest to compare with our own list of the present day, short in comparison, yet corresponding nearly with that of Evelyn's early recollections. *O.*

THE ROFIA PALM.

THE Rofia Palm, Sagus Ruffia, is a singularly rich and stately tree, and is an inhabitant of the low undulating country between the lakes which line the east coast of Madagascar and the hills which bound the first terrace or plateau of the higher country. On the route from the coast up to the capital the zone of Rofias is met with at Maronby, on the banks of the Tharoka River, and ceases soon after Ranomafana, 145 feet elevation. It is fond of malarious and marshy localities. In this region it is so abundant and conspicuous as to impart something of the character of its own graceful form to the surrounding scenery. The Rofia Palm is replaced by the Ravenala (Urania speciosa), but they are both found together about Ranomafana, west of Ambátocrána, 595 feet, about 10 miles beyond Ranomafana. On ascending the hill of Tániakova—"the weeping place of the Hovas"—the Rofia disappears; but it is found in the valley of the Mahela.

The Rofia is a most useful economical plant, as its tough midrib is a strong wood, and is useful for many purposes, for building, &c. Whilst the fibre obtained by splitting the leaves is employed as twine, and is also woven into a strong waterproof cloth, the broader pieces of the leaf when split to any required breadth form a first-class bast for tying up plants, weaving into baskets, &c., and has been imported into Europe for horticultural purposes. It was introduced some years since to this country and created a demand; but it appears as if but little is still known about this most useful of trees, which covers hundreds of square miles, and which could be imported at small cost from its vicinity to the coast.

The threads are made by slitting the long inner leaves of the Rofia, and somewhat resemble those of Flax or Hemp (?), but are used flat and untwisted; as they seldom exceed 3 or 4 feet in length, the natives are accustomed to tie them together, till they are sufficiently long to admit of being woven into cloth. The cloth is always woven in the house in which the family reside, and the loom is generally fixed near the door.

The looms are exceedingly simple. When the thread is ready the Hovas warp it by driving four pieces of wood firmly into the ground, and wind the thread round two of them, and between the other two, according to the pattern laid before them. Having finished this process, they tie together the threads of the several colours which form the pattern, and remove it into the loom, or put it up in a basket until required. If the warping be for common cloth, it is easily done; but if it be for diamond or coloured work, great attention is necessary in counting and changing the different threads. The coloured patterns of finer cloths are produced by dying the threads, not by colouring or printing the cloth after it is woven. Hence they resemble what in England are called gingham and plaid patterns. These patterns are arranged with great exactness and taste, and the colours, almost always rich and deep, are much more varied than might be expected, considering the ignorance of chemistry in their formation.

The cloth is made in pieces generally about 4 yards in length and nearly a yard wide. The texture of the cloth is rather coarse and stiff to the touch, but exceedingly tough and durable; the colour is a sort of nankeen-yellow, with two or three stripes of blue, produced by a preparation of native indigo extending through the whole length. Rofia cloth is used for many purposes in the island, and constitutes almost the only clothing of the labouring classes. The process of weaving is laborious and slow. The loom consists of two strong pieces of wood, rounded on the side, over which the threads of the warp are passed. These pieces of wood are called "voditenona," or ends of the warp. They are made of the branches of the Rofia Palm, and are put through the warp in order to stretch it out at both ends. One of these pieces of wood is passed through the warp at each end, and fastened to the upright posts in the floor. They are drawn nearer together or removed farther apart by cords tied to posts, two of which are driven firmly into the ground at each end. By this means the weaver can tighten or slacken the warp, drawing up towards her what is done, and bringing the remainder nearer, as the progress of the work may require.

The shuttle used by the Malagasy weaver is a piece of round stick, pointed at one end for the purpose of being passed more easily between the threads. The knocker of the weft, called "tantanana," is made of wood, and resembles somewhat a scythe. The woman employed in weaving puts this between the

threads of the warp in order to open them, and then, after throwing in the shuttle, knocks the threads two or three times before she draws it out; and in this manner, with the assistance of a moving rod in the warp to open the threads, and the pressure of her left hand, the process of weaving is continued.

The small rod placed across the warp, to regulate the width of the cloth, is called "tohatenona;" besides which there are two other rods, for the purpose of keeping the threads separate. The weaver also uses a small bodkin, called "tofy," for the same purpose. Most of the females in Madagascar are supposed to be able to weave, and in many instances the garments used by all the members of the family are home-made.

Andevoranto, at the mouth of the River Tharoka, may be looked upon as the head-quarters of the Rofia cloth manufactory. Outside the houses may be observed numbers of women employed in peeling the leaflets of the Rofia Palm, and splitting the tough thin skin into threads; others may be seen arranging the threads for their warp, under the shade of over-spreading trees near their dwellings. This neighbourhood is rather celebrated for the peculiar strong cloth, of which a specimen is enclosed; finer cloths are also made. *S. P. Oliver.*

LACHENALIAS.

THESE are perhaps the most useful and beautiful of all the medium growing Cape bulbs, and not half so much grown as their merits deserve, as they are easily managed, sure bloomers, and come in at a time when flowers are scarce, without any trouble or expense in forcing. The best varieties to grow are pendula, quadricolor, and tricolor, all of which are exceedingly showy; the flowers of the former being red, tipped with purple and green, and the latter scarlet, yellow, and green. The bulbs may be bought at a cheap rate from any of the nurseries, and no time should be lost in getting them, so as to have them in bloom early in the coming year.

The two sizes of pots known as deep 48's and 32's are the best and most useful sizes to grow them in, as these are quite large enough for ordinary purposes, and correspond better with the height and size of the plants than would others of larger dimensions. The soil best suited to grow them in is a rich yellow loam that may be got by digging the top spit from any old pasture, and such as is in general use in most gardens for potting purposes. To this may be added a little sand and some well decomposed cow manure, or any other that has lain for some time so as to become thoroughly sweetened. Instead of mixing much with the soil it is better to use a portion at the bottom of each pot, immediately over the crocks, as then the roots find it out just at the time the bulbs are emitting their flower-spikes—a time when such assistance is of great use in developing large heads, and helping to carry them out in the greatest state of perfection. Used in this way there is no fear of the manure coming in contact with the bulbs, as would be the case were much mixed up in the soil. I always prefer, when potting any kind of bulb that is likely to be benefited by the use of manure, to have it at the bottom of the pot, as above advised, as few bulbs require any assistance that way till the flower-head begins to tax their energies for support. A dash of soot mixed in with the manure, or used separately, will be found a powerful fertiliser, and one that helps to give a healthy green tinge to the foliage, and impart more brilliant tints to the flowers.

The number of bulbs required for each pot will vary according to their size and strength, but may be roughly stated at from seven to twelve for the 48's, and from twelve to eighteen for the 32's. In potting, these should be placed regularly over the surface of the soil, through which just the tip of the bulb

FIG. 138.—CORNUS STOLONIFERA.

should be allowed to peep. The bulbs being of small size, the most expeditious way will be to fill the pots sufficiently with soil, and then to insert the bulbs at equal distances, but previous to doing this a pinch of sand should be dropped into the hole on which to place the base of the bulb, and this will prevent decay and aid the formation of roots. Press the soil gently round the bulbs, but do not give any water till they get well into leaf, and unless the soil should become very dry. More losses occur amongst bulbs from premature waterings than from any other cause, and until active growth commences it should be avoided as much as possible. To obviate the necessity of giving water till there is ample leafage to carry it off, and counteract any injurious effects that would be likely to result from its use, the pots containing the bulbs should be stood on the floor of a cool moist pit or frame, or be plunged in a bed of coal ashes or other suitable material, so as to prevent the dry air from acting on the pots. They should then have the lights placed over them, and be covered up with a mat till light is rendered necessary when they begin to grow.

A cold frame with frost thoroughly excluded is the best place to grow them in, provided they are not too far from the glass, as in that case they would be drawn up weak. When well advanced they may be placed on the front shelves of a greenhouse or other suitable position, where they will last in great beauty for at least two months. Lachenalias are very impatient of artificial heat, and therefore will not bear forcing, as when subjected to that treatment they send up poor spindly spikes, and the flowers bear no comparison in size and colour to such as are allowed to come on naturally in a cool temperature. After blooming the plants should be placed in some suitable position to finish their growth and ripen their bulbs, as success the following season depends in a great measure on the treatment they receive at that time. It is too often the practice to thrust things aside the moment they have done blooming, and this is especially the case with bulbs, whereas a little extra attention in growing them on would repay for the labour bestowed, and have the most satisfactory results. *J. S.*

HYBRID PLANTS,

RAISED BY MESSRS. J. VEITCH & SONS.

ONE of the most interesting "exhibits" at the last meeting of the Royal Horticultural Society was undoubtedly that of the hybrid and cross-bred plants shown by Messrs. Veitch & Sons, Mr. J. Wills, and others. Time was when some straitlaced botanists set their faces against hybrid plants, owing to the confusion and difficulty they occasioned in the determination and classification of species. Of late years, however, this feeling has almost entirely died out. It is felt, and more strongly than ever since the publications of Mr. Darwin, that any evils of the nature we have mentioned, are far more than compensated for by the increased knowledge we gain of the life-history and physiology of plants. The ideas of the existence and limitations of species gain in clearness and precision from the study of these hybrids, while those who deny the actual existence of species in an absolute sense find it essential for practical purposes to assume the existence of such groups, and to define them by arbitrary methods, such methods being sought for, *inter alia*, in the experiments of the hybridist.

The practical horticulturist, fortunately, never had any scruples, but went on hybridising and crossing, with the result of immensely adding to our stores of beautiful flowers and tasty fruits. Improved habit, greater hardihood, more profuse flowering, earlier or later blooming, as the case may be—all these, and many more advantages, have arisen from this fascinating art of the cultivator. Long may it flourish.

We could wish, however, that the practice were carried out in a more systematic manner. A definite object and purpose should be had in view, the greatest possible precautions should be taken to ensure accuracy and to record exactly. In many cases we suspect the "cross" is mere haphazard, and the parentage erroneously entered. Greater exactness should be employed in the use of terms. At present a large proportion of gardeners confound true hybrids, crosses, seedlings, *métis*, and the like, so that, in the absence of further information, it is impossible to know what they really mean. Some years since, at the very first meeting of the Scientific Committee (see *Gardeners' Chronicle*, 1868, p. 491), Professor Alph. De Candolle advised the use of certain signs to distinguish the several classes of hybrids, *métis*, and the like. We felt at the time that the proposal, though excellent, was one not likely to be adopted by gardeners or nurserymen, and that this is so is shown by the fact that though we have ourselves made use of the sign × to denote a hybrid, in cases where we were reasonably sure of the hybrid origin, yet the example has been by no means generally followed.

Some general agreement should also be come to as to the nomenclature of these plants. As a general principle we should prefer that Latin names were not given to these artificial productions at all, or that such names should be confined to unmistakable hybrids between well known species, such as × Cattleya exoniensis, a hybrid between Cattleya Mossiæ and Lælia purpurata. But when we have to deal with doubtful hybrids, or crosses between hybrids, then, as a matter of preference, we should employ English names. As to the objection sometimes made, that plants with English names attached would not sell, we venture to doubt this. Begonia Model, we have no doubt, sells just as well as × Begonia intermedia. The list which we subjoin has been furnished us by Messrs. Veitch, and is an illustration of the skill and success of Mr. Dominy, and of those, like Mr. Seden, who are treading in his path.

Progeny.	*Parents.*		
Nepenthes—			
,, Dominii	N. Rafflesiana	and	N. species (green).
,, hybrida	N. distillatoria	,,	N. species (spotted).
,, ,, maculata	,,	,,	,, ,,
,, Sedeni	,,	,,	,, (red).
,, Chelsoni	N. Hookeriana	,,	N. Dominii.
,, intermedia	N. species (very dark)	,,	N. Rafflesiana.
Cattleya—			
,, exoniensis	C. Mossiæ	,,	Lælia purpurata.
,, Dominiana	C. amethystina	,,	C. maxima.
,, ,, alba	,,	,,	,,
,, ,, lutea	,,	,,	,,
,, ,, hybrida	C. granulosa	,,	C. Harrisoni.
,, Sidneana	C. crispa	,,	C. granulosa.
,, Brabantiæ	C. Loddigesii	,,	C. Aclandiæ.
,, quinquecolor	C. Aclandiæ	,,	C. Forbesii.
,, devoniensis	C. crispa	,,	C. guttata.
,, Manglesii	C. Mossiæ	,,	C. Loddigesii.
,, Veitchii	C. crispa	,,	C. labiata.
,, hybrid maculata	C. guttata	,,	C. intermedia.
,, fausta	C. Loddigesii	,,	C. exoniensis.
Cypripedium—			
,, Dominii	C. Pearcei	,,	C. caudatum.
,, Harrisianum	C. barbatum	,,	C. villosum.
,, vexillarium	,,	,,	C. Fairrieanum.
,, Sedeni	C. Schlimii	,,	C. longifolium.
,, Marshallianum	C. concolor	,,	C. venustum pardinum.
,, Arthurianum	C. Fairrieanum	,,	C. insigne.
,, selligerum	C. lævigatum	,,	C. barbatum.
,, hybridum	C. Stonei	,,	,,
,, tessellatum	C. concolor	,,	,,
Calanthe Veitchii	C. vestita	,,	Limatodes rosea.
,, Dominii	C. Masuca	,,	C. furcata.
Phaius irroratus	P. grandiflora	,,	Calanthe Veitchii.
Anæctochilus Dominii	A. xanthophyllus	,,	Goodyera discolor.
Goodyera— ,, Veitchii	G. discolor	,,	Anæctochilus Veitchii.
,, Dominii	Anæctochilus Lowii	,,	Goodyera discolor.
Aerides hybridum	Aerides affine	,,	A. Fieldingii.
Lælia Pilcheri	L. Perrini	,,	Cattleya crispa.
,, ,, alba	,,	,,	,,
,, flammea	L. cinnabarina	,,	L. Pilcheri.
Dendrobium—			
,, Dominii	D. nobile	,,	D. moniliforme.
Zygopetalum—			
,, Sedeni	Z. maxillare	,,	Z. Mackayi.
Chysis Chelsoni	C. bractescens	,,	C. Limminghi.
Alocasia—			
,, Sedeni	A. Lowii	,,	A. metallica.
,, Veitchii superba	A. Veitchii	,,	A. Lowii.
,, intermedia	A. longiloba	,,	A. Veitchii.
,, Chelsoni	A. metallica	,,	A. macrorhiza.
Dracæna—			
,, hybrida	D. magnifica	,,	D. albicans.
,, Taylori	,,	,,	D. Moorei.
Rhododendron—			
,, Princess Royal	R. javanicum	,,	R. jasminiflorum.
,, Princess Alice	R. Edgworthi	,,	R. ciliatum.
,, Princess Alexandra	R. Princess Royal	,,	R. Brookii.
,, Princess Helena	R. Lobbii	,,	R. jasminiflorum.
,, Princess of Wales	,,	,,	R. Princess Royal.
,, Princess Thyra	R. Brookii gracilis	,,	R. Princess Helena.
,, Cr. Princess of Prussia	R. Princess Helena	,,	R. Brookii gracilis.
,, Duchess of Teck	R. Lobbii	,,	R. Princess Royal.
,, Duchess of Edinburgh	,,	,,	,,
,, Prince Leopold.	,,	,,	,,
Begonia—			
,, Sedeni	B. species	,,	B. boliviensis.
,, intermedia	B. Veitchii	,,	,,
,, Chelsoni	B. Sedeni	,,	,,
,, Stella	B. Veitchii	,,	B. Sedeni.
,, Vesuvius	B. Clarkii	,,	,,
,, Excelsior	B. cinnabarina	,,	B. Chelsoni.
,, Model	B. Pearcei	,,	B. Sedeni.
,, Acme	B. intermedia	,,	,,
,, Emperor	B. Clarkii	,,	B. Chelsoni.
,, 30 C.	B. Sedeni	,,	B. intermedia.
,, 90 A.	,,	,,	B. Stella.
,, Dominii	B. rex	,,	B. argentea.
Amaryllis— ,, Chelsoni	A. Ackermanni pulcherrima	,,	A. pardina.
,, maculata	,,	,,	,,
,, Brilliant	,,	,,	,,
Fuchsia—			
,, Dominiana	F. spectabilis	,,	F. serratifolia.
Philageria—			
,, Veitchii	Lapageria rosea	,,	Philesia buxifolia.

LEYBOURNE GRANGE,

THE SEAT OF SIR HENRY HAWLEY, BART.

THIS fine place is situated in one of the most beautiful and fertile parts of Kent, and about a mile and a half from the West Malling Station on the London, Chatham, and Dover Railway. The doings at Leybourne Grange, in a sporting sense, have tended to make the place popular to those who follow in that line, but my present object is of quite a different nature, namely, to give a few interesting details connected with the doings in the garden.

The mansion is a noble structure, surrounded by a beautiful and finely-timbered park of from 400 to 500 acres in extent, where fine specimens of both the Oak and Elm abound; and in the wood adjoining the park are two Elm trees joined together, at about 8 feet from the ground, by a limb, looking like a horizontal beam running across straight from one trunk to the other, and without the slightest appearance of ever having attained that peculiar position by any artificial aid: if such has been the case it must have been done when the trees were very young. This connection is about a foot in diameter, while the trunks of the tree are of more than the average size in girth; they have always been objects of interest in the neighbourhood. After inspecting these, and making my way by the back of the mansion, and passing through an orchard of fine trees, consisting principally of Apples and Pears, I came to the gardener's house, and there I met Mr. Bowman, the head gardener. His house is a model of what a gardener's house ought to be; it is modern in appearance and both commodious and convenient, and is situated in one corner of the kitchen garden, to which it makes an appropriate finish; it is connected with a row of forcing-houses, so that Mr. Bowman has not to run outdoors to attend to heat. The bothies for the young men, too, are comfortable and convenient, having also a communication under cover for night-work, and they are at a very moderate distance from the surrounding houses.

Readers of the gardening papers will doubtless remember Leybourne Grange as being at one time more of a plant-growing place, and they will not easily forget the magnificent specimens of Azaleas and other plants being disposed of by auction about five years ago; they were generally considered to exhibit first-class cultural skill, and realised high prices. I believe in those days it was not an uncommon thing for Mr. Bowman to cut 500 blooms of Roses at a time in the early spring months, all forced; 2000 plants of Poinsettias were grown yearly, and other plants in proportion, because 300 plants were required for the house weekly and cut flowers in proportion daily. At that time the failing health of the late Sir Joseph Hawley induced him to take a mansion at Brighton, and to dispose of the Leybourne collection of plants, and transform the place entirely into a fruit-growing establishment, so that Leybourne Grange has passed through two distinct branches of gardening, and it is as a fruit-growing place that I wish to make a few remarks upon it.

Leaving the gardener's house we enter a range of four vineries, each about 25 feet long, all lean-to's, and which then (April) had excellent crops of early Grapes, while others coming in succession were bearing well, and when I saw them again, some time after, they had finished off well, and the foliage was still large and healthy. We next enter a large span-roof house, planted at the same time with late keeping sorts; these, at both of my visits, were, if possible, better than the others. At the west side of the last house was a range of hip-roofed houses divided into three compartments, these were formerly stove plant-houses, but latterly had been fitted up with stages for Strawberry forcing. When I saw them in spring there were excellent crops of ripe fruit, one pot of Sir Charles Napier had as many as thirty-five fruit on it ripe at one time: they were an excellent show. Mr. Bowman has gathered as much as 41 lb. weight at a picking. Five thousand pots were annually grown, and the sorts were Keens' Seedling, Margaret, Sir Charles Napier, and President. Many sorts have been tried, but these Mr. Bowman considers the best. In front of these houses is a long range of pits in which Cucumbers were grown extensively. The sorts were principally Telegraph and Monro's Duke of Edinburgh; the first one is considered here to be the best, being such a perpetual bearer, 150 being cut of a morning. These were all grown on a common plant stage over the pipes just by laying thin turf over and then the soil. No manure was used, but then the loam is strong at Leybourne and of a soft turfy nature—the herbage in the park will give evidence of that; very little soil was used at first, but dressings were given when necessary, with plenty of heat and manure-water, and they did extremely well. A good framing ground is close to these buildings, where Melons are grown, where the bedding plants were turned out. Several sorts have been tried, but Mr. Bowman reduced them to Golden Perfection, as being the best for general purposes.

We now pass on towards the mansion, and the first thing that meets the eye is a noble conservatory, an ornamental building, quite in character with the mansion to which it is connected; this, too, is turned into a vinery; it is high pitched, and the Vines have consequently had more distance to run, but they had reached the top and the crop was good, though they have not yet been fully cropped. The canes they have made this season are very promising, as they are in the other houses: none of the canes were too large and pithy, but moderate, which is safest for well-ripened wood and a crop of good fruit in future. The borders have all been made under Mr. Bowman's superintendence, and at considerable expense, but it is not many who can boast of such a fine loam with which to make them. A heap of 200 or 300 loads lay there still unused, and of the finest texture.

The flower gardens are not so extensive, being reduced at the time the sale took place; but there is a nice-sized garden in the Italian style on the south side of the mansion, which contained good samples of the usual style of bedding. Rhododendrons are a grand feature here; a good preparation has been made for them by working in 500 loads of good peat, and their healthy appearance suggests that they have been well attended to with water, as there is a nice piece of ornamental water near them, in which Water Lilies flourish amazingly. A few good specimens of coniferous plants ornament the other parts of the pleasure-grounds. From these, passing through an American garden, as well as a good collection of herbaceous plants, we wind through ornamental walks till we come to the

Kitchen-garden, which is about 2 acres in extent. The main things to notice here are the finely-grown pyramidal Pear trees, mostly worked on the Quince stock. Seven years ago Mr. Bowman proved that they did not succeed well there on the Pear stock, and planted them on the Quince, and certainly they are handsomely grown and healthy. I saw them loaded with fruit, and one tree yielded 2 bushels, the others in proportion to size. Espaliers also do well—a form of training which ought to be practised more than it is; it looks well, takes up little space, and trees fruit well when trained in that way. The vegetables show that a good deep soil exists here, for they are one and all excellent. At the lower part of the garden is a Peach-house 120 feet long, well covered with trees—no specially prepared border, Mr. Bowman assured me; this will also tell the nature of the soil. It has seldom been my lot to witness such healthy trees as they were on both of my visits—such foliage as is seldom seen, not a trace of red-spider or any other enemy. It would, I feel sure, be acceptable to your readers if Mr. Bowman were to give a detailed account of his treatment of them. The back wall was covered thoroughly, and those trained on a semicircular wire trellis were also finely grown, so the reader will see there was a double line of trees with a path near the back wall. Mr. Bowman gathered 300 dozen of fruit from this house this season. I ought to mention that, out of thirteen sorts of Grapes grown, Mr. Bowman considers that Black Hamburgh, Muscat of Alexandria, Black Alicante, Lady Downe's, and Buckland Sweetwater are the best to be grown for all purposes, and he finds White Lady Downe's to be one of the worst.

It only remains for me to take notice of the high standard of neatness and regularity that was maintained, and the buildings, too, were among the best I have seen. Everything is annually repaired and painted, even down to a wheelbarrow; and, on taking leave of Mr. Bowman and his fine and well-kept place, one could not but regret that the circumstance of Sir Joseph Hawley's death has brought about a change which has caused the place to be let for a term of years, and Mr. Bowman to seek another post. Let us hope that he will soon find one suited to his taste and qualifications as a gardener. *Thomas Record, Vinters Park, Maidstone.*

PRINCE PUCKLER MUSKAU.

We are indebted to the kindness of the editors of the *Revue de l'Horticulture Belge* for the opportunity of laying before our readers a portrait of this eminent landscape gardener. We avail ourselves also of the notice written by M. Oswald de Kerchove in drawing up the following particulars. Born in Germany in 1785, the Prince took part in the military events of the earlier part of the century, and terminated his military career in 1814 as military governor of the town of Bruges. After this time he visited most of the principal gardens of Europe with a view of perfecting his knowledge of landscape gardening. His travels led him to the conclusion that the style of landscape gardening must be adapted to the conditions of the climate. More than any one else in England or Germany the Prince advocated the adoption of the mixed style—symmetrical in the vicinity of the house, irregular in the rest of the domain. In 1822 he became possessor of the park at Muskau, and at once set to work to render it a perfect model of the landscape art: every year he made improvements and alterations in it. He published from 1828 to 1837, under the title of *Letters from a Dead Man*, a series of letters addressed to his wife, detailing, amongst many other things, the long visits he had paid to the parks of France and England: this work made a great sensation. Thanks to his personal relations with the English aristocracy, he was enabled to visit all the great parks of England. His descriptions of these in his letters are most interesting. His excursions to Blenheim, Twickenham, Claremont, Kensington, Kew, Hampton Court, Chiswick, Cobham, and Chatsworth, with his secret visit to Virginia Water (George IV. was so selfish that he permitted no one to enter), suggested observations which the landscape gardeners of the present day would do well to

THE LATE PRINCE PUCKLER MUSKAU.

act on, at the same time that they present a perfect picture of English horticulture at that time. He interested himself in horticulture generally, and market gardening seemed to him as worthy of attention as the culture of tropical plants. He visited flower shows, and refuted the sneering observation of the Duke de Lauragais, who said that he had never been able to eat any ripe fruit in England except baked Apples. He made his park at Muskau a perfect illustration of the natural style of landscape gardening. He rendered an important service by publishing large and very carefully executed plates, showing not only the finished appearance of the park but also the state of the grounds before alteration, the preliminary works undertaken, and the various trials made; this work is one of the most remarkable publications on the subject that has ever been issued.

Having made in a sandy, sterile district of Germany one of the most beautiful and remarkable parks, he sighed for more worlds to conquer, but feared, like Titian, to spoil his work by constantly re-touching. He sold this property to Prince Frederick Henry of the Netherlands, and then undertook a long journey in Africa and the East. He had the good fortune to see the park of Muskau entrusted to the care of one of the most eminent landscape gardeners of Germany, M. Petzold. Scarcely had he returned from his journey than he set to work to improve another of his estates, also situated in Silesia. Here everything had to be begun from the beginning: he succeeded in all, and rendered the park of Branitz worthy of the reputation of its proprietor. According to the Prince, the art of irregular gardens consists in the composition and execution of pictures, rendered poetical by the surroundings of natural scenery. The roadways were dealt with as if they were invisible threads, destined to conduct the visitor from picture to picture without letting him see that he is guided; they should never be superfluous nor useless, each one should have a definite purpose. Paths that are too numerous cut up the ground too much, and seem to restrict the space; they should be concealed as much as possible, or allowed to appear in those parts of the park where their appearance is not only justified but rendered necessary by the circumstances of the case. The Prince also laid great stress on the desirability of availing oneself of any distant objects of interest, and which, he said, should be made to appear as if part of the property whose real boundaries should be concealed. Unsightly objects, walls, and boundaries should always be concealed by plantations, or otherwise. His pure taste led him to condemn the grottos, the rockworks, fictitious ruins, and the like, which it was once the custom in England to construct. Seats were only placed by him in places from which an agreeable view could be obtained, inscriptions were banished, the Prince thinking with reason that the ideas of the best authors are never better placed than in their works. He paid also special attention to the arrangements of water; with Repton, he thought water as indispensable to a park as the eye to the face. The water should, in his opinion, give to plantations light and life. He gives excellent advice as to the mode of making those abrupt curves which contribute so much of the charm of surprise in the arrangement of water; and he advocates planting on islands, on the banks of streams and pieces of water. Having an excellent knowledge of trees, he arranged them in groups so as to make them all contribute to the general effect. Contrary to the practice of Sckell and Lenné, he allowed one species of tree to predominate in a park. The park should be imposing, its trees healthy and vigorous. A sound native tree is far superior to exotic shrubs — rare indeed, but sickly looking; hence the Prince advised the greater part of plantations to be planted with native trees and shrubs—at the same time he did not neglect the Chestnuts, American Oaks, Magnolias, Weymouth Pines, and other plants hardy enough to bear the climate of Germany.

On February 4, 1871, Prince Puckler died. The park at Branitz was finished. "When the house is finished death enters," says the Turkish proverb, but, even in death, the Prince did not wish to be separated from the domain he had created. He had constructed in the middle of the vast lake a monumental structure: there he wished to rest. There indeed he reposes in the midst of his work, and the tomb of the first landscape architect of our age, surrounded as it is by evidences of his skill and taste, deserves to be the object of horticultural pilgrimage.

FRUIT CULTURE IN KENT.

AT an ordinary general meeting of the Institution of Surveyors, held on Monday evening last, the President, Mr. Thomas Huskinson, in the chair, Mr. G. Webb read a paper on "Fruit Cultivation and Management in Kent."

Mr. Webb stated at the commencement of his paper that he was obliged to confine his observations to Kent, because he had seen very little of the orchards in other counties; and then proceeded to remark upon the greatly increased attention which the cultivation of fruit has received, both at home and abroad, since the introduction of railways. At the present time new fruit plantations are to be seen springing up in all directions where soil and climate are favourable; fruit growing begins to figure prominently among the industrial resources of the kingdom, and the question must soon arise, whether the consumption of our increasing population will keep pace with the supply afforded from so enlarged an area of planted land. This year has probably been the best for many years past to test the question, for the crop of all kinds, more especially of Cherries, has been enormous; but Mr. Webb believed that if the rainy season had not prevented the gathering, the greater part of this heavy crop would have found a remunerative market in the manufacturing districts. From the returns of 1874 the fruit crop in England is stated as occupying, excluding gardens, 145,622 acres. The counties which contribute the largest acreage are Devon, 24,312; Hereford, 21,534; Somerset, 19,857; Worcester, 13,390; Gloucester, 11,152; Kent, 11,186; Cornwall, 4180. No other county has 4000 acres.

Mr. Webb then observed that we cannot be surprised at the study of fruit—whether the object be pleasure or profit—more and more attracting the attention of our countrymen; for the interest attaching to its culture never ceases; and there was no period of the year unrepresented by some fresh source of delight or interest; but apart from the purely pleasurable associations, he would be able to show that good returns have been realised by those who have spared neither pains nor expense in the cultivation of their fruit land. Before speaking of fruit plantations he would say a few words about the preparation required in making fresh ones, for everything depended upon a good start. The first thing to be done was to select the land. All low-lying lands or valleys should be avoided, for valleys catch the frost most, and choice should be made of the higher lands, having a south-east, south, or south-west aspect. The more the trees were exposed to the east the better, for the morning sun, in such situations, comes out gradually on the bloom; whereas, if the sun (after having been up some time) falls suddenly on the trees in valleys, the bloom is certain to be cut off. A marked instance of this occurred in the severe frost of May, 1871. One orchard lay in a valley, with rising ground to the west, and the bloom was not only completely cut off, but the trees were so injured that they took three years to recover; whist where the land was only 12 feet higher the frost took very much less effect. Shelter on the south-west was very desirable, either by means of a good, high quick edge, or a belt of Larch, as south-westerly gales do much injury to both fruit and trees.

Before planting, the land should have a dressing of well rotted compost. It should then be deeply ploughed and subsoiled or dug, and trenching, although expensive, always pays. The field should then be properly squared and set out; the holes for standard trees be well thrown out (not less than 3 feet over by 2 feet deep, for which about 4*s*. per 100 was paid), and, if possible, every tree should be planted by December 10. The depth best suited was, say, from 6 to 9 inches. Young trees should always be carefully watched during the summer after planting. The moment their leaves droop the water-cart should be employed; or, where this cannot be done easily, some rough farmyard dung should be put round the trees to keep in the moisture. In exposed situations, or where there is stock, the trees will require some support for protection. Five or six old dipped hop-poles or stakes, bound with a piece of iron hooping at the top, make a good guard; or against sheep or rabbits, tree guards cut from common wire netting answer well. After the tree is once started, the pruning-knife must be freely used for the first three or four years, to form a good head, and the shoots will require to be both shortened and thinned. It was better to clear the inside of a tree while young than after it was old.

Coming next to the question what to plant, Mr. Webb considered, of course, that it was most important to select the sort of fruit and the kind of cultivation which specially suit each locality, for on these points rest future success or disappointment. The questions of soil, climate, aspect, and the description of fruit best adapted to them, must be deeply weighed and considered; and, after all this is done, there still remained another difficult consideration,—namely, Covent Garden Market. We must please our customers and must keep pace with the times, or all our care and skill in cultivating will go for nothing. The popular sort of to-day may, in three years' time, be entirely discarded; and then will come all the mortification of having to replant or regraft, and a great loss of both time and money. In showing the necessity of studying climate, Mr. Webb could not give a better illustration than the Chaumontel Pear, which in Jersey grow on the bush, and are so fine that they frequently sell for 1*s*. each. In Kent, about 100 feet above the sea level, this sort bears well, and two years out of three was well flavoured, but at an increased altitude of 300 feet the fruit was no better than a Turnip.

Again, as to the study of the market. The sorts that often engaged the attention of the grower were by the fruit salesman or costermonger the most neglected. The latter wants an Apple or Pear that will last beyond a day, and which will preserve its colour and quality. Pears, such as Williams' Bon Chrétien, Beurré Bosc, and Beurré de Capiaumont, were the kinds which answered their purpose best; but fine showy sorts like Beurré d'Amanlis, Colmar d'Eté, and Gratioli, the dealers cared little for. That useful and early Apple, the Keswick Codlin, formerly sold well, but now, from being so plentiful, it hardly pays the expenses of sale.

The different kinds of fruit plantations were then divided, for convenience of treatment, under three headings, viz., 1, Orchards planted entirely with standard trees, the bottom being grass, fed off by sheep; 2, Fruit plantations containing standards or half-standards, with which is raised a plant of Gooseberries, Currants, Nuts, &c.; 3, Fruit plantations which grow bush fruit, such as Gooseberries and Currants only.

1. Orchards were, perhaps, the most desirable, for the reason that they required less labour, and last longer. The plan now usually adopted is to set the permanent plants of Cherries, Pears, or Apples, 10 yards (or, where the land is very strong, 12 yards) apart each way, with a Plum as an intermediate plant. The Plum is the plant generally selected, as it rarely lasts longer than the time required for the other sorts to get up. This gives eighty trees to the acre. Cherries like a dry subsoil, and will not do in the clays; neither do they bear cultivation for any length of time, and, although the trees will attain a good size, and bear at times tolerably well, they do best on grass, and when their roots are undisturbed. Plantations of Cherries are, however, frequently raised on cultivated land, with a crop of underfruit, and the trees will, in this way, make wood very fast. After eight or ten years, however, the land should be laid down to grass. A good climate is indispensable for Cherries, especially such sorts as the Bigarreau and the Duke tribe. These sorts flourish best at an elevation of from 30 to 200 feet above the sea level; Black Heart, Kentish, and Turkish Hearts, will do fairly up to 400 feet; but at an elevation beyond this the chance of a crop is very precarious, and the fruit is indifferent. The Bigarreau and Cluster make the largest trees; indeed, the latter might be planted as an ornamental tree in any park. It is of no unfrequent occurrence to get from eighteen to twenty-five sieves of 48 lb. each from a Cluster. Mr. Neame, of Selling Court, has sent to market forty and a half sieves from one tree (nearly a ton), but, what is quite as wonderful, Mr. Webb has known a tree at Milton which has grown twenty sieves of Adams' Crowns. Cherries pay well, as a rule, where they thrive.

The plan of selling the fruit on the trees by auction was an easy one for the grower, and on the whole they found the trees fairly taken care of. The cost of gathering and marketing Cherries was about 3*s*. per sieve, which is an increase of about 1*s*. compared with twenty-five years ago. Pears required a deep rich soil, and of the two a better climate than Cherries, but they were not so much grown in Kent as the latter. Many good Pears do well on the bush, which will not do on standards. Plums were grown in the orchards merely to fill up intermediate spaces between other trees. They never make a very large head, and, consequently, are more suited for confined spaces; neither do they last so long as Cherries, Pears, or Apples, for the wind has great effect on them, and when they get to any age they lose large limbs. Their roots skim just under the surface, and they consequently soon derive benefit from any dressing of manure. There are some orchards in Kent planted entirely with Plums, generally 6 by 7 yards apart, and they are very productive, notably one of Green Gages, at Gillingham. A few years ago this piece was a perfect model of a fruit plantation. The trees were large for Gages, and bore abundantly in one year, making, he believed, more than £100 per acre. The trees were going off now, but there was an intermediate plant of other kinds coming up. The owner was offered £50 an acre for the fruit on the whole twenty-eight acres, half of which was not nearly so valuable as the Green Gage part. The Plum is so useful a fruit for domestic purposes, that it will be a long time before we get too many of them. The Apple is the most useful of all fruits, both to the rich and to the poor. For eleven months in the year this excellent fruit supplies our tables; but although cultivated largely in certain parts of Kent, it is found, as a rule, that Cherries pay better where the soil is suitable. Apples will grow on almost any soil, even on stiff clays if drained, but they are not so suitable for orchards, as the grass grows more rankly, and the sheep, as a consequence, do not feed so closely. Where the soil suits, the Apple makes a large head, and requires as much room as any tree;

and he had heard of 500 bushels being grown on one acre.

2. The plan generally adopted was to plant the trees (which are more frequently half-standards) 22 feet by 16½ feet, with Gooseberries or Currants between them, 5½ feet apart. The cost of the trees, bushes, and labour came to about £20 per acre. In about three years the berries would begin to bear, and to make some return. Trees grew faster and bear sooner in arable plantation than on grass. The cultivation assists very much; and, of course, the more the land is manured the greater will be the crop. Apples, Pears, and Plums suit this class of planting best. Large returns were made by the under fruit, especially if the plantations were near towns or railways, an acre of Gooseberries frequently realising from £20 to £30. Black Currants also were now attracting much attention. They required a strong, stiff soil. The sale of this fruit had increased much of late years—some say to make port wine, others for use as a dye. However, the fruit was one of the most wholesome we have, and makes an excellent preserve. He had seen trees lately which had borne as much as half a sieve each; and one planter in Rainham told him that he had grown 250 bushels on 2 acres at three years old, realising £118, less the expenses of picking and sale. In West Kent (especially on the ragstone) Filberts and Cob-nuts were more grown than berries. The soil exactly suited them, and they bore most abundantly. The Cob-nut was, however, fast taking the place of the old Filbert, being found much more productive and profitable. The nut was larger, but not so well flavoured as the Filbert; but gets much quicker to bearing. He had seen some trees at Loose, near Maidstone, which grew 40 lb. on a tree, and over £100 was made of one particular acre. The trees were generally planted about 16 feet apart each way, and the pruning of them required considerable skill and care. For this work the usual price ranged from 2*d.* to 3*d.* per tree.

3. These plantations were generally intended to remain for a few years only. With a view to permanent profit the former plan was the best, as the upper fruit was raised while the under fruit was bearing. Gooseberries and Currants were generally placed 6 feet apart each way, making 1210 plants to the acre. The cost of plants ranged from 8*s.* to 15*s.* per 100. Many growers (especially with Black Currants) now plant an intermediate bush, which is taken out again after five or six years. By this plan they get a better return at starting. It was now found much better to form the young Black Currant as a stock instead of a bush. This was done by not taking off any of the buds when the cuttings were struck. The plant in this way formed a better head, and lasted many more years. In all kinds of plantation it was most essential to have a man who thoroughly understood pruning, as the amount of produce was more or less dependent upon the intelligence of the operator. As a rule, the young gardeners of the present day do not attend sufficiently to the art of pruning. They ought to have proper training at the nurseries, and before they undertake such responsible work.

The drawback to fruit plantations which were under cultivation was the great cost of labour in keeping them clean, for if roots and weeds were once allowed to get the upper hand the expense of getting rid of them became enormous. As the fruit-picking season comes on labour gets scarce, and there is great difficulty in getting work done. In West Kent, on the light soils and shingle, both Raspberries and Strawberries were cultivated to an immense extent, and very profitably; but this was a class of fruit he had not time to discuss. As showing the progress of fruit cultivation Mr. Webb mentioned that, in the space of about twenty years, probably not less than 1000 acres of poor woodland about Farningham, the Crays, and Sittingbourne have been grubbed, and were now growing fruit of this description, or of the other kinds he had enumerated.

Another kind of cultivation of dwarf fruit which, so far as profit was concerned, at present was in a state of infancy, he believed would ultimately command great attention. He alluded to the growing of the Apple on the Paradise or Doucin stock on bushes—the effect being the same as growing the Pear on the Quince, or the Cherry on the Mahaleb stock. The object was to avoid profuseness in growth, so that quicker results and greater bearing propensities may be obtained. Many of our amateur fruit growers have already done much to assist and encourage this most interesting class of fruit growing, and he believed, when well understood, they would find the system to be very profitable.

Mr. Webb concluded his paper with a few remarks on old orchards and fruit plantations, many of which are much neglected. It was no uncommon thing to see trees running into one another, owing to the plant being too thick, or from profuse growth, and in this case a little thinning or shortening of the lateral branches would do great good. There should not be less space than 3 feet between the boughs of every tree, so that a ladder may be worked easily, and the sun and air let in; but large boughs (unless dead) should never be cut off if it can be avoided. It was often the custom to cut and thin out the inside of old Apple trees, but great injury was done by the practice after the trees arrive at any age. He believed that manuring never paid better than when bestowed on old plantations. The treatment appeared to give fresh vigour and bearing power to old trees, if they had any good wood left. It was not, however, always necessary to manure with dung, for feeding sheep with corn or oilcake answers much the same purpose.

A vote of thanks to Mr. Webb was proposed by Mr. John Clutton, and seconded by Mr. Rushwort; and a short discussion ensued, in which Dr. Hogg, Mr. J. R. Bonny, Mr. C. G. Grey, Mr. Fox, Mr. Sedgwick, Mr. Frank Rivers, and the President took part.

Forestry.

THE first number of a quarterly magazine devoted to forestry in India has lately reached us. Its title is the *Indian Forester*, its object "to represent forest literature in the estate of the public Press of India, to supply the place of Notes and Queries to the Forest Service generally, and its principles decidedly liberal and independent." "The full and unfettered discussion of every principle and practice is the very life of forest science and forest art." Such are the main principles on which the editors intend to conduct their journal, and we heartily wish them success in their efforts. Most of the forest officers of India must have received their first notions of forestry on European estates, and when transferred to India find that much of what they have learnt must be unlearnt, or at least adapted to the very different conditions under which their practice has to be carried out. Forest law and forest conservancy, again, are two subjects of cardinal importance, differing in each Presidency—nay even in each district, and therefore offering endless subjects for discussion and comment, and hereafter affording a grand opportunity for consolidation and adjustment to varying conditions. We mention these matters as they occur to us to show that there should be no apprehension on the part of the editors (Messrs. B. H. Baden-Powell and Dr. W. Schlich) of any lack of subject-matter. A journal which supplies, as this does, a public want, soon gains the confidence of the public, and want of matter is a contingency which rarely or ever happens. The present number opens with some remarks on the Sunderbuns by Dr. Schlich, the most characteristic trees of which are Ceriops Roxburghiana, Excœcaria Agallocha, Heritiera littoralis, and Phœnix paludosa. From an economical point of view the Sunderbuns are important from the quantities of timber for house and boat-building and firewood that they yield.

Mr. Laird has an article on "Coomrie Cultivation," a practice which consists in coppicing all unreserved trees on a given area, burning the leaves, branches, and other litter, and raising crops of grain by the aid of the manure so obtained. The practice is said to rapidly diminish the fertility of the land. Mr. Pengelly raises the old question as to the desirability or the reverse of pruning as a means of getting long straight boles, and we are glad to see that, except in exceptional instances, and in the hands of thoroughly skilled and discreet operators, he prefers to attain the object by thick planting. Doubtless more rapid upward growth may be obtained by pruning, but the risk of evil consequences is infinitely greater than where Nature is allowed to do her own pruning. We shall probably avail ourselves of some of our contemporary's articles, and, in the meantime, cordially wish him success.

Notices of Books.

The Mind of Man; *being a Natural System of Mental Philosophy*, by Alfred Smee, F.R.S. Bell & Sons.

It will not be expected of us that we should analyse, much less criticise, a book so much out of the course we usually prescribe for ourselves in these columns. The author is well known as a keen observer and an original thinker. He has made his mark in more than one branch of natural science, and though some of his conclusions and speculations have not met with general assent, yet others have become embodied in the science of the time. As at once a renowned student of electrical phenomena and a surgeon of eminence, it is not wonderful that he should co-relate mental action—the functions of the brain and of the nerves—with electrical agencies. Accordingly we find him associating the most recent experiments of Dr. Ferrier and others on the function of the several portions of the brain, with the results of the most recent and minute anatomical investigations, and both with electrical phenomena. Man, according to Mr. Smee, is a voltaic circuit, one of the poles of which is in the organs of sensation, the other in the muscular system.

There is nothing particularly novel in this notion, which, combated by the late Dr. Todd and others, has since received the support of Du Bois Raymond and many others. Mr. Smee, however, supports his case by many striking illustrations, and if we have sometimes failed to catch his meaning or to assent to his reasoning we have found much to excite interest and arouse attention. In a subject which comes home to every thoughtful mind it would be odd if it were not so, and we may conclude our notice by commending the work to all who are interested in the workings and manifestations of the human mind, in the assurance that if they find portions to which they cannot assent, they will find in these pages much that will be new to them, and much of what is old placed before them in a new light and in new combinations.

—— The November number of the *Botanical Magazine* contains figures of Proteinophallus Rivieri, the plant originally described as Amorphophallus Rivieri, and figured by us under that name in our volume for 1873, p. 610. It is certainly distinct enough to warrant its being placed in a separate section, if not genus. In any case it is, as many of our readers now know, one of the most curious and striking hardy or half-hardy plants. The next plate is devoted to a plant of considerable medicinal interest, viz., Ferula Sumbul, the root of which has a musky odour, and which has been recommended as a remedy for cholera. The plant is a native of Turkestan, and has finely cut leaves, but as an ornamental plant is not so striking as many others of the same genus. Crocus veluchensis is a spring-flowering violet-coloured Crocus of much beauty. It is a native of Northern Greece and Thessaly, and is rare in cultivation, though known to Herbert. Carica candamarcensis is an elegant species of the Papaw genus, with elongate ovoid yellow fruit, possessing far superior qualities as an edible fruit to the common Papaw. Dendrobium amœnum is one of the most elegant of Dendrobes, and was figured by us in our number for March 6 of the present year.

—— *The Duty of States in the Teaching of the Science and Technology of Plant-Life*, by Louis Bernays, a paper read before the Acclimatisation Society of Queensland. A single extract from this address will show its main object:—"Let it be remembered that time was when Australia had never seen a sheep, a horse, or a horned beast, an Orange, or a Vine, and that now they are mines of wealth to her. I may be told that this is the result of private enterprise, but, admitting this to be so, beef and mutton, horses and wine are necessities to an Englishman, and whenever he settles in a climate where they will thrive he carries them with him. But they have helped to make Australia wealthy, and in the cause which I advocate I propose that the Government shall teach the colonist to produce a hundred other things which are not necessary to existence, or if so, can for that purpose be imported, but which we can produce as soon as we are taught how, and which also would largely contribute to the wealth, as well as to the importance in the commerce of the world, of our adopted country."

—— In an *Old Story* (Virtue & Co.) Mr. C. S. Hall narrates, or, as it is in verse, sings of the frightful evil of drunkenness, and the misery of which it is the cause. Mr. Hall has done wisely to associate with him in his task some of our foremost artists. By enlisting the services of art, indeed by increasing the pleasures and innocent means of recreation of the working classes, more may probably be effected than by Bands of Hope. Where circumstances allow, a little bit of ground to till, a few vegetables to plant, or a few flowers to raise, are among the most potent and least objectionable means of prevention. Even in towns window garden societies are capable of doing much good in this direction.

—— There is no excuse for ignorance of the elements of botany on the score of deficiency of books. The last addition to the series is one by Professor Bentley, entitled simply *Botany*, and published by the Society for Promoting Christian Knowledge. It appears to have no special features of its own to demand further notice.

—— The reissue of *Sowerby's British Wild Flowers* (Van Voorst) has now reached the grasses. The work is useful as a reminder to gardeners and others, but must be used with other works by those who would gain more than a superficial acquaintance with the subject.

PUBLICATIONS RECEIVED.—The Queenslander; an excellent sample of colonial journalism, and a testimony of what may be done by well-directed capital and enterprise.—The Journal of Education. Brooklyn, N.Y.—The Canary Book. By Robert L. Wallace. (The *Country* Office).—Ferrets and Ferreting; containing Instructions for the Breeding, Management, and Working of Ferrets. (Same office.)

THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 27, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 29	Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Nov. 30	Sale of Lilium auratum, from Japan, at Stevens' Rooms.
WEDNESDAY,	Dec. 1	Sale of Camellias, Azaleas, &c., at Stevens' Rooms.
THURSDAY,	Dec. 2	Meeting of the Linnean Society, at 8 P.M. Sale of Japanese Bulbs and Curios, at Stevens' Rooms.
FRIDAY,	Dec. 3	Sale of Scientific Instruments, &c., at Stevens' Rooms.
SATURDAY,	Dec. 4	Sale of Hardy Trees and Shrubs, Bulbs, &c., at Stevens' Rooms.

A SPECIMEN of PYRUS, or, as it is more correctly written, PIRUS CORDATA, was lately submitted to us for identification under somewhat peculiar circumstances. It is not often that archæology and botany unite, though, as shown in the articles on "The Apple of Literature" on April 10 and 17 last, they are seen to do so in the case of the Apple. In the present instance an archæologist—Dr. PHENÉ—visited Brittany, to trace practically any connection—if such could be found—between the legends which connect the "Isle of Apples" of Arthurian repute with that locality. King ARTHUR, it appears, is supposed to have been buried in Avalon (Glastonbury), in England, and in Aiguilon in Armorica, the equivalent of Avalon being Isle of Apples. An island in Loch Awe, in Argyllshire, has a Celtic legend containing the principal features of Arthurian story, but in this case the word is "berries" instead of Apples. These particulars were fully given in a paper read on June 10 last, by Dr. PHENÉ before the Royal Historical Society, in which he expressed a belief that the legend of the mystical ARTHUR was derived from the character of ARJUNA given in the Indian poem, *Mahâ Bhârata*. After closely examining the island in Loch Awe, and Avalon in Somersetshire, he concluded his researches by a visit to Armorica. He there observed a tree which helped him to the Apples of Avalon and the berries of Loch Awe, for the Apples on the tree were berries. The specimen he has submitted to us is the Pyrus cordata of DESVAUX, figured in DECAISNE'S *Jardin Fruitier du Muséum*, t. i., p. 330, tab. 3; and it is interesting to note, in support of Dr. PHENÉ'S argument, that it has been found in Western France — perhaps in South-western England, if, as we strongly suspect, the plant found by Mr. BRIGGS near Plymouth, and called by Dr. BOSWELL SYME Pyrus communis var. Briggsii, be the same [see *Journal of Botany*, 1871, pp. 181 and 215]—and nowhere else in Europe. Both countries had their western shores occupied, anterior to the invasion of the Cymry, by a peculiar race of people having strong Oriental characteristics, and which people some authors describe as occupying the country as far north as Argyllshire, while the same tree is found on Mount Elbrus in North-east Persia (according to BOISSIER, *Flora Orientalis*, vol. ii., p. 653)—a country not remote from that which formed the arena of ARJUNA'S exploits, and whence it would seem to have been imported to the West of Europe.

Pyrus cordata forms a spiny shrub or tree with tortuous branches, ovate acuminate, finely toothed glabrous leaves, and small Apple-shaped fruits, about the size of Hawthorn berries, borne on long slender pedicels. In Brittany wild Pears, and this among the number, are known under the name of Besi or Besizolle, whence the name Besi, applied to certain cultivated Pears. P. cordata may very probably be the origin of certain early Apple-shaped Pears. Its geographical distribution in Persia and in Western Europe was inexplicable, but now seems to be reasonably accounted for.

The connection of the Apple with the necromancer, MERLIN, is more captivating than anything in even Arthurian story, and is as follows. MERLIN says in one of the ancient poems, "I have 147 Apple trees of great beauty, the branches of which are covered with verdant leaves; the shade is delightful, as well as the fruit, and its protection is confided, not to a dragon, as in the garden of the Hesperides, but to a charming youthful girl with flowing hair, and with teeth brilliant as pearls amid Roses." (*Myvirian*, t. i., p. 151.)

THE case of WILLIAMS *v.* LESLIE, to which we have already referred, and which was fully reported in our columns, will probably have consequences not foreseen at the time. We cannot doubt that these consequences will be the means of bringing about eventually a great reform in the matter of flower shows, and, if so, great good will have been done.

It is not necessary to revert to all the circumstances of the trial above alluded to. It may suffice to say that, in the opinion of the jury, as also of the Judges who refused the application for a new trial, the plaintiff had done nothing incompatible with the law. That the defendant was worthy of great sympathy, and would have been yet more so had he exercised common prudence, is also patent to every reader. As to the conduct of the gardener there cannot be two opinions. Disregarding, however, this special case, let us enquire a little further and endeavour to ascertain the causes which may lead to scandals of the nature of that just referred to. The Judge alluded to one, viz., the "desire to do business." The excitement of competition, the intoxication of success, may, and probably do, lead to transactions which, if not illegal, are at least imprudent. In any case they would be harmless if the purchaser or his agent employed ordinary caution in managing their own business. If a gentleman cannot attend to his own affairs he should at least have some reasonable assurance that his confidential agent would do so for him. It would seem incredible that plate, or pictures, or jewels should be purchased in quantities, and that invoices and bills should be delivered to the master or his agent, without either of them taking the trouble to look into the matter. It makes no difference from this point of view whether we speak of pottery, pug-dogs, old point lace, or a specimen Lapageria. At any rate, the "desire to do business"—provided it be legitimate—offers nothing that the most rigid purist can object to. The purchaser can always protect himself if he chooses.

Next comes the question of "discount"—*surgit aliquid amari*. We have never hesitated to condemn this as a demoralising, vicious system, and we have incurred some odium for so doing. As a system, however, it cannot be defended, even by those most interested. The plaintiff in the recent case denied that it was a system, but he admitted having given a present, and cynical people are not likely to see the distinction between the two. Nevertheless, there may often be a valid distinction, but that is a point we need not enter into now. Admitting the evils of discount, we think that, again, is a matter which purchasers or agents have very much in their own hands. Let them examine into their own affairs, pay their own bills within a reasonable time, and discount, except for cash payments, would soon be a thing of the past. In any case nurserymen and gardeners cannot fairly be singled out for indulging in practices common to all traders alike. The practice is morally ruinous, and, worse still, it is widespread.

Lastly, we come to the question of flower shows. These have multiplied excessively of late years. The primary object originally in founding these exhibitions was to encourage cultivation—to bring out improvements in plant growing, to introduce new and valuable plants for decorative purposes or for utilitarian objects. Such are still the professed objects. But in too many cases these laudable aims are overlaid by the desire to get up a great entertainment, a "show," a place for flirtation and the hearing of bands, and the display of fashionable attire. How many of the visitors to a flower show now-a-days care a button for horticulture? Only a small proportion, we imagine; and yet it is for the sake of these so-called patrons of horticulture that numerous if not large prizes are offered. This assertion may seem paradoxical, but its explanation may be sought in the fact that flower show managers find it necessary "to make a show," in order to attract the paying public.

Now, to make a show it is necessary sometimes to subordinate the primary object for which horticultural societies were established, in order to get plants that will serve the purpose of decorative objects. Hence specimen plants, some of which, at any rate, do not need consummate skill to produce, go the round of the shows, taking all the prizes in their course—wearying those whose business or pleasure it is to attend the shows by their constant re-appearance, and disheartening young gardeners without means to stable these monsters, by practically closing the door against any efforts that they may make. This necessity for "making a show," also leads to one most objectionable practice. We allude to the plan of buying plants simply for the purpose of exhibiting. We are well aware that there are cases in which this may be done in perfect good faith and even with advantage, but in such cases it should be done openly and the public should have the means of knowing it. Certain classes might be made in which it should be made a condition that the plants should all have been grown by the exhibitor for a certain time, varying in duration according to circumstances—certain other classes in which no such restriction existed should be made. By this means one of the existing evils would be fairly met.

Another point in which flower show managers should exercise greater caution than they do is in the matter of special prizes offered by tradesmen. The societies are not established to promote the interest of particular tradesmen, but the tradesmen are by no means to blame if they can induce the societies to act as their advertising agents.

We believe that the establishment and management of flower shows for any other purpose than the direct encouragement of horticulture is an evil rather than a benefit to the art and science, and that it leads directly or indirectly to questionable practices, which will disgust amateurs and prevent gentlemen from becoming patrons of Horticulture.

—— CONSIDERABLE attention was drawn to the STRAITS OF MALACCA by our present Prime Minister some time since, and recent events at Perak, the scene of the murder of Mr. BIRCH, have again served to draw public attention to this region. The sketch which we give at fig. 140 is from a drawing of Captain OLIVER'S. The coast is densely covered with Cocoa-nut Palms. Of the interior of the Malay peninsula, save in the neighbourhood of the British settlements at Singapore, Malacca, &c., not much is known, but it is said to be densely wooded and permeated by numerous streams; while the moist, warm climate is highly favourable to the growth of all tropical

products, and the mineral resources of the country are also great. Perak tin ore is richer even than Cornish ore of the same kind. The opposite island of Sumatra is equally rich in vegetable products, but our friends, the Dutch, find the Malays as troublesome to deal with as we are likely to do ourselves.

—— On the occasion of the recent annual dinner of the Peebles Leek Club Mr. JOHN M'LEAN, gardener to Mr. MACKENZIE, of Portmore, was presented by a few friends with a handsome writing-desk, a gold chain, and a purse of sovereigns, to commemorate the completion by him of fifty years' service in the family of Portmore. The Chairman, Mr. BLACKWOOD, in making the presentation, said they would search, certainly all the county of Peebleshire in vain, and he thought most of the counties in Scotland in vain, before they found a person in the position of Mr. M'LEAN, who had filled an important situation so faithfully for so long a period as fifty-one years, and who had succeeded in gaining the affection and esteem of both old and young. They were exceedingly glad to see him enjoy in his old age, not merely the respect of his present master, but also the excellent health which he possessed, and they hoped he would enjoy both for many years to come.

—— In a recent report from Hiogo and Osaka it seems that a sugar refinery has been established, at some expense. The object of this refinery is to refine raw JAPANESE SUGAR, which material is obtained from Satsuma. This machinery is estimated to refine from 4 to 5 tons of sugar daily. It seems that the quantity of foreign matter and acidity in native-grown sugar, owing to imperfection in its manufacture, render a subsequent granulation very uncertain, so that it is very doubtful whether a refinery plant will be found to pay till improved machinery for the production of sugar from the cane is adopted. A small steam plant for crushing the cane was imported at the same time as the machinery for the refinery, for the use of sugar-growers in the interior. This machinery, it seems, which cost the Japanese 6000 dollars, they have determined upon putting aside without a trial. The refinery, when in full working order, is estimated to produce about 2 tons of sugar-loaves per week.

—— Among the thousand and one remedies proposed for the extirpation of the PHYLLOXERA is one by MM. BALBIANI and BOITOT, and which has been brought under our notice by M. SISLEY. The plan proposed is to remove the bark from the stocks of the Vine during the winter when the winter eggs of the creature described by M. BALBIANI, and which are deposited in and under the bark, may be destroyed by an insecticide, or by the application of boiling water. We are afraid that on the large scale these proposed remedies would be found impracticable.

—— When a true stock of the old TWO-BLADED ONION can be obtained, it is one of the very best for pickling purposes. If sown in March it bulbs very quickly, and is ripe and ready for gathering by the middle of June. As a matter of course, the seed is required to be sown thickly to produce "picklers." To obtain an ordinary crop of keeping Onions, some 15 lb. of seed would be sown per acre, but when a crop of pickling Onions is wanted three times that quantity of seed is sown on an acre of ground. The two-bladed Onion forms a small but handsome bulb, and, while being quite as early, is much superior to the Queen Onion for keeping properties. If sown in the autumn it will come into use the same time as the Tripoli variety, and grow as large as the White Spanish.

—— We have received from Signor GIUSEPPE SADA, nurseryman, of Milan, some leaves of a very handsome SEEDLING OAK. According to M. SADA it is a seedling from Q. rubra macrophylla, which it much resembles in habit and vegetation and hardiness, although from its fine foliage and more vigorous growth it is a finer tree than the one just named. The Acorns (which we have not seen) are said to be larger than those of Q. rubra, the bark smoother and redder. The leaves before us fully justify all that its introducer says. They measure about 11 inches in length by 10¾ inches in the widest portion. They are thin in texture, glabrous on both surfaces, except along the nerves on the under-side, where there is a little rusty down and a few traces of stelliform pubescence which doubtless covers the lower surface when young. The general form is obovate, deeply pinnately lobed, the two lobes between the middle and the apex of the leaf so much larger than the rest as to make the apex appear distinctly 3-lobed. Each lobe is obtuse or truncated, somewhat sinuous in outline, and provided at distant intervals with long slender points projecting directly from the margins. The nerves are prominent, especially on the under-surface, the midrib irregularly alternately and sparsely branched in the usual pinnate fashion, some of the larger secondary and tertiary nerves running out from the margins into slender points as before-mentioned. The base of the leaf is broadly wedge-shaped, tapering into a stalk about 2 inches in length. Judging from the leaves alone we believe the species is to be referred to Q. rubra, and as it appears to be unlike anything in gardens we think it may well bear the name Q. (rubra) Sada. In any case, if we may judge from the leaves sent us, it must be a very fine addition to our stores of ornamental trees.

—— Very considerable alterations are in progress at KEW in the matter of re-arranging the plants in the PALM STOVE and some other houses. Useless duplicates and other plants that cumbered up the really fine specimens have been eliminated, and with excellent results. Splendid specimen Pandanads and other plants can now be seen to advantage, which was not the case before. The benefit to the smaller Palms and other plants hitherto too crowded to grow satisfactorily will be better appreciated in a few months' time; but even now it is obvious that a great improvement has been effected. The Aroid-house suffered both from the gales and the floods, but fortunately, the contents were not materially injured.

—— It is found (says the *Times*) that the Ivy which has so thickly clothed ARUNDEL CASTLE has been eating so firmly into the work as to threaten destruction, and workmen are now employed in extracting the roots from the mortar, and in other ways restoring the walls, or rather rescuing them from destruction. This is being done with studious care, and the Duke of NORFOLK, who possesses great antiquarian taste, personally visits the work to see that no desecration is committed. The mortar used in the old building was not of a very substantial nature, and were it not for this timely interference, the wall might have gradually crumbled away. The broken edges of the ruin are being closed up with stone and cement, to prevent the penetration of the rain; and although much of the rugged picturesqueness is destroyed by the process of stripping the Ivy and rounding off the top edges, it is a work of necessity, and one which need not alarm archæologists. Where walls are in good condition Ivy does little or no harm.

—— The report of the AUTUMN (March 9!) SHOW at WELLINGTON, New Zealand, is before us. We are glad to see that attention is given to native plants, such as New Zealand Ferns and alpines. Two of the most noteworthy objects exhibited were the Nikau Palm (Areca sapida). For Mr. BULL'S prize there were three competitors, who contributed what is reported to have constituted the most important characteristic of the show. "They were indeed exotic beauties, such as one would not dream of seeing in Wellington." Mr. H. H. TRAVERS, a gentleman well known by repute to British botanists, Mr. BUDDEN and Mr. COOPER were the three enthusiasts, whose zeal was so conspicuous on this occasion.

FIG. 140.—MALACCA COAST NEAR PERAK.

—— The following letter from Mr. JOHN LESLIE, M.P., the defendant in the recent trial of WILLIAMS *v.* LESLIE, appeared in the *Times* of Wednesday last:—

"It was elicited in a recent trial, with the concurrence of the Judge (Baron BRAMWELL), that a nurseryman is legally justified in offering and paying 5 per cent. to a private servant upon orders given by that servant without the consent of his employer. This is proved by the finding of the jury, which awarded 5 per cent. to the employer of the servant upon such part of the account as remained unpaid—*i.e.*, upon which the servant had not been paid—making the employer a participator with a dishonest servant in the acceptance of a bribe to cheat himself. This view of the question has been confirmed since by the Lord Chief Baron in refusing a new trial to set aside that verdict. It appears to be time, therefore, for employers of gardeners and private owners of gardens to look to their own protection, knowing, as they now may know, that the rule of the horticultural trade is to offer bribes to their servants, and that they may expect no protection from the law. What, then, is to be done? Here at least are three rules which, if followed, will protect them to some extent:—1. Never permit your gardener to exhibit. 2. Never engage a gardener upon a nurseryman's character alone without careful reference to his last employer. 3. Never take a foreman as your head gardener upon the character of the head gardener alone

under whom he has been foreman, without careful reference to the employer. What are specimen plants? Plants for exhibition. You may, as I have done, find that in the course of eight months you have had forced upon you £2500 worth of these costly curiosities, and, as I have done, you may have them valued by as high an authority as can be found with this result—namely, that what you have to pay for so highly is valued at one-third. These items, which occur in the plaintiff's bill of the trial referred to, will explain the reason:—Lapageria rosea, charged £23, valued £3 3s.; Gleichenia flabellata, charged £52 10s., valued £15; Azalea Iveryana, charged £21, valued £10 10s. *John Leslie, M.P., Florence, Nov. 20.*"

[We are tempted to ask what was the condition of the plants when supplied, and what when valued?] The following letter also appeared in the *Times* of Thursday:—

"In reply to Mr. LESLIE's letter in the *Times* of to-day, permit me to point out, without going into the special circumstances which governed the ruling of the Court in the case of 'WILLIAMS *v.* LESLIE,' that the decision in no way touches the well-established principle which governs the relations of principal and agent—viz., that all profit made or received by the agent belongs to the principal, and cannot, without fraud, be retained by the agent for himself, except with the full and particular knowledge and express sanction of his principal. This broad principle of the Roman law has always been acted upon by modern tribunals. It cannot be too generally known that managers, stewards, bailiffs, gardeners, or other persons occupying positions of trust and confidence, are liable to account for and pay over all commission or other profit received by them in the conduct of their employers' affairs, and that their employers may recover the same for any number of years if the fraud has been concealed from them and they do not lie idle upon its discovery. Moreover, contractors and traders dealing with persons intrusted to manage the business of others should bear in mind that by giving a commission or other benefit to such agent they may vitiate their contract with the principal. *S., Lincoln's Inn, November 24.*"

—— We have received a copy of the rules and regulations of the *Société d'Acclimatation de Paris*. This Society is open alike to Frenchmen and foreigners at a uniform rate of fees; viz., 10 fr. entrance, and an annual subscription of 25 fr. Or members can compound and become life members by paying a lump sum of £10. The main object of the Society is the INTRODUCTION and dispersing through its members of USEFUL ANIMALS AND PLANTS. This includes the domestication of animals and the improvement of breeds of animals, equally with the dissemination of the best varieties of alimentary and economic plants. Facilities for exchanges are enjoyed by members, to whom also animals and seeds are confided for trial. Large sums are placed at the dispôsal of the Council of the Society to reward the successful introduction of useful animals and plants, and special prizes of £80, £40, £20, and smaller amounts are offered for various objects. Persons wishing for further particulars should apply to the Secretary, 19, Rue de Lille, Paris.

—— In the extensive class of hardy perennials one of the most striking among the later flowering kinds is HIERACIUM AURANTIACUM, a very pleasing and easily grown species, with a somewhat close growth, and a bearded flower-stem bearing a panicle of orange-red composite flowers. Up to the beginning of November it remained very bright and effective, as it produces a succession of flowers.

—— The large group of charming CYCLAMENS exhibited at the meeting of the Royal Horticultural Scociety on the 10th inst., by Messrs. H. B. SMITH & Co., Ealing Nursery, forcibly illustrated the truthfulness of the claim set up for the beautiful flower that it is as much, if not more so, an autumn-flowering as a spring-flowering plant, and that it would be a good plan to offer prizes for collections in November and December, instead of only in March and April. The Cyclamen is one of the best of all winter-flowering decorative plants, because it can be had in bloom from September till May—at least three-fourths of the year. The flowers are in great demand for market purposes at this season of the year, and, in addition to possessing many bright and delicate hues, they last a good time in a cut state. The very habit of the plant enhances its usefulness as a decorative agent, the leaves being frequently handsomely marked and evenly arranged, and the flowers borne elegantly above the leaves.

—— The SPORTIVENESS OF THE CHRYSANTHEMUM is well illustrated in the case of that superb white-flowered variety raised by Mr. George Rundle, of Devonport, and named Mrs. George Rundle. Two or three years ago it threw a pale amber or primrose-coloured sport of great distinctiveness of character, which was named George Glenny. At the meeting of the Royal Horticultural Society on the 10th inst. Messrs. S. Dixon & Co., Amherst Road Nurseries, Hackney, exhibited a bright golden sport from George Glenny, possessing, as in the case of the latter, the same ball-like symmetry of shape peculiar to the white type. Several of our finest Chrysanthemums were obtained as sports, among them Golden Beverley, Golden Dr. Brock, Golden John Salter, Mr. Howe, an orange-amber sport from John Salter, the colour of the latter being reddish cinnamon shading of to orange; Orange Annie Salter, White Venus, and Golden Queen of England, a sport from the old blush coloured flower bearing that name. This has again sported with Mr. Dale at the Temple Gardens to a pale amber or straw-coloured variety, which has received the name of Emily Dale. It is worthy of remark that while the white Mrs. George Rundle sported first to amber and then to gold, the blush Queen of England sported to gold in the first instance and then to amber.

—— The following notes of a REMARKABLE OLD OAK TREE AT LUDLOW are extracted from a magazine about a hundred years old, and re-printed lately in *Eddowe's Shrewsbury Journal*:—"An Oak tree was felled, September 20, 1767, at Ludlow, in Shropshire, the produce of which were 27 tons of timber, 43 cords of wood, 200 park pales, and 5 cords of brackets. A bough broke off before the tree was cut down, which weighed 7½ tons, and three men were employed a month in stacking it. The whole tree was valued at £140."

—— At the exhibition of the Ealing District Chrysanthemum Society on the 13th inst. Messrs. H. B. SMITH & Co., of the Ealing Dean Nurseries, staged an example of LATANIA BORBONICA, some of the leaves of which were handsomely and distinctly flaked with cream, and the appearance of the young foliage led to the assumption that the variegation would become general over the surface of the leaves. It is quite a young plant, and it is the intention of the Messrs. SMITH to flower it if possible, to ascertain if the variegated character can be perpetuated by seed. It must, however, be remembered that the Latanias are dicœcious. The plant had a perfectly robust and vigorous habit of growth.

—— Mr. AMOS SAWYER contributes an article ON CLIMATIC CHANGE IN ILLINOIS, to the last number of the *Transactions of the Academy of Science of St. Louis*. He asserts that the climate of Illinois has been slowly but surely changing from wet to dry during the twenty years he has been paying attention to the subject. And from an agricultural standpoint he regards this change as certain to prove a serious obstacle to the successful cultivation of the soil. He further maintains that the most important agent, and one that is yet to produce greater mischief, seems to have escaped attention. This is what he terms the aqueous agent, the chemical and mechanical effects of which, he adds, are constantly at work, and the result is plainly visible in the deepening of the channel of all the small streams. In his own words:—

"In the early history of our State, when the wild grass grew rank, and even little ponds had water basins from 3 to 5 feet deep, the process of evaporation was carried on much more slowly than at present, and consequently, when the heat became intense during summer there was an immense amount of watery vapour in the atmosphere ready to be condensed in deluging showers upon the slightest change in the temperature. At the present time all our prairie land is in cultivation or used as pasture; the ponds and lakes have become so filled up that they contain less than half their former amount of water; the stock now consumes the reeds and marsh-grass, exposing the water to the direct rays of the sun, thereby promoting evaporation, so that by midsummer even the muck in their basins was dried to a hard crust, and a change in the temperature during the heated term brings, as a rule, a cool, dry atmosphere, instead of rain, as in former years. The large amount of water consumed by our domestic animals, which have increased with the increase of population, must not be overlooked. In this State, at the present time, we have at least 3,000,000 horses, cattle, and mules, and 5,000,000 hogs and sheep, and they will consume not less than *seventy million gallons* of water every twenty-four—quite a lake of itself."

The italics are his. Does he mean 3,000,000 each in the first category, and 5,000,000 each in the second? Surely 8,000,000 animals would not drink 70,000,000 gallons of water in twenty-four hours! He goes on to illustrate the effects of the aqueous agent, and the progress made by it during the last quarter of a century, as witnessed by himself.

—— The county of Kent has long been associated with GARDENERS' MUTUAL IMPROVEMENT SOCIETIES; one of the most flourishing used to be held at Maidstone, and is probably in existence now. Mr. JOHN ROBSON, The Gardens, Linton Park, one of the most renowned of Kentish gardeners, is well known for the deep interest he takes in the welfare of these institutions. At the present time a flourishing society is in operation at Westerham, and is known as the Gardeners' and Amateurs' Mutual Improvement Society. It meets monthly, on the first Thursday in the month, and the practice is for its members to bring any produce of their gardens, whether plants, flowers, or vegetables, of an interesting character, and certificates of merit are awarded by a jury selected for the purpose. A paper on some topic connected with gardening is then read, and a discussion follows. This Society appears to be doing a good work in the district. At Tunbridge a similar Society is in operation, and doing well, according to the tenor of its reports.

—— From a recent report of the *Société Central d'Agriculture et d'Horticulture* we learn that for some years past one of the principal objects of the Society has been to encourage the DESTRUCTION OF INJURIOUS ANIMALS, particularly insects, and the protection of insectivorous birds. The principals of several schools and colleges have seconded these efforts in a most praiseworthy manner. School boys, as a rule, are rather destructive, and advantage is taken of this disposition to kill something. Prizes are offered for the destruction of vermin of all sorts, and at the same time for the preservation of useful birds. Eleven scholars in one school destroyed each 1666 insects, of various sorts, besides forty-two nests of caterpillars; and amongst them they protected twenty-seven nests of useful birds, sheltering 143 young. They included five nightingales', seven linnets', eleven tomtits', and four blackbirds' nests. This is only one of several cases reported, the numbers of which are mostly much higher. It would appear that insectivorous birds have been almost exterminated in some parts of France, and injurious insects have increased proportionately, so that they have become a formidable scourge.

—— It is interesting to read of the difficulties encountered by gardeners at Uralsk, a Russian town of considerable size in the extreme east of Europe, in the same latitude as London. In many Continental places the greater SUMMER HEAT COMPENSATES in a measure for the LONG COLD WINTERS; but at Uralsk, according to M. BURMEISTER in the *Gartenflora*, the climate is so unmitigatedly severe and uncertain, that all efforts to establish plantations, of even such hardy trees as the Beech and Ash, have been frustrated. For two or three years they succeed very well; then one of the periodically excessively rigorous winters will come and destroy them all; so inconstant is the climate. To give an idea of the extremes of heat and and cold to which vegetation in a similar region is exposed, we quote some figures published in the *Annales de l'Observatoire Centrale Physique de Russie*, respecting the climate of Nertchinsk, which lies in the same latitude, and in 119° E. longitude. The mean temperature of July, the warmest month, is 64°.2, against a mean of about 18° below zero, of Fahrenheit's scale, during December and January. This is not the extreme cold, be it observed, for from 5 to 8 o'clock in the morning the mean for those two months is about 23° below zero! At Uralsk, before attempting to form a fruit garden, it is necessary to provide ample shelter, and with all such provisions it is only possible in the vicinity of rivers and lakes. The principal trees and shrubs planted for this purpose are:—Birch, Lime, Abele Poplar, Willows, Caragana arborescens, Lonicera tatarica, Lilac; and to those should be added Amelanchier Botryapium, Prunus Padus, Acer tataricum, and Pyrus Aucuparia. In low-lying districts the Blackthorn is very extensively planted, not only for shelter, but also as a fence against the intrusion of herds of cattle from the steppes. It bears fruit, too, abundantly, and the Sloe is not despised in this region. Here and there in gardens the Aspen, Alder, and Tamarix, which grow wild farther down the Ural, may be seen, and likewise different species of Crataegus, though the latter rarely flowers. With great care, liberal waterings in dry summers, and a succession of snowy winters, the growth of wood is excellent; but every one admits the necessity, though the cost is shunned by all, for a rational system of forestry. The Oak lives, but suffers dreadfully in summer from the ravages of insects. There are some few fine old trees of Pinus sylvestris. The Birch, of which large specimens are abundant, is also very injuriously preyed upon by insects.

—— The WIMBLEDON GARDENERS' IMPROVEMENT SOCIETY held their fourth meeting on Monday last. The paper read was by Mr. JORDAN, Cannizaro House, on "The Cultivation of Crotons." To make the subject as interesting as possible, specimens of the foliage of twenty-six varieties were exhibited for the inspection of the members, and which consisted of all the best sorts in cultivation, including Disraeli and Lord Cairns, two varieties not yet in commerce, which were kindly forwarded by Messrs. Veitch. It is gratifying to know that these meetings are well attended by the members, and the practical points of all subjects are well discussed. At the close of the meeting a vote of thanks was given to Mr. VEITCH for his kindness, and he expressed his intention to attend the meetings as often as circumstances will admit. The Chairman proposed the adoption of a reading class by raising funds to procure all the leading horticultural periodicals, and arrange certain nights for their perusal. This proposal met the approval of all the members, who re-

quested the Chairman (Mr. OLLERHEAD) to appeal to his employer, Sir HENRY PEEK, Bart., for the extension of his favours in the use of the room. As this is another step in the right direction, and will unquestionably prove a great boon to the Society, we wish them every success.

— CLIVIA GARDENI, a plant closely related to Imantophyllum, is now flowering in the succulent-house at Kew. The leaves of the two genera are much alike, and they do well in company under the same treatment. The flowers of the Clivia are very distinct and ornamental, and being produced at this season, it is a subject of much value for decorative purposes. This specimen is growing in an 18-inch pot; it has about a dozen umbels, averaging each the same number of pendulous flowers. The segments together form a curved tube of orange-red, the mouth of which is pale gren. It is a native of Natal.

THE COMMON HOLLY AND ITS VARIETIES.—VI.

(*Continued from Vol. ii.*, 1874, *p.* 813.)

SOME months since we devoted a few papers to a series of brief descriptions of the green-leaved varieties of the common Holly (Ilex Aquifolium). The near approach of Advent reminds us that the subject is again becoming seasonable, and we therefore pick up the thread of our discourse, and shall now attempt to unravel the differences of the varieties with variegated foliage.

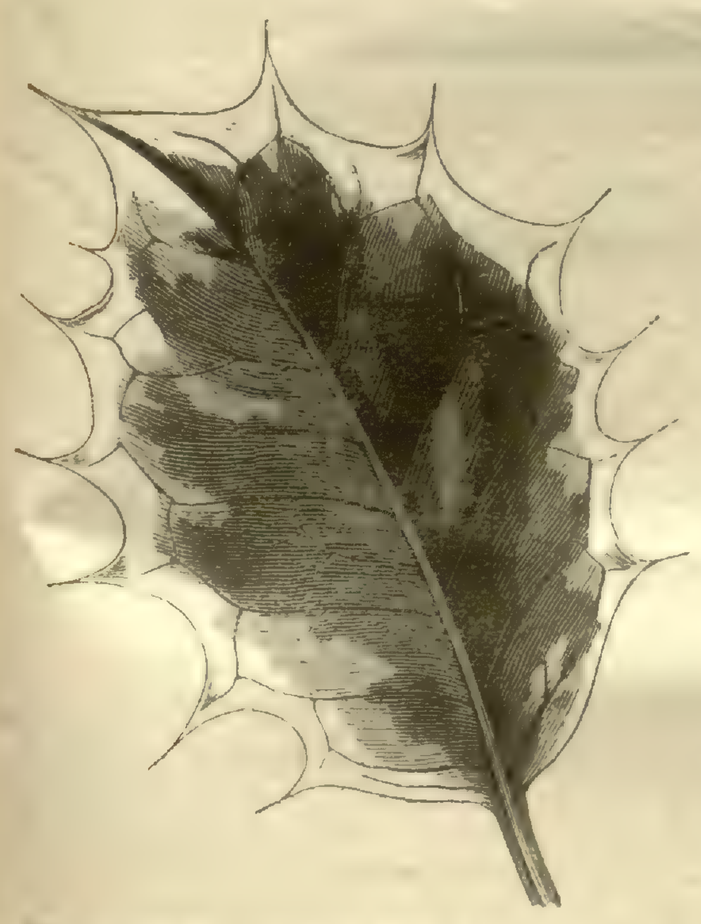

FIG. 141.—I. A. ARGENTEA REGINA (SILVER QUEEN).

B. LEAVES SILVER-VARIEGATED.

§ Spines marginal, numerous, strongly developed.
* Spines divaricate, *i.e.*, variously directed.
† Leaves silver-edged.
‡ Leaves large, 3 inches long or more.

60. I. A. ARGENTEA MARGINATA MAJOR, Ochtertyre, Waterer.—A remarkably bold vigorous-growing variety, our largest specimens of which were sent from Ochtertyre, Perth. It has the bark green. The leaves are ovate or oblong, the blade 3½—4 inches long, with much divaricate large triangular spines; the surface is green, with a comparatively narrow and rather irregular silver edge. At Ochtertyre the tree is 30 feet high, and bears berries abundantly. The habit is described as being entirely different from that of I. A. argentea marginata, the branches being pendent.

61. I. A. ARGENTEA LONGIFOLIA; longifolia argentea, Lawson; Waterer (fig. 143).—A striking-looking variety of vigorous habit, having the young bark purple or purplish. The leaves are elliptic or elliptic-ovate, fully 3 inches long, with few long irregular and unequal, much divaricated spines, the disk mottled and dashed with greyish green, and the edge narrowly belted with creamy white, which is irregular in width, and sometimes breaks out into broader patches. A well-marked and ornamental form.

62. I. A. MADAME BRIOT, Smith.—A fine Holly, having the aspect of a hybrid bred with I. opaca. The bark is purple. The leaves are 3 inches long and 1¼ inch broad, elliptic, wavy and spiny at the edge; the colour a dull green splashed with grey, and with an irregular grey margin and spines. Its large bold-looking leaves and peculiar colour give it a distinct and effective appearance.

63. I. A. ARGENTEA REGINA; Silver Queen, Waterer, Fisher; argentea latifolia, Barron (fig. 141).—A grand Holly, and, taken altogether, the best of the varieties having silver-edged leaves. The bark of the yound wood is purplish or reddish brown. The leaves are broadly ovate, 2¾ inches long, and 1¾

FIG. 142.—I. A. ARGENTEA MEDIO-PICTA (SILVER MILKMAID).

inch broad, with strongly developed and tolerably evenly placed spines, which are much divaricate; the disk is of a dark green, with patches of greyish green, and there is a broad, irregular, but well-defined edging of creamy white, which is most strongly developed at the apex. Its bold leaves and well-defined striking marking fully entitle it to the first place in the series to which it belongs.

64. I. A. PERRYANA MAJOR, Waterer; pendula elegans marginata, Hort.; New Weeping Silver, Fisher.—A remarkably beautiful Holly, having the bark of the young shoots purplish. The leaves vary from ovate to oblong-elliptic, 2½ to 3 inches long and 1½ inch wide, with numerous strong spines, which are moderately divaricate; the colour in the centre is a dark green mottled in flakes with greyish green, and with a broad creamy-white margin. This differs from Perry's Weeping Holly in habit, the principal shoots growing erect, with drooping spray, not being wholly pendent as they are in that variety.

‡‡ Leaves medium size, 1½—2½ inches long.

65. I. A. ARGENTEA VARIANS; angustifolia argentea, Ochtertyre.—A free-growing Holly, with the bark of the young shoots green. The leaves are elliptic-ovate, 2½ inches long, sometimes evenly spinose with the spines divaricate, sometimes with a few unequal spines on each margin, occasionally with one or two erratic spines near the base or none; the colour is dark green, with an unequal but for the most part strongly-marked silvery border. The tree

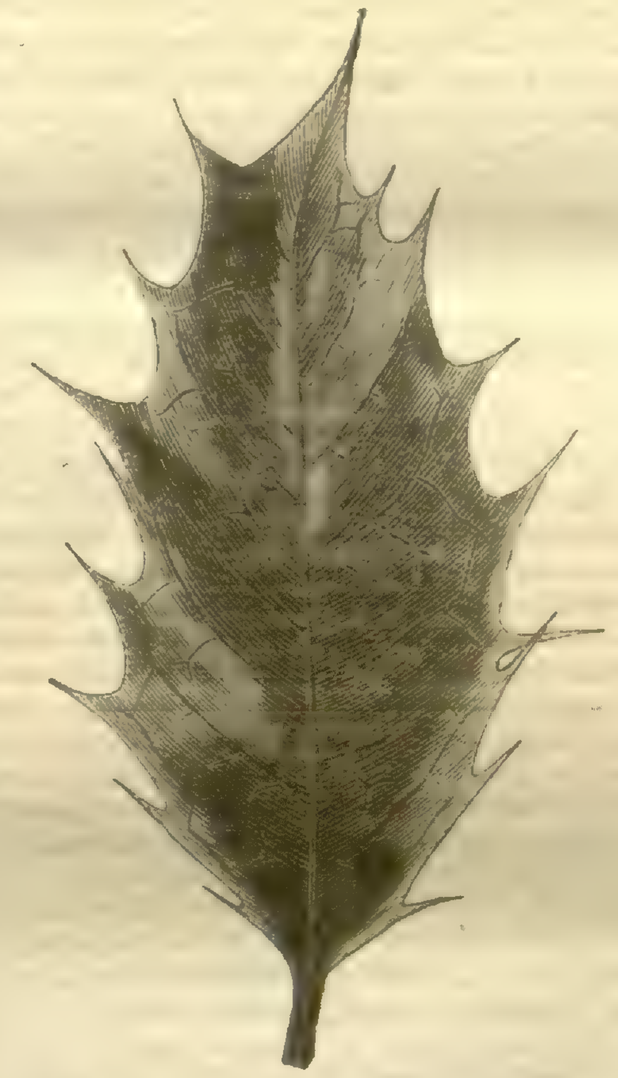

FIG. 143.—I. A. ARGENTEA LONGIFOLIA.

at Ochtertyre is sterile, 25 feet high, of a very erect and stiff habit of growth.

66. I. A. ARGENTEA LATIFOLIA, W. Paul; latifolia argentea, Barron; spinus argentea, Smith (fig. 144).—This comes near the Silver Queen (No. 63), but has shorter leaves, with bold striking variegation. The bark of the young shoots is purple. The leaves are broadly-ovate, 2 inches long by 1½ inch broad, with a purple petiole, the disk dark green, very much mottled with green and grey, and with an irregular creamy-white margin, here and there broadish, the edge armed with rather narrow wavy spines, variable in position.

67. I. A. ARGENTEA ELEGANTISSIMA, Barron; grandis, Fisher.—A rather striking variety, in which the bark of the young shoots is green. The leaves are elliptic-oblong, 2 inches long, 1 inch broad, with bold and regularly-developed spines, which become divaricate from the wavy surface of the leaf; the disk is dark green, mottled with grey, and with a broadish tolerably even edging of creamy white.

68. I. A. ARGENTEA MARGINATA, Lawson, Masters, Ochtertyre; argentea lato-marginata, Lawson; argentea, Barron; variegata argentea, Smith; albo-marginata, Fisher, W. Paul.—One of the older white-edged sorts, but not unfrequently substituted for Silver Queen. The bark of the young wood is green. The leaves are broadly ovate, 2 to 2½ inches long, with usually somewhat numerous but irregular divaricate spines, sometimes with the spines fewer or almost wanting; the colour dark green, with the disk slightly mottled, and with an irregular narrowish silvery margin. The tree at Ochtertyre is 25 feet high, free growing, and an abundant berry-bearer, the berries being noted as larger than in many common Hollies.

69. I. A. ALBO-LINEATA, W. Paul.—A variety of the silver-edged race, with green bark to the young shoots, ovate leaves, which are slightly wavy, with narrow slender spines, about 2 inches long, 1⅛ inch

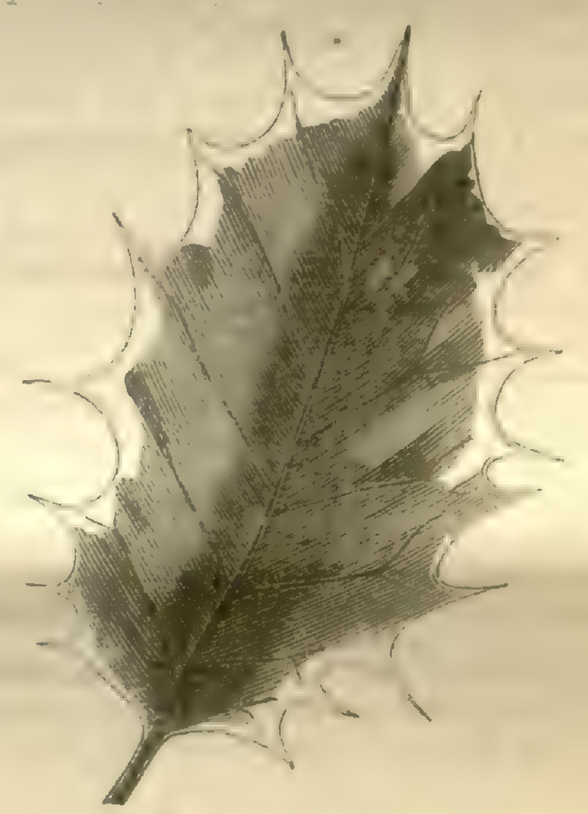

FIG. 144.—I. A. ARGENTEA LATIFOLIA.

wide, the disk greyish mottled green, with a rather indistinct margin of creamy white.

70. I. A. ARGENTEA STRICTA, W. Paul; stricta argentea, Fisher.—A distinct variety, in which the bark of the young shoots is purplish. The leaves are 2 to 2½ inches long and 1⅛ inch broad, oblong-elliptic, armed with tolerably regular spines, which are somewhat wavy, the disk very conspicuously mottled with flakes of green and greyish green, the edge broadly and unequally margined with creamy white.

71. I. A. ARGENTEA ELEGANTISSIMA, W. Paul; elegantissima, Fisher; Black-wooded Silver-striped, Waterer.—A well-marked variety, with the bark of the young shoots purple. The leaves are elliptic or elliptic-ovate, about 2¼ inches long, with unequal, but divaricating spines, sometimes few, sometimes wanting on one side, generally few and distant, rarely evenly distributed throughout, all directed forward; the colour is dark green on the central part, with grey blotches, and the margin is creamy white, irregularly laid on, frequently most thoroughly developed towards the tip, but more or less regular throughout.

72. I. A. BICOLOR, W. Paul.—A variety with red brown bark, and ovate leaves 1½ inch long, the centre part mottled with green and grey, and having the spiny and slightly wavy margin, with a narrow edge of cream-colour.

†† Leaves silver-blotched,
‡ Leaves large, nearly 3 inches long.

73. I. A. LONGIFOLIA MACULATA; longifolia maculata lucida, Smith.—A finely-marked Holly, with dark brown bark. The leaves are 2¼ to 2¾ inches long, and about an inch broad, elliptic cuneate, that is narrowed to the base, with strong and very much divaricated spines. The surface is dark green, with an irregular cuneate oblong central blotch of creamy white.

74. I. A. WISEANA; Wise's Holly, Waterer.—A

fine ornamental variety distinguished from the last by its green bark, and by the outline of its leaves, which are not narrowed to the base. The leaves are ovate, of a dark green colour, with a large creamy white centre, 2¾ inches long; the margins spiny and wavy, but the spines are less divaricate than on either the preceding or following varieties, and occasionally but not frequently the leaves are few-spined. It is a handsome Holly, of tall pyramidal habit.

‡‡ Leaves medium-sized, 1—2 inches long.

75. I. A. ARGENTEA MEDIO-PICTA, Masters and Kinmont; medio-picta, Barron; Silver Milkmaid, Lawson; Milkmaid, Waterer, Fisher; albo-picta, W. Paul (fig. 142).—A well known and handsomely variegated Holly, the fault of which is that the variegation is rather apt to run out, unless the tendency thereto is timely checked. It is one of the green barked sorts. The leaves are ovate or cuneately-ovate, 1½—2 inches long, and about an inch broad, with very strong and much divaricated spines. The colour is dark green at the edge, with large central blotch of creamy white, which is irregular in shape, size, and position, but is frequently confined to the basal half of the leaf. *T. Moore.*

Home Correspondence.

Pinus aristata.—Having been over a good portion of Gunnison's *route*, referred to by Mr. Murray (p. 549), I may say that the "Spruce Pine" referred to is Abies Douglasii, which still bears the name among the few settlers in that region. A. taxifolia, Lambert, is the same thing, with no greater difference than is common between the same species of other Conifers from widely-separated localities on this continent. The "excellent Pine" referred to is Pinus ponderosa, which is the only Pine that is common on that route. This also varies from P. ponderosa of the Pacific coast: so much so that I well remember how puzzled I was to place it when I first met with it. Pinus aristata is the most valueless, as a timber tree, of all the Rocky Mountain Coniferæ, and would scarcely suggest itself in that connection for railroad purposes. It has a singular habit of branching low, at least the side branches grow up and reach nearly the height of the central ones, giving the tree a broom-like outline. Though with a rather extensive range it is nowhere abundant, and very rarely forms a tract of wood alone. Picea concolor is never confounded with the "Spruce" there. I found it in 1871 near Pike's Peak, supposing it to be P. grandis. Its range is from Pike's Peak, through Southern Colorado to Southern Utah, where it is universally known as "Balsam." It varies much in the emargination of its bracts, and in other respects, and may, after all, prove but a form of P. grandis, one of the most variable of all American Pines. I am surprised that Mr. Murray makes no mention of Pinus Balfouriana in connection with P. aristata. It surely has the right of priority, and though P. aristata is an American name, in justice I believe American botanists are willing to adopt P. Balfouriana as its proper designation. *Thomas Meehan, Philadelphia, Nov.* 12.

Hauteville House, Guernsey, the Residence of Mons. V. Hugo.—The interest with which any details respecting the illustrious writer who so long resided here, is received by a large class of readers urges me to reply to the criticisms of Captain Oliver on my former communication. As the garden at Hauteville House was my sole subject, I confined myself to describing its features, and especially the beautiful Agave then in bloom. I am still unconvinced that, in so doing, I have, as Captain Oliver states, expressed myself so as to give a wrong aspect to the house, and as he says it is similar to my own, *i.e.*, "due east," the gallant officer must be mistaken in his "facings" once in a way, for mine certainly looks south-eastwards. But, as that is of no great matter to readers of this paper, we will let it pass. The garden has somewhat altered since Captain Oliver saw it three years ago, and it is readily accounted for; nor at any time was it of any beauty or interest unconnected with its present associations, being small and badly laid out. As to the house itself, what I have stated referred chiefly to the attic which is seen in the woodcut overlooking the garden, and this, with a glass gallery connected with it, together formed the study of M. Hugo, from whence have issued the works of the last score years, including that whose scenes are laid in Guernsey—*Les Travailleurs de la Mer*. As for artistical purposes, of which the great writer is the best judge, and wherein he closely resembles our Shakspeare, he has thought proper to disconnect all the usual unities of time and place, and, as the very localities mentioned so individually are but indicated as existing somewhere or other, it is obvious that for me to describe them otherwise than in similar terms would be inharmonious with the scope of the work or of its intention. I beg, therefore, not to be responsible, as Captain Oliver seems to wish himself to be, in identifying the apocryphal rock whereon Gilliat "suicided himself"; sufficient for me to say it was supposed to be "seawards," else how could Gilliat have been surrounded by the sea while on it? In the same spirit I dared not seek for the clock on Torteval church—the parishioners would be too glad ever to have had such a one. The steamer and the revolver might have been seen by the "mind's eye" of the great writer somewhat before their time of introduction, but prosaic reporters have no such second sight. The point wherein my great admiration of the work diminishes most is where the inhabitants of Guernsey are represented as so many Frenchmen, and Frenchmen of the Hugo type too. I imagine this circumstance and the unconscious Chauvinism which pervades M. Hugo's whole series of productions, and now so animates him, did not make him popular while here. It must also be remembered that the religious convictions of the islanders are essentially antagonistic to those expressed so unreservedly by M. Hugo. That the great writer should have been at all neglected by the natives is to many of us, as it seems to be to Captain Oliver, a source of regret, but, on the other hand, for the success of his labours solitude was essentially required, and there always existed a circle of devoted admirers around his hospitable hearth. Leaving this unpleasant part of the matter I shall merely add that, while on the subject of Mons. V. Hugo's garden, he says (in the work in question), that his heroine, Dèruchette, "cultivated the Aloe in the open ground as most people do here"; he then adds a description of the garden plants, which could be given if amusing to read. They are not, however, "orthodox" even in this small matter, nor such as any inspection of island gardens would have suggested. In short, criticism is out of place when rashly offered on such matters. *Thos. C. Bréhaut.*

Action of the Wind upon the Subterranean Waters in the Thames Valley.—My stokehole bottom is 4 feet below the surface, and by it I am enabled to guage exactly the rise and fall of the "springs" in this locality. During previous wet winters I have been afflicted with an incursion of water, but on no occasion so early as the present year. Remembering the long and heavy rainfall, however, I anticipated its appearance even sooner, but saw no symptoms until after the wind veered round to the south-west and blew a hurricane from that quarter; then in a day or so I found 3 feet of water in the stokehole, and at this height it remained until the morning of the 20th inst., when, the wind having chopped round to north-west by north, I soon found a gradual lowering of the water level. I at once had the water bailed out as dry as possible, and not a drop has appeared since. In previous years the water has remained a trouble for three weeks; that was as long as the wind blew from the south-west. We lie here over 3 miles in a direct line from the River Thames, and a short distance beyond the margin of that portion of the geological formation that is directly affected by the rise and fall of the river. Am I right, therefore, in concluding that a strong south-westerly wind blowing hither straight from the mouth of the Bristol Channel has power, by means of atmospheric pressure, to unduly force the subterranean waters up to the surface of the earth? and does the water subside again quickly as soon as the pressure is withdrawn, or does the change of wind facilitate this withdrawal? This matter has no connection with the prevailing floods, as I have found the water higher and more troublesome when there has been no special complaint of flooding. *Alex. Dean, Bedfont.*

Cleanliness in Plant-houses.—It is a well-known fact that cleanliness is very conducive to health, and most people regard it as a great moral duty. It is just as essential for the welfare of plants as it is for the health of animals, and any one who wishes to excel in the cultivation of these must not be afraid of soap and water. During such inclement weather as we have lately been having, and may expect to have, at intervals, for some months to come, it is both barbarous and unprofitable to keep men at outdoor employment when there is so much under cover requiring attention. Any one at all acquainted with plant or fruit culture under glass knows how important it is that every ray of light it is possible to get should be admitted into all glass structures during the short dull days of winter and early spring. Although this is so, yet how often do we see the roof-sashes coated over on the inside with a slimy gelatinous deposit, resulting from condensed vapour and various matters floating about in the atmosphere. Such a deposit as this, in however small a degree, must shut out light, and light is life. This is generally admitted and believed in, and yet it is surprising how few act on this belief by having all the glass cleansed at least once a year, as it should be, so that the plants may receive the full benefit of its vivifying influence. All the insect pests to which plant and fruit-houses are liable take up their abode in winter in every hole and crevice, or deposit their eggs in similar positions, from which the houses are restocked as soon as heat is applied and the conditions are favourable for them to emerge. The remedy against this is soap and water. Every inch of paint in the interior of houses, as well as the glass, should have a thorough cleansing, and after this is done the walls should have a brush over with a thin coat of hot lime-wash. A thorough scrubbing of the woodwork with soap and water is almost equal to a coat of paint, as it enables the condensed moisture to run freely off, instead of hanging about and adding to the slimy deposit that always proves so destructive to the woodwork of houses when it is allowed to remain undisturbed. There is nothing like a wet day for these interior cleansing operations to be carried out, as just then the conditions are favourable for removing deposits of dirt that would in dry weather stick with the greatest tenacity and take double the time to remove them. Having made the interior of the structure clean, let us now give an eye to the plants, as under the very best management the leaves of these will become dirty either from the *excreta* of insects or other causes. The syringe has to be plied pretty freely during the summer months, and, be the water ever so clear, it is sure to leave a deposit, either from the organic matter it contains or from the small particles of dust floating about in the atmosphere that settle on the leaves before they are dry. If this is allowed to remain it disfigures and injures the health of the plants. The remedy again is soap and water, either by hand-washing or by applying the same with some force by the use of a garden-engine or syringe. In the case of small-leaved plants hand washing would be out of the question, on account of the time it takes and the danger there is of bruising them, even could labour be spared for the purpose. The best way to treat these is to have a triangular stand made in which to lay the pots, so that the plants may be subjected to a thorough syringing with soapy water, or, if necessary, with any of the insecticides, after which they should be finished off with clear soft water. By having them reclining on their side, as above, they can be turned about, and both the upper and under-sides of the leaves are then open to attack, without danger of saturating the soil and thereby injuring the health of the plants. Such things as Camellias and plants of that class having thick leathery leaves can easily be washed by hand, for which purpose unskilled labour may be used without much risk of bruising or injuring the foliage, and, although a slower process than the above, it is much more satisfactory, especially in the case of Camellias, as they are sure to repay any little extra trouble by the rich glossy appearance their leaves present after a good sponging. Where time can anyhow be spared, Camellias should always be gone over at least once a-year, and now is the best time for doing so, as it adds greatly to the beauty of the flowers to see them backed up by luxuriant glossy foliage. The job of sponging over a lot of these is not so formidable as at first sight it appears to be, as any one at all active will be able to get over several large plants in a day. Let us now look a little lower and see what condition the surface soil is in, and if the outsides of the pots cannot be improved. If either of these are coated over with conferva, it is a sure sign that the requirements of the plants have not been properly studied, or they would not have become in that state. With the soil or pots in the above condition it is impossible to have the plants in anything like health, or to see when they want water or not; and therefore this should be carefully scraped from the soil, and thoroughly scrubbed from the pots. Air in a certain degree is as necessary to the roots of a plant as it is to the top, and it is impossible to keep them in health with the soil hermetically sealed by a mass of slimy vegetation. Careless watering soon brings about the above state of things, causing no end of loss among the plants. It is surprising and mortifying to find what a gross state of ignorance exists among many of the young journeymen gardeners one gets, as to a plant's requirements—the moisture-loving and others of a reverse nature—all sharing in an indiscriminate watering at periodical intervals. *J. Sheppard, Woolverstone.*

Verbascum nigrum.—A friend brought me yesterday a spike of this plant to name, as her gardener was unacquainted with it, but they were all much struck with its beauty and appearance, especially at this period of the year. It is growing in one of their hothouses, and certainly, when cut and arranged with Camellias, Gardenias, &c., it had a most brilliant and excellent effect, so much so that I thought it was worth recording in your widely circulated paper. *John E. Daniel, 6, The Terrace, Epsom, Nov.* 21.

Porter's Excelsior Potato. — As your note appended to my notice of this Potato in the last issue is calculated to lead to the belief that I had violated the conditions of the South Kensington exhibition, I invite you to allow me space to state that in exhibiting dishes of Porter's Excelsior

Potato in two competing collections I did nothing improper or contrary to the South Kensington rules. All that is asked of the exhibitors is that the subjects exhibited shall be "their property," but nothing is said in respect of "own growth," as, were such the case, it is evident that the Channel Islands fruit dealers must have long since been excluded from the competitions. The Potatos in question were ours by purchase in the way of business, and it was perfectly legitimate so to exhibit them. I am quite aware that at many exhibitions it is a condition that all subjects shown for competition shall "have been grown by the exhibitor;" such, however, is not the case at South Kensington, and if any one entertains a different belief he is in error. Whenever the conditions there are so expressed I shall be careful to abide by them. I may add that but for the singular advertisement of Mr. Porter's, to which I referred, I should not have thought of showing his Potato, but, seeing that, I felt that, having acquired stocks of it, it was but fair that at least all who had been made familiar with it at the Alexandra Palace should have an opportunity to observe that now the stock was not exclusively in his hands. *Alex. Dean, Bedfont.*

—— Now that the ice is broken respecting the above-named Potato by Mr. Dean, in last week's paper, and as I am of the same mind as "A Reader" in the *Gardeners' Chronicle* of the 6th inst.—*i.e.*, that each variety ought to be content with one name, and that, in his opinion, should be the original one—so I now give you what my impression is of the so-called Excelsior. First, then, it is not the Excelsior; I had it from Eglinton Castle in 1871, and from Alnwick in 1874: both are the same, and bear no resemblance to Mr. Porter's. But in the years 1867 and 1868 I was one of the judges at the Tarves shows, and on both occasions a lady gained the 1st prize for round white Potatos, which stood conspicuous for their beauty. I obtained a few from her gardener, who told me they were purchased in Edinburgh, at 9*d.* per pound, under the name of Henderson's Prolific. This is the Potato Mr. Porter fears unprincipled people may substitute for his Excelsior. As I devote fully half an acre of my croft to the growing of select Potates I did my best to increase Henderson's Prolific, and in 1871 and following years placed my stock in the hands of Messrs. B. Reid & Co., Aberdeen, for distribution, so that it is well known in the North; and after this seven years' trial I believe it to be a well selected stock of the good old Handsworth Early Round. It was 1874 before the so-named Excelsior made its appearance, which I have compared with Henderson's, *alias* Handsworth Improved, and can find no difference; and although much puffing has prevailed in its favour for the past two seasons, I have always been content to stick to what I consider the original. *R. Farquhar, Gr., Fyvie Castle, Fyvie, Aberdeenshire.*

The Introduction of the Cherry into Kent.—The following interesting details concerning the introduction of the Cherry into Kent were given by Mr. G. Webb in a paper on "Fruit Culture and Management in Kent," read by him at the Surveyors' Institute on Monday evening last:—

"Hasted, in his *History of Kent*, under the head of 'Tenham, or Teynham,' says, quoting Lambarde—'That this parish, with thirty others lying on each side of the great road from Rainham to Blean Wood, was, in his time, the Cherry garden and Apple orchard of Kent, and such it undoubtedly continued to be till within memory. It was the parish from whence the other plantations issued, for Richard Hayns, fruiterer to King Henry VIII., having observed that those plants which had been brought over by our Norman ancestors had lost their native excellence by length of time, and that we were served from foreign parts with these fruits on that account—which he saw no reason for, as neither the soil nor climate here were unequal to the bringing of them to perfection—determined to try a plantation of them here, for which purpose, having in 1533 obtained 105 acres of rich land (then called the Brennet), and having with great care, good choice, and no small labour and cost, brought plants from beyond the seas, he furnished this ground with them in rows, in the most beautiful order. These fruits consisted of the Sweet Cherry, from hence casually called the Kentish Cherry, the Temperate Pippin, hence for the like reason called the Kentish Pippin, and the Golden Renate.' Mr. Furley, in his *History of the Weald of Kent*, also records that Camden, following Lambarde, describes Kent as abounding in Apples beyond measure, as also with Cherries, which were brought out of Pontus into Italy 680 years after the building of Rome, and 120 years afterwards into Britain (A.D. 48).' Mr. Furley also observes that Fuller, who published his *Worthies* in 1662, states that one of the orchards of this primitive plantation, consisting of 30 acres, in one year produced fruit which sold for £1000."

Fairy Rings.—Is it known to what extent these circles will increase? I have been accustomed to see Marasmius Oreades in circles, more or less broken and irregular, on gravelly undulating meadows near Canterbury, where the diameter varied from 6 to 12 feet, rarely more. On the chalk downs near Lewes I lately measured two rings of Agaricus subpulverulentus, one of which was 48 feet and the other 57 feet across, and both were well furnished with fungi all round. *W. T. T.*

Rooks and Walnuts.—I beg to differ with Mr. Record as to the rook not having power to open or break the shell of a Walnut, as I have experienced quite the reverse this season. The rooks made a raid on the Walnuts here as soon as the kernels were formed, and kept up their depredations with spirit until the last were off the trees. In the early part of the season the trees were very heavily laden with fruit, but by the time they were fit for gathering the crop was quite scanty; in fact, some of the trees were completely stripped. When the men were sent to gather them it was quite evident that the rooks were aware of what was going on, as they formed an opposition party, and kept up their pillaging with spirit until it came to the last tree. It is not every gentleman in the immediate neighbourhood of London that can say he has a rookery. The one here (about 7 miles from Westminster Bridge) was established a few years ago, after many fruitless attempts, consequently my worthy employer values his rooks, and would sacrifice all his Walnuts in preference to having one rook shot. *James Ollerhead, The Gardens, Wimbledon House, S.W.*

Cotoneaster Simonsii.—I can quite endorse all that is said in the *Gardeners' Chronicle* of November 6 about Cotoneaster Simonsii, as I have a quantity here trained as standards, but not worked on the Thorn. They are from seed, and I find they make heads very quickly, and the effect, trained as standards for front lines in the shrubbery, is very good, and I am sure the plant when better known will take a very prominent position. In fact, the plants being trained here are to take the place of some of the more common shrubs in the celebrated winter garden of Woodstock, where a flower or flowering plant is out of place; but not so a table, 6 feet over, of the beautiful orange-berried Simonsii. *G. Dodd, Woodstock Park, Ireland.*

Amsterdam International Flower Show.—It would appear that the few lines I sent to your journal some months since are likely to produce good results. I have received a communication from Brussels, stating that they will give the particular medals I mentioned, and also others, to carry out my ideas still further. By the accompanying letter, the managers of the International Show at Amsterdam not only accept my suggestions as to medals, but have agreed to the principle I laid most stress on, viz., "that the rules for determining the awards of these medals shall be clearly laid down in the final programme." It is to be hoped that the Brussels management for 1876 will also come to the same determination, for unless the principle of the above quotation be very carefully followed, they will not get many Englishmen to send their plants over, especially after the experience of the show at Cologne. I have great confidence that our Dutch friends will act up to their promises, and I can assure every one who may be doubtful as to showing, that the managers will help exhibitors in every way, and especially so if they are informed sufficiently beforehand of the nature and extent of the assistance required. The letter referred to reads as follows:—

"*Amsterdam, Nov.* 11, 1875.

"Dear Sir,—Your kind letter of October 26 is duly received, and I read to the committee your remarks concerning the International Flower Shows. All the members considered the matter in the same light as you did, and in the forthcoming preliminary programme of horticultural productions you will perceive that Medals of Honour are to be given both to native and foreign nurserymen, as also to native and foreign amateurs. The rules for determining the award of these medals shall be clearly laid down in the final programme.

"This for your government. Many thanks for your kind endeavours for the good results of our International Flower Show, and as it is of the greatest importance that the well-known English amateurs and nurserymen should exhibit here, I take the liberty to invite you to proclaim our wish in this behalf, as your idea will be entertained here. No doubt that the exhibition in that way will be more interesting for strangers, and that the famous English amateurs and growers will be induced to exhibit at Amsterdam in 1877, as they did in the most splendid way in Cologne. *H. Groenewegen, Secretary.*

Robert Warner, Broomfield, Chelmsford, Essex.

Late Fruiting Raspberries.—I think, if Mr. Wickham was furnished with the opinion of your readers respecting the autumn fruiting Raspberry to which he alludes (p. 622), he would find a very large majority who are not in favour of autumnal Raspberries, as, in my opinion, such fruit seldom gives satisfaction. If we get a good crop of well-flavoured fruit during the summer not many people would care to trouble themselves to grow fruit which must be deficient in flavour, even if they were sure of being so abundantly supplied as Mr. Wickham has been. This perhaps is one reason why your correspondent never sees it anywhere except in his own garden; if he cannot see it in a season like the present, which has been most favourable, he must consider himself fortunate as regards quantity, if not quality. Will Mr. Wickham kindly inform your readers which of the autumnal bearing Raspberries his is, whether it is the old double bearing, or the newer October or Merveille des Quatre Saisons variety? *E. Morgan, The Butts, Harrow-on-the-Hill.*

Wellingtonia gigantea.—The measurements given of the Wellingtonia gigantea in the park of M. Siffait are so remarkable that I think you would like to compare them with those of one planted in my garden the very same year, 1855. Mine is a well-grown tree, and I measured it very carefully in April last, with the following results:—Height, 39 feet; outside circumference of branches, 63 feet; circumference of trunk, 7 feet 9 inches. You will observe that while the circumference of my tree is larger, the height is little more than one-half. *Henry N. Ellacombe, Bitton Vicarage.*

Veitch's Autumn Giant Cauliflower.—I have myself, like Mr. Ward, been this autumn very much disappointed in the above Cauliflower. I obtained three packets of seed from my seedsman. One sowing was made in April and two in May, and, to my great astonishment, not a single head did I observe anything like the Autumn Giant, for towards the end of September every Cauliflower had been cut that could be sent to table, while in previous years I have had from the same sowings a good supply of fine Cauliflowers till the end of November. I think every gardener up to the present has given the above Cauliflower a hearty welcome, as it came in at a time when vegetables are so scarce; and I shall be pleased indeed to hear that some one has still got it true, so that we may another year meet with it in its true form. A market gardener near here planted out many thousands of it, and nearly all came in the form of Early London; his loss is thus very considerable. September being an exceptionally hot month would undoubtedly bring them on a little earlier than usual, but surely not to such an extent as has been experienced by Mr. Ward, myself, and others. *Thomas Carlton, Ashstead Park, Epsom.*

—— In reference to the above being true to its original type this year, I may say that I am in the same "boat" as Mr. Ward. I had not one last year but what was true to a "leaf," and beautiful Cauliflowers too. This year there is scarcely one plant of the same compact form, in leaf or flower, although they have turned in useful. I fear in a few seasons it will be as difficult to obtain true as that valuable Broccoli, Snow's Winter White, which variety I have not for several years been fortunate enough to obtain. *J. Batters, Chilworth Manor, Romsey, Hampshire.*

The Profusion of Hollyberries.—In corroboration of the remarks in a recent number of the *Gardeners' Chronicle* on the large quantity of Hollyberries to be seen this season, I may say that in our garden there is a Holly like a forest tree, and one mass of beautiful berries to the topmost bough; but we have not so many haws as usual to feed the missel thrushes when they pay us a visit. A large shrub of Eugenia Ugni blossomed luxuriously and perfumed all the garden, it is now laden with handsome dark-red berries and is a valuable ornament, worthy of all care. Myrtles of every kind have blossomed profusely this year, especially the narrow-leaved varieties; Lilies flourished, and Magnolias commenced flowering early in September, and, in spite of deluging rains, have continued to bloom beautifully to the present time. *S. D. A.*

Fungi in Kent.—Few who have not collected Fungi have any idea of the number of forms that may be met with in the autumn in woods and other suitable localities. The following is a list of thirty-one species which I found within an hour a few days ago in Starvecrow Wood, near Tunbridge. I am indebted to Mr. Worthington Smith for kindly naming them for me, and I have no doubt that practised collectors would have found many other species:—Amanita muscaria, Agaricus geotrupes, A. radicatus, A. nudus, A. fastibilis, A. saponaceus, A. terreus, A. spadiceus, A. laccatus, A. lacteus, A. alkalinus, A. fastigiatus, A. filipes, A. fascicularis, A. umbelliferus, A. polygrammus, Cortinarius caninus, Hygrophorus virgineus, H. miniatus, H. pratensis, H. cossus, Lactarius Blennius, L. vellereus, Russula fragilis, Cantharellus cibarius, Polyporus versicolor, Tremella foliacea, Lycoperdon gemmatum, Helvella crispa, Leotia lubrica, and Geoglossum glabrum. *W. T. T.*

Stealing Fruit at Exhibitions.—Mr. Perry's Onions were not the only things missing at South Kensington on November 11. During packing-up time I heard several complaints from exhibitors of dishes of Pears and other fruits that could not be found when sought for by the rightful owners. The fact is, on the occasion of such a great show of fruit as that was, the wonder is that so little is stolen, for it offers a rare opportunity for any audacious person to have a good haul. When exhibitors have fruit dispersed over several classes, some of them very wide

apart, they naturally begin by packing the largest quantities first, and for a time stray dishes are entirely at the mercy of anyone, as the officials are not in a position to say whether the person taking them is the rightful owner or not. A simple plan worthy of adoption would be to give every exhibitor, with his ordinary card, another card which should be in the form of an authority from the Council to remove his exhibits after the proper time, and if any person were detected in removing a dish of fruit, or anything else, without having this authority in his possession, it would present a *primâ facie* case for inquiry and possible punishment. One prompt exposure and punishment would, no doubt, prove a complete check in the future. I ought to add, that to ensure identity the name of the exhibitor ought to be placed on the card of authority for removal. *Thames Valley.*

Reports of the Royal Horticultural Society's Shows.—I quite agree with "A. D.," in his statement respecting the reports of the horticultural exhibition at South Kensington that are published in the leading morning papers. I cannot understand how this state of things comes about, for we have most exhaustive reports of cat shows, donkey exhibitions, poultry meetings, &c.; they are all made the most of. Leading articles are often written setting forth the advantages and comforts we all enjoy in having famous mousers, serviceable donkeys, and sound cabhorses. This last week I noticed in one of the morning papers a leading article in support of a forthcoming exhibition of dolls and the houses they inhabit, and yet a grand display of one of the staple articles of everyday life—*i.e.*, fruit, that we all enjoy, more or less—was passed over in an insignificant paragraph that there was some difficulty in finding. Let us hope another year some genius will be found to give a good public report of the meetings of the Royal Horticultural Society at South Kensington. *F.*

The Relations between Master and Servant.—My authority for stating at p. 655, that Hood had had a sale, which you query, was the evidence of Mr. Leslie, who said, "An auctioneer's bill was sent in to me . . . He had sold plants which he had bought in my name without my consent." *Justitia.* [On the other hand, it was stated that the plants remained in the possession of Mr. Leslie. EDS.]

Sunken Stokeholes.—Mr. F. R. Beckett, hot-water engineer, &c., Chelmsford, Essex, is my authority for the statements that appeared in your columns respecting Messrs. Miller's and Gilbey's stokeholes. It appears from the statement of Mr. J. Deal that he is unable to give the cost of making one stokehole water-tight; may this not be the one Beckett alludes to? I received a letter from a gentleman this morning, Nov. 22 [This is a very vague statement], who states "I notice a letter to-day giving prices about stokeholes, and I find that the amount quoted would not pay for the cement used in one of ours—not to speak of the construction: it is one thing to build a wall where you fancy water may come, and to puddle behind it, and another thing to build out water where the spring is strong enough to float a few tons of bricks." He further states, in one of his stokeholes the spring was so strong that it lifted about 4 inches of concrete and two courses of bricks bedded in cement, and left to set for several days. Notwithstanding a man was kept at the pump night and day at Osberton, the stokehole that held two of Ormson's large tubular boilers was close to a spring, and no cement, puddle, &c., would prevent the water from coming in. The pump was the method employed for two years, but as things got worse we cut a deep drain and carried the water some 300 yards before we could get an outlet. A nice expense it was, besides the mess, the depth being so great that the sides had to be planked sewerage-drain fashion. It was to such difficulties that I first alluded, and not to ordinary stokeholes. Most people can overcome small difficulties at a small expense, and no doubt gigantic difficulties can be overcome where expense is no object. Hardly anything is impossible where money is no object. *E. Bennett, Rabley, Herts.*

Plumbago rosea.—This fine old plant is not nearly so well known and cultivated as it deserves to be. It is one of the finest things we have for furnishing our stoves and intermediate houses with flowers at this dull season of the year. Its long branching racemes keep flowering on for weeks; but, on the other hand, a great sacrifice is made if they are cut; the scores of flowers at the points of the racemes will not expand, and those that are expanded will soon droop and wither. If the flowers would stand well after being cut, it would be a great acquisition; nevertheless, it is well worthy of a place in all collections of stove plants. I found a quantity of plants when I came here last January from which I propagated a sufficient quantity to cover the back walls of three Melon-houses. The earliest batch is just at its best, and covers a wall 25 feet long, with hundreds of their lovely long racemes of rosy flowers arching out gracefully from the wall, and producing a charming effect. Mr. Denning said, when he was here the other day, "I don't think I ever saw such a pleasing sight produced by one variety of plant at this time of the year, and what a pity it is that it won't stand cool treatment." But, apart from this, it is well worth growing. *James Ollerhead, Wimbledon House.*

Royal Horticultural Society.—In allusion to the Royal Horticultural Society, the following question is asked by a correspondent in last week's impression of your journal—"Have we a Horticultural Society?" This question might appropriately be answered Quaker fashion. Could an individual who, placed in a foreign country amongst ungenial inhabitants, broken down by debt and misfortune, and bound hand and foot in chains too skilfully welded to admit of his breaking free, and thus dragged down to a state so low that he dared not say his soul was his own, be to all intents and purposes otherwise than defunct? Would a horticulturist who grafted a scion, however choice, upon an unappropriate stock, growing in a stormy and barren soil, unnurtured and uncared for, expect that tree to yield him goodly crops of fruit? Because it must be borne in mind that the laws which apply to individuals or to trees apply alike to communities. I would suggest to your correspondent, and to all who desire that a horticultural society should exist, that he and they should "put their shoulders to the wheel," and try if they could not pull the Royal Horticultural Society free of its present fetters, and out of the slough of despond into which it has been so long and gradually sinking. Remove it altogether from its unhealthy surroundings: the very atmosphere of South Kensington blights every bud it ventures to put forth, until it stands a leafless and a withered example of what adversity can produce. But the old tree has vitality yet. Remove it into a more genial soil and surroundings, and in a little while your correspondent's question might be answered—not Quaker fashion, but with a bold and straightforward "Yes." There is also a question that occurs to me to ask. As we were informed by a paragraph in last Friday's *Times*, "that an Act would be applied for next session for power to enforce an annual payment from each member and seat-holder of the Royal Albert Hall for its maintenance," could not this Act be made to contain provisions for the maintenance of the South Kensington Gardens also? The hall and gardens so closely belong to each other, by ownership and in all respects, that they should be dealt with as a whole. If the Act were made sufficiently comprehensive to give the power of levying a rate upon the many mansions say within a radius of a mile from the hall, a small percentage upon their rentals would suffice to keep them in a condition as a square-garden for the enjoyment of all who contributed to their support, and I conclude that less injustice would be done thereby than by the making those members of the Albert Hall pay an annual additional rental for rights they have already fully paid for. The rate would also pay the interest, and by a sinking fund the capital of the garden's debenture debt, besides repayment to the Royal Horticultural Society of the large sums taken from their funds for the construction of gardens the Society does not require. *Thorough.*

The Horticultural Society of the Past.—Horticulture in England unquestionably dates back to the time of the Roman occupation; nevertheless, in spite of the respectable antiquity and indisputable utility of the science, no Society purporting to fully develope or represent it existed, strange to say, until the year 1804, when, this want being generally felt, Mr. T. A. Knight, a man distinguished for botanical knowledge and enthusiasm, took the initiative, and his views, supported by Sir Joseph Banks, Mr. John Wedgwood, and other scientific men of the day, speedily took shape, and resulted in the formation of the body known as the Horticultural Society of London. Long prior to this, however, the introduction of foreign trees and shrubs had been considered of interest and importance, although for many years horticultural progress in this direction was extremely slow. It was in the reign of Henry VIII. that attention began to be paid to forming plantations and introducing new species, but as the list of these imported during the sixteenth century only reaches the number of eighty-nine, it is evident that the demand for such novelties was but small, and that ornamental arboretums must have been confined to the demesnes of the wealthiest citizens, or the few greatest nobles. The seventeenth century witnessed a considerable advance both in the number of new species introduced—131—and in the establishment of botanic gardens at Oxford and Chelsea, whilst a nursery at Brompton Park, which attained some celebrity, was founded in 1681. The next century, the 18th, saw a still greater progress. Not only did the number of new species amount to 445, but the establishment of Kew Gardens by the Princess Dowager of Wales, in 1760, gave an impetus to the science which was felt far beyond the limits of the island, whilst the collection of plants in Chelsea Gardens was considered to be the richest in Europe. It is clear then that at the beginning of the present century ground was thoroughly prepared on which botanical enthusiasm might healthily and beneficially develope itself, and it is only just to say that of the opportunities thus offered to them the gentlemen who originated the Royal Horticultural Society made most excellent use. And why? Because their enthusiasm was for many years always restrained within profitable limits by prudence. Thus we find that in 1817, thirteen years after the formation of the Society and eight years after its incorporation by Royal Charter, the income was £1791, and the outlay £1719, whilst £1400 in the funds and property valued at £3000 besides, seemed to promise well for the future. Clearly a Society which was initiated under such favourable conditions and was managed in a commercial sense wisely ought, had the system been continued, to have now attained a position above fear—beyond reproach; nor must it be inferred that this financial prosperity resulted from a niggardly "penny-wise" mode of procedure, calculated to starve horticultural science or incur contempt. On the contrary, the Society was steadily increasing in usefulness and influence, and by bringing horticultural knowledge to a focus it excited enthusiasm among the cultivated public for novel and beautiful productions, and by corresponding with learned societies abroad, it unquestionably attained a very high and honourable position, and promised to be numbered among those institutions which seem destined to be coexistent with the constitution of the country itself. Thus, to give some idea of the impetus which horticulture received during the first thirty years of this century, mainly owing to the exertions of the Society, it will be sufficient to state that the new plants introduced during this time (many of them by the Horticultural Society's collectors) amount to no less than 669, whilst during the three previous centuries the total number had only reached to 565—an advance which, were it not authenticated beyond dispute, might seem incredible. During a part of this prosperous epoch the Society not only had earnest and able collectors abroad—among whom may be enumerated Don, Forbes, Parks, Douglas, McRae, and, last of all, Mr. Fortune, who explored various portions of Bengal, China, Africa, Columbia, and the Sandwich Islands—but also extended its sphere of use-fulness at home by educating young men as gardeners, of whom in the year 1826 we find that the number employed in the society's garden amounted to thirty-six, many of whom attained positions of eminence. To show the opinion held of the Society about this time by intelligent foreign horticulturists, a few remarks by M. Schultes, who paid a "botanical" visit to England in 1825, may be pertinent. M. Schultes, speaking of the Society's garden, says:—"On comparing this garden with those of the ancient Universities of Cambridge and Oxford, one cannot for a moment hesitate in declaring the superior influence that this must have in benefiting the country, although it has only been founded within these few years by the joint exertions of a few private individuals. The friend of man contemplates with pleasure how much more a well directed society of spirited men can effect in ten or twelve years with a small sum of about 60,000 florins raised among themselves than has been performed by the two great learned bodies of the kingdom with millions." (The Botanic Garden at Oxford, it may be mentioned, is the oldest in England, having been founded in 1622.) Whilst Mr. Loudon, who certainly cannot be considered as prejudiced in the Society's favour, is nevertheless (writing in 1835) candid and conscientious enough to affirm, "The establishment of the Horticultural Society of London in the early part of the century has had a material influence in spreading a taste for every department of gardening, not only in Britain, but throughout the whole civilised world." So far, then, the Society's career may be considered a decided success, but now unfortunately we have to regard the reverse of the medal, and the first serious crisis in the Society's affairs seems to have occurred about 1831, when a committee of enquiry reported that the Society was nearly £4000 in debt. Now had the Society at once retrenched expenditure and paid this encumbrance off it might have been saved, but, unfortunately, other counsels prevailed; and in 1858, the debt having reached the sum of £10,000, the house in Regent Street, the Society's property, where it held its meetings, had to be sold, together with the invaluable herbaria, and, extraordinary to relate, a most important library, which had for forty years been in process of formation was dispersed by auction. In this year the Duke of Devonshire, the President, died, and he was succeeded by H.R.H. Prince Albert, whose lamented death followed shortly after. The Council now seemed to think that the main cause of their disasters was the comparative inaccessibility of their garden at Chiswick, and that if they could obtain a site nearer the metropolis prosperity would once more be their lot; the ground at South Kensington offering at the moment it was accepted, and unwittingly the Society's fate was irrevocably sealed. Upon sub-

sequent mistakes, ever-increasing financial embarrassments, internal discords, and spasmodic and futile efforts to retrieve lost status, it would be painful to dilate or linger; nor is it necessary, for all these matters are, unfortunately, only too notorious. Suffice it that this Society, founded with the intention and the anticipation of taking the proud and honourable position of the leading horticultural society of the world, has sunk down to the insignificant grade of a society of amateurs and suburban residents pitiably appealing for aid, and struggling to preserve for harmless recreation a mere suburban pleasure-garden. Thus, by this Society botanical progress is no longer worthily represented, horticultural interests are no longer advanced; and it is the conviction of all who have either real feeling for, or practical knowledge concerning horticultural science, that the Royal Horticultural Society has, so far as it purports to represent the country at large, virtually ceased to exist. *G.*

The Snowflake and Eureka Potato Competition.—We have read the letter of your correspondent, Mr. Ford, on the subject of our Potato competition, inserted in your issue of last week. We have no desire to maintain discussion upon a matter in which we cannot interfere; but perhaps it will help to set it at rest if we reproduce the conditions upon which the competition was opened:—

"Fifty guineas in prizes, offered by Hooper & Co., Covent Garden, London, W.C., will be awarded at the meeting of the Royal Horticultural Society on Nov. 10 of the present year. Competitors for the prizes will be required to give date of planting, date of digging, with a written statement of their mode of culture, characteristics of the soil—whether clay, alluvial, sandy, or loam—nature of the subsoil (whether underdrained or not); also the kind and quantity of fertilisers used, how and when applied, and the nature of the crop which occupied the ground immediately before. Competitors must send us their names for registration before April 10 next, and only those who are so entered will be eligible to compete for the prizes. Local agents will be appointed by us to supervise the planting and lifting of the Potatos, and will make a return to us of the space occupied, and certify that the conditions published have been carried out. The crops when dug must be carefully packed and forwarded to the Secretary of the Fruit Committee of the Royal Horticultural Society, South Kensington, London, W., with the words, 'Hooper's Potato Competition' on the corner or back of the address. The packages must reach South Kensington by November 9, and the written statement about soil, &c., alluded to above be enclosed on the top. A duplicate of this statement should be forwarded to us by post. The packages containing the crops should be sealed. *The seals will be broken, the crops weighed, and prizes awarded by members of the Fruit Committee of the Royal Horticultural Society*, and all the competitive lots will be exhibited at the show of November 10, with the names of the raisers attached to them. The names of the winners will be published in the leading agricultural papers of Great Britain. Competitors for premiums will be placed under no restrictions as to their mode of culture, excepting that they must not be grown from slips or forced by artificial heat, our object being to ascertain their respective merits with such culture as is usually given to crops in a well-managed vegetable garden or farm. The Potatos may be cut into 'sets.'"

Thus having placed it in the hands of the Royal Horticultural Society, who willingly undertook the matter for us, we considered that we had secured the ablest assistance that we could desire, and we could not, either in courtesy or right, anticipate the judgment of the Society by recommending any particular action. Neither can we hold ourselves in any way responsible for the issues. It will be remembered by the competitors that we made an attempt towards the lifting time to bring on an earlier adjudication, on account of the threatenings of disease, but failed through the non-compliance of one or two. *Hooper & Co.*

Reports of Societies.

Ealing District Chrysanthemum: *Nov.* 13.—This recently-formed society held its first show on the above date in the Christchurch schoolroom, and the result proved in the highest degree satisfactory to the promoters. For a few years past a somewhat extensive horticultural exhibition has been held at Ealing in the month of July, and the tendency has been to create a large number of amateur exhibitors among the many villa residents in this growing suburb of London. As several of these were cultivators of the Chrysanthemum it was resolved to form a society, which held its first show as above stated. It was not a large exhibition, but it proved a promising one, and it will be certain to give a considerable impulse to the culture of the Chrysanthemum in the district. The large schoolroom in which the show was held was quite filled with exhibits of various kinds, and included a beautiful group of Cyclamen persicum, staged by Messrs. H. B. Smith & Co., Ealing Dean Nurseries, remarkable for the depth of colour displayed in many of the flowers; together with a collection of foliaged plants, such as Ficus elastica, various Palms, Ferns, Dracænas, &c. Messrs. J. & C. Lee staged a large collection of plants of Chrysanthemums, and also two boxes of remarkably handsome cut flowers. An example of Aralia Sieboldii, in flower, came from Mr. R. Dean.

In the classes for plants of large-flowering and Pompon Chrysanthemums, some capital specimens were staged by Mr. H. Rushton, gr. to Admiral Sir R. Collinson, The Haven, Ealing, trained ball fashion, but with a flattish surface. The plants were vigorously grown and carried excellent heads of bloom, and they were scarcely inferior to any produced at the meeting of the Royal Horticultural Society on Nov. 10. Mr. Rushton carried off the 1st prizes in the classes in which he competed. His large flowering varieties were Florence Nightingale, Prince of Wales, Juno, Mrs. Geo. Rundle, Guernsey Nugget, Venus, Frugal, Jardin des Plantes, Annie Salter, and Rose Themis; his Pompon varieties, Solomon, Bob, Madame Montells, Calliope, &c. The other plants exhibited fell far short of Mr. Rushton's in point of quality, but, with such a good example before them, the other exhibitors will no doubt make a better display next season.

In the classes for cut blooms the competition was much better sustained. There were four classes for cut blooms, viz., open, single-handed gardeners', amateurs', and cottagers', which gave all the classes of exhibitors a chance of distinguishing themselves. The best winter blooms in the open class came from Mr. James Lang, an enthusiastic amateur, who is always successful in producing good blooms. They were Jardin des Plantes, Prince Alfred, White Globe, Golden Beverley, Mrs. Geo. Rundle, Lady Talfourd, Bronze Jardin des Plantes, Lady Harding, Guernsey Nugget, Lady Slade, Golden Dr. Brock, and Venus. Mr. Johnson, gr. to C. N. Peal, Esq., was 2d, with Golden Beverley, Lady Slade, Christine, Prince Alfred, and Mrs. Geo. Rundle as his best blooms. The best six also came from Mr. J. Lang, who had Maréchal Duroc, Prince Alfred, Mrs. Geo. Rundle, George Glenny, Lady Talfourd, and Prince of Wales. Mr. Rushton was 2d, having, among others, good examples of Mrs. Geo. Rundle, Lord Derby, Jardin des Plantes, and Lady Talfourd. The best stand of bunches of Pompon varieties came from Mr. Thomas Simpson, the Hon. Secretary to the Society, but the stand had to be disqualified, through entering Annie Salter, a large-flowering variety. The 1st prize went to Mr. Larkin, gr. to F. A. Capps, Esq., whose stand included Marabout, a charming white Anemone-flowered variety; Rose Trevenna, Bob, General Canrobert, &c.

The best twelve blooms shown by single-handed gardeners came from Mr. Johnson, with good examples of Empress of India, Prince Alfred, Golden Beverley, White Beverley, Guernsey Nugget, Novelty, Mrs. Geo. Rundle, Jardin des Plantes, &c. In Mr. Larkin's stand, which was placed 2d, the dark-coloured Progne was very fine. The best stand of twelve bunches of Pompon varieties in this section came from Mr. Johnson, and for the future the bunches would be made much more effective if backed by their own foliage.

In the amateurs' class for twelve blooms of large-flowering varieties Mr. Lang was again to the fore, with good examples of Lady Talfourd, Pio Nono, Mrs. Geo. Rundle, Jardin des Plantes, Maréchal Duroc, General Bainbrigge, &c. Mr. T. Simpson was 2d, with some very fair blooms. The Premier single bloom in the amateurs' classes, for which a special prize was offered, was Prince Alfred, shown by Mr. Lang; and the premier flower in the show was the same variety, also from Mr. Lang, and to this a handsome article of *vertu* was awarded, as a special prize, by the committee.

A special prize was also awarded to Mr. T. Simpson, for the best six blooms of Japanese Chrysanthemums, who had James Salter, Red Dragon, Triomphe du Nord, Fair Maid of Guernsey, Elaine, and Hero of Magdala.

Wimbledon and District Horticultural: *Nov.* 17.—It will be remembered by many of your readers that owing to the most unpropitious weather experienced on July 14 and 15 last, all horticultural societies whose exhibition days fell on those dates suffered more or less financially, and among them was Wimbledon. Great praise is due to the gardeners on its committee for the happy thought of getting together on Wednesday, November 17, in the Lecture Hall, Wimbledon, one of the best exhibitions of Chrysanthemums, fruit, and fine-foliage plants ever held in the suburbs of London, and which I am glad to say was a complete success. No prizes were awarded, but Mr. Kinghorn, of Richmond, acted as referee to the productions kindly sent, and the proceeds are to be handed over to the Society to augment the receipts of its summer show. The specimens sent were both choice and numerous, and among the principal contributors were Messrs. Thompson, Ollerhead, Jordan, Lyne, Moorman, Cole, and Edwards. On the centre table, which ran down the middle of the building, were two very large Arecas and a Calamus, kindly sent by Mr. Ollerhead, gr. to Sir H. Peek, M.P., who also contributed 22 dishes of fruit of most excellent quality; also some very large Crotons, Dracænas, and Palms, which decorated the gallery. The other collections were neatly and tastefully arranged around the sides of the building, and on the platform was a grand lot, staged by Mr. Jordan, gr. to J. Boustead, Esq.: among them was a very large Pandanus utilis, 7 feet high; Croton variegatus, 5 to 6 feet in height, and as many through; Davallia Mooreana, 4 feet in diameter; a large Pandanus Veitchii, beautifully coloured; a Sphærogyne latifolia, 4 feet high, well clothed to the bottom, these banked up with choice Dracænas, Palms, and Ferns. The collection of Chrysanthemums, of over 40 varieties, staged by Mr. Jordan, was also a great feature, as was also the splendid group put up by Mr. Lyne, gr. to A. Schlusser, Esq., containing most of the well-known exhibition varieties; also a nice group of fine-foliage plants. Mr. Thompson, of the Wimbledon Nurseries, made an excellent bank, comprising all the new and choice Dracænas, Palms, Crotons, Bouvardias, &c., well intermixed with Adiantums farleyense, concinnum latum, scutum, tenerum, &c. This was a most interesting feature. In addition to the three large Palms sent by Sir H. Peek, on the middle table were some very choice dinner-table plants, and rarely do we ever meet with such a neat and choice lot. Particular mention should be made of Pandanus Veitchii for this purpose, and a yellow Solanum, exhibited by Mr. Lyne, and named Yellow Gem. It was, indeed, a gem by night, and the admiration of every one, being dwarf in habit, and carrying from eighteen to twenty-four beautiful yellow pods. To particularise all the good things would be too much, suffice it to say that the cut blooms of Chrysanthemums, the fruit, and the collections of plants were all good, and showed that the neighbourhood of Wimbledon is rich in plants, and that horticulture is greatly encouraged and advancing. (*From a Correspondent.*)

Massachusetts Horticultural—*November Meeting.*—President Francis Parkman in the chair.

Col. Marshall P. Wilder, from the committee on the Centennial, spoke of the importance of this Society being well represented at that great gathering, and that room for the horticultural display of Massachusetts ought to be secured in due season. He reported a resolve for the appointment of a committee of from three to five members to solicit contributions and make arrangements, and that 600 dollars be appropriated for expenses.

Col. Wilder said that the committee had entered into correspondence with the Centennial Bureau, and it was now supposed that the week including September 14 would probably be set down as the week for the great pomological display of the country, especially as that week there is to be a grand reception to the members of the Pomological Society of the United States. The applications had been so numerous that it was now designed to erect a separate building for this department. The selection of the week in question would not prevent the display of fruits at earlier periods of the season.

A meeting for discussion was then held, Vice-President Wm. C. Strong in the chair. It was announced that the prize for an essay on the culture of the Cabbage and the Cauliflower had been awarded to Mr. W. H. White, of Westborough, and the essay was read by Mr. Robert Manning.

There was a fine display of Chrysanthemums at Horticultural Hall, and a full and attractive exhibition in other respects. Besides the Chrysanthemums, in which Geo. Higginson, of Canton, took all the principal prizes, there was a very choice array of greenhouse flowers, including some splendid Orchids from E. S. Rand, jun., a remarkably elegant table design from James Comley, and lovely hand bouquets from James O'Brien.

A remarkable Chrysanthemum sport should be mentioned, of yellow flowers from a white Chrysanthemum, believed to be quite unparalleled, the plant belonging to President Wilder. [See p. 686. Chrysanthemum sports are common on this side of the Atlantic. Eds.] The plant bears four branches of white and one of yellow flowers.

The vegetable department of the show was represented by Cabbages, Cauliflowers, Celery, and Salsify, and there was a very large and fine array of Pears and Apples from J. H. Fenno, F. and L. Clapp, C. E. Grant, and others. Horace Partridge and others sent native and hothouse Grapes. This is the last prize day on the schedule for this year, recommencing in February next. (*From a Correspondent.*)

Botanical of Edinburgh.—The first meeting of the fortieth session of this Society was held on Thursday, the 11th inst., when the President, Sir Robert Christison, Bart., delivered an address on the Physical Features and Natural History of Upper Strathearn, from which the following are extracts:—

The district I mean is usually called Upper Strathearn. It extends for about 20 miles, in the form of a rather narrow and, on the whole, straight valley, in a direction nearly from west to east, between Lochearn-

head and the town of Crieff; after which it opens out into a wide highly-cultivated lowland strath, familiar to many who pass through it by rail from Stirling to Perth.

Considering the slight peaty impregnation of the water of Loch Earn, it follows that the lake ought to support the life and growth of the green, slimy, confervoid, vegetable-looking matter which is met with in peaty water, attached to immersed stones near the edge, and which in some lakes, such as the now notorious St. Mary's Loch, constitutes, in the dried-up, withered, bleached condition after long drought, what poets recognise as the "silver strand." At Loch Earn there are few stony beaches which are left dry in long droughts. But near Ardvorlich there is a suitable one, and there, accordingly, we have the green, slimy, confervoid growths on the stones within the water's edge, and fringing it outside a silvery band of stones thickly covered with the same matter, dried and blanched by long exposure to sun and air and occasional sprinkling with spray or scanty rain. While in the water the matter is seen to stream away from the stone in dark green branching tufts, which one would at once pronounce to be vegetable in nature. But on examining a portion microscopically, it is clearly seen to consist of nothing else than a few delicate cylinders, round which are interlaced numberless diatoms, consisting chiefly of spicular Synedra splendida with a good many ladder-like specimens of a Tabellaria, Achnanthes, and Gomphonema. The withered specimens present the same composition.

Having these rather repulsive-looking, but really most curious and interesting, bodies at command in their living state, I was anxious to test by actual experment the truth of a suggestion thrown out in my account of the waters of St. Mary's Loch and its effluent stream the Yarrow, given to the Royal Society three years ago—that the diatomaceous growth live upon the peaty matter in the water, and consequently abstract from it organic colouring matter, and purify it. The length of time required for making a good experimental trial is so great that I could make only one; and it was not in all respects exactly comparative. But the result so far was that the fresh diatomaceous mass did not thrive in spring water, and was gradually broken off in small fragments from the stone to which it was attached; while in the loch water, supplied from time to time with a little colourless spring water as it lost volume by evaporation, as also in a much stronger peaty water, the growing material throve better, and did not break off nearly in such quantities, and the colour appeared less in five weeks. I cannot pledge myself, however, to the accuracy of this my first and only experiment.

The upper part of the banks of Loch Earn is rather bare of wood; but at Edinample Castle, the earliest stronghold of the Breadalbane family, at the upper end, there are some very thriving Sycamores and Limes, measuring from 12 to 14 feet in girth at 5 feet from the ground, already lofty trees, and promising to be still more so. At Ardvorlich there is on either side of the wide glen a great extent of wild natural copse, of Oak and Birch chiefly, which only requires to live in order to become a forest; and eastward of the house of Ardvorlich there is much planted wood, chiefly Larches, which, close on the roadside, are from 90 to 100 feet high by actual measurement, and vary from 8 to 10 feet in girth at 5 feet from the ground. One which had been quite recently cut down presented, where it was cut close to the ground, eighty-two annual rings, twenty-seven of which occupied the first 6 inches of the radius, and the remaining fifty-five 6 inches only. As the ten exterior rings occupied a radius of half an inch only the tree had plainly ceased to grow, and probably on that account had been cut down. The wood, however, was sound to the core, even to the very bottom. Nearly a mile east from the mansion of Ardvorlich a natural mound rises from the roadside to the height of about 80 feet, and is topped by a solitary old Scotch Fir of very picturesque form. As it stands alone, it is a conspicuous object from a considerable distance on the lake or across it. It has the character at St. Fillans and Lochearnhead of having been the "hanging tree" of Ardvorlich, on which the chief in former days suspended his own rogues as well as his enemies when caught offending; but the present family deny the tradition, and consider the tree not old enough. It is about 55 feet high, and measures 9 feet 6 inches in girth at 5 feet from the ground. It may be old enough, if it has for some time grown as slowly as between September 1874 and September 1875; for I could not make out the slightest difference. Among and near the tall Larches some native Oaks have attained a considerable size, and are thriving vigorously. Between this and St. Fillans the natural wood, which extends far up the slopes, is only now passing from the state of copse to that of forest. In the grounds of Dunira are again seen in great abundance stately trees, chiefly of Larch, Silver Fir, and Spruce, about the same size as those of Ardvorlich. The same luxuriance of Pine forest is met with on the west bank of the Lednoch, near Comrie. But the finest forest trees of other kinds are those on the property of Lawers, east of Comrie, and that of Ochtertyre, between Lawers and Crieff. On the former the highway passes through a long and splendid alley of Beeches and Oaks measuring 12 and sometimes 14 feet in girth. In the Ochtertyre grounds fine Larches and Spruce abound, also aged Ash trees of great size, one of which, to appearance quite healthy, measures 20 feet in girth at 5 feet from the upper ground of a steep bank on which it grows. I apprehend there are very few growing Ash trees in Scotland of the same magnitude. A native tree which grows in this district to a size I was not previously aware of is the Alder. About 2 miles up Glen Veich there is a steep bank of short grass on the east side of the stream, which is dotted like a gentleman's lawn with old but mostly decaying Alders. The trunk of several measures 10 feet in girth at the narrowest part before branching, and one measured so much as 12 feet. But the most remarkable thing about them is, that about a third of those I inspected have formed a strange alliance with the Mountain Ash. One of these, of which I present a drawing, consists of a great Alder trunk, enclosing the trunk of a healthy Mountain Ash, about 3 feet in girth, so closely that the two form seemingly one trunk. Another Mountain Ash rises from the very middle of the trunk of an Alder 12 feet in girth, and at the height of 5 feet bends abruptly outwards, as if it were a branch of the Alder itself, 42 inches in girth. In all these embraces the two species are so closely pressed together that it is difficult to say whether there is union between them or not; but I came to the conclusion that there is none.

Native shrubs also grow luxuriantly in this district. I have been much struck especially with the luxuriance of the Dog Rose. Its stature, its trunk, its foliage, and, in September, its profusion of crimson fruit, were very striking. I have been able it to supply Dr. Balfour with a trunk which measures 8 inches in girth. It shows very distinctly twenty-one annual rings, but outwardly looks much more venerable than these indicate. Young twigs of the Dog Rose have a large pith surrounded by pliant feeble wood. But a trunk of eight or ten years is very dense, strong, and tough when dried; and as it is easy to get one 5 or even 6 feet long, I recommend it to Dr. Balfour and the Alpine Botanical Club as a first-rate material for a Scottish alpenstock. Another example of luxuriance among shrubs is the common Juniper. Low down it tends even to put on the character of the erect variety, and would probably succeed with a little kindly training; in general, however, it preserves the characteristic procumbent modesty of the Highland Juniper. On the steep acclivity north of the village, on the way to Loch Bolbachan, I found, at the height of 1250 feet, a solitary ancient bush, 6 feet high, and of great extent, rising in several stems, or probably branches, from a trunk concealed by a conglomeration of big stones which cannot be removed. One of these branches, twisted like the letter S, I brought away for Dr. Balfour, as evidence that it has attained the girth of 14 inches. It presents fifty-four annual rings; and both its whole wood and the bush itself are perfectly healthy.

I ascended Ben Vorlich partly for the view from the summit, partly for one of a series of experiments on the alleged property of the Peruvian Coca, or leaves of the Erythroxylon Coca, to replace food, preserve vigour, and prevent fatigue during such severe bodily exercises. I must reserve details for another occasion; but I must say now that I have constantly experienced the invigorating effects observed on the natives of Peru by travellers in that country.

Law Notes.

SINGULAR DEFENCE TO AN ACTION FOR WAGES.—*Boyd* v. *Brown*.—This was an action lately brought in the Marylebone County Court, before Mr. Serjeant Wheeler, in which the plaintiff, the servant of the defendant, a florist of Hearn Terrace, Notting Hill, sought to recover the sum of £3 under somewhat peculiar circumstances. Mr. Berkeley, the plaintiff's solicitor, said that his client was engaged by the defendant, in October last, at a weekly salary of 35*s*., and that on the 14th of that month he arrived late at his place of employment, and was told by his employer that he would be fined 2*s*. 6*d*. for being late on that and also on every future occasion on which he came late to business. Upon his client objecting to this, he was told by the defendant to make up his time and leave the premises; and having on this told the defendant he should expect to be paid for the wages accruing due, and one week's wages in lieu of notice, he was told to have recourse to the County Court, or to get it in the best way he could, hence the present action. The defendant being placed in the box, said that he should have not have discharged the plaintiff had he not been most abusive when he was told he should be fined for being late in his attendance. In answer to the learned Judge the defendant admitted that the plaintiff was an excellent servant, but sometimes late in coming to business, and, as a precaution, merely told him he would fine him, without intending to carry out his threat. In answer to the learned Judge the plaintiff said that the reason of his being late was the confinement of his wife on the previous evening. The defendant said he had evidence to prove that the plaintiff had been continually late. The Judge said he had nothing to do with former transgressions, the defendant had better confine himself to the cause of dismissal, which appeared to him to be merely that the plaintiff refused to be fined. The defendant said that such was the case, upon hearing which the learned Judge said that had the defendant pleaded that he had dismissed the plaintiff for being late he should have given judgment in his favour, but he had chosen to defend the action upon grounds which were not tenable. The learned Judge said that the defendant was not a magistrate, and therefore had no right to impose a fine, and he did not wonder at the plaintiff's refusing to comply with such an illegal proposal. He therefore should unhesitatingly give judgment in favour of the plaintiff for the full amount claimed, with costs, and hoped that in future employers, under any circumstances, would be warned against imposing illegal fines.

SHAW *v.* JONES.—Mr. Edward Worthington, the Registrar of the Manchester District Registry of the High Court of Justice, has recently made his award in this case, which was referred to him as arbitrator.

The action was brought on July 23 last in the Court of Common Pleas at Lancaster, Manchester district, by Mr. John Shaw, of the Stamford Nurseries, Bowdon, landscape gardener, against Mr. Thomas Jones, of the firm of Messrs. Barlow & Jones, merchants, Manchester, who resides at Green Walk, Bowdon.

It appears that Mr. Jones employed Mr. Shaw to lay-out and plant the extensive grounds attached to his newly-erected mansion adjoining the Green Walk, and that a written contract was entered into between the parties on October 12, 1872, by which Mr. Shaw agreed to find the whole of the labour and material required on Mr. Jones' land for laying the same out in conformity with plan and specification for the sum of £780. The real dispute in the action, however, related to extras since. After the action was brought the defendant paid into Court a sum exceeding the balance of the contract.

The action was brought to recover the sum of £441 19*s*. 9*d*., the amount being arrived at as follows:—

Amount of contract for laying out grounds	£780	0 0
Extras	284	3 9
	£1064	3 9
Less credit given for cash, &c	622	4 0
Balance	£441	19 9

The defendant pleaded that he was not indebted except as to £228 14*s*. 3*d*., which he paid into Court with his pleas. Mr. Mills, of the firm of Messrs. Mills & Murgatroyd, of Manchester, was the defendant's architect, and under a clause in the contract the defendant's solicitors endeavoured to obtain an order to refer the matters in dispute to Mr. Mills. This was resisted by plaintiff's solicitors, and by order of Mr. Baron Cleasby the matters in dispute were referred to Mr. Worthington, the District Registrar.

The arbitrators sat at the Mitre Hotel, Manchester, on October 7, 8, and 9 last, when Mr. Addison, barrister, instructed by Messrs. Hinde, Milne & Ludlow, solicitors, Manchester, appeared for the plaintiff, Mr. Shaw; and Mr. Smyly, barrister, instructed by Messrs. Hyson & Son, solicitors, Manchester, for the defendant, Mr. Jones. With regard to the extras, it was alleged in evidence that the extra work and materials had been, with trifling exceptions, ordered by Mr. Mills, on the defendant's behalf. The extras consisted of a quantity of trees of a larger and better quality than those provided for in the contract, and additional soil required to be used in the planting of such trees which were necessary to hide from the view of the occupants of the adjoining mansion a wall which had been built at the end of defendant's kitchen-garden, and which was objected to by Lord Stamford's agents in consequence of representations made to them by Mr. Jones' neighbours. There was also an extra charge made for making a field road into a carriage-drive, which had not been originally intended, also for the wages of a gardener and labourer engaged from June to September, 1873, in weeding and cleaning Mr. Jones' garden.

The arbitrator's award, which was made on the 19th inst., after reciting the order of reference, proceeds:—"I, Edward Worthington, having taken upon myself the burthen of the said reference, and having heard counsel for each of the parties on the 7th, 8th, and 9th days of October last, and having duly weighed and considered the evidence and matters laid and produced before me, do make and publish this my award of and concerning the premises and matters so referred to me as aforesaid. And I do award that the plaintiff had good cause of action against the defendant, and that the plaintiff is entitled to recover against the defendant in respect of the said action and all matters in dispute between the said parties brought before me, in addition to the sum of £228 14*s*. 3*d*. paid into

Court, the sum of £116 8*s.*; which additional sum I award and direct shall be forthwith paid by the defendant to the plaintiff: and I do further award that the defendant shall bear and pay his own costs of the said reference, and that he shall also pay the costs of the plaintiff of the said reference; and I do further award that my costs of the said reference, and of this my award, shall be borne and paid by the defendant; and in case the plaintiff shall pay such last-mentioned cost, or any portion thereof, then I award and direct that the defendant do forthwith repay to the plaintiff the amount which he shall so pay; and I find that neither party brought before me any cause of action or matter in difference between them other than the matters herein by me awarded upon."

ACTION AGAINST A LATE CAPTAIN OF THE 10TH HUSSARS BY HIS GARDENER FOR ASSAULT AND DEFAMATION.—*Knight* v. *Gill.*—This was an action brought in the Marylebone County Court, in which the plaintiff, described as a gardener, brought an action for compensation for assault and defamation of character against his late employer, Captain Gill, residing at Maida Hill. Mr. Suter appeared as counsel for the plaintiff, and Mr. C. Matthews, jun., barrister, for the defendant. From the plaintiff's case it appeared that while he was under notice to leave, and returning from his work one day, he was stopped by the defendant, who asked him why he had not done some work he was ordered to complete, and that before he could render any explanation he was struck very violently by the defendant with a stick on the thigh, and was called, in the presence of several witnesses, very bad names, and accused of dishonesty. The plaintiff called a policeman, who refused to take the defendant into custody, but told plaintiff to procure a County Court summons. The plaintiff further said he had been severely injured by the assault, and had suffered in character from the defendant's aspersions, and that in claiming £50 in the way of compensation, he considered that amount a most reasonable one. Robert Bruce was called, who said he was present when the assault was committed, and heard the defendant call the plaintiff a d——d rogue, and that he had a great mind to give him into custody for his dishonesty. Another witness was called, who gave corroborative evidence, which completed the plaintiff's case.

Mr. Charles Mathews, jun., addressed the Court at considerable length, urging that the defendant was in no way liable, and that the action was a trumped up one for the mere purpose of extorting money from the defendant, who said he had serious cause of complaint against the plaintiff who was under notice to leave when the occurrence took place, and that since the plaintiff had been under notice he had behaved in every way he possibly could to provoke an assault. The defendant did not deny striking the plaintiff very lightly on the leg, and considered he was justified in doing so as the plaintiff's conduct was most insulting, which could be proved by the testimony of an independent witness. Mr. Alfred Ross gave evidence as to the grossly insulting conduct of the plaintiff, and this being the conclusion of the defendant's case

The learned Judge, Mr. Sergeant Wheeler, said that, although the law did not justify an assault, he considered the plaintiff in this case had acted very badly, and as the assault, if it could be called one, was a most provoked one, he should have little hesitation in giving judgment in favour of the defendant.

The Villa Garden.

WHILE autumn brings with it a time of gradual decay, it is yet a period of the year when much activity is needed in the outdoor garden. The month of November, and up to the middle of December, may be said to represent a time brimful of outdoor duties of an important nature. Let us glance at a few of these.

GATHERING UP LEAVES. — The trees are now pretty well cleared of them, and they lie ankle deep where they have fallen, Paths, grass plats, and all open spaces that should be kept neat and clean, should be cleared of them; and as they are a precious deposit let them be carried to the compost yard or refuse heap, and placed on one side to decay. It is a good plan to gather together the vines of Vegetable Marrows, the haulm of Peas and Beans, the decaying flower-stalks and branches of Dahlias, Hollyhocks, Phloxes, Pentstemons, and much refuse of that character, and build it into a square heap in some proper place, and then build in a solid manner about it the leaves, making a tidy bed, 3 feet or more in depth if possible. Let it remain for a week to subside a bit, and then if a two or even one-light frame can be spared put it on the bed, and place in it a good free compost in which leaf-mould and fibry turf chopped fine plays an important part, making the bed a foot to 18 inches in depth, and in it plant some good early Potato, kidney or round, according to the taste of the cultivator. Of the former, Veitch's Improved Ashleaf, Fenn's Early White Kidney, or Extra Early Vermont; of the latter, Fenn's Early Market, Rector of Woodstock, or Early Dimmick. In this way some Potatos can be had quite early in the season, and the decaying leaves are utilised while in course of rotting. Some protection from frost can readily be given to such a frame, and it may be made very useful for wintering some plants in pots, where glass accommodation is limited. There are many Villa gardeners who, though they have no greenhouse, yet possess a frame or two, and when one is unoccupied at this time of year a crop of early Potatos is a very useful crop to cultivate in it.

PRUNING.—It is a good plan to shorten back at this time of year all the long growths of fruit trees, Roses, and other things that make a strong growth, even if the pruning proper be delayed a little longer. In the case of all fruit trees, whether bush or pyramid, growing on ground where some crop is green beneath them, get the pruning done in autumn, as it enables the ground about the trees to be dressed and dug, and ridged up for the winter ready for spring planting. When this is done, it is a pity to have to tread the ground in order to prune the trees, hence the force of our advice, to get the trees cut back before the ground is dug. Standard fruit trees can also be pruned now; this is a work of necessity in the case of small gardens, as such trees need to have their heads kept within bounds, or they overshadow too much of the already limited garden ground.

The operation of pruning, simply but generally set forth, consists in cutting off certain shoots or branches of a plant for the purpose of modifying its form, increasing its fertility or stimulating particular parts to greater vigour. When the branches on a plant become too numerous or crowded, barrenness will generally be the result, and fruitfulness is most readily insured by thinning out the superabundant branches, in order to provide a better supply of light and air to the others that are wanted to remain. Where a plant is pruned short, or closely cut in during the growing season, an increase of vigour is imparted to the branches that remain; for as the sap which supported the branches that were removed does not now find the same channel, it must naturally flow into the others, and induce them to grow with greater vigour.

It is very difficult indeed to set forth the regulations suitable alike for all trees and varieties of any one fruit, and the difficulty is increased when dealing with those who are in the alphabet of their gardening experience. A lesson or two from some gardener would be of great advantage to a beginner, and experience in gardening, as in many other matters, is an admirable teacher. Gardeners are generally opposed to pruning in frosty weather. In making a cut the knife should pass through the wood close to a joint or eye, so as to leave nothing to die back. If Pears or Apples are growing as pyramids, and this is the general style of growth in Villa Gardens, pruning is more or less required to keep them in proper shape, and of the requisite size. They should not be allowed to become too thick, and as the fruit buds all over require to be freely exposed to sun and air, and the fruit ripens better when fully exposed, if what are known as bush trees are preferred, it is best to let them carry strong branches from the base to the top—spurring, *i.e.*, cutting in a side shoot so as to leave only three or four buds or so on it, in the side wood, but the heart should remain open.

GREENHOUSES.—The few open sunny days assist in keeping our cold greenhouse somewhat gay with Chrysanthemums, Cyclamen persicum, Zonal Pelargoniums, Fuchsias, Veronica Blue Gem, and a few others. The house is shut up close about three o'clock in the afternoon, and this serves to secure a nice solar warmth till late in to the evening. Coming on rapidly to succeed these are some double and single Primroses and Polyanthus. Strong plants were lifted from the open ground in June and July, and potted into 48-pots, and then plunged in cinder ashes under a north wall. They made a vigorous growth during the summer, and are now throwing up fine heads of bloom from this growth. In addition to having them very gay at this season of the year there is the added advantage that their flowers are not soon destroyed by frost when it comes, if they have the shelter of some glass. One of the pleasantest floral objects just now is a subject that we commend earnestly to the attention of Villa gardeners who have a conservatory, namely, that beautiful fragrant hardy aquatic, Aponogeton distachyon. Our plant is growing in a small aquarium, in which for some months we attempted to keep some gold-fish, but with so little success that it became cruelty to harass them longer, the fish were dismissed and some mud placed on the bottom, and in this was planted the Aponogeton. Since July last it has never ceased to flower, and the surface of the water is covered with its handsome leaves, which float on the top. A few water-snails keep under the confervæ that would otherwise gather on the sides of the aquarium, which are made of glass. It is a plant very easily cultivated, and, being hardy, will bear exposure; but on no account, hardy as the plant is, should the vessel in which it is growing be subjected to the action of the frost. Our fears are, not for the plant, but for the vessel in which it is growing.

WINTERING FUCHSIAS. — Our Fuchsias are all placed on a shelf, high up, and in one of the warmest parts of the greenhouse, where they are being dried off, and are sprinkled a little when the sun shines. When frost is imminent water will be withheld; the drier the plants are the less likely is it that they will receive injury. Specimen large flowering Pelargoniums, potted in September, are near the glass, and cuttings of the same struck in August, and are making a clean, vigorous growth, though only scantily supplied with water. Specimen Zonal Pelargoniums, cuttings of the same in stove pots, tender succulents and suchlike likewise occupy the warmest spots, and but very little water is given, save a slight syringing when the sunshine falls on them. So far, then, are precautions adopted. Finally, one of Schreiber's "True Friend" lamp-stoves (figured on p. 591) has been tried, with every promise that it will do much to keep in check the ravages of frost, when—

> "Gleam the bright gems upon the frozen ground—
> On window-panes fantastic groupings stay;
> A dazzling robe is thrown on all around,
> Which greets the eye at the slow dawn of day.

Foreign Correspondence.

HAMILTON, ONT., CANADA: *Nov.* 4. — We observe, in the *Gardeners' Chronicle* of Sept. 25, a communication from "R. D." on "Onions at Chiswick," in which your correspondent states that the climate of Canada is too cold for Onions to flower and seed. This is a statement we desire to correct, as we harvest annually on our farm a few thousand pounds of Onion seed of excellent quality. The varieties we grow are Large Red Wethersfield, Danver's Yellow, and White Portugal.

The tree or bulb-bearing Onion, which "R. D." refers to, is known here as the Top Onion, and is grown extensively in the Southern and South-western States of the American Union, where the seed Onion is a somewhat uncertain crop. The Onion bulb when planted will produce clusters of small sets on the top of the stalk, and these sets, when planted, will produce large Onions. We send by this mail a few of the sets as specimens. *Jno. A. Bruce & Co.* [A very good sample. EDS.]

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, Nov. 24, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Nov.	In.	In.	°	°	°	°	°	°			In.
18	29.90	+0.19	60.0	45.9	14.1	52.7	+10.	45.9	79	WSW: W.: WNW	0.00
19	29.50	−0.21	58.2	46.5	11.7	51.8	+10.0	47.7	86	WSW: W.	0.01
20	29.82	+0.12	48.2	34.9	13.3	39.8	− 1.9	31.3	72	N.W.: NNW	0.00
21	29.86	+0.17	43.7	35.2	8.5	38.9	− 2.8	33.3	82	N.: N.N.E.	0.00
22	29.96	+0.28	43.8	33.1	10.7	37.9	− 3.8	33.0	83	N.E.: N.N.E.	0.00
23	30.00	+0.31	46.5	33.9	12.6	39.4	− 2.3	35.7	87	N.: N.E.	0.00
24	29.97	+0.29	43.2	35.9	7.3	38.3	− 3.3	35.2	89	E.: E.N.E.	0.03
Mean	29.86	+0.17	49.1	37.9	11.2	42.7	+ 1.0	37.4	83	N.	sum 0.04

Nov. 18.—A fine mild day. Partially cloudy.
— 19.—Fine till 2 P.M. Overcast and dull after. Shower at 8 A.M. Gale of wind part of day.
— 20.—A fine, partially cloudy, cold day.
— 21.—A fine bright day. Cold.
— 22.—Fine cold day. Slight rain at 4.30 P.M.
— 23.—Fine till 1 P.M. Overcast, and dull after. Cold.
— 24.—A dull cold day. Slight rain at 7 A.M., and 11 A.M.

—— During the week ending Saturday, Nov. 20, in the vicinity of London, the reading of the barometer at the level of the sea decreased from 29.34 inches at the beginning of the week to 29.05 inches by the morning of the 14th, increased rapidly to 30.21 inches by the morning of the 15th, and less rapidly to 30.24 inches by the evening of the same day; decreased to 29.91 inches by the evening of the 16th, increased to 30.09 inches by mid-day on the

17th, decreased to 29.99 inches by the evening of the same day, increased to 30.12 inches by the evening of the 18th, decreased to 29.57 inches by the afternoon of the 19th, and was 30. inches at the end of the week. The mean reading for the week was 29.91 inches, being 0.48 inch above that of the preceding week, and the same as the average value.

The highest temperatures of the air observed by day varied from 60° on the 18th to 48¼° on the 20th. The mean value for the week was 53½°. The lowest temperatures of the air observed by night ranged between 33° on the 15th and 16th, and 46½° on the 19th, the mean value for the week being 39½°. The mean daily range of temperature in the week was 14°, the greatest range in the day being 19¼° on the 16th, and the least being 7¼° on the 14th. The mean daily temperatures of the air and the departures from their respective averages were as follows:—14th, 46°.3, +3°.8; 15th, 41°.6, −0°.7; 16th, 42°.7, +0°.5; 17th, 46°, + 4°; 18th, 52°.7, + 10°.8; 19th, 51°.8, + 10°; 20th, 39°.8, − 1°.9. The mean temperature of the air for the week was 45°.8, being 3°.8 above the average of sixty years' observations.

The highest reading of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, was 83¾° on the 18th. The lowest reading of a thermometer on grass, with its bulb exposed to the sky, was 28° on the 16th; the mean for the week was 35°.

The direction of the wind was S.W., and its strength brisk. The weather during the week was fine, but cloudy, and on Thursday and Friday the days were especially warm. Strong gales of wind prevailed on the 14th and 19th instants. Rain fell on four days; the amount collected was 0.36 inch.

In England the highest temperatures of the air observed by day at 4 feet above the ground were 61° at Cambridge and 60° at about London; at Newcastle-on-Tyne 54° was the highest temperature in the week. The mean average value from all stations was 57¼°. The lowest temperature of the air observed by night was 27° at Manchester; at Liverpool the lowest temperature in the week was 37°. The mean from all stations was 32½°. The mean range of temperature in the week was the greatest at Nottingham, 28¼°, and the least at Liverpool, 19¼°. The mean range from all stations was 24¾°. The mean of the seven high day temperatures was the largest at Truro, 54°, and the smallest at Birmingham, 49¼°. The mean value from all stations was 50¾°. The mean of the seven low night temperatures was the greatest at Truro, 46¾°, and the least at Manchester, 34¾°. The general average from all stations was 39¼°. The mean daily range of temperature in the week was the largest at Manchester, 15° nearly, and the smallest at Truro, 7¼°. The mean daily range in the week from all stations was 11½°. The mean temperature of the air for the week from all stations was 44¾°, being ½° higher than the value for the corresponding week in 1874. At Truro the mean temperature was the largest, viz., 50°, and at Manchester it was the smallest, viz., 41¾°.

Rain fell on every day in the week at Truro, the amount measured was three-tenths of an inch; at Sunderland the falls in the week amounted to 3 inches, and at Newcastle-on Tyne 2¾ inches; at about London rain fell on four days, and the amount was four-tenths of an inch; the average fall over the country was 1¼ inch.

The weather during the week was fine, and somewhat mild.

Gales of wind were prevalent on the 14th and 19th instants.

The heavy gales which prevailed on Sunday, the 14th inst., appear to have caused great destruction to property, and likewise been the cause of a great many shipwrecks around the coast. At Brighton it was especially severe, causing a large portion of the head of the West Pier to be swept away, and other damage at Portslade (near Brighton). Dover, Hastings, and St. Leonard's are reported to have suffered severely, especially at the latter place, where, it is said, kerbstones, iron railings, lamp-posts, and parade-seats were torn out of their places and scattered about in all directions.

On Monday, the 15th inst., at about 2 A.M., one of the highest tides for many years occurred in the Thames. At a quarter past 2 in the morning, which was the time of flood at Blackwall, there was a depth of 29 feet 2 inches in the East India Docks. Most of the shipbuilding yards were entirely under water, the tide rushing over the dry dock caissons, and floating the ships. A great portion of East Greenwich was quite under water. By the time the tide was beginning to ebb it had risen nearly 4 feet above what is known as high-water mark, and was 6 inches higher than in the memorable tide of 1874.

Lambeth and the low-lying districts were completely flooded, and have suffered severely. A great many people were obliged to quit their houses and seek refuge elsewhere. In the basements of the houses around Lambeth and Battersea the water is said to have been 4 to 6 feet in depth.

In Scotland the highest temperatures of the air ranged from 67° at Paisley to 51½° at Aberdeen. The lowest temperatures of the air varied between 34° at Leith and 30° at Edinburgh, Greenock, and Paisley. The average of the former was 55¾°, and of the latter was 31½°. The range of temperature in the week was 24¼. The mean temperature of the air for the week was 42½°, being ¾° higher than the value for the corresponding week in 1874. The highest was 44°, at Paisley, and the lowest 40½°, at Dundee. Rain was measured at each of the above-mentioned stations, and the amounts varied from 2½ inches nearly at Paisley to 1 inch nearly at Dundee. The average fall over the country was 1½ inch.

At Dublin the highest temperature was 58¼°, the lowest was 29½, the mean was 45°, and the fall of rain 0.45 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—Those who through the summer and autumn take means to destroy mildew on their plants as soon as any trace of it is discernible, will in such damp weather as we have now had for some time see the benefit of taking timely measures for the destruction of this worst of enemies to such plants as are particularly subject to its attacks, for where it is never allowed to obtain a firm footing it is easily kept under, but where the reverse exists, and means are not taken to eradicate it until its presence is apparent in an aggravated form, there are sure to exist so many germs of the parasite as to render it difficult to deal with through the dull season, especially this and the ensuing month. Plants that have been grown very freely, with a considerable amount of moisture about them during the summer, are more liable to mildew than such as have not been pushed on so quickly. Young stock the first or second year from ordinary trade-sized plants are generally in a condition of free growth, such as is favourable to its development to an extent that older and slower growing plants are not, and it is in the younger stages of their existence that the most mischief is done, if care is not taken to check the malady before much injury takes place. When the foliage once gets injured to any considerable extent it is certain to fall off prematurely, and there is no means of replacing it.

This is one cause of so many bare-branched, unsightly plants that are often met with. Any of such a nature that do not like a low temperature are usually the first to suffer, such as the *Leschenaultias*, especially *L. biloba* and its larger form, *L. biloba major*; *Roella ciliata*, *Gompholobiums*, *Tetrathecas*, and the following *Pimeleas—spectabilis*, *Neippergiana*, and *Hendersoni*. Where means exist for keeping these things at a temperature from 40° to 45° in the night they will be less likely to suffer; where this cannot be done they should be examined every ten days, and if a slight dusting of sulphur is applied to the foliage by way of a preventive, it will be of use, but in all cases care must be taken that it is not allowed to reach the soil, either when it is put on the plants or afterwards by being shook on to, or blown on the surface of the ball. Should this occur it must be carefully removed before water is given, or it will necessarily get washed down to the roots, the effects of which would be similar to an application of lime, and would cause certain death or serious injury. Plants that are much affected with mildew should be laid on their sides, and the whole head profusely dusted over, and the powder allowed to remain on for five or six days, when it ought to be syringed off, leaving a trace on which may check the further appearance of the parasite; or the plants may be similarly laid down, and freely syringed with water in which has been mixed flowers of sulphur at the rate of 2 or 3 oz. to the gallon, well stirred, and allowed to remain for three or four days. The powder will settle to the bottom, leaving the water quite clear, in which state it must be poured gently off and then used. Small stock may be dipped, but such as are larger require a vessel big enough to catch the water as it is used, otherwise it necessitates the use of a very large quantity where many plants have to be treated. This sulphur-water is well suited for Heaths that are affected. The soft-wooded varieties of these are often the first to suffer; dense-leaved kinds, with a habit of growth such as propendens, should be often looked to, as if it gets to the interior of the plants large quantities of the foliage may be destroyed before it is observed.

SOFT-WOODED GREENHOUSE PLANTS.—*Lilies.*—Success in the pot culture of these plants, as with many others, has not kept pace with their rate of introduction; vast quantities of even the free growing *Lilium auratum* have disappointed many growers by either dwindling or oftener dying outright, the result being in most cases traceable to a want of consideration or knowledge of their requirements. In the cultivation of *Lilies* there are several essentials that must never be lost sight of, or success is not possible. Grown in pots, as in the open ground, they have a great dislike to their roots being interfered with, especially when these are moving. Potting when even nothing more is required than giving them additional room, should always be carried out as soon as the tops have died down, as, although some portions of the roots of many varieties are never quite dormant, still at the time when the tops have lost their vitality there is the least root-action. In the case of large masses of bulbs that have gone on increasing until it has become necessary to divide them, it is still more important that the work should be done without delay. We have found good free loam, to which has been added a liberal proportion of thoroughly decayed leaf-mould and rotten dung, with sand in proportion to the nature of the loam, to grow Lilies better than any other description of soil. Let the bulbs of all kinds be placed in the pots sufficiently deep, so that none of the roots that are formed above the bulb from two or three joints up the stem will appear above the surface of the soil. If this occurs, they are sure to suffer to the certain injury of the plants. Do not keep them in more than an ordinary greenhouse temperature during the winter, and let the soil be just slightly moist, not more, until the tops have appeared above-ground. *T. Baines.*

FRUIT HOUSES.

PINES.—The presence of light during the next two months will be of very limited duration, and sunshine likewise may only be expected occasionally, and even then its power is so contracted as to be almost inoperative upon vegetation, which is subject to artificial treatment or otherwise. Such influences materially affect the management in artificial cultivation, and under these conditions the subjects pertaining to this department will generally make more satisfactory progress under a diminished temperature than that which has up to now been accorded to them. These remarks are particularly applicable to the young stock of growing plants. This section does not everywhere have sufficient care and attention given to them to sustain them in a satisfactory state through an adverse period like that which is now approaching. Instances do occasionally occur where these plants are to be found closely packed together, as though numbers were the desiderata, and the fact of success being materially dependent on the treatment of such plants in the early stages of growth is totally ignored. The main object to be secured in such plants is to maintain vigorous vitality without promoting much growth: to this end a liberal space should be allowed between the plants, and a place given them where light and air can have free access—a temperature of 70° to 75° at the roots, and a mean surface-heat of about 55°. Ventilate at the apex of the structure at 57°, and let it rise to 60° or 65°, with a liberal supply of air. No fire-heat need be applied if the temperature stands at 57°. For wintering these plants light pits are preferable to other structures, and should be supplied with the means for applying top-heat when it is required; they should also contain a bed of fermenting materials for giving the requisite degree of heat at the roots. If not already reduced, the temperatures in Pine-houses by fire-heat should now be lowered to about the winter standard—namely, fruiting department from 60° to 70°, and a rise of 5° in the day-time; successions under ordinary treatment from 58° to 65°, according to external conditions. Coverings should now be applied to those structures where it is practicable. At about the commencement of December gradually raise the temperature at the roots to about 90° to Queen plants which are required to start into fruit early in the ensuing year. Take advantage of fine weather to secure fresh leaves in a dry state, and, when favourable circumstances prevail, execute with despatch whatever may be necessary in the way of renewing or refreshing the fermenting beds. *G. T. Miles, Wycombe Abbey.*

FIGS.—The first batch of Figs for forcing early in pots will now need to be attended to in order to get the wood washed over with a brush, and using soft soap and sulphur in the mixture on purpose to destroy in embryo the pests which infest the trees in a more advanced stage. Care must be taken when using the mixture not to rub off the young fruit where thickly set, and when this is the case the best way then will be to dip the shoot in the mixture. Very little pruning will be required if the plants have been regularly pinched in or stopped in the shoots in the growing time, but if any of the branches want pruning to make the trees symmetrical now is the time for doing it. The trees may be put into a mild heat by the middle or end of the month, and if a slight bottom-heat can be given them after forcing commences, there will be a better chance of the earliest

crop being successful. The trees permanently planted out in the borders, and intended for early forcing, may now be untied from the trellis and pruned, and the wood painted with a brush, with a mixture as for the pot trees; but it may be used of a stronger composition, such as a mixture of soft soap, soot, sulphur, tobacco liquor, and clay to make it adhesive. This winter dressing will be found effectual in keeping the trees clear of insect pests, with the free use of the syringe in summer to keep the red-spider and thrips in check. If the houses or house require painting inside this should now be done, and the back walls whitewashed, and, after the trees have been painted and tied to the trellis, the border may be slightly forked over and some rotten manure added to the soil if not done before in the summer months. Until forcing commences the ventilation of the house must be freely continued in favourable weather, but during frosts must be discontinued. *William Tillery.*

CUCUMBERS.—Where the course of treatment is such as has been indicated in this Calendar from time to time, everything will now be sweet and clean and the houses in full work. If the cultivator be a student he should also be a diligent reader, and he will then have discovered that, for the private grower who is responsible for a perpetual supply of Cucumbers I have three general periods for sowing and planting, viz., middle of August, early in October, and the first week in March. The object of having two sowings in such quick succession as August and October is, at least, twofold—first it gives a greater number of plants to cut from, through the dull months of winter and early spring, when it is more difficult to produce a good supply from a limited number of plants than at any other season of the year; and, second, it affords a profitable means of utilising the Melon-houses, or some of them, at a time when they are not fully occupied, for other purposes. For the market grower but two general sowings are recommended—viz., the last week in September and the first of March. The September sowing will, under ordinarily favourable conditions, yield good supplies from the middle of January onwards, while the market is at its best; and the March sowing will carry him all through the season. To grow *Cucumbers* successfully, as I have many times pointed out, they must receive a very regular and painstaking attention on the "don't defer till to-morrow what can be done to-day" principle. Thus, if they require fumigating or earthing-up the roots, or any other attention to-day, don't defer it till to-morrow, and you will be rewarded amply for your pains. Let me recommend a perusal of the last Cucumber Calendar, which expresses all by way of cultural detail necessary for the present. The temperatures there advised, however, may now be reduced 2° by night, other conditions remaining the same. *Thomas Simpson, Chelmsford, Nov.* 16.

HARDY FRUIT GARDEN.

All favourable weather should be taken advantage of to push forward the operations of pruning, nailing, or tying-in wall trees, as also to finish planting as far as practicable. In pruning old trees, especially of the *Apricot*, *Pear*, and *Plum*, overgrown, old, and barren spurs, should be gradually cut back alternately, so as to keep the fruitful buds as close to the stems as possible. The spurs so cut back will generally break at the base if the tree is in good health, and furnish buds for a future year with trees properly pruned. These unsightly projections will not be produced if a little attention is paid to this each season of pruning. *Peaches* and *Nectarines* may now be pruned and afterwards unnailed and carefully tied from the walls so as to retard as much as possible the season of flowering. I am well aware this practice is not followed by many good fruit growers, and merely state the advantages I consider are derived from it. In the first place the removal of the bearing wood of the past season tends materially to strengthen the buds for the next crop; secondly, all shreds, nails, and ties being removed the wood is equally exposed to air and light, and so properly matured; whereas if left uncared for until the season of growth compels attention, the pruning is done hastily and imperfectly, and as a natural consequence the young wood is imperfectly ripened where covered by shreds or ties, and on exposure many of the young shoots die or become diseased at these points, to the serious detriment of the tree, both as to health and appearance. *Apples* and *Pears*, whether grown as espaliers, bushes or pyramids, may now be pruned to advantage, staking, tying, &c., where required. To make handsome and fruitful trees, pyramids and bushes should be moderately well thinned, as where hard stopping is practised during summer the wood is apt to get crowded so much as to seriously affect the prospect of a crop of fruit, or its proper maturation if produced. *Raspberries* may now he pruned and tied. If grown to stakes, leave three or four of the strongest of the best canes to each stool, and stop them at the top of the stakes, which should be 4 to 5 feet above-ground. A good mulching of half-decomposed manure should be applied, but not dug in. We find the Raspberry does better without disturbing the soil after the first year of planting, providing it has been well trenched previous to planting. *W. Cox.*

Variorum.

THE BAMBOO.—The more general cultivation of the Bamboo as a paper material is suggested in a pamphlet, printed on Bamboo paper, by Mr. T. Routledge (E. & F. N. Spon). The Esparto-grass, which was first drawn prominent attention to by Mr. Routledge, being now found quite insufficient to the demand, the Bamboo, it is thought, might be more generally supplied. The idea is not new, it being employed as a paper material in China, and has been for some years used in the United States, supplies having been obtained from Jamaica. At first it was found difficult to crush and break up the hard siliceous culms of this grass, but this difficulty has been got over by a new process of Mr. Routledge, of treating it in repeated weak alkaline baths or leys, and reducing it to fibrous stock on the spot. In almost all tropical countries the Bamboo flourishes, and grows at a most rapid rate. In the West Indies, the Southern States, Central America, and Brazil, large supplies might soon be obtained if it were found commercially saleable. The question as to which of the numerous varieties of the Bamboo it might be advisable to give the preference has yet to be determined. General Munro's monograph, in the *Transactions* of the Linnean Society, enumerates upwards of 170 species. B. vulgaris is the most generally distributed, and grows at the rate of 3 feet a week. B. gigantea attains to the height of 120 feet, and is from 25 to 30 inches in circumference; at Syon House stems have reached 60 feet in 12 weeks. B. edulis, B. arundinacea, B. Balcooa, B. Brandisii, varying in growth from 60 to 120 feet, abound in India and our Asiatic dependencies. The French have recently introduced and acclimatised several species of Bamboo in Nimes, Toulon, and other parts of France, and, among others, B. mitis, nigra, Thouarsii, aurea, gracilis, flexuosa; some stems of B. mitis have there reached 9 inches in circumference.

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

80. THE WETTERTANNE.—Can any of your numerous correspondents tell me what the "Wettertanne is? I have no doubt that it is probably Picea pectinata, but I wish to make sure. The Wettertanne is considered in the German-speaking parts of Switzerland to be a sort of sacred tree, and it is protected by law from being felled, or injured maliciously, in certain cantons,—as that of Glarus, for example. No dictionary that I have been able to consult gives the word. *N.*

Answers to Correspondents.

CASTLE MALGYWN. At p. 646, col *c*, second line of second paragraph, for "town" read "lawn."

CHRYSANTHEMUMS: *J. F. F.* Julia Lagravière is certainly not a Pompon, and we should class it with the large-flowered sorts.

DESIGNS OF FLOWER BEDS: *A Constant Subscriber.*—You may obtain the sort of book you want from 171, Fleet Street, E.C.

FRUIT AWARDS AT SOUTH KENSINGTON: *G. Brush.* Your complaints should have been sent to the officers of the Society.

FUNGI: *J. T. B., Spondon.* 1, Agaricus melleus; 2, A. fasciculatis; 3, the same. The normal habitat of all three is stumps, not open lawns, and the presence of these fungi in the latter position indicates old buried roots or stumps. No. 1 is sometimes eaten abroad, but it is a very suspicious species. The other has a bad character.

HEATHS: *Constant Subscriber.* It is very doubtful if they would travel safely to China.

LUMINOUS FUNGUS: *H. K., Chithurst.* Thanks. We shall give an illustration and description of this next week.

MILDEW: *A Young Gardener.* Dust the leaves with flowers of sulphur through a fine muslin bag, and keep the house more airy if possible.

NAMES OF FRUIT: *G. L. R.* Too rotten for identification.—*W. R. F. Apples:* 2, Besspool; 3, Cellini; 5, Sam Young; 6, Hoary Morning; 1 and 4, Cider fruits.—*H. W. A. Apple:* Margil.—*G. B.* 1, Quite rotten; 2, Glou Morçeau; 3, Duchesse d'Angoulême; 4, Hacon's Incomparable; Apple unknown.—*A. H.* 4, Kirke's Lord Nelson; 6, Urbaniste; 7, Easter Beurré. The others are not recognised.—*C. P. E.* Your Apples are mostly unknown; 2 is Round Winter Nonsuch; 12, Mère de Ménage.—*General M.* 2, Old Nonpareil; 6, Rymer. The others cannot be recognised; several appear to be American sorts, or are very strangely grown.—*Lattenbury.* Your Apple is not recognised: it is rather too far gone.

NAMES OF PLANTS: *G. F. F.* Aralia elata.—*C. E. S.* 1, Begonia Saundersii; 2, B. Dregeana. The others were broken, and mixed up so that we cannot identify them. Begonias should be packed, each species separately, between papers.—*Constant Reader.* Too small and too much bruised for identification.—*Ilex.* I. angustifolia.—*J. W. A.* and *J. R. W.* Chrysanthemums, being florists' flowers, we cannot and do not undertake to name them.—*W. A. C.* 1, we do not recognise without flowers; 2 and 3 are seedling forms of Berberis Aquifolium.

PHOTOGRAPHS: *J. P. D.* We do not know.

ROYAL HORTICULTURAL SOCIETY: *J. Lane.* You should lay a statement of your grievance before the Council before making it public.

SALESMAN: *Inquirer.* We do not undertake to recommend dealers.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

CATALOGUES RECEIVED.—Messrs. Dicksons & Co. (1, Waterloo Place, Edinburgh), Catalogue of Forest and Ornamental Trees and Shrubs, Coniferæ, Rhododendrons, &c.—Ed. Pynaert-van Geert (142, Rue de Bruxelles, Ghent, Belgium), Catalogue of Plants and Tools, &c.—Frœbel & Co. (Neumunster, Zürich), Catalogue of Azaleas, Camellias, Roses, &c.—Robertson & Galloway (157, Ingram Street, Glasgow), List of Roses, &c.—Messrs. Becker, Scalongue & Michell (The Hague, Holland), Wholesale List of Dutch Bulbs and Plants, &c.—William Chater (Saffron Walden Nursery), Catalogue of Double Hollyhocks, Roses, &c.—Messrs. Kelway & Son (The Royal Nurseries, Langport, Somerset), Catalogue of Gladioli.—James Dickson & Sons (Newton Nurseries, and 108, Eastgate Street, Chester), Catalogue of Forest Trees, Covert and Underwood Plants, Shrubs, Evergreens, &c.—Mr. Epps (Lewisham), List of Peat, Sand, Loam, &c.—John Hooley (Vine Nurseries, Edgeley Road, near Stockport), Catalogue of Coniferæ, Forest, Fruit, and Ornamental Trees, Roses, Stove and Greenhouse Plants, &c.—Desfosse-Thuillier et Fils (Route d'Olivet 23, Orleans), Catalogue of Roses, Fruit, Forest and Ornamental Trees, Shrubs, &c.

COMMUNICATIONS RECEIVED.—C. Y. M. (many thanks).—S. P. O.—E. A. O.—J. M. B.—J. M.—D. & R.—J. H.—R. W.—Constant Reader.—D.—F. D.—H. & Son.—J. L.—J. W.—W. B.—R. T.—J. O.—J. J.—J. C. & Co.—S. & Co.—W. B.—J. P. D., jun.—J. B.—C. O.—J. K.—J. G.—J. W.—C. L.—P. B.—H. V.—Rchb. f.—W. T. T. D.—Marquis Casanova—M. L.—W. C.—H. T.—J. G. B.

*** IMPORTANT NOTICE.—*The next number of the* AGRICULTURAL GAZETTE *will be* PUBLISHED *on* MONDAY, *December 6, in time for the Evening Mails, containing a Full Report of the London Markets, and of all other Agricultural Intelligence up to the hour of going to press.*

Markets.

COVENT GARDEN, November 25.

A quiet week, with little business doing, prices of all kinds of goods remaining the same. Pears consist of Chaumontel, Glou Morçeau, Passe Colmar, Winter Nelis, and Beurré Diel. The market is well supplied with hothouse fruit. *Jas. Webber, Wholesale Apple Market.*

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6	0–12 0	Heaths, in var., doz.	12	0–30 0
Bouvardias, do.	12	0–18 0	Heliotrope, per doz.	6	0–12 0
Chrysanthemum, do.	4	0– 9 0	Hyacinths, Rom., do.	12	0–30 0
Coleus, do.	4	0– 6 0	Mignonette, do.	5	0– 8 0
Cyclamen, do.	12	0–24 0	Myrtles do.	3	0– 9 0
Cyperus, do.	6	0–12 0	Pelargoniums, dble., per doz.	4	0–12 0
Dracæna terminalis	30	0–60 0	— Scarlet, do.	3	0– 9 0
— viridis, per doz.	12	0–24 0	Primula sinensis, do.	4	0– 9 0
Epiphyllums, do.	18	0–42 0	Solanums, do.	6	0–24 0
Ficus elastica	1	6– 7 6	Veronica, do.	4	0–12 0
Fuchsia, per doz.	6	0–12 0			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, 12 sprays	1	6– 4 0	Narcissus, per dozen	3	0– 6 0
Camellias	4	0–12 0	Pelargoniums, 12 spr.	1	0– 2 0
Carnations, 12 blooms	1	6– 4 0	— Zonal, do.	0	6– 1 6
Chrysanthem., 12 bl.	1	0– 4 0	Primula, dbl., p. bun.	1	0– 1 6
— 12 bunches	4	0–12 0	Roman Hyacinths, 12 sprays	3	0– 6 0
Cornflower, p. doz. bun.	3	0– 6 0	Roses, indoor, p. doz.	2	0– 6 0
Cyclamen, 12 blooms	0	3– 0 6	— outdoor, 12 bun.	9	0–12 0
Epiphyllum, p. doz.	1	0– 3 0	Spiræa, 12 sprays	1	0– 3 0
Eucharis, per doz.	4	0–12 0	Stephanotis, 12 sprays	6	0–12 0
Gardenia, per doz.	4	0– 9 0	Tuberoses, per doz.	2	0– 4 0
Heliotropes, 12 spr.	0	6– 1 0	Violets, 12 bunches	1	0– 3 0
Mignonette, 12 bun.	3	0– 6 0			

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1	0– 2 6	Oranges, p. 100	6	0–12 0
Cobbs and Filbts., lb.	0	6– 0 9	Pears, per doz.	1	0– 4 0
Grapes, per lb.	1	0– 5 0	Pine-apples, p. lb.	2	0– 6 0
Lemons, per 100	6	0–10 0	Walnuts, p. bush.	8	0–12 0
Melons, each	2	0– 5 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Leeks, per bunch ..	0 2	0 4
— Jerusalem, p. lb.	0 3	..	Lettuces, per score..	2 0	..
Asparagus, per bund.	30 0	40 0	Mint, per bundle ..	0 4	..
Beans, Scarlet Runners, per lb. ..	0 6	..	Mushrooms, per pott.	1 0	2 0
— French, per 100	2 0	3 0	Onions, young, bun.	0 4	0 6
Beet, per doz. ..	1 0	2 0	Parsley, per bunch..	0 4	..
Brussels Sprouts, lb.	0 4	..	Potatos (new), baskt.	1 0	..
Cabbages, per doz. ..	1 0	2 0	Radishes, per bunch.	0 2	0 4
Carrots, per bunch..	0 6	..	— Spanish, doz. ..	1 0	..
Cauliflowers, p. doz.	2 0	4 0	— French	0 6	..
Celery, per bundle ..	1 6	2 0	Rhubarb, per bundle	2 0	..
Cucumbers, each ..	1 0	1 6	Salsafy, per bundle..	0 9	..
Endive, per doz. ..	1 0	2 0	Seakale, per punnet..	2 0	3 0
— Batavian, p. doz.	2 0	3 0	Shallots, per lb. ..	0 3	..
Herbs, per bunch ..	0 2	0 4	Tomatos, per doz. ..	1 0	2 0
Horse Radish, p. bun.	3 0	5 0	Turnips, per bundle.	0 4	..

Potatos—Rocks, £5; Regents, £6 to £7; Kidneys, £7 to £8 per ton.

SEEDS.

LONDON: *Nov.* 25.—There is now more doing in Clover seeds, and large quantities have during the last few days changed hands. Offers of red seed come to hand less freely from France, and an advance is asked on previous quotations of fully £2 per ton. In American seed the business passing is still insignificant. Alsike and white Clover are also dearer, and are in good demand. Very long prices are asked for Trefoil seed, the crop this year being very bad. French Italian is held for more money. In spring Tares a considerable business is doing; to-day's prices show a rise on the past week of 2*s.* to 3*s.* per quarter. The supply from Kœnigsburg is said to be falling off. Canary seed fully maintains late values. There is a better inquiry for Rape seed. In neither white nor brown Mustard seed is there much passing. Linseed shows no change. Blue boiling Peas continue scarce. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

Trade at Mark Lane on Monday was slow, and the quotations did not alter materially. The show of English Wheat was moderate, and that of foreign considerable: and the rates of Monday se'nnight were not in all instances maintained. Grinding Barley was rather dearer, but there was no improvement in the value of malting, the arrivals of which were good. Malt was dull, and somewhat irregular in price. Sound English Oats were worth about 6*d.* per quarter more, but foreign descriptions were no higher. Maize was in limited supply, and prices advanced slightly. Beans and Peas changed hands quietly on first terms. The market for flour was inanimate, and prices were nominal.—The condition of the Wheat on offer at market on Wednesday was rather improved by the dryness of the weather during the previous few days, and the rates asked were about the same as on Monday. Malting barley was flat, while grinding and distilling qualities were steady. Malt was cheaper when pressed for sale. Oats were dealt in quietly on previous terms. Maize, Beans, and Peas, were quoted as before, and there was no actual decline in flour.—Average prices for the week ending November 20:—Wheat, 47*s.*; Barley, 38*s.* 3*d.*; Oats, 25*s.* 8*d.* For the corresponding week last year:—Wheat, 43*s.* 5*d*; Barley, 42*s.* 6*d.*; Oats, 27*s.* 11*d.*

CATTLE.

At the Metropolitan Market on Monday there was a short supply of beasts, and trade opened brisk but closed dull. On the average prices were about the same as last week. The number of sheep was small, and trade continued dull; choice qualities commanded a high price, but inferior were not easily disposed of. No foreign calves arrived, English were not plentiful, consequently prices were high.—Quotations:—Beasts, 4*s.* 4*d.* to 5*s.* 4*d.* and 5*s.* 10*s.* to 6*s.* 4*d.*; calves, 4*s.* 8*d.* to 6*s.* 8*d.*; sheep, 5*s.* 10*d.* to 6*s.* 4*d.* and 6*s.* 8*d.* to 7*s.* 4*d.*; pigs, 4*s.* 6*d.* to 6*s.*—On Thursday choice quality beasts were readily disposed of, and a fair clearance of all kinds effected. Trade in sheep was not very brisk, but Monday's quotations were well maintained. Choice calves were scarce and dear. Trade in milch cows continues to improve.

HAY.

The Whitechapel market report states that trade has been steady, though there was a good supply, and prices were well supported. Prime Clover, 100*s.* to 157*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 140*s.*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 50*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 130*s.* to 140*s.*; inferior, 95*s.* to 116*s.*; superior Clover, 150*s.* to 160*s.*; inferior, 110*s.* to 120*s.*; and straw, 47*s.* to 52*s.* per load.

POTATOS.

The dry weather has improved the condition of the English supplies, and also assisted demand, and there is a fair trade doing at the Borough and Spitalfields markets. Quotations:—English Regents, picked, 140*s.* to 160*s.*; unsorted, 100*s.* to 120*s.*; rocks, 70*s.* to 85*s.*; middlings, 70*s.*; Dutch rocks, 60*s.* to 80*s.*; French shaws, 60*s.* to 70*s.*; Belgian kidneys, 90*s.* to 100*s.* per ton.

COALS.

There was a brisk demand at market on Monday fo house coals, in consequence of the cold weather, and prices advanced 2*s.* per ton, which advance was augmented by another shilling on Wednesday. Quotations:—Bower's West Hartley, 19*s.* 6*d.*; West Hartley, 20*s.* 3*d.*; Eden Main, 23*s.* 6*d.*; Walls End—Kelloe, 23*s.* 6*d.*; East Hartlepool, 25*s.* 3*d.*; original Hartlepool, 25*s.* 6*d.*; Tees, 25*s.* 3*d.*

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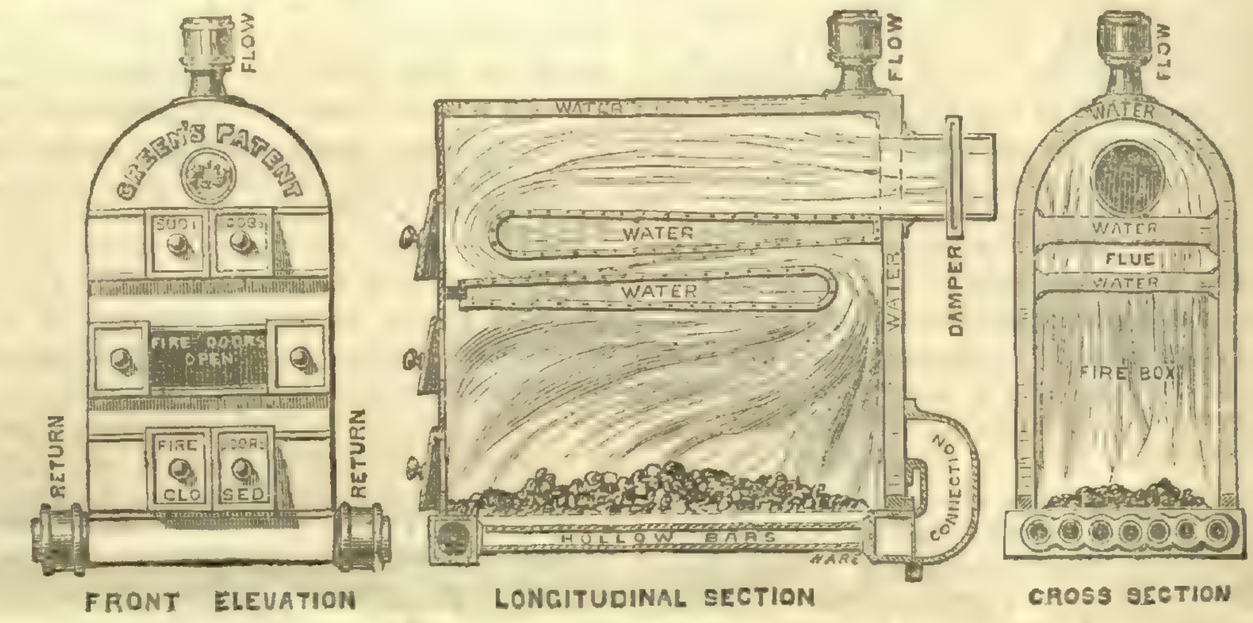

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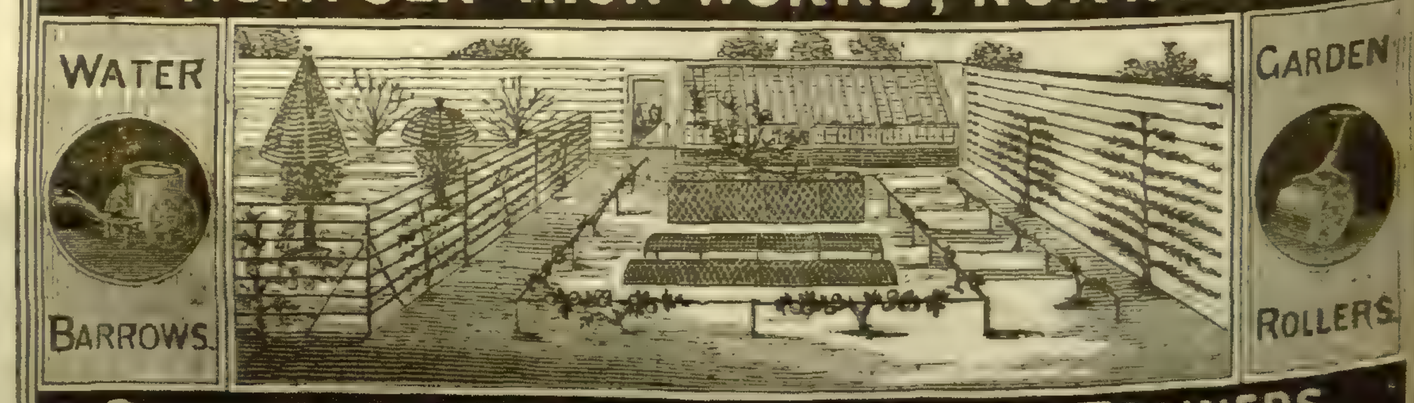

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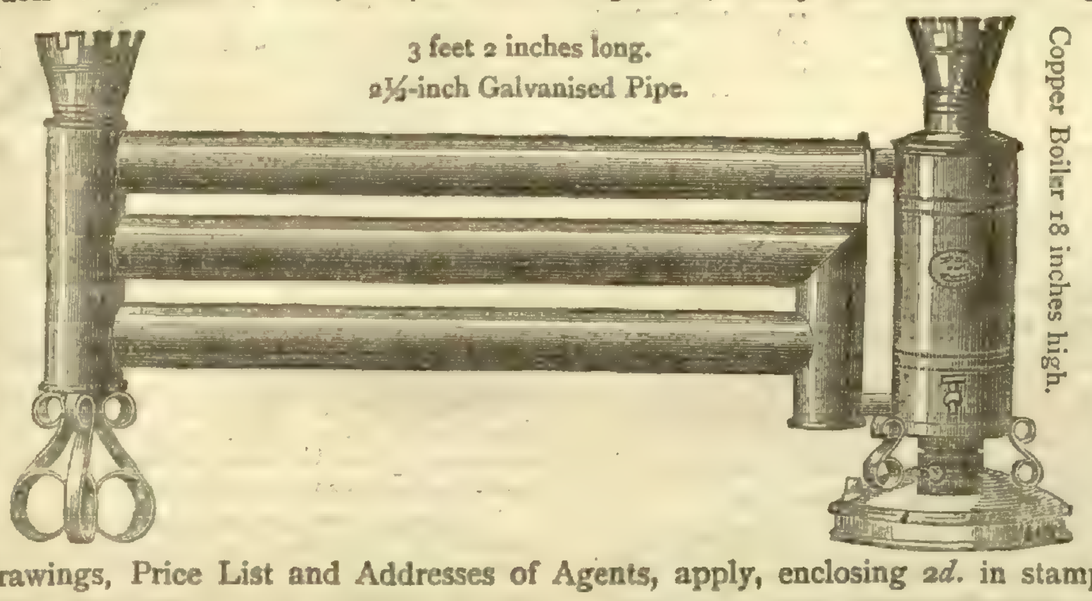

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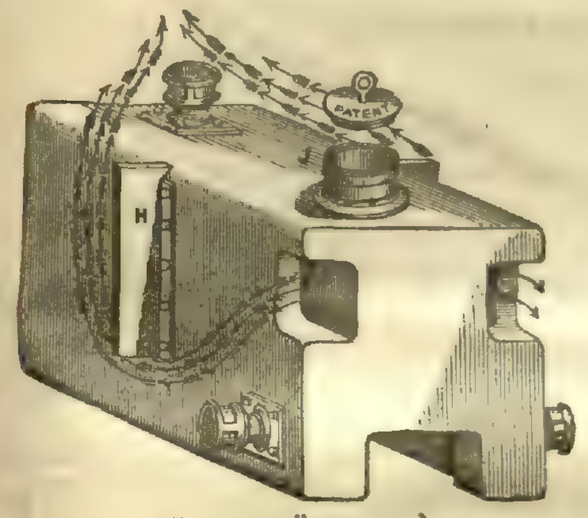

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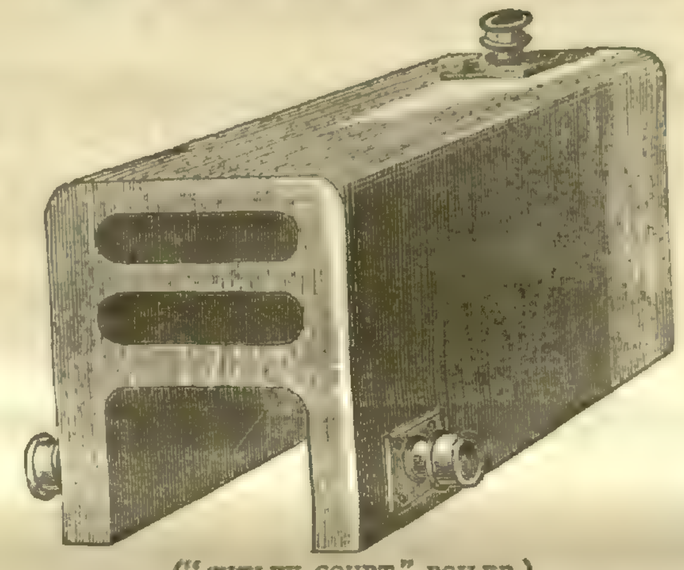

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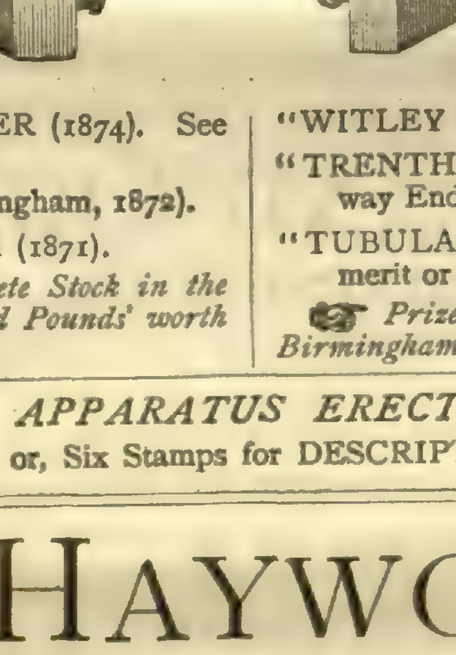

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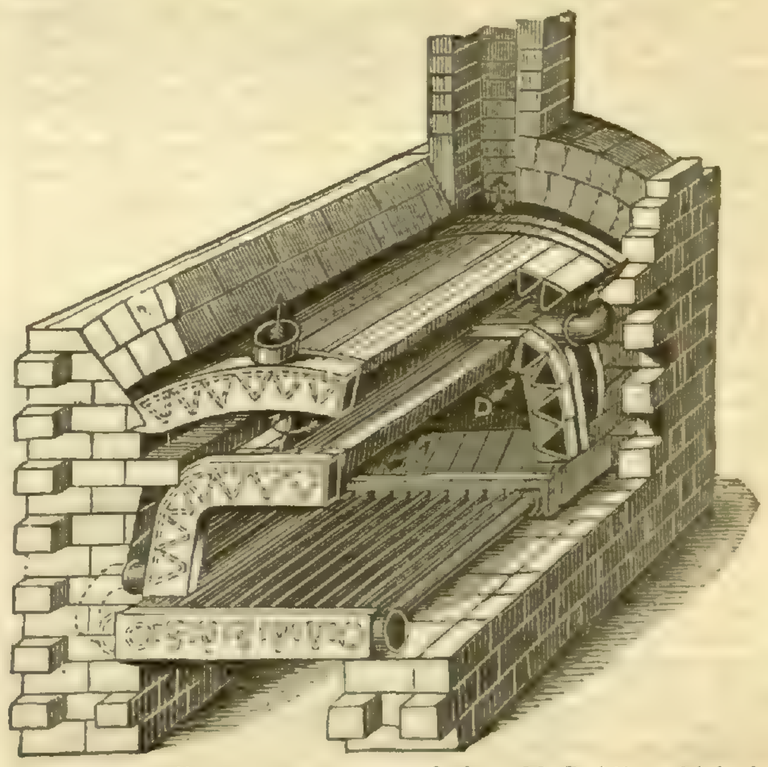

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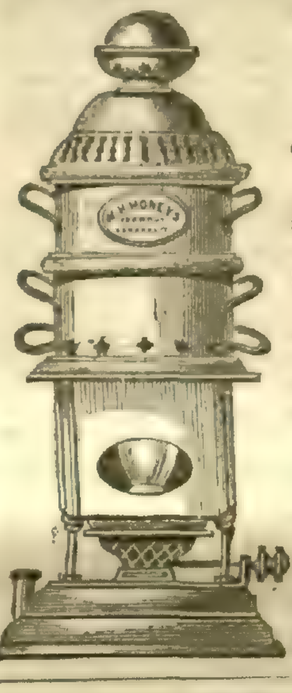

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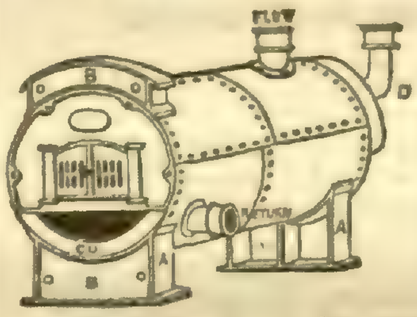

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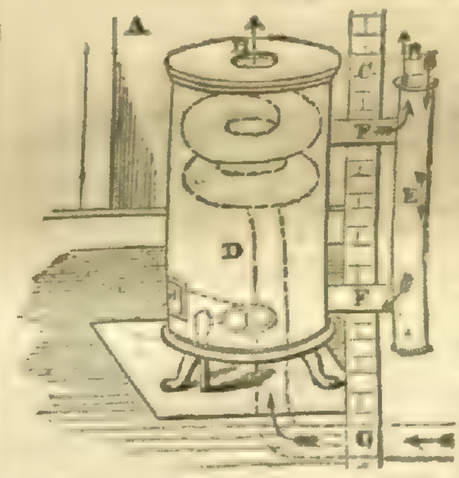

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SCOTCH FIR, fine Standard trees, 8 to 10 feet; HORNBEAM, strong Standards; PRIVET, strong, cut back. Cheap.
W. GROVE, Tupsley, Hereford.

SCOTCH FIR PLANTS, 100,000, strong, from 2 to 3 feet high, 3-yr. transplanted, 20*s.* per 1000. On Rail, Chandler's Ford Station, London and South-Western Railway. Apply to
Mr. MURRAY, Steward's Office, Hursley Park, Winchester.

Green Screens, for Shutting Out Unsightly Objects.

LOMBARDY POPLARS, fine large, 20 to 30 feet high, 3*s.* to 5*s.* each. Delivered on Rail.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

For Sale, to Clear the Ground.

PORTUGAL LAURELS, a large quantity, very good, bushy, 2 feet, 25*s.* per 100.
ENGLISH YEWS, good bushy, 1½ foot, 21*s.* per 100.
WILLIAM BUNTING, Nurseryman, Colchester.

SPANISH CHESTNUTS, a large quantity, 3 feet; ASH, SPRUCE, BIRCH, and ALDER, stout, well-grown, and transplanted, to be Sold.
G. CHORLEY, Midhurst, Sussex.

LARCH, fine, 2 to 2½ feet, 25*s.*; SCOTCH, 1½ to 2 feet, 14*s.*; SPRUCE, 1½ to 2 feet, 14*s.*; OAK, 4 to 5 feet, 25*s.* per 1000; Green HOLLY, with leaders, 1 to 2 foot, 15*s.* per 100; Standard ROSES, fine, 70*s.* per 100. Samples free.
H. JACKSON, Nursery, Kidderminster.

SPRUCE FIR, fine specimens, 4 to 10 feet; AUSTRIAN PINE, specimens, 4 to 6 feet; LARCH, 2 to 3½ feet; ASH, PURPLE BEECH, WEEPING ASH, &c.
W. GROVE, Tupsley, Hereford.

MAGNIFICENT NEW HARDY EVERGREEN FLOWERING SHRUB, &c.—For particulars see our advertisement in *Gardeners' Chronicle* of Nov. 19 and 26. See also Catalogue, free on application.
The NEW PLANT and BULB COMPANY, Lion Walk, Colchester.

BOX TREES.—To be Sold, to clear the ground, several hundred, about 2 feet 9 inches high. For further particulars apply to
106, Jamaica Road, Bermondsey, S.E.

THE MILE ASH ROSES are recommended as specially hardy and healthy. The plants are superb this season. LIST free on application.
EDWIN COOLING, Mile Ash Nurseries, Derby.

To the Trade.

DWARF ROSES, splendid Plants, and good leading varieties, 30*s.* per 100; Standards, fine heads, 90*s.* per 100. CYCLAMENS and EPIPHYLLUMS, beautiful plants, just coming into bloom, 9*s.* and 12*s.* per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

WM. POTTEN can still supply FRUIT TREES and ROSES, as advertised in the *Gardeners' Chronicle*, Nov. 6. W. P.'s LIST will be sent to all applicants.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

Roses.

CHARLES TURNER'S carefully prepared CATALOGUE is now ready, and may be had on application. The stock, of all heights, is very large and most healthy.
The Royal Nurseries, Slough.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
The Ottershaw Nursery, Chertsey.

Special Culture of Fruit Trees and Roses.

THE DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS (by Thomas Rivers) is now ready; also CATALOGUE of Select ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

The Oxford Roses, on Cultivated Seedling Briar.

GEORGE PRINCE'S Priced and Descriptive CATALOGUE now ready. All Roses are grown exclusively on the above stock at this establishment.
14, Market Street, Oxford.

Standard Roses.

H. LANE AND SON have a very large Stock to offer, Wholesale and Retail.
Priced CATALOGUE Free on application.
The Nurseries, Great Berkhamstead, Herts.

ROSE SHOWS, 1875.—50 First Prizes, 25 Guinea Silver Challenge Cup, and other Premier Prizes. See Cranston & Mayos' DESCRIPTIVE ROSE CATALOGUE for 1875. Address,
CRANSTON'S Nurseries, King's Acre, Hereford.

Fruits.—Roses.

A. M. C. JONGKINDT CONINCK'S Wholesale TRADE LIST of FRUITS and ROSES is now ready, free on application.

Large quantity of home-grown, very sound bulbs of LILIUM AURATUM.

Tottenham Nursuries, Dedemsvaart, near Zwolle, Netherlands.

SPHAGNUM (MOSS).—Fresh gathered, clean and dry, 12*s.* per cwt.
F. G. GODWIN, Seedsman, Sheffield.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH AND CO., late Betham & Blackith, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

GEO. P. DARBY (late Benjamin George Willdon), Seedsman, Nurseryman, Florist and Landscape Gardener, 41, High Street, Watford, Herts. Orders executed with dispatch and under personal supervision.

CAMELLIAS.—Seven healthy specimen plants for Sale, 5 to 9 feet high:—alba plena, Lady Hume's Blush, Henri Favre, Pæoniflora, Mathotiana, &c.
D. WOOD, Norwood Nursery, Beulah Hill, S.E.

CHRYSANTHEMUMS. — Choice rooted cuttings, 4*s.* per dozen. Early orders will greatly oblige.
CATALOGUE on application to
V. LANGLOIS, Nurseryman, 92, St. Saviour's Road, Jersey.

CHRISTMAS TREES.—Fine grown SPRUCE FIR for Christmas Trees, 10 to 15 feet high, on application to
THOMAS PERKINS, 42, Drapery, Northampton.

WANTED, HOLLY, YEW, and PORTUGAL LAUREL BERRIES, OAK ACORNS, and BEECHMAST. Lowest cash prices to
D., *Gardeners' Chronicle* Office, W.C.

WANTED to Purchase, a Truckload of EVERGREENS for Christmas, consisting of Laurel, Box, and Berried Holly and Mistleto. Address, stating price per weight, to
H. AND A. GREENWOOD, Fruit Merchants, Batley, Yorkshire.

WANTED, CUTTINGS of SERICOGRAPHIS GHIESBREGTIANA. State number and price per 100 to
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

To the Trade.

SEAKALE.—5000 fine strong crowns for forcing. Price on application.
J. T. STEWART, Bangholm Cottage, Edinburgh.

RHUBARB.—Baldry's Scarlet Defiance, Linnæus and Prince Albert, extra fine stools, £1 per 100, £8 per 1000.
F. SANDER AND CO., Seed Growers, St. Albans.

Mangel and Swede.

JOHN SHARPE can furnish, on application, his quotations for the choicest Stocks of the above, selected and grown by himself.
Bardney Manor, Lincoln.

Fruit Trees.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE for the present season is now ready, and may be had on application. The Trees are extra fine this season. The Royal Nurseries, Slough.

Pyramidal Pears.

H. LANE AND SON have a large stock of transplanted bearing Trees of all the leading kinds to offer at a reduced price, as the ground must be cleared by Christmas.
The Nurseries, Great Berkhamstead, Herts.

To the Trade.

DWARF-TRAINED PEARS.—All the best leading kinds, both as Horizontal and Fan-trained. Magnificent Trees—cannot be excelled. Price moderate.
FRANCIS & ARTHUR DICKSON & SONS, "Upton" Nurseries, Chester.

Splendid New Apple,

LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, 3*s.* 6*d.* each, 21*s.* for seven; 2-yr. plants, 5*s.* to 7*s.* 6*d.* each.

Mulberries, Mulberries.

PONSFORD AND SON can supply the above by the dozen, 100, or 1000. Prices on application to Loughborough Park Nurseries, Brixton, Surrey.

HANDSOME BEARING MULBERRIES.—One hundred to select from, 800 smaller sizes in stock.
Apply to WOOD AND SONS, 172, Old Kent Road, S.E.

Fastolf Raspberries (true)—To the Trade.

ISAAC BRUNNING AND CO. offer extra strong Canes of the above. Price per 1000 on application. Also CARNATIONS, PICOTEES and PINKS in quantity.
Great Yarmouth Nurseries.

FASTOLF RASPBERRY CANES, 15,000, strong, 4*s.* per 100; BLACK CURRANT TREES, 10,000, 4-yr. old, 8*s.* per 100; RED CURRANT TREES, Ruby Castle, 8000, 4-yr. old, 5*s.* per 100. Apply to
W. SELBY, Jun., Oldbury, Ightham, Kent.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c. Free by post for one stamp.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

To the Trade.

NUTS and FILBERTS.—6000 Kentish Cob and other leading sorts, no better plants in the Trade, 2 to 3 feet, and 3 to 4 feet, clean, stout, and bushy. For prices see New Trade List. Retail price, 6*s.* to 9*s.* per dozen; 35*s.* to 60*s.* per 100.
EWING AND COMPANY, Norwich.

ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E., having a large stock of unusually fine and sound DUTCH BULBS, will be pleased to submit Special Prices to Buyers on application.

Bulbs.—To Nurserymen and Others.

HYACINTHS.—To be Disposed of, a Bargain, about 1000 Hyacinths, good named sorts; also a few thousand CROCUS, &c. For particulars address
W. S., 299, Goswell Road, E.C.

GIANT LILY of the VALLEY. — Extra strong blooming roots, 2*s.* per dozen, 12*s.* 6*d.* per 100, package free.
E. COOLING, Mile Ash Nurseries, Derby.

T. VANDER SWAELMEN, Nurseryman, Gendbrugge, Ghent, Belgium, offers, at the lowest price, a nice collection of the finest LILIES, from California, Caucasus, and Japan; also a large quantity of SPIRÆA JAPONICA, at 12*s.* per 100.
Priced CATALOGUE post free upon application.

SALES BY AUCTION.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, WEDNESDAY, and SATURDAY, December 6, 8, and 11, importations of first-class Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, RANUNCULI, GLADIOLI, LILIUMS, and other BULBS, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

Shrubs, Roses, and Herbaceous Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY, December 8 and 11, ROSES, SHRUBS, HERBACEOUS PLANTS, and ORNAMENTAL TREES.

On view the morning of Sale, and Catalogues had.

Flowering Orchids.

MR. J. C. STEVENS has received instructions from Messrs. J. Backhouse & Son to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 9, at half-past 12 o'Clock precisely, a collection of over 300 ESTABLISHED ORCHIDS, of which more than 200 are either in bloom or showing flower stems. The assortment includes several plants of the rare Odontoglossum vexillarium, fine plants of O. Weltoni, about 20 flowering plants of the beautiful O. Roezlii, also fine masses of Trichopilia fragrans, O. Pescatorei, O. Bluntii, O. Phalænopsis, Oncidium tigrinum, &c.; also numerous Cattleyas, Lælias, &c.

An importation of AUSTRALIAN ORCHIDS, also a consignment of BRAZILIAN ORCHIDS, cases of ARAUCARIAS, and a quantity of very fine bulbs of LILIUM AURATUM just arrived from Japan.

On view the morning of Sale, and Catalogues had.

Dutch Bulbs.—Extensive Consignment of the finest named HYACINTHS, TULIPS, CROCUS, NARCISSUS, IRIS, LILIES, GLADIOLUS, &c., for absolute Sale, lotted to suit the Trade and Private Buyers.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on MONDAY next, at the Mart, Tokenhouse Yard, E.C., at half-past 11, about 700 lots of the above.

On view morning of Sale, and Catalogues had.

City Auction Rooms, 38 & 39, Gracechurch St., E.C.

Consignment from Ghent for Absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms, as above, on TUESDAY, December 7, at half-past 12 o'Clock precisely, about 200 Choice Double CAMELLIAS and AZALEA INDICA, compact plants, 1 to 2 feet, beautifully set with bloom-buds; 500 handsome Standard Dwarf and Climbing ROSES, of the best varieties; Choice Hardy AMERICAN PLANTS and CONIFERÆ SHRUBS, selected FRUIT TREES, with a Collection of DUTCH BULBS, ERICAS in flower, PRIMULAS, CINERARIAS, CYCLAMENS, &c.

On view the morning of Sale. Catalogues may be had at the Rooms, and of the Auctioneers, &c., 98, Gracechurch Street, E.C., and Leytonstone, E.

Auction Mart, Tokenhouse Yard, E.C.

Extensive Consignment of choice Double CAMELLIAS, AZALEA INDICA, PALMS, TREE FERNS, Dutch Bulbs and Liliums

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, Tokenhouse Yard, E.C., near the Bank of England, on MONDAY, December 13, at half-pat 11 o Clock precisely, a large consignment of choice Double CAMELLIAS and AZALEA INDICA, well set with bloom-buds, also 300 handsome PALMS for table decoration; choice TREE FERNS, &c., together with a large quantity of selected DUTCH BULBS; 1000 English grown LILIUM AURATUM, good plump bulbs; also a quantity of most handsome LILIES from California and Japan.

On view morning of Sale, and Catalogues had at the Mart, and of the Auctioneers and Valuers, 98, Gracechurch St., E.C., and Leytonstone, E.

MESSRS. FRASER AND BENTON, HORTICULTURAL AND AGRICULTURAL AUCTIONEERS AND VALUERS, Romford and Grays, Essex.

TO LARGE PLANTERS and the Trade.

Some thousand of good English YEWS, 2½ to 3½ feet; and LIMES, 6 to 8 feet; also a quantity of SYCAMORES, 10 to 14 feet; and LAURELS, 2 to 3 feet; WELLINGTONIA, 9 feet. Special prices given on application to

GODWIN AND SON, Ashborne, Derby.

Araucaria imbricata.

WILLIAM BRYANT begs to offer, as above, in well-furnished plants, transplanted spring, 1874, at the following prices:—

1½ to 2 feet ..	24s. per doz.	2½ to 3 feet ..	40s. per doz.
2 to 2½ feet ..	30s. ,,	3 to 3½ feet ..	48s. ,,

The Nursery, Rugby.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.

Highgate Nurseries, London, N.

To the Trade.

Home-grown GARDEN and AGRICULTURAL SEEDS.

H. AND F. SHARPE'S Wholesale Special Priced LIST of the above Seeds of 1875 growth is now ready; it comprises all the best sorts in cultivation. The quality is very fine, and the prices will compare favourably with those of other growers.

Seed Growing Establishment, Wisbech.

Vines, Vines, Vines.

B. S. WILLIAMS begs to announce that his stock of VINES is now in fine condition, and ready for sending out. It comprises all the leading kinds, strong Canes of Pearson's Golden Queen.

For prices and description see BULB CATALOGUE.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

General Nursery Stock.

WOOD AND INGRAM'S General Descriptive CATALOGUE of the above, including FRUIT TREES, Hardy CONIFEROUS and TAXACEOUS PLANTS, EVERGREENS, ORNAMENTAL TREES and SHRUBS, HARDY CLIMBERS, FOREST TREES, ROSES, &c., is now ready, and will be sent free on application.

The Nurseries, Huntingdon.

Superb Double Hollyhocks.

WILLIAM CHATER begs to announce that he can supply fine Seedlings with colours named, from 9s. to 12s. per dozen.

Unbloomed Seedlings, from 6s. to 9s. per dozen. Named Varieties, once bloomed, from 18s. per dozen.

W. C. strongly recommends Autumn Planting.

The Nurseries, Saffron Walden.

New Cucumber.

COOLING'S KING of the CUCUMBERS, a cross between Long Gun and Telegraph, combining the best qualities of both varieties. Fruit 18 to 24 inches; colour deep glossy green, very smooth and handsome; flesh, crisp and solid, very free bearer. The best Cucumber ever sent out. Price, 2s. 6d. per packet. Trade terms on application.

Mile Ash Nurseries, Derby.

To the Trade.—Seed Potatos.

H. AND F. SHARPE are prepared to make Special Offers of SEED POTATOS grown on their own Farms from the finest selected stocks. Their List this season comprises all the English and American varieties worthy of cultivation. The prices will be found very moderate.

Seed-growing Establishment, Wisbech.

FOR SALE (owing to want of room), STEPHANOTIS, GARDENIAS, HOYAS, and MARECHAL NIEL ROSES, all large Specimen Plants, established in pots and tubs. Apply to

W. HOWITT, Ilford, Essex.

To the Trade.

GOOSEBERRIES.—10,000, in leading sorts for kitchen and dessert, clean, stout stems, fine, well-formed heads, with free, healthy growth. For prices see New Trade List. Retail prices, 3s. to 6s. per dozen; 21s. to 35s. per 100. EWING AND COMPANY, Norwich.

Hyacinths.

W. F. BOFF offers named HYACINTHS, good Bulbs, leading varieties, at £1 per 100, 3s. per dozen. CROCUS, Yellow, Blue, White, and Striped, 1s. per 100. W. F. B. also offers, for want of room, a few dozen choice ORCHIDS, at 21s. per dozen. No objection to any kind of choice FRUIT in EXCHANGE.

203, Upper Street, Islington, N.

Evergreen Hedges.—Box, Green Hollies, and LIGUSTRUM OVALIFOLIUM.

R. NEAL, having a very large Stock of the above, can offer the same by the 100 or 1000 at a very low rate.

Also 10,000 ACER CAMPESTRIS, from 5 to 8 feet in height, clean-grown stuff.

Price on application.

The Nurseries, Wandsworth Common, S.W.

ANDRÉ LEROY'S Nurseries, at Angers, France, the largest in Europe.—NEW CATALOGUE of Fruit and Ornamental Trees, Shrubs, Camellias, Roses, Stocks, Seedlings, &c., sent on application.

Freight from Angers to London, *viâ* Steamers from St. Nazaire, about 2s. per 100 lb., except for packages below 500 lb.

Office in London: Messrs. DIECHE AND SON, 150, Fenchurch Street, E.C.

Australian Seeds and Plants.

SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.

SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

Great Speciality in Climbing Roses.

M. LEVET, HORTICULTURIST, 73, Route d'Heyrieux, Monplaisir, Lyons, Rhône, has the honour to inform Amateurs and the Trade that he has for Disposal a great Collection of TEA and HYBRID ROSES of the best climbing varieties.

NEW ROSES, of his own raising, sent out on November 1 last, and which took the 1st prize given to Seedling Roses in September last at the Exhibition of the Lyons Horticultural Association, viz.:—

TEA ROSES.
MADAME LÉON DE SAINT JEAN.
MADAME BERNARD.
MADEMOISELLE MARIE BERTON.

The price of these three varieties is 25 francs each, carriage free.

Darlingtonia, Sarracenia, Dionæa.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the above interesting Pitcher and Carnivorous Plants, of which a large consignment has been received in perfect condition.

SARRACENIA FLAVA, strong imported plants, 60s. per doz.
,, PURPUREA, established plants, 30s. per dozen.
DARLINGTONIA CALIFORNICA, the handsomest and rarest of Pitcher Plants, strong, 90s. per dozen.
DIONÆA MUSCIPULA, nicely growing plants, 36s. per doz.

Also, nice young plants of DORYANTHES PALMERI, at 24s. per dozen.

Single Plants at a proportionate increased charge.

New Roses.

WM. PAUL AND SON beg to offer the following NEW ROSES:—

STAR of WALTHAM, 7s. 6d. to 10s. 6d. each.
QUEEN of WALTHAM, 5s. to 7s. 6d. each.

These have been acknowledged by many of our first Rose amateurs, who had seen them blooming in the Nurseries here, to be two of the best novelties of the season.

Coloured Plates, free by post, 1s. each.

250,000 ROSES, new and old, now on Sale, of superior qualities, at very reasonable prices. Priced Descriptive CATALOGUE free by post.

PAUL'S Nurseries, Waltham Cross, Herts.

Lilies by the 100 or 1000.

For Planting in Borders, Shrubberies, among Rhododendrons, Massing in Beds, or Grouping among Shrubs.

MR. WILLIAM BULL, being an annual importer from their native habitats of immense numbers, can offer Choice and New LILIES, also the well-known ordinary showy sorts, at very low prices when taken in quantity.

Special quotations on application.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

To the Trade.

JOHN LAING'S special offer of new, choice, and rare Seeds, CALADIUMS, ROSES, PALMS, FERNS, and FLORISTS' FLOWERS has been forwarded to his Customers; any friends overlooked will have one sent free by post on application.

Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

TACSONIA INSIGNIS.—SEED of this splendid novelty can now be supplied. Price per packet, 2s. 6d. As a Greenhouse or Conservatory Climber it has few rivals. Its large, "lustrous crimson" flowers, fine deep green, stout foliage, and ample growth, render it a welcome addition to the choicest collections. Well-established plants, 7s. 6d. each; extra strong, 10s. 6d. to 21s.

JAMES BACKHOUSE AND SON, York.

New Broccoli.

CHRISTIE'S SELF PROTECTING LATE WHITE.—The finest late Broccoli in cultivation.

Mr. NISBET, *gardener to* Sir Thomas Whichcote, Bart., *Oswarby Park, says*:—"Having seen Mr. Christie's Broccoli growing for the last three seasons I have no hesitation in recommending it as being the finest of all Broccolis I have yet seen, and for hardiness of constitution I know of no Broccoli to compare with it."

The above has been selected from numerous testimonials received in favour of this very valuable Broccoli for late use.

Per packet, 1s. 6d.

A limited quantity to offer to the Trade. Price on application.

EDMUND PHILIP DIXON, Seed Merchant and Nurseryman, Hull.

Richmond Nurseries, Richmond, Surrey.

To GENTLEMEN, NURSERYMEN, LARGE CONTRACTORS, LANDSCAPE GARDENERS, and OTHERS.

G. AND W. STEELL beg to call the attention of all Planters to their very extensive and fine grown NURSERY STOCK, consisting of an excellent selection of Ornamental Evergreen and Deciduous Shrubs and Trees, Standard and Dwarf Rose Trees, Standard and Dwarf Variegated and Green Hollies of the newest and best varieties, Standard and Dwarf Fruit Trees, &c., which they can highly recommend for their fine growth and moving qualities.

N.B.—Where large quantities are required they can be supplied at very low prices.

CHOICE SPECIMEN STOVE PLANTS and FERNS for SALE, immediately:—

8 CROTONS, of sorts, from 5 feet through and 5 feet high to 2 feet 9 inches through and 3 feet 9 inches high.

	Through. ft.	in.	High. ft.	in.
1 PANDANUS UTILIS	7	0	4	6
1 KENTIA FORSTERIANA	4	9	5	6
1 MEYENIA ERECTA	2	0	4	6
1 ALOCASIA METALLICA	2	0	2	0
1 RONDELETIA SPECIOSA	3	6	2	6
1 CYPERUS ALTERNIFOLIUS	3	0	5	0
1 IXORA DIXIANA	2	0	2	6
2 HIBISCUS COOPERII and another ..	4	0	3	0
1 ALLAMANDA WARDLEANA	2	0	5	0
1 ,, NERIIFOLIA	4	6	4	0
4 MARANTAS, of sorts	2	6	1	9
1 STEPHANOTIS FLORIBUNDA ..	3	6	4	0
1 CLERODENDRON BALFOURIANUM	2	6	3	0
8 BEGONIAS, of sorts	3	9	1	9
1 VINCA ALBA	5	6	2	9
FERNS.				
1 ADIANTUM FARLEYENSE	4	6	2	0
1 ,, FORMOSUM	5	0	2	9
3 ,, CUNEATUM	3	9	2	0
1 ,, MACROPHYLLUM	2	0	1	6
1 CYATHEA MEDULLARIS	9	0	4	0
1 GYMNOGRAMMA CHRYSOPHYLLA	5	0	3	6
1 PHLEBODIUM AUREUM	6	6	3	0
1 LOMARIA GIBBA	3	9	2	6

Apply to

JAMES METCALFE, Gardener, Elsham House, Grantham.

LEE'S NEW SWEET-SCENTED VIOLET, "PRINCE CONSORT."

Flowers very large, deep bluish-purple at first opening, but changing to blue afterwards; very sweet-scented; footstalks long, stout, mostly erect; growth compact, foliage large, very deep green, nearly circular, very handsome, hardy.

This is a most advanced improvement on "The Czar" in every way. Flowers twice the size, nearly round in shape; foliage the same in some respects, but much deeper green, and much more compact in growth—altogether a handsome plant.

"LEE'S VICTORIA REGINA"

is often compared with "The Czar," but should more justly be compared with "Devoniensis," and is a most decided improvement on that variety in everything except colour, than which there is not its ("Devoniensis") equal in cultivation. Its habit is much more compact, and it is much more robust in its growth, better colour foliage, which is itself fragrant. But "Prince Consort" you may justly compare with "The Czar;" like "Victoria Regina," however, it is an almost perpetual bloomer.

Plants of the above (although ready) will not be sent out until the last week in February, 1876. This will give time for any inquiries respecting it, but it will not be sent out AT ALL unless the number and amount exceed a considerable limit, as the blooms are more valuable than the plants, except the number from orders should reach this limit (for he has no one to compete with him in gathered flowers while he keeps it to himself). As the demand for gathered flowers of "Victoria Regina" cannot easily be met on account of the favour it finds in "the markets," its beauty and fragrance being such as far to surpass every other variety, even more may be expected from "Prince Consort," and he has no wish to palm it upon any one. Orders, however, will be booked as received, at 10s. 6d. for four plants and 6d. package; or 30s. for one dozen plants, and 1s. for package; less than four plants not sent out. "Victoria Regina," 6s. per dozen plants; not less sent out.

N.B.—I consider "Prince Consort" to be worth over £1000 to me while I retain it, and I do not intend to let it out for less.

GEORGE LEE, F.R.H.S, Market Gardener, Clevedon, Somerset.

Gilbert's New Melon—A. F. Barron.

W. AND J. BROWN are favoured by Mr. R. Gilbert, Burghley Gardens, with sending out the above New Melon, being assured that it is in advance of any preceding it. Received First-class Certificate at the Stamford Horticultural Show: see *Gardeners' Chronicle*, November 20. Price per packet, 3*s.* 6*d.*; trade terms on application.
Nurseries, Stamford and Oakham.

CHOICE WINTER FLOWERS.

RHODODENDRON MULTIFLORUM, with 100 to 200 bloom-buds, 2*s.* 6*d.* to 3*s.* 6*d.* each.
" PRÆCOX, 1*s.* 6*d.* to 2*s.* 6*d.* each.
AZALEA DAVIESI, 2*s.* 6*d.* to 5*s.* each.
" HYBRIDA ODORATA, 2*s.* 6*d.* to 5*s.* each.
All nice bushy plants, covered with flower-buds.
A Descriptive Priced LIST of these and other Novelties free on application to
ISAAC DAVIES, Nurseryman, Ormskirk.

Red Lodge Nursery, Southampton.

W. H. ROGERS begs to call attention to this extensive Nursery, which offers unlimited supplies of FRUIT, FOREST, and ORNAMENTAL TREES, SHRUBS, and AMERICAN PLANTS of every size and description. For Specimen CONIFERS, Hardy Scarlet and other choice RHODODENDRONS the Nursery is unrivalled.
Priced CATALOGUES and every information may be had gratis on application.

CABBAGE PLANTS for SALE.—Good strong Plants of Early Battersea, Enfield Market, Improved Nonpareil, and Robinson's Champion Cattle Cabbage, can be supplied at 3*s.* per 1000. Package free for cash with order.
The above are all well-rooted stuff, growing on red sand, and cannot fail to give satisfaction.
S. BIDE, Alma Nursery, Farnham, Surrey.

Dwarf and Standard Roses, &c.

ROSES, splendid Dwarf, as fine as can be bought, 6*s.* and 9*s.* per dozen, 50*s.* per 100; Standards, 12*s.* and 15*s.* per dozen, 100*s.* per 100, all good leading varieties. GOOSEBERRIES, Lancashire Show, 3*s.* and 4*s.* per dozen, 20*s.* per 100. CURRANTS, Red, White, or Black, 3*s.* per dozen, 18*s.* per 100. Trade Price on application.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

AVENUE TREES.

	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 "
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 "
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 "
" Scarlet, 10 to 14 feet high	8 to 10 "
" Double, 10 to 14 feet high	8 to 10 "
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 "
ELMS, 15 to 18 feet	7 to 9 "

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots. They are unquestionably the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.
Knap Hill Nursery, Woking, Surrey.

To Gentlemen, Nurserymen, and Others.

R. COLLYER, Cart House Lane, Woking Station, Surrey, has to offer for sale, for Cash:—
10,000 HOLLIES, Green, 6 to 24 inches, stout.
5,000 " Green Stocks, to work Stripe on.
1,500 " Variegated, 1 to 3 feet; also Standard, 3 to 5 feet.
10,000 YEWS, Common, 6 inches to 3½ feet; also Gold and Silver Variegated.
100 CHINESE ARBOR-VITÆ, 5 to 6 feet.
2,000 LAURELS, Common, 2½ to 4 feet, bushy.
2,000 " Portugal, 2 to 8 feet, bushy and good plants for specimens, &c., all removed in Spring, 1874.
500 IVIES, Irish, staked, 3½ to 5 feet.
1,000 CUPRESSUS LAWSONIANA, 3 to 4 feet.
All the above plants are good, and have been removed since Autumn, 1873.

To Noblemen, Gentlemen, and Others who are REPLANTING this AUTUMN.

R. NEAL begs respectfully to call the attention of the above to his large and varied stock of Hardy SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS, CLIMBING PLANTS, &c., which are now in fine condition for removal. An early inspection invited.
CATALOGUES may be had on application.
The Nurseries, Wandsworth Common, S.W.

Cranston's Nurseries.—Established 1785.

THE FOLLOWING CATALOGUES are now Published:—
Descriptive CATALOGUE of ROSES, 1875—1876.
Descriptive CATALOGUE of FRUIT TREES.
Descriptive CATALOGUE of CONIFER TREES and SHRUBS.
Descriptive CATALOGUE of BULBS.
Descriptive CATALOGUE of GREENHOUSE and HERBACEOUS PLANTS.
Descriptive CATALOGUE of SEEDS. Address,
CRANSTON AND MAYOS, King's Acre, near Hereford.

HANDSOME LAWN TREES and EVERGREENS.

PICEA MAGNIFICA, true, 2 to 5 ft., 21*s.* each and upwards; P. AMABILIS, true, 2 to 3 feet, 10*s.* 6*d.* each and upwards; P. NOBILIS, 1 to 6 feet, 2*s.* each and upwards; P. NORDMANNIANA, selected varieties, 5 feet, 7*s.* 6*d.* each and upwards; P. PARSONSI, 4 to 10 feet, 15*s.* each and upwards; P. NOBILIS GLAUCA, 2 to 5 ft. 7*s.* 6*d.* each and upwards.
CUPRESSUS LAWSONIANA, in fine selected variegated and other varieties.
RETINOSPORA, in great variety, variegated and others.
THUJA, CUPRESSUS, CEDRUS, and ABIES, in many varieties, and nearly every variety of CONIFERÆ, offered at very low prices, to effect a clearance.
Some of the above, being selected seminal varieties, are very magnificent specimens. They have been carefully transplanted and grown for Sale. Application, either personally or by letter, at The Gardens, Whitchurch Rectory, Edgware, N.W., will receive every attention.

WELLINGTONIA GIGANTEA AUREA VARIEGATA.

	Feet.	Inches.
Height	24	6
Circumference of Branches ...	32	6
" of Trunk	3	4
Season's Shoot	1	6

Originated at the Lough Nurseries, Cork.

They have been Planted by the following Royal and Noble Hands:—
His Royal Highness the Prince of Wales, at Sandringham.
Her Royal Highness the Princess of Wales, at Blenheim (to mark her visit).
His Royal Highness the Duke of Edinburgh, at the Vice-Regal Lodge.
His Excellency the Lord Lieutenant, at Althorpe.
His Grace the Duke of Devonshire, at The Castle, Lismore.
His Grace the Duke of Leeds, at Gog-Magog, Cambridge
Her Grace the Duchess of Manchester, Belfast Botanic Gardens.
His Grace the Duke of Manchester, at Tangragee and Kimbolton Castle.
His Grace the Duke of Marlborough, at Blenheim.
His Grace the Duke of Wellington, at Strathfieldsaye and Apsley House.
Most Noble the Marquis of Waterford, at Curraghmore.
Right Hon. the Earl of Abergavenny, at Eridge Castle, Tunbridge Wells.
Right Hon. the Earl of Annesly, at Castlewellan, County Down.
Right Hon. the Earl of Aylesford, at Packington Hall, Warwick.
Right Hon. the Earl of Bective, at Underly Hall, Westmorland.
Right Hon. the Earl of Cork, at Marston Hall, Frome.
Right Hon. the Earl of Clancarty, at Garbally, Ballinasloe.
Right Hon. the Earl of Devon, at Powderham Castle, Exeter.
Right Hon. the Earl of Ducie, at Sarsden House, Chipping-Norton.
Right Hon. the Earl of Dunraven, at Adare Manor, County Limerick.
Right Hon. the Earl of Harrowby, at Sandon Hall, Staffordshire.
Right Hon. the Earl of Powis, at Walcot Park, Dumbartonshire.
Right Hon. the Earl of Sefton, at Croxteth Hall, Liverpool.
Right Hon. the Earl of St. Germans, at St. Germans, Cornwall.
Right Hon. the Earl of Warwick, at The Castle, Warwick.
Right Hon. the Earl of Wicklow, at Shelton Abbey, Arklow.
Right Hon. the Countess of Kingston, at The Castle, Michelstown.
Right Hon. Lord Berwick, at Attingham Hall, Shrewsbury.
Right Hon. Lord Doneraile, at The Court, Doneraile.
Right Hon. Lord Otho Fitzgerald, at Oakley Park, Windsor.
Right Hon. Lord Hawkshaw, at Hollycombe, Hants.
Right Hon. Lord Huntingfield, at Heveningham, Suffolk.
Right Hon. Lord Kenlis, at Virginia Lodge, County Cavan.
Right Hon. Lord Poltimore, at Poltimore Park, Exeter.
Right Hon. Lord Powerscourt, at Powerscourt, County Dublin.
Right Hon. Lord Skelmersdale, at Lathom House, Ormskirk, Lancashire.
Right Hon. Lord Wrottesley, at The Hall, Staffordshire.
Right Hon. Lady Langdale, at Eyewood, Herefordshire.
Right Hon. Lady Russell, at Chequer's Court, Herts.
Right Hon. Lady Pollen, at Redenham Hall, Andover.
Right Hon. Lady Rolle, at Bicton, Exeter.
Right Hon. Lady Tennisson, Carrick-on-Shannon, County Longford.
Sir Thomas Acland, Bart., at Killerton, Exeter.
Sir Henry Becher, Bart., at Ballygibben, Mallow.
Sir James Colquhoun, Bart., at Rosshhu, Dumbartonshire.
Sir C. Mills, Bart., at Hallingdon Court, Uxbridge.
Sir D. Norreys, Bart., at The Castle, Mallow.
Sir Richard Wallace, Bart., at Sudbourn Hall, Suffolk.
And by the leading Nobility and Gentry in the Kingdom.
The last-named had 40 splendid Trees for Avenue planting.

PRICES.

*1st	Size—Grand Specimens	5 feet	£5	5	0
2d	" Splendid Plants .	4 "	3	3	0
3d	" Very fine ...	3 "	2	2	0
5th	" Stout and good...	2 "	1	1	0
6th	" Nice little Plants	1 "	0	10	6

* From the first set of plants, and same as those at Sandringham, Blenheim, Althorpe, and had by the Nobility chiefly.
All removed Spring 1875.

RICHARD HARTLAND,
LOUGH NURSERIES, CORK.

THE KNAP HILL CYPRESS,
Cupressus Lawsoniana erecta viridis.

ANTHONY WATERER

Will be happy to supply beautiful specimens of this famous hardy Evergreen, at the following prices:—

3 feet high, 2½ feet in circumference, 30*s.* per doz.
4 feet high, 3 to 4 feet do., 42*s.* to 60*s.* per doz.
5 feet high, 4, 5 and 6 ft. do., 10*s.* 6*d.*, 15*s.* to 21*s.* each.
6 and 7 feet high, 6 to 7 and 8 ft. do., 21*s.* to 31*s.* 6*d.* each.
No cuttings have been taken from the plants here referred to, which are simply perfect in growth and splendidly rooted.

KNAP HILL NURSERY, WOKING, SURREY.

TO THE TRADE.

JAS. GARAWAY & CO.
OFFER
ALMONDS, standards, fine, 15*s.* per dozen.
BAYS, 1 to 2 feet, 6*s.* per dozen; 2 to 3 feet, 9*s.* per dozen.
CHESTNUTS, Scarlet, 6 to 8 feet, 10*s.* per dozen; 8 to 10 feet, 15*s.* per dozen.
ELMS, Chichester, 3 to 4 feet, 20*s.* per 100; 4 to 6 feet, 30*s.* per 100; 6 to 8 feet, 50*s.* per 100.
" " extra fine, 8 to 10 feet, 75*s.* per 100; 10 to 12 feet, 100*s.* per 100; 12 to 16 feet, 120*s.* per 100.
ESCALLONIA MACRANTHA, in pots, 9*s.* per dozen.
LAUREL, Portugal, 2 to 3 feet, bushy, 10*s.* per dozen.
LIMES, 8 to 10 feet, 9*s.* per dozen; 10 to 12 feet, 18*s.* per doz.
OAKS, Evergreen, in pots, 2 to 3 feet, 9*s.* per dozen, 60*s.* per 100; 3 to 4 feet, 12*s.* per dozen, 90*s.* per 100.
PÆONIES, Moutan, Tree, 12*s.* per dozen.
WILLOWS, Kilmarnock Weeping, 18*s.* per dozen.

Fruit Trees.
Leading sorts, good trees, our selection.
APPLES, dwarf-trained, 15*s.*, 18*s.*, and 21*s.* per dozen.
" standards, 15*s.* per dozen.
APRICOTS, Maidens, 9*s.* per dozen, 60*s.* per 100.
" dwarf-trained, 30*s.* and 36*s* per dozen.
CHERRIES, Mayduke and Morello, dwarf-trained, 24*s.* per dozen.
NECTARINES, Maidens, 9*s.* per dozen, 60*s.* per 100.
" dwarf-trained, 30*s.* and 36*s.* per dozen.
PEACHES, Maidens, 9*s.* per dozen, 60*s.* per 100.
" dwarf-trained, 30*s.* and 36*s.* per dozen.
PEARS, dwarf-trained, 18*s.* and 21*s.* per dozen.
" pyramids, 3 to 4 feet, 12*s.* per dozen, 75*s.* per 100; 4 to 5 feet, 15*s.* per dozen, 100*s.* per 100.
" standards, 18*s.* per dozen, 125*s.* per 100.
PLUMS, dwarf-trained, 18*s.* and 21*s.* per dozen.
" pyramids, 4 to 5 feet, 12*s.* per dozen; 5 to 6 feet, 15*s.* per dozen.
" standards, 15*s.* per dozen.

JAS. GARAWAY AND CO.,
Durdham Down Nurseries, Clifton, Bristol.

CATALOGUES
OF
Trees, Shrubs, Roses and Fruit Trees,
ALSO
CLEMATIS, &c., for 1875-76,
Free by Post on application to
GEORGE JACKMAN AND SON,
WOKING NURSERY, SURREY.

HOLLIES.

Twenty Thousand of the Finest Varieties of GREEN AND VARIEGATED HOLLIES, 4, 5, 6, 7, 8, and 10 feet.

The Plants are all handsomely Grown and properly Rooted

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY

FIRST PRIZE ROSES,
FROM
CRANSTON'S NURSERIES, HEREFORD.

Try our One Guinea, Two Guinea, and Three Guinea Collections.

ONE GUINEA COLLECTION contains Thirty Selected First-class Show Roses.

TWO GUINEA COLLECTION contains Sixty Selected, Distinct, and all First-class Show Roses.

THREE GUINEA COLLECTION contains One Hundred of the Finest Roses, New or Old, in cultivation, Selected from upwards of 600 Varieties.

Either of the above Collections will be carefully packed and forwarded, on receipt of Cheque or Post Office Order payable to

CRANSTON and MAYOS,
HEREFORD.

JOSEPH BAUMANN, NURSERYMAN, Ghent, Belgium, begs to offer :—

AZALEAS, 10,000 hardy Ghent, 50 of the best sorts, named, with flower-buds, 1*s.*, 2*s.*, and 3*s.* each; stronger plants, 5*s.*, 10*s.*, and 15*s.* each.
„ MOLLIS, new hardy, named—M. Van Houtte's varieties: with flower-buds, 4*s.* each; without flower-buds, 2*s.* and 3*s.* each.
„ SEEDLINGS, all good sorts, with 15 to 25 flower-buds, 2*s.* 6*d.* each.
„ Mr. Anthony Waterer's new hardy varieties, named, with flower-buds, 4*s.* each.
HYDRANGEA PANICULATA GRANDIFLORA, strong plants, 7*d.* each.
SPIRÆA SPLENDENS, new, strong plants, 20*s.* each.
„ JAPONICA, 2*d.* each.
„ THUNBERGIANA, strong, 7*d.* each.
RHODODENDRONS, best hardy sorts, named, without flower-buds, 1*s.* each; stronger plants, 1*s.* 6*d.* and 2*s.* each.
AZALEA INDICA, new sorts, without flower-buds, 1*s.* and 2*s.* each.
CAMELLIAS, best sorts, without flower-buds, 1*s.* and 2*s.* each.
„ ALBA PLENA, 1*s.* 3*d.* each.
CONVALLARIA MAJALIS, 3*s.* per 100.
PHORMIUM VEITCHII fol. var., 5*s.* each.
YUCCA PENDULA, 1*s.* and 2*s.* each.
PÆONIA ARBOREA GLORIA BELGARUM, 20*s.* each.
„ „ SOUVENIR DE GAND, 20*s.* each.
LAURUS NOBILIS, fine, per pair, 100*s.* to 400*s.*
ARAUCARIA JOSEPH NAPOLEON BAUMANN, 50*s.* and 500*s.* each.
All the above plants can be had by the dozen or hundred.

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

TO THE TRADE.

CRANSTON AND MAYOS beg to offer very fine—

Dwarf-trained PEARS.
Dwarf-trained APPLES.
Dwarf-trained PLUMS.
Dwarf-trained CHERRIES.
Dwarf-trained PEACHES.
Dwarf-trained NECTARINES.
Pyramid APPLES.
Pyramid PEARS.
Pyramid PLUMS.
Pyramid CHERRIES.

The Largest Stock of DWARF ROSES in the Trade.

PRICED LISTS ON APPLICATION.

THE NURSERIES, HEREFORD.

Lilium auratum (Imported).

THE NEW PLANT and BULB COMPANY beg to announce the arrival of their first consignment of the above, in magnificent condition, at very low prices. Lion Walk, Colchester.

Lilium auratum (Home-grown).

THE NEW PLANT and BULB COMPANY have still on hand splendid bulbs, at very low prices. Lion Walk, Colchester.

Lilies, all Known Kinds (Home-grown).

THE NEW PLANT and BULB COMPANY invite intending purchasers to send for one of their CATALOGUES, which, in addition to Lilies, contains a selection of the best Hardy Flowering and other Plants in cultivation, all remarkably good, and such as will give a fine effect next season. The Trade liberally dealt with.

Lion Walk, Colchester.

To the Trade.

WILLIAM RUSHFORTH, Woodhouse Hill Nurseries, Leeds, offers as below, all of good quality :—

1000	Strong Dwarf MOSS ROSES	per 100	20*s.*
2000	Strong DIELYTRA SPECTABILIS	„	20*s.*
1000	Strong SPIRÆA JAPONICA	„	20*s.*
5000	DOUBLE SULPHUR PRIMROSES ..	„	15*s.*
4000	Good SEAKALE	„	5*s.*
1000	LABURNUMS, 6 to 7 feet	„	18*s.*
1700	ALGIERS IVY, strong, in pots	„	40*s.*
3000	VIRGINIAN CREEPERS	„	8*s.*
300	ARALIA SIEBOLDII, in pots	„	50*s.*
4000	TREE BOX, 2 feet	„	15*s.*
100	SWEET BAYS, 3 to 4 feet	per doz.	24*s.*

LILIUM AURATUM.—Plump and sound English-grown bulbs at 30*s.*, 42*s.* and 60*s.* per dozen. Imported bulbs from Japan have now arrived, in first-rate condition, price 18*s.*, 24*s.* and 30*s.* per dozen.

As Mr. WILLIAM BULL annually imports many thousands of Lilies direct from their native habitats in various parts of the world, he can supply all the choicest sorts at very moderate prices. Good and varied selections can be made by Mr. W. B. at 18*s.*, 30*s.* and 42*s.* per dozen.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

VENN'S BLACK MUSCAT.

JOHN KEYNES

Has a few first-rate Fruiting Canes of this magnificent variety. It is unquestionably the finest Black Grape in cultivation for growth and flavour : 21*s.* each. No Planting Canes. J. K. can also supply a few other kinds grown from last year's eyes, for which he is so celebrated. Fine fruiting well-ripened Canes, 10*s.* 6*d.* each. None left for the Trade.

ROSES.

Fine well-ripened not overgrown plants as usual. These Roses, not having been forced, will grow on any soil.

CATALOGUES now ready. Amateurs, try them.

Castle Street, Salisbury.

NOW READY,

NURSERY CATALOGUES FOR 1875-76.

WILL BE SENT POST FREE UPON APPLICATION.

THE LAWSON SEED AND NURSERY COMPANY (LIMITED),

EDINBURGH,

AND

54, BISHOPSGATE STREET WITHIN, LONDON, E.C.

BUSINESS ESTABLISHED, 1770.

NEW QUEEN ONION.

EARLY WHITE ITALIAN TRIPOLI.
GIANT WHITE ITALIAN TRIPOLI.
NEAPOLITAN MARZAJOLE.
LARGE RED ITALIAN TRIPOLI.
MAMMOTH DEEP RED GLOBE.
GIANT ROCCA.

The New Crop of the above-named excellent varieties has just arrived in fine condition, direct from Madame Piccirillo's Farms in Italy.

TRADE PRICE ON APPLICATION TO

HURST & SON,

6, LEADENHALL STREET, LONDON, E.C.

WORCESTER PEARMAIN APPLE.

Awarded a First-class Certificate by the Royal Horticultural Society, October 6, 1875.

Fruit 2¾ inches wide, and same in height, conical; skin smooth, brilliant red, with minute fawn-coloured dots; flesh very tender, crisp, juicy, and sweet, with a very pleasant flavour, perhaps the most valuable of all for market. The tree is as productive as Lord Suffield Apple, and one of the handsomest fruits in cultivation. Ripe end of August, and will keep till Christmas.

Maiden Trees, 10s. 6d. each; Pyramid or Trained Trees, 21s. each. Coloured Plates, 6d. each.

RED HAWTHORNDEN APPLE.—Dr. Hogg describes this as large, oblate, and angular; skin smooth, greenish yellow, with a red blush next the sun; flesh white, tender and juicy, with a sprightly and agreeable acidity. A very early and valuable culinary Apple; ripe August and September. Maiden trees, *7s. 6d.* each; Pyramid or trained trees, *10s. 6d.*

YORKSHIRE BEAUTY APPLE.—Dr. Hogg, in his *Manual*, says this fruit is 3½ inches wide and 3 inches high, roundish, flattened, and angular; skin bright yellow, with a bright red blush on the sunny side; flesh tender and juicy, with an agreeable acidity. A first-rate culinary Apple for August and September, the great size and excellent quality ought to commend it as a good orchard fruit for the market. Maiden trees, *5s.* each; Pyramid or trained trees, *7s. 6d.*

NEW GOLDEN LABURNUM.—Unquestionably the finest hardy golden-leaved tree known, of immense value for park and garden scenery; it will take a foremost position among pictorial and garden trees; the foliage is a brighter golden-yellow than the flower of the ordinary Laburnum. First-class Certificate awarded by the Royal Horticultural Society, August 4, 1875. Price *10s. 6d.* each; Standard and extra strong trees, *21s.* Coloured plates, *6d.* each.

OTHERA JAPONICA.—A new and beautiful evergreen shrub. One of the most distinguished Japanese travellers says this is perhaps the prettiest evergreen they have in Japan; it grows about 20 feet high, has dark green leaves and a profusion of bright red fruit; it is very effective and perfectly hardy. Price *10s. 6d.* each; extra strong, *21s.*

CLIMBING ROSE, COUNTESS of OXFORD.—The old variety in all respects, except in being a free climber. *7s. 6d.* each.

FIFTY ACRES OF FRUIT TREES.

Standard and Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, very fine trees for walls.

Standard, Pyramid, Dwarf, Bush, and Cordon APPLES, PEARS, PLUMS, and CHERRIES.

ORCHARD HOUSE TREES, Established in Pots, for Immediate Fruiting.

PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, APPLES, FIGS, ORANGES, and MULBERRIES.

VINES, Planting Canes, 3*s.* 6*d.* to 5*s.* each; Extra Strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* each.

All the above of superior quality, perfect in form, roots, and health, and true to name.
See Descriptive Price List.

TWELVE ACRES OF ROSES,

Standards and Dwarfs, all the popular sorts; 80,000 choicest Tea-scented and Noisette Roses, in pots. Extra strong Hybrid Perpetual Roses, in pots for immediate forcing. Climbing Roses in great variety. *See Descriptive Price List.*

FOR SHRUBBERIES.

	Per 100.
LAUREL, Colchic, the best hardy variety	3 to 4 feet, 35*s.*
„ Portugal, very fine	1½ to 2 feet, 35*s.*
„ Portugal, very fine	2 to 2½ feet, 50*s.*
„ Caucasian, very fine	2 to 3 feet, 50*s.*
„ Round-leaved, extra fine	2 to 3 feet, 70*s.*
„ Six distinct and beautiful vars.	2 to 3 feet, 50*s.*
COTONEASTER SIMONSII, fine	3 to 4 feet, 35*s.*
PYRUS JAPONICA	2 to 3 feet, 50*s.*
EUONYMUS RADICANS VARIEGATA	1 foot, 40*s.*

	Per 100.
CISTUS LAURIFOLIA, in pots	1½ to 2 feet, 50*s.*
ARBUTUS (Strawberry tree)	1½ to 2 feet, 60*s.*
„ (Strawberry tree)	2 to 2½ feet, 75*s.*
CEPHALOTAXUS DRUPACEA	1½ foot, 60*s.*
TREE IVIES, full of flower	1 to 1½ foot, 75*s.*
LAURUSTINUS	1 to 1½ foot, 40*s.*
BROOMS, White and Yellow	2 to 3 feet, 30*s.*
YEW, English, bushy	1½ to 2 feet, 40*s.*
„ English, bushy	2 to 2½ feet, 60*s.*
„ English, bushy	2½ to 3 feet, 80*s.*
„ Golden, bushy	1 to 1½ foot, 90*s.*

	Per doz.
JUNIPER, Chinese	4 to 5 feet, 36*s.*
„ Chinese	5 to 6 feet, 42*s.*
OAK, Austrian Evergreen	2½ to 3 feet, 30*s.*
„ Austrian Evergreen	3 to 4 feet, 42*s.*
„ Ford's Evergreen	3 to 4 feet, 36*s.*

	Per doz.
CRYPTOMERIA ELEGANS	2 to 2½ feet, 21*s.*
PICEA PINSAPO	2 to 2½ feet, 36*s.*
„ PINSAPO	2½ to 3 feet, 42*s.*
YUCCA GLORIOSA PENDULA	12 to 15 in., 12*s.*
„ GLORIOSA PENDULA	15 to 18 in., 18*s.*

	Per 100.
IVY, strong, for climbing	3 to 4 feet, 40*s.*
VIRGINIAN CREEPER	3 to 4 feet, 40*s.*

	Per 100.
ROSES, Climbling, in variety	3 to 4 feet, 40*s.*
HONEYSUCKLES, in variety	3 to 4 feet, 40*s.*

JUNIPERUS CHINENSIS.—One of the hardiest and most ornamental Shrubs in cultivation, and especially valuable to the landscape gardener. In spring it is quite golden with its numerous flowers, which, when shaken with the wind, give off a cloud of yellow dust; and if the plant be kept closely pruned, the young growth becomes so luxuriant and leafy that it gives an entirely different, but equally pleasing effect in its silvery tinge and rigid outline. When left to its own growth it forms a noble green pillar, highly suitable to stand in pairs by a garden walk. Eight to 9 feet, 10*s.* each; £4 4*s.* per dozen.

PICEA PINSAPO.—A very handsome, densely branched tree. The branches are very thickly placed in whorls and spread horizontally, thus giving a singularly beautiful appearance. It is one of the most distinct and desirable trees for ornamental planting, especially for a lawn. Its perfect symmetry of form is so striking that it should have a place in every collection. Eight to 10 feet, 25*s.* each; £12 per dozen.

ABIES DOUGLASII.—This, the most noble of Evergreen Firs, is of rapid growth, hardy, produces valuable Timber, close, heavy, and free from knots, of the colour of Yew wood. It is a native of California, where it grows upwards of 300 feet high, with a trunk 10 feet through. The flagstaff at Kew is of this tree, and was, when growing, 309 feet high. There is at Dropmore (Bucks) a specimen measuring at the present time 100 feet high, and 90 feet through the branches, with a trunk 9 feet in circumference at 4 feet above the base. It was raised from seed sown by Mr. Frost, the present gardener, in 1828, and is now a model of beauty. 12 to 15 feet, 12*s.* 6*d.* each, £5 per doz.

THE SILVER CEDAR of MOUNT ATLAS.—Now is the time to plant this eminently beautiful tree, unsurpassed for majestic grace and picturesque grandeur even by the Cedar of Lebanon, which it much resembles; and many consider it a variety, but its leaf is more silvery, it grows twice as fast, and its timber is very valuable. Noble trees, 10 to 12 feet, 25*s.* each, £12 per dozen.

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	Per doz.—*s.*	*d.*
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„ Bessoniana, crispa, hispida (Rose Acacia), monophylla, sophoræfolia, viscosa, weeping white	21	0
AILANTUS, glandulosa	18	0
„ glandulosa, extra strong	36	0
ALDER, cordata, incana, macrophylla, and quercifolia	12	0
ALMOND, fruit bearing	21	0
ASH, common, 10 to 12 feet, 60*s.* per 100	9	0
„ aucubæfolia, cucullatus, flowering	18	0
„ juglandifolia, monophylla, orange-barked	18	0
„ salicifolia, small twigged, spectabilis	18	0
„ Waterer's variegated	18	0
„ weeping, and gold-barked weeping	42	0
BEECH, purple-leaved, 8 to 10 feet	42	0
„ purple-leaved, 10 to 12 feet	60	0
„ crested-leaved, Chestnut-leaved, Fern-leaved	42	0
„ Oak-leaved, variegated	42	0
BIRCH, Fern-leaved, silver, weeping, 8 to 10 feet 300*s.* per 100	42	0
„ silver, weeping, 9 to 12 feet 90*s.* „	12	0
„ silver, weeping, 14 to 16 feet 125*s.* „	18	0
BIRD CHERRY, Virginian	12	0
BROOM, golden, yellow Spanish, white Portuguese	18	0
BROUSSONETTIA, papyrifera	48	0
CATALPA, syringæfolia, and Kæmpferi	42	0
CHERRY, double-blossomed	24	0
„ Mahaleb variegata	21	0
„ hortensis rosea, pendula, and latifolia pendula	30	0
CHESTNUT, Spanish	18	0
„ American, Fern-leaved and variegated	30	0
COLUTEA, red and yellow	12	0
CORNUS, mas variegata	21	0
COTONEASTER, Simonsii	21	0
CYTISUS, austriacus, elongatus, elongatus purpureus	24	0
„ nigricans, purpureus major, sessilifolius	24	0
„ stricta and Weldonii	24	0
ELM, Camperdown, weeping	42	0
„ campestris aurea variegata, Kaki (fine), montana pendula	36	0
„ elegantissima pendula 150*s.* per 100	24	0
„ English, 10 to 12 feet 100*s.* „	15	0
„ English, 14 to 16 feet 150*s.* „	21	0
„ Chichester, 10 to 12 feet 100*s.* „	15	0
„ Chichester, 14 to 16 feet 150*s.* „	21	0
„ Berardii, betulæfolia, emarginata, filicifolia	21	0
„ myrtifolia, monumentalis, purpurea	21	0
„ pyramidalis, Dampieri, plumosa, silver var.	21	0
„ suberosa microphylla, suberosa pendula	21	0
„ viminalis pendula, viminalis fol. variegatis, Webbiana, Wheatleyi	21	0
GENISTA, anxantica, præcox, and purgans	30	0
GUELDER ROSE	21	0
HORNBEAM, cut-leaved and weeping	24	0
HORSE CHESTNUT, scarlet, 7 to 8 feet	24	0
„ „ scarlet, 10 to 12 feet	36	0
„ „ scarlet, extra strong stems	60	0
„ „ white, 9 to 10 feet	18	0
„ „ discolor, double white, double red	30	0
„ „ macrostachya, Memmingerii, ohioensis, rubicunda nana, variegated and yellow	30	0
JUDAS TREE, purple and white	42	0
KOLREUTERIA, paniculata, 5 to 6 feet	30	0
LABURNUM, Alkengerii, English, Scotch, purple, quercifolia	18	0
„ weeping	30	0
LARCH FIR, 8 to 10 feet	9	0
„ „ 10 to 12 feet	12	0
„ weeping (true)	42	0
„ microcarpa and japonica	18	0
LILAC, Charles X., Persian red and white, Siberian and white	30	0
LIME, red twigged, 9 to 10 feet 140*s.* per 100	18	0
„ red twigged, 10 to 11 feet 175*s.* „	24	0
„ red twigged, 11 to 12 feet 200*s.* „	30	0
„ red twigged, 12 to 14 feet 250*s.* „	36	0
„ red twigged, extra strong stems 42*s.* to	60	0
„ weeping	42	0
„ latifolia alba, Beaumontea (weeping)	30	0
„ dasystyla, yellow-twigged, Fern-leaved and vitifolia	30	0
MAGNOLIA, acuminata, 5 to 6 feet	42	0
MAPLE, campestre punctata	30	0
„ colchicum rubrum	30	0
„ negundo, 5 to 6 feet 40*s.* per 100	6	0
„ „ 8 to 10 feet 60*s.* „	10	0
„ „ variegata, 5 to 6 feet stems 125*s.* „	18	0
„ „ „ 7 to 8 feet stems 175*s.* „	24	0
„ campestre, laciniatum, pennsylvanicum rubrum	18	0
„ rubrum, striatum, tataricum rubrum, virginicum rubrum	18	0
MOUNTAIN ASH, 9 to 10 feet 70*s.* per 100	10	0
„ „ large-berried and yellow-berried	18	0
„ „ weeping and variegated weeping	36	0
OAK, scarlet	30	0
„ Turkey	24	0
„ weeping	42	0
PEACH, double-blossomed	30	0
PEAR, weeping	30	0
POPLAR, grandidentata pendula	30	0
„ Black Italian, Lombardy, Ontario, and silver-leaved 84*s.* per 100	12	0
„ „ „ „ extra strong 100*s.* „	18	0
PRIVET, golden variegated weeping, longifolium and weeping	30	0
PYRUS, Aria (White Beam), hybrida, tomentosa pendula	18	0
„ Malus floribunda, spectabilis	18	0
„ albo-plena, imperialis, Kaido, Riversii	18	0
„ spectabilis, Tenorei, carnea nervosa, Fontainebleau	18	0
SIBERIAN CRAB, scarlet and yellow-fruited	18	0
SNOWY MESPILUS, botryapium, florida, grandiflora, ovalis	18	0
SUMACH, typhina (Stag's-horn)	18	0
SYCAMORE, 10 to 12 feet 75*s.* per 100	12	0
„ extra strong 18*s.* to	30	0
„ purple-leaved and variegated	24	0
THORN, Paul's double crimson, double pink, 150*s.* p. 100	21	0
„ double white, single scarlet, and in great variety to name	21	0
TULIP TREES	42	0
WILLOW, caprea tricolor, Kilmarnock, weeping	30	0
„ Wolseyana, weeping	30	0
„ American weeping, Babylonian weeping	24	0
„ Solomon weeping, and Vitellini	24	0
„ extra strong, weeping 30*s.* to	60	0

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The finest and most delicious scarlet-fleshed Melon grown.
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Mr. Porter, who has placed the entire stock of this fine Potato in our hands for distribution sends us the following description:—"The finest exhibition Potato which has appeared; the tubers are large and even-sized, flattish-round in shape, and very regular and perfect in outline; the skin is of a pale straw colour, and possessing a roughness indicative of fine quality—flesh white and of fine flavour. The Earliest Round Potato in cultivation.
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SNOWFLAKE or SNOWBALL.—A grand Aster; flowers large and full. Colour pure snow-white. Awarded a Certificate of Merit at the Alexandra Palace, August 24, 1875.
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PRINCE OF NOVELTIES. This splendid novelty is strikingly distinct, the outer ring of the flowers is of a bright crimson-lake, the inner ring splashed irregularly with rose; centre pure white. Awarded a Certificate of Merit at the Alexandra Palace, August 24, 1875.
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SATURDAY, DECEMBER 4, 1875.

THE TRAVELLER'S JOY.

THERE are among our British plants some few which stand out from the rest in prominent distinctness on account of the contrast which they present to the vegetation with which they are surrounded. The white Water Lily, for example, is one of these; its majestic white blossoms and smooth flat widespread leaves seem to convey an idea of tropical luxuriance, especially when we find it, as is the case in some of the still backwater of the Thames, associated with the beautiful fringed Buckbean (Villarsia nymphæoides), and overshadowed with the branches of Alders and Willows and other riverside trees. The common Buckbean itself (Menyanthes trifoliata) is another strikingly distinct plant, and so is the quaint Herb Paris (Paris quadrifolia), with its "true lover's knot" of four green leaves: but these are comparatively small, and form no feature in the landscape. But the Traveller's Joy, as our old Elizabethan herbalist, John Gerard, named the wild Clematis (C. Vitalba), is a far more striking object, and one as distinct in appearance and habit from the hedge plants which surround it as it is different from the other British members of the order Ranunculaceæ, to which it belongs, in the woody structure of its climbing stems. If the Water Lily enables us to realise, in some degree, however feeble, the feelings of the traveller upon whom the Victoria regia first bursts in the fulness of its beauty, we may gain from the Clematis some faint notion of the "lianes" which form so characteristic a feature of the forests of tropical countries, especially when the plant grows on the borders of a wood, and climbs, by means of its petioles and stems, to a considerable height among the trees. These petioles, as Mr. Darwin remarks in his well-known paper upon climbing plants, which has lately been reprinted in book form, remain attached to the plant, and clasping the branches or other supports to which they have affixed themselves after the blades of the leaves have dropped off; and this provision enables the Clematis to start upon its next year's growth without any of that delay in attaining a considerable height which would be caused if it had to begin its upward course *de novo* with each succeeding spring.

At all times of its growth, except perhaps in the very depth of winter, the Traveller's Joy is a remarkably pretty or rather handsome plant. It is so when the pale young spring shoots begin to push themselves along the hedge, and to unfold the soft green leaves, which pass through many a shade of colour before they attain the dark rich green which characterises their matured growth. Handsomer still, and a real joy to travellers, is the plant when it "decks and adorns the waies and hedges where people travel" with the "goodly shadowe" of its "thick bushing and climbing," and the "beautie of the flowers, and the pleasant savour or scent of the same;" and perhaps handsomest of all when the earlier flower-panicles have given place to the feathery-tailed carpels, while the later ones are just in their prime. And when at length, all the flowers being gone and the leaves fast following their example, the snowy fleece-like masses of fruit lie thickly along the hedge, contrasting with the rich dark hue of the Blackberry, and the various reds of the mealy Guelder Rose (Viburnum Lantana), the woody Nightshade, "Hips and Haws," and other hedge fruits, the Clematis is almost as beautiful in its declining years as it was in the prime of its life, just as we may see some white-haired old man or woman to whom declining years have but imparted a fresh charm and sweetness of expression. But we are becoming somewhat sentimental, and must return to more practical considerations.

The resemblance of the Clematis to the "lianes" of tropical countries extends to the use to which it is applied. The lianes are largely employed in cordage, being extremely pliant and remarkably strong, and are used in tying up bales of cotton, as will be remembered by those who read the interesting paper "on the natural ropes used for packing cotton bales in the Brazils," which was published five or six years back by Mr. Charles Bailey, of Manchester. The Clematis owes one of its old names—that of Bindwith—to its employment in tying up bundles, and as withs for faggots, for which purpose it is in some districts extensively used; and the French gardeners use its pliant stems in tying up plants, and also make bee-hives and baskets of them. In some parts of Central France the young shoots are cooked and eaten, or preserved in vinegar for domestic use; about Montpellier they are given to goats and donkeys, and in England the dried leaves have been recommended as fodder for cattle. The acrid principle of the plant probably disappears in drying, as in the case of Buttercups, which in a fresh state are avoided by cattle, but are eaten unobserved when found among hay. Country lads are well acquainted with the twigs of Clematis under the name of Smokewood; they employ it in the same way that schoolboys use cane in smoking, for which purpose it is equally well adapted on account of its structure. That this use of the Clematis is generally known, and may lead to suspicion, is evidenced by a case which was reported last month in the *Hertfordshire Mercury*, where a boy was charged with having set fire to a heap of straw, the main ground of suspicion against him being that he had been seen "smoking a bit of Bullbine near the straw." Some knowledge of local names is required by those who would identify the plants referred to in cases like the present; this name Bullbine, for example, occurs, so far as we are aware, in no list of English plant names except that given in Ray's *Catalogus plantarum circa Cantabrigiam nascentium*, and it is not referred to by Dr. Prior. Similar names crop up more frequently in our newspapers than might be supposed: on a recent investigation of a case of supposed poisoning by the berries of Solanum Dulcamara—which plant, by the way, is in popular parlance usually miscalled the Deadly Nightshade—"hawgaws" were referred to as having been eaten by the poisoned child, and it may be doubted whether it was generally known that the fruit of the Hawthorn was intended by this name.

Apropos of juvenile substitutes for Tobacco, it was but lately that we learnt that the common Mugwort (Artemisia vulgaris) was collected by boys, and dried, and smoked by them under the name of "Sailor's Tobacco:" this came to us from Hertfordshire, but the practice, doubtless, obtains elsewhere.

The common names of the Clematis are somewhat numerous, although of course confined to the southern parts of England, as the plant is not found in a wild state north of Shropshire. In Cumberland, however, it is cultivated under the name of "Robin Hood's Fetter." Robin Hood appears to have been very popular in these northern counties, and his name is connected with other plants; thus we heard the common Clubmoss (Lycopodium clavatum) called "Robin Hood's Hatband," by a Cumberland farmer. "Old Man's Beard," in reference to the

venerable silvered appearance of the bunches of carpels, is a very general designation for the plant. It is stated, by the way, that these feathery awns have been employed in France in the manufacture of paper, but it seems hardly likely that such an experiment, if tried, would be attended with much success. Wild Climber and Withywind are names which explain themselves; while "Crocodile," by which singular title we learn on good authority the plant is known to the boys of Folkestone, is one of those names which baffle all conjecture as to their origin, and can only be elucidated by some local allusion or explanation.

As far as we have been able to ascertain there is no folk-lore connected with the Clematis. This seems odd, as the plant is both conspicuous and abundant where it occurs; but such matters are always of the most arbitrary description. An insignificant weed like the Shepherd's Purse is, as we saw lately, connected with a custom and a tradition which finds an echo, not only on the continent of Europe, but in the New World; while a handsome and striking plant like the Clematis is devoid of popular legend or association. *B. M.*

New Garden Plants.

ONCIDIUM BIFRONS, *Lindl.*

Oncidium bifrons has recently flowered at Kew, and although not particularly attractive from a horticultural point of view is decidedly too interesting a species to be altogether lost sight of, for in some way it seems to have been entirely overlooked by the Orchid king, Professor Reichenbach, who is generally extremely careful and accurate in such matters: at least in his general sweeping up of the genus in Walper's *Annales*, vol. vi., no mention whatever is made of this species, nor do I know of its being mentioned anywhere besides in the original description; this was in the *Gardeners' Chronicle* for 1857, p. 84, where a rough figure of the flower is also given, but as the description is rather a poor one, the following, made from fresh specimens, may be acceptable to some.

Pseudobulbs compressed, ovate, 1½—2 inches long, 1¼—1½ inch broad, and from ½—¾ inch thick, bearing about two narrow oblanceolate or linear-lanceolate obtuse leaves 6—10 inches long. Racemes about 1 foot long, subcompressed, jointed, with a grey scarious carinated acute sheathing bract at each node, 10—12 flowered; sepals and petals oblong-lanceolate obtuse, undulated, the two lateral sepals directed downwards and joined together for two-thirds their length; labellum very narrow for two-thirds its length, suddenly expanding into two broad, rounded, concave, terminal lobes, with a mucro between them; base cuneate, auricles small, tooth-like; crest consisting of three raised lines (the central one being most prominent), terminated by seven tubercles; column undulate-winged around the large oval stigma; rich yellow, with an elongate-triangular fold on each side of the contracted part of the labellum, shining golden brown, crest white with some minute golden-brown specks.

The species is reported to come from Mexico; it belongs to the section "tetrapetala micropetala," and is placed by Lindley between O. cucullatum and O. pubes. *N. E. Brown, Kew.*

STEUDNERA DISCOLOR, *Hort. Bull.*

The plant which Mr. Bull in his *Catalogue for* 1875 describes as Steudnera discolor is identical with the species figured in the *Botanical Magazine*, tab. 6076, erroneously, as Steudnera colocasiæfolia. This figure was made from Mr. Bull's plant, and Dr. Hooker there pointed out certain differences which existed between the true S. colocasiæfolia, C. Koch (described and figured in Regel's *Gartenflora*, vol. xviii., p. 323, t. 633, and in *L'Illustration Horticole*, vol. xix., t. 90), and Mr. Bull's plant, but which differences he did not consider sufficient to found a new species upon, yet he altogether overlooked the more striking differences in the coloration of the leaves and spathes. The two plants are quite distinct, and may readily be recognised by the following contrasted characters:—

S. colocasiæfolia, C. Koch.	*S. discolor*, Hort. Bull. (*S. colocasiæfolia*, Bot. Mag. 6076.)
Leaves scarcely notched at base, green on both sides without blotches.	Leaves distinctly notched at base, a large purple-brown blotch between each pair of nerves beneath.
Spathe yellow outside, rich purple-brown within.	Spathe yellow on both sides, with a large suffused purple blotch at base.
Ovary 5-celled.	Ovary 2 celled.

Mr. Bull states that S. discolor was imported from India, but this is most probably incorrect, as the other species and those of the genera most nearly allied to Steudnera are all from America. *N. E. Brown, Kew.*

THE SOCIETY OF PAINTERS IN WATER-COLOURS.

THE private view of the fourteenth winter exhibition of sketches and studies made by the members of the above Society took place at 5, Pall Mall East, on Saturday morning last. The single room in which the pictures are exhibited contains seven works by Sir John Gilbert, the President of the Society, five by Birket Foster, and numerous pictures by such excellent water-colour painters as Andrews, Bradley, Dobson, the Messrs. Duncan, Haag, Macbeth, Naftel, and others. The works of these artists (especially of the first two) are always worthy of deep study, and therefore the exhibition of their works should be visited by all interested in art-matters; but we are bound to say there is a great deal of very second-class work exhibited on the walls—work that is careless, spiritless, and untrue to Nature. Doubtless the Society has suffered great losses in the deaths of such men as Frederick Walker, J. G. Pinwell, and A. B. Houghton.

The speciality of the *Gardeners' Chronicle* being, in art, horticulture, botany, and landscape, we naturally first glanced over the walls for subjects falling under these classes, and the first picture we lighted on was 284, "Bay Pimpernel," Maria Harrison. This "Bay Pimpernel" is a study (?) of the round-leaved Sundew (Drosera rotundifolia), but so indifferently executed as to be scarcely recognisable. On reaching 306, by the same artist, we found the names of this and the former picture had been transposed, for this picture is a study of the Bog Pimpernel, but is labelled "Sun Dew, or Dioserica Rotundi;" the Latin, the botany, the drawing, and the painting, are here all as vicious as possible. The flowers of the Bog Pimpernel are naturally furnished with five petals, therefore why paint them with six! The Bog Narthecium (N. ossifragum) is shown in the background, but very far removed from Nature. 318, "Study of Forget-me-Nots," by the same artist, is somewhat better. This picture includes Veronica Beccabunga, and Geranium Robertianum. 130 and 141, by the same artist, are prettily sketched: the first a group of Blackberries, "Gatherings from the Hedge;" the second, a "Study of a Passion Flower." 295, by the same, "White Blackberry Blossom" (!) is not good; but 368, "Larkspur, a study," also by the same artist, is a careless and melancholy production, showing incapacity to even appreciate the simple form of the flower here "studied" to such little purpose.

It is a great pleasure to turn from the more careless drawings to beautifully worked-up and really studied pictures such as 105, "Study of Sea," by Birket Foster. Here the sea, with its huge breaking waves, the stormy sky, the rocks, the waves washing back from the rocks, the seaweeds tossed in the waves, and the birds, are all positively true and exact; yet the picture is in no way overlaboured. It is a master's masterpiece, and worthily occupies one of the best positions in the room. 159, "Woodland Scene," Birket Foster, is an exquisitely beautiful and true picture of a woodland landscape and pool side, with a large and perfectly-painted umbelliferous plant in the foreground. Birket Foster is an artist who does not madden lovers of pictures by painting old women and children with scarlet cloaks in his landscapes. Nothing is more irritating than to see these staring dabs in landscapes by some other painters of lower position. Birket Foster's figures are always well drawn and quiet in colour, to well suit the beautiful views of meadow and woodland this excellent artist constantly gives us. 375, "A Foot-bridge," by the same artist, is a lovely and highly-finished picture; as is 385, "A Pig Stye" (as the carelessly-printed catalogue terms it), and 444, "On Hambledon Common," both by Birket Foster.

Sir John Gilbert, the President, has sent a number of his spirited, dashing, and richly coloured figure-subjects of interiors, with Prince Henry and Falstaff and Hotspur and Glendour (*vide* catalogue), and stirring battle-pieces, with knights in plate armour, and war-horses and prisoners of war, all dashed off in the masterly and brilliant manner peculiar to this artist. Sir John Gilbert also contributes two frames of "Studies for Pictures" (349 and 367), worked up in colour, and outlined with pen and ink.

3, "Autumn Flowers," Lamont; 66, "Spring Flowers," by the same artist, are excellent specimens of good drawing and rich harmonious colour. So are 24, "Out of Tune," and 43, "In Time," by the same; both are perfect studies of harmonious colour: the green background, the blue sash, and the blue ribbon painted on the harpsichord are put in with good effect in the first—as are the harpsichord, the background, and the screen in the last. This artist contributes four other pictures of equal excellence. 37, "An Old Town in Sussex—Saturday Night," Josh. J. Jenkins, is a notable and well-painted picture, where the pale yellow lights from the shop windows at night contrast with the slaty-grey tints of evening; the bottles of coloured water in the chemist's shop in the distance are well touched in and not overdone. 53, "Toppins, a Japanese Dog," Basil Bradley, is a good example of drawing and colour; the dog is jet black, and he is appropriately placed on a yellow cushion. These two colours (common on wasps and bees, and carriages and flunkies' liveries) always go well together. 56, "Arthur's Stone, Cafuy Bryn, Gower, S. Wales," Edward Duncan, is a truly beautiful picture of this well-known great grey stone, or rather group of stones, but the drawing requires a figure to properly indicate the size of the structure. 166, "Wind and Rain," William Callow, is an uncommonly good picture of a group of Conifers in a sudden storm of violent rain. 172, "Which Hand will you Have?" E. K. Johnson, is (like all this artist's other works) a very highly-finished and well-drawn picture; this drawing, which represents a garden with figures, contains Petunias, Sunflowers, Snapdragons, Campanulas, Phlox, &c., all well painted and true to Nature.

186, "The Cottager's Golden Harvest," Walter Goodall, is a beautiful picture, both in drawing and colour. 190, "Birch Trees," Paul J. Naftel, is good and natural, like all works by this artist. 211, "In the Wood at Capel Curig," by the same, is a spirited and truthful representation of a rocky wood and stream. 226, "Winter," C. Branwhite, is a capital winter landscape, with blacksmith's shop, red setting sun, and snow. 238, "Blackberry Gathering," R. W. Macbeth," is a richly coloured picture, after the manner of F. Walker. 289, "Osier Peeling," by the same artist, is one of the best in the exhibition, well finished, yet not overlaboured. 274, "Hebe and Ganymede," is a curious and pretty sketch of rustics, painted almost wholly in Indian yellow. The cup-bearers are in the front, and the celestial gods (clod-hoppers) are in the background. 78, "Kirkstall Abbey, Yorkshire," and 300, "Fountains Abbey, Yorkshire," are both very unsatisfactory. Why does V. Bartholomew, the artist, attempt buildings before he has mastered the elements of architecture and perspective? Being "Flower Painter in Ordinary to Her Majesty," let us hope his flowers are better than his buildings; his pictures in this exhibition belong to a bygone time.

A large number of creditable and even excellent pictures in this exhibition, as those by J. D. Watson and others, we have not space to notice. A glance at the catalogue will show that many are by our best known artists on the illustrated Press, whose pictures may be seen any week in the *Graphic* or *Illustrated London News*. A considerable number of the pictures are very bad, and such as no newspaper would accept for engraving. Some pictures suffer from having indefinite names attached, as "Study of a Cottage," "The Old Oak Tree," "A Kentish Yew," &c., whilst other pictures are too definite, for several sketches of straggling bushes and grass are said to be from the most outlandish parts of Wales, the name of the precise locality being given with the utmost precision.

One screen is devoted to the rough, unfinished sketches of the lamented late G. J. Pinwell, an artist well known by his illustrations on wood for the periodical literature of the day; some of these sketches were afterwards finished as complete pictures, whilst many represent the first ideas of the painter's mind. 420, "The Pied Piper" (Rats), is an illustration of the Piper of Hamelin, who piped the rats out of Hamelin, Westphalia, and drowned them in the River Weser, as Robert Browning says—

> "Great rats, small rats, lean rats, brawny rats,
> Brown rats, black rats, grey rats, tawny rats;"

but the compilers of the catalogue seem to have quite overlooked the fact that No. 426 (merely named "Children") is the pair and sequel to the above picture, viz., the same piper piping the children of the parents who would not pay for drowning the rats to Koppelberg Hill, which opened to his music and swallowed the children up. Another picture of a fiddler is spelt "Fidler" by the printers, who, too, are "Printers in Ordinary to Her Majesty." Let us hope that both printers and painters "in ordinary" will do better next year, and try to prove to the outsiders who are not recipients of Court favour that these titles are other than "shadows—not substantial things."

VARIEGATION IN PLANTS:

AN ATTEMPT TO ILLUSTRATE ITS CAUSE.

THERE are two distinct sets of facts, which must be well known to observers of Nature, the one appearing to point to variegation by damage, the other to variegation by assimilation, the latter being brought about in two distinct ways, viz., 1, by sap nourishment; 2, by reflected rays of colour. In reference to the first set of facts, there can be no doubt that trees, &c., which have been cut down to the ground, lopped, injured, or wounded by stones, shots, cuts, insects, or otherwise, will very frequently in their subsequent growth throw up suckers, or develope portions of a branch or leaf, more or less variegated. The Horse Chestnut (Æsculus Hippocastanum), the

Oaks (Quercus pedunculata, &c.), and the Elms (Ulmus montana, &c.), are very prone to be affected in this way. The other set of facts above alluded to offer a more abstruse problem for discussion; but one thing is certain, namely, that trees, shrubs, and herbaceous plants in the normal state and colour, when planted, either by design or accident, in close proximity with others that are variegated (not necessarily of the same species, genus, or family), occasionally become variegated, and even with the same strain of variegation.

I will now give my views as to the possible causes of variegation under the two heads already indicated.

I. VARIEGATION BY DAMAGE.—Trees are built up of, or grown from, minute fascicles of cellular and vascular tissue—herbaceous plants chiefly from the former; their tissues imbibe their nourishment through minute root hairs, or the thin skin covering the growing tips of their roots. The nutrient fluid which they eliminate from the surrounding soil by disintegration, solution, absorption, or chemical combination, is forced by some life-giving agency (probably both chemical and electrical) through their whole structure.

We may, I think, take it for granted that, when a tree has been cut down, it has sustained some damage, and that the perfect arrangement of its tissues has been greatly interfered with. May we not also reasonably infer that the nutrient fluid has, in some cases, passed into the tree or plant through a wrong fascicle of tissue, which probably contains organisms analogous to the numerous glands in our bodies, and which, whether chemically acted upon by light or other agency, deposits a false secretion—leucochyle (white sap) for chlorochyle (green sap), or *vice versâ*, and that thus the variegation is brought about?

II. VARIEGATION BY ASSIMILATION, brought about in two distinct ways:—1. By sap nourishment. 2. By reflected rays of colour.

1. *By Sap Nourishment.*—It has been observed that distinct genera of herbaceous plants, and even of trees and shrubs, which have been placed closely together, one in each case being variegated, that one in twenty, or even a greater proportion from amongst those of the normal growth and colour, become variegated, and frequently take on the same strain of variegation as that of the variegated individual associated with them. Instances of this shall be given hereafter. What is the probable cause of this? They have received their sap nourishment under similar conditions of soil, &c., and the spongioles of their roots have been growing closely intermingled. May not those of the variegated plant, by contact of its diseased organisms, have contaminated from causes before stated—viz., want of chlorochyle—those of the normal colour, and hence have brought about the variegation?

2. *By Reflected Rays of Colour.*—We have all heard of females, both of mankind and animals, receiving impressions from surrounding objects during conception or gestation. We have also read, in the works of Mr. Wallace and other authors, of the wonderful simulations of insects; and numerous instances of both might be quoted. Then why should it be improbable that one plant should simulate another growing in close proximity to it, when each cell of that plant is a vivifying organism, perhaps equally susceptible with the females above alluded to, of receiving an impression from without by reflected rays of colour? In this way the ray from the white portion of the variegated plant might so affect the actinism of light as to cause the plant to assimilate leucochyle, which would otherwise wholly contain chlorochyle, and thus the variegation be produced.

It has been asserted, I do not know with what amount of truth, that the Japanese have for centuries known how to variegate plants. But may it not be stated with more probability of accuracy that the vitiated (?) tastes of horticulturists have brought about this abnormal state, by placing many variegations together in one locality? It is a notorious fact that in all gardens where many variegated plants have been cultivated for a succession of years, that other variegations continually make their appearance.

I think it best, after much consideration, to submit these facts and theories, crude as they are, to the public, hoping that some one more competent to deal with so abstruse a subject may in course of time present us with "the truth, the whole truth, and nothing but the truth."

I conclude with a few examples of variegation, produced either intentionally or by accident:—

Normal.		*Variegated.*
Asperaria officinalis,	variegated by	Mentha rotundifolia
Crataegus Oxyacantha,	,,	Mercurialis perennis
Carex perennis,	,,	Bambusa Fortunei, &c.
Carex sylvatica,	,,	Tussilago Farfara
Campanula Trachelium,	,,	Mentha rotundifolia (?)
Prunella vulgaris,	,,	Fraxinus excelsior
Prunella vulgaris,	,,	Chelidonium majus
Ilex Aquifolium,	,,	Chelidonium majus
Arundinus angustifolius,	The same strain blotched.	Prunella vulgaris
Calamagrostis Epigejos,	Badly variegated, improved by	Phalaris arundinacea
&c.		&c.

T. B. Wollaston, Bishop's Well, Chiselhurst, Kent.

We cannot admit our correspondent's premises till they are supported by much stronger evidence than he gives. The subject, however, is so important that we are greatly indebted for any attempt to elucidate it. In the first place, we do not think the connection between injury and variegation, plausible as it is, is made out satisfactorily; nor is the effect of association better substantiated. As to the simulating power ascribed to plants, we are not quite sure that we rightly apprehend his meaning. EDS.]

BRITISH GARDENERS.—XXXI.

JAMES FOWLER.

MR. JAMES FOWLER was born in Edinburgh in 1830, and educated at the parish school, Drumelzier, Peebleshire, his father having been employed for fifty-two years in the Naysmith family, of Dalwich, Peeblesshire. His first taste for gardening, he tells us, was formed during his school-days, when he had the advantage of the instructions of Sir John Naysmith, whose abilities as a landscape gardener are well-known. After leaving school he was employed by Sir John for a considerable time, and afterwards, in 1847, was engaged as apprentice for three years under Mr. Anderson, gardener to Sir Graham Montgomery, Stobo Castle, Peeblesshire, having during the last year of his term the charge of the houses. Mr. Anderson was a good fruit and kitchen gardener, and Mr. Fowler

acknowledges having reason to be grateful to him for his kindness and instruction.

"In November, 1850," he writes, "I went as foreman under Mr. Cruickshank, gardener to Mr. Colquhoun, of Killermont, Dumbartonshire. Mr. Cruickshank was considered one of the best practical gardeners in the West of Scotland. My next move was in November, 1851, as foreman under Mr. Murray, gardener, Ardurroch, Argyleshire. There plants and fruit were well managed, Mr. Murray being a well-known exhibitor at the Glasgow shows.

"In November, 1852, through Sir John Naysmith's kindness, I got employment at Kew Gardens, but through some misunderstanding I did not remain long. After leaving there I went to Mr. W. Thomson, gardener, Wrotham Park, near Barnet. Mr. Thomson's kindness of manner to those employed under him, and his abilities as a gardener have been so frequently noted that I need not make any comment on these points. In the spring of 1854 Messrs. Veitch & Sons sent me as foreman to the late John Ireland Blackburne, Esq., Hale Hall, Lancashire, under Mr. Nixon, the gardener, whose time was fully occupied in the farm and woods, so that, having gained his confidence, as well as that of the family, he left the responsibility of carrying on the gardens almost wholly in my hands. This proved eventually of great service to me in giving me confidence to undertake my present position. After having spent six months in Messrs. Veitch & Sons' nursery, I was engaged in 1856 as gardener to the Earl of Harewood, at Harewood House, Yorkshire, where, through the kindness of my employer, I have remained ever since."

A description of the gardens at Harewood House will be found in our volume for 1863, p. 919, from which it will be seen that amongst the horticultural attractions of the place is an old Tokay Vine, which at that time filled a house 64 feet long and 20 feet wide. This Vine was planted in 1783. It would appear that about 1856 it had got into bad health, but by carefully lifting the roots and renewing the border Mr. Fowler succeeded in restoring it to health, and in inducing it to finish off well excellent crops of grapes.

SOUTH KENSINGTON
IN EXTREMIS.

THE deplorable condition into which the various institutions at South Kensington which derive their origin from the Great Exhibition of 1851 have fallen, renders it desirable that the precise position of these abortive speculations should be distinctly understood. It is now several years since the Royal Commissioners of 1851 have published any statement of their affairs, and it is due to the public that it should be told how the account stands. The Horticultural Society has avowed itself practically insolvent; the directors of the Royal Albert Hall of Arts and Sciences are understood to be at present hatching a plot to compel the purchasers of boxes and stalls to pay a second time for privileges which hitherto have been little better than a mockery; and the International Exhibitions have sunk into an auction-room for foreign daubs. It is impossible to imagine a more impressive commentary on the artifices and pretensions with which these enterprises were originally started than the melancholy state of decay and discredit into which they have rapidly declined. Whenever the history of the great South Kensington scheme is written it will be found to be a curious and highly instructive narrative. It will be remembered that the first Great Exhibition left an unfortunate legacy in the shape of a surplus of some £187,000, which was placed in the hands of Royal Commissioners to be applied to the encouragement of science and art. There was then a good deal of innocent enthusiasm about the arts of peace, and a little knot of adepts in puffery and jobbing saw an excellent opportunity of turning the spirit of the time to their own account. They thoroughly understood the secret springs of British snobbism, and how to play with great names and sentimental loyalty for their own purposes, and they also appreciated the advantage of working under the cover of a patronage that dazzled the outside world. The project was accordingly conceived of converting the gravel-pits of Brompton into a new and magnificent suburb, where all the arts and graces, all the muses and sciences, should disport together under courtly protection. It was expected that all these attractions would at once make it the most aristocratic quarter of the town, and that the command of large sums of money might be obtained by judicious house-building speculations. It is a familiar device with aspirants for fashionable distinction to drop the familiar family name and try the effect of a more distinguished appellation, and, just as Smith becomes Montmorency, so Brompton rose into South Kensington. In pursuance of this project the Royal Commissioners were readily persuaded to invest their money in the purchase of an estate at South Kensington, part of which was sold as building ground and part leased to the Horticultural Society. The Commissioners also agreed to spend £50,000 on ground works, arcades, &c., on condition that the Horticultural Society should expend an equal sum in laying out a garden, and they further entangled themselves with the International Exhibitions of 1862 and successive years. In short they so managed their property that in the course of some five or six years the estate was overwhelmed with responsibilities, and deeply mortgaged. How matters stand now we cannot pretend to say, but it is scarcely probable that they have been much mended, especially as the Horticultural Society is at the end of its funds, and in debt to the Commissioners, and that the various International Exhibitions have been pecuniary failures.

In a circular which has just been issued, and which is signed by Lord Aberdare, "the Council of the Royal Horticultural Society have the pleasure of announcing to the Fellows that they have succeeded in making arrangements with Her Majesty's Commissioners of 1851, whereby the gardens are granted to them virtually rent free, but only upon the performance of one important condition—namely, that the annual income from subscriptions shall be raised to £10,000." This may, perhaps, be a very liberal arrangement on the part of the Royal Commissioners, but it becomes an important question whether this transaction, which involves a gift of public money, is for the advantage of or just to the public. Why, it may be asked, should the Horticultural Society, more than any other speculative body, be supported out of

the public funds? The Council proclaim in their circular that, should their appeal be unsuccessful, "the failure would be most disastrous to the interests of horticultural science; the project so warmly supported by the late Prince Consort, so hopefully accepted by the public, of bringing home to greater numbers than heretofore the means of studying horticulture, would in that case be abandoned, and it would be for Her Majesty's Commissioners of 1851 to decide to what new and more profitable use the 22 acres now occupied by the South Kensington Horticultural Gardens should be applied." We cannot say that such a result appears to us by any means so "calamitous" as the Council suppose. It would not be very difficult to find a new and profitable use for the funds of the Commissioners, and it would certainly be quite impossible to find one more absurd, worthless, and unprofitable than keeping up the Horticultural Gardens. The pretence of promoting either the art or science of horticulture is of course notoriously a pure sham. The gardens have never been anything more than a fashionable lounge, where people go to gossip, flirt, eat ices, and listen to the music of a military band on fine afternoons. These amusements may be innocent enough in their way, but it is an obvious imposture to call them art and science. The flower-shows at South Kensington are much inferior to the flower-shows at the Crystal Palace and other places which do not receive a subsidy from the public, but depend on their own resources, and yet honestly pay, which the Horticultural Society does not, the prizes they offer. [In justice to the present Council, it should have been stated that this is no longer true. EDS.] As for the gardens themselves, with their shabby little ditches, grubby parterres, mouldy arcades, and stunted, sooty shrubs, called in mockery evergreens, nothing can be more contemptible from the point of view either of art or science. As for science, indeed, there is scarcely even a pretence of doing anything for it. The scientific interests of horticulture have been systematically sacrificed to the object of getting money by making the place a mere pleasure-ground. At one time there were, we believe, serious thoughts of croquet and bowls, and now there is talk of a skating-rink. There is no reason why voluntary public support should not be sought for such recreations, but it is undoubtedly a scandal that public money should be appropriated to assist a private speculation on a pretext so glaringly false and empty. The Horticultural Society has chosen to waste its funds on all sorts of jobbing and mismanagement wholly unconnected with horticulture, and it is to be hoped that the abuse will now be checked by the simple plan of stopping the misapplied allowance. *Saturday Review.*

THE APPLE OF THE EARTH.

IT is a singular fact that, although we in England grow as fine, perhaps finer, varieties of vegetables than any other nation, not even excepting the French, we bring less knowledge to bear upon the cooking and preparing of them for food than any other European nation, and are much more wasteful in their use.

The study of household economy seldom enters into the curriculum of learning given to English—indeed, we may say British—girls; they are evidently, as a rule, supposed to attain to a knowledge of the mysteries of the culinary art by intuition, or perhaps they ignore it altogether, leaving the preparation of every description of food to "cook," who, generally a very clever person in her own estimation, has but one idea in regard to cooking vegetables, which is that they must be immersed in gallons of water, and stewed to a tasteless pulp; or she affects the other extreme, and dishes them in an almost crude state, scarcely hot through. In either case all the gardener's efforts have been wasted, and, seeing the best productions of his labour and skill in cultivation so spoilt and wasted, he may indeed believe that heaven sends us food, but that the devil sends us cooks. In regard to that staple vegetable of English dinners, the Potato, how very seldom do we see full justice done to its good qualities. Granted that some few persons can boil a Potato, and send it up to table a ball of flour outside yet cooked to the heart within, in nine cases out of ten there ends their ability to prepare, in an appetising and palatable manner, the universal tuber. Perfectly content with the happy result they have obtained in one direction, they seek no new paths, and send up boiled Potatos day after day, week after week, *ad nauseam*, never devising new and tasty methods of cooking this vegetable.

The French and Germans do not grow such good varieties, nor such fine varieties as we do, yet they will prepare them for table in a dozen different ways, each manner of cooking culminating in a delicious delicacy, which may be eaten as an *entrêmet*, or serve as an adjunct to other viands. This diversity in the preparation of one vegetable is practised in every home in France, however poor, while there are but few English households where the knowledge, or at any rate the practice, of cooking Potatos goes beyond boiling, on great occasions mashing and browning them—this latter way indeed, if well done, being a step in the right direction. There is, however, no reason why we should not have as many and as various dishes of Potatos as few, and give variety to the *pomme de terre au naturel* by serving it *frite à la maître d'hôtel*, in Potato salad, &c.

In France, new Potatos when about the size of very large Gooseberries are prepared as *pommes de terre frites*, but old Potatos are generally used, being cut up into quarters or chips; for the latter a machine is generally used, but, properly done, the flavour is as good in quarters or thin slices. Any cook who can fry fish well can cook Potatos, the great art consisting in having the fat, dripping, oil, or lard, whatever it may be, entirely free from water, and allowing it to arrive at such a degree of heat that when the vegetables are dropped in they form a brown skin instantly, and can be taken out crisp, deep golden in colour, and entirely free from grease. Should there be the slightest suspicion of the latter, let them be placed in a wire drainer on a hot dish on the oven, or in front of the fire in a pile on a clean napkin or sheet of letter-paper, dusting with a little of the finest salt before serving. It is much more difficult to cook Potatos and fish in an English frying-pan than in a stewpan; this latter is generally made of copper or brass in France, and is always half full of fat; but a china-lined or enamelled stewpan, such as are in common use in England, is quite as good, and by using it instead of the ordinary frying-pan, the whole dish of Potatos may be cooked at once.

Potatos *à la maître d'hôtel* are Potatos plainly boiled and served with melted butter into which finely chopped Barley has been thrown, only it must be melted butter, not the concoction of flour and milk with an inch or two of butter to give it a name, which is so often passed off for the genuine article. The mixing in of the well beaten up yelk of an egg or two is an excellent addition to melted butter, giving it a softness and creaminess of flavour very desirable.

Potato salad may or may not be made of freshly boiled tubers, if the Potatos are left until perfectly cold before being cut up they are apt to be waxy and close in texture, but those left from dinner, if made into a salad at once, have generally warmth enough left in them to prevent the oil and vinegar making them heavy. To prepare a good Potato salad the vegetables should be lukewarm, the salad oil poured over first, a sprinkling of Tarragon finely chopped added with vinegar, salt, and pepper to taste. Having been mixed while warm, the salad will not be spoilt by being left for some hours. *J. J.*

LEAF STRUCTURE OF CONIFERS.

IN a thesis which was presented to the Faculty of Sciences, Paris, and published last year, Dr. C. E. Bertrand describes the comparative anatomy of the stems and leaves of the Gnetaceæ and Coniferæ. In his descriptions Bertrand gives anatomical characters by which sub-genera may be readily separated, and also gives tables by which to identify the species. Believing that, in one or two respects, Bertrand has come to erroneous conclusions, I determined to re-investigate certain points which I considered of importance. In doing so I had the great advantage of having access to the collection of Coniferæ at the Royal Botanic Garden, Edinburgh, where most of the rare and valuable North American species are carefully cultivated. To the nurseryman who has chiefly to do with small plants without cones, any good method of determining species by the foliage must be welcome. While, however, I acknowledge the value of such anatomical characters, I do not think we can place implicit confidence in them alone; but that, when taken along with other characters, they are of the highest value. It is chiefly by making transverse sections of the leaf that the investigation is to be carried on. Very thin slices are to be taken from the middle of the leaf, care being taken to have the sections in the proper plane. All the sections I have examined were placed at once in dilute glycerine, and in nearly all cases the perfectly fresh leaf was used. The chief points to observe in the sections are:—1st, the nature of the fibro-vascular bundles or midrib; 2d, the sheath of the fibro-vascular bundles; 3d, the resin canal or canals; 4th, the thickened cells or hypoderma belonging to the ground-tissue, and placed below the epidermis, but not belonging to it; 5th, the parenchyma of the ground-tissue; 6th, the epidermis, with its cuticle; and 7th, the arrangement of the stomata—this last, however, requiring the examination of the upper and under surfaces of the leaf in addition. [See figs. at p. 195. EDS.]

My attention was first directed to Bertrand's sub-genera Tsuga, which includes Pinus Pattoniana, canadensis, Mertensiana, &c.

The section Tsuga is well characterised by the presence of a single median resin canal, which is placed below the single central fibro-vascular bundle forming the midrib; by the flattened leaves bifariously placed; and lastly, by the presence of well marked cushions supporting the leaves.

Five species, as described by Parlatore, belong to the restricted section Tsuga, viz.:—

106. P. Tsuga, Ant.
107. P. canadensis, Linn.
108. P. Mertensiana, Bongard.
109. P. dumosa, Don.
110. P. Pattoniana, Parl.

To this I have one to add, viz., P. Hookeriana, the Abies Hookeriana of A. Murray.

Bertrand only distinguishes four species by anatomical characters, and gives the following synoptic table of these characters:—

Stomata on the upper surface of the leaf; margin entire; no hypoderma		P. Hookeriana.
No stomata on the upper surface of the leaf; margin of leaf serrulate; hypoderma		P. canadensis.
Margin entire	No hypoderma ..	P. Brunoniana.
	Hypoderma	P. Sieboldii.

Bertrand further gives the following table of the synonomy and distribution of the species:—

Picea (Tsuga) Hookeriana, Carr.; Northern California.
Syn. Abies Pattoni, Jeff.; A. Hookeri, Hort.; A. Williamsoni, Newbury.

Picea (Tsuga) canadensis, Link. (T. Mertensiana does not differ anatomically from T. canadensis); Rocky Mountains.
Syn. Abies canadensis, Mich.; Pinus americana, Du Roi; P. canadensis, Linn.

Picea (Tsuga) Brunoniana, Wall.; Southern China.
Syn. Abies dumosa, Loudon; A. cedroides, Griff.; Micropeuce Brunoniana, Spach; P. decidua, Wall.

Picea (Tsuga) Sieboldii, Carr.; Japan.
Syn. Pinus Tsuga, Ant.

From my examination of the species of the section Tsuga, I find that Hookeriana and Pattoniana are distinct; but I can refer neither of them to Bertrand's Hookeriana. Probably his Hookeriana is our Pattoniana; but in all specimens that have come under my notice the hypoderm is developed, while Bertrand distinctly says, "Pas d'hypoderm." Then the specimens of canadensis and Mertensiana examined by me are quite distinct. In this case I think that Bertrand has described Mertensiana for canadensis. Lastly, in his description of Brunoniana and Sieboldii we are slightly at variance.

The forms about which the greatest confusion has existed are Hookeriana and Pattoniana. Both are, at first sight, very similar in habit and in appearance, while their cones are also exceedingly close. They are, however, readily separated by the structure of the leaf. In Hookeriana the resin canal is separated from the fibro-vascular bundles by a few parenchymatous cells, containing chlorophyll—a character which does not occur in any of the other species. The leaf is also thicker, more tetragonous than in Pattoniana; the margins of the leaf are entire, while in Pattoniana they are distinctly serrulate near the apex. Both the species, however, agree in having stomata on the upper as well as on the under surface of the leaf. In Hookeriana the hypoderm forms a nearly continuous row of cells beneath the whole epidermis, giving such an appearance as might almost be produced if the epidermis consisted of a double instead of a single layer of cells.

Taking all the characters I would give the following table by which to separate the different species:—

I. Young shoots hairy.		
A. Resin canal separated from the sheath of the fibro-vascular bundles by one or two layers of large chlorophyll-bearing cells; leaf flatly tetragonous, the hypoderma nearly continuous around the whole leaf; stomata on both surfaces ..		1. T. Hookeriana.
B. Resin canal in contact with sheath of fibro-vascular bundles.		
1. Stomata on both sides of leaf; hypoderma well developed		2. T. Pattoniana.
2. Stomata on under surface of leaf only.		
a. No hypoderma; margin of leaf rough, apex obtuse		3. T. canadensis.
b. Hypoderma at margins of leaf, and above midrib, margin of leaf ciliate, apex obtuse		4. T. Mertensiana.
c. Hypoderma at margins of leaf, and at each side of the resin canal, margins of leaf slightly reflexed, serrulate; apex obtuse		5. T. Brunoniana.
II. Young shoots glabrous; hypoderma at margin of leaf only; margin of leaf entire; apex emarginate, sometimes obtuse; stomata on under surface of leaf only		6. T. Sieboldii.

1. Pinus (Tsuga) Hookeriana.

Abies Hookeriana, A. Murray, *Edinburgh New Philosophical Journal*, 1855, p. 289.

Tsuga Hookeriana, Carr.? not of Bertrand.

Shoots hairy; leaves 4 to 7 lines in length, irregularly bifarious; margin entire, apex obtuse, two sides of leaf similar, dark green, with four to six rows of stomata on each side of the middle line.

2. Pinus (Tsuga) Pattoniana.

Abies Pattonia, Jeffr. *Oregon Bot. Exped.* 3.

Shoots hairy; leaves 6 to 9 lines long, irregularly bifarious, margin denticulate near the obtuse apex, upper side yellowish green, with from two to four rows of stomata on each side of the slightly marked central furrow, beneath with six to seven rows of stomata on each side of the middle line.

The forms cultivated in the Edinburgh Botanic Garden, under the names of Abies Parryana and Abies Hanburyana, cannot be separated by any characters from P. Pattoniana. This is not Pinus Pattoniana of Parlatore, as he includes both this species and P. Hookeriana.

3. Pinus (Tsuga) canadensis, Linn., Parlatore.

Shoots hairy; leaves 6 to 9 lines long, in two rows; margins rough, apex obtuse, upper side dark green, with a central furrow, beneath with eight or nine rows of stomata on each side of the prominent resin canal.

4. Pinus (Tsuga) Mertensiana, Bongard, Parlatore.

Shoots hairy; leaves 4 to 7 lines long, in two rows; margins ciliate, apex obtuse, upper side dark green, with a central furrow, beneath with eight or nine rows of stomata on each side of the middle line, where the hypoderm is developed.

The forms cultivated in the Edinburgh Botanic Garden under the name of Abies Albertiana, Abies Bridgesii, and Abies Williamsoni, cannot be separated by any characters from P. Mertensiana.

Parlatore gives A. Williamsoni as a synonym of his P. Pattoniana, while Bertrand gives Williamsoni as a synonym of his T. Hookeriana.

5. Pinus (Tsuga) Brunoniana, Wall.

Pinus dumosa, Don, Parlatore.

Shoots hairy; leaves 12 to 14 lines long, in two rows, deciduous; margins slightly reflexed, serrulate, apex obtuse, upper side grass-green, with a central furrow, beneath with a band of nine or ten rows of stomata placed close to each side of the central carina.

6. Pinus (Tsuga) Sieboldii, Carr.

Pinus Tsuga, Ant., Parlatore.

Shoots glabrous; leaves 8 to 10 lines long in two rows; margin entire, apex emarginate, sometimes acute, upper side dark green, with a central furrow, beneath with a band of six to eight rows of stomata on each side of the middle line.

[A paper read before the Royal Irish Academy by Professor W. R. M'Nab, M.D., June, 1875.]

DARTMOOR AND WISTMAN'S WOOD.

MR. EVERSHED has given an interesting account of his visit to Wistman's Wood in the *Gardeners' Chronicle* of Sept. 25 (p. 387), as well as some remarks on the Mistleto in connection with it on Oct. 23 (p. 522). Both of these accounts have only just reached me, and, as I was employed for some weeks in making a reconnaisance over this ground previous to the Autumn Manœuvres of 1873, I have looked over my sketches and notes then taken and forward you a view which shows the general features of Dartmoor in the vicinity of Wistman's Wood, with a few additional remarks thereon. And here I must protest against the Druidical mummery being so constantly dragged in, as it so often is, whether in connection with Oaks, on which the Mistleto did not grow, or in allusion to cromlechs and stone circles where sacrifices were not performed.

The fact is that Dartmoor in prehistoric time was thickly peopled—contrary to general ideas—by an industrious mining population; the evidences of their occupation literally swarm over the whole expanse of Dartmoor. There is hardly an inch of ground which has not been turned over at some time or other, and the whole face of the country is scored by the traces of the tin-seeker.

Dartmoor, in truth, was then looked upon as a portion of the Cassiterides, and stream tin washed on the surface was probably obtained here as soon as, if not sooner than, in Cornwall.

Now again it must be premised that it is not to be supposed that this extensive population was either aboriginal or permanent, on the contrary there is every reason to suppose that the aborigines were yet most uncivilised, a race of hunters in the extensive forests which clothed the valleys and lowlands of Devonshire, using bone and stone weapons for chase and war; whilst the miners were intruders and summer visitants, probably from Scandinavia, who during their annual visits during the season sailed up the Tamar and Tavy, and entrenched themselves in fortified villages and settlements on Dartmoor, storing up the tin ore in fortified depôts, where also smelting operations were performed, the metal being run into moulds so that the blocks of tin fitted into the galleys, and these blocks of metal were also cast with handles for carrying easily (an example of these ancient tin blocks was dredged up in Falmouth harbour, and may be seen in the museum at Truro). Then, in the autumn, before the equinoctial gales set in, these Scandinavian raiders carried off their rich store of metal, exchanging portions of their supply of metal with the Phœnician and Hebrew traders at Dartmouth, Plymouth, and Falmouth, &c.

It is not improbable that some of the more important villages and depôts were left with a garrison during the winter season, but these were probably on the coast or on the rivers, and the fortifications and entrenchments on the naked wilds of Dartmoor left unoccupied during the inclement season. During this period of desertion the uncivilised savages would naturally plunder the unoccupied settlements and pull down the ramparts of stone, and consequently the miners, on their return, would by degrees use the largest boulders and stones for their entrenchments, and thereby have left behind them almost Cyclopean battlements, which resisted all the efforts of the ruder natives to destroy. Hence a so-called stone circle on Dartmoor may be looked upon in many instances as only the skeleton of a fortified enclosure denuded of the smaller stones which originally filled the interstices. Similarly the cromlech and dolmen are but the skeleton of the burial cavin or mound which originally covered in the sepulchre.

The Rev. Mr. Bray (see Mrs. Bray's *Borders of the Tamar and Tavy*) has shown to his own satisfaction that Wistman's Wood is no other than the "wood of the wise men," and the Druids and Bards were, according to him, unquestionably the philosophers or wise men of the Britons. If any Druid (which I much doubt) ever visited Wistman's Wood in search of Mistleto, he was deserving of being commemorated as a wiseacre; but at all events, he knew better than Mr. Bray (a good representative of modern wiseacres) the derivation of the name of the locality, viz., in Celtic *Wysg* (water), *Maen* (stone), *Coed* (wood)—which words well express the locality; in short, Wistman's Wood is a corruption of *Wysgmancoed*. (See Report of Devonshire Association, 1872.)

The origin of *Wysgmancoed* is probably due to an early acclimatisation society, started, not by Druids, but by some of the early Scandinavian miners and stream-workers. Later attempts to plant the Oak on Dartmoor are found elsewhere; for instance, high up the valley of the Erme is another small wood of scrubby Oak bushes, and under the name of Pileswode it is represented on an ancient map of Dartmoor (A.D. 1240) as trees surrounded by stakes or piles, a circumstance suggestive of the idea that the trees were planted there and staked round for protection, whence some antiquarians derive its name; but which I would derive from *pill*, *phuill*, *phull*, *pull*, or *pole*, a hole, or chasm, or recess—in Ireland *pill*, *poill* (pronounced pile) genitive of *poll*, a hole, inlet of a river, &c. *S. P. Oliver, Captain R.A.*

GREENHOUSE PLANTS—XXVII.

THEIR CULTURE AND MANAGEMENT.

CLIANTHUS PUNICEUS.—This, the Glory Pea of New Zealand, is a most distinct and handsome as well as free-flowering plant, producing its splendid crimson-coloured, singularly-shaped flowers freely in bunches almost as large as an epaulette during the summer months, at which time it is a very suitable subject for conservatory or greenhouse decoration, where it will last for a considerable time in bloom, and is not so liable to be injured by being placed for a time somewhat confined as some things are. It possesses also the great recommendation of having a good constitution, it is a free grower and does not often get out of health. Good sandy fibrous loam will grow it well, or peat may be used if the former is not at hand of a suitable description, but where loam such as above described can be had it will induce a freer disposition to flower. The usual trade-sized plants should be obtained any time before the close of the year, and kept in an ordinary greenhouse in a moderately light situation until the beginning of April, when the roots will commence to move, and they may be turned out of their pots and their condition examined. If well rooted give a 2-inch shift, this will be enough, for, although, as has been above stated, the plant is a good grower, yet it does not make roots in such quantities as some subjects of even smaller growth; let the soil be well broken by hand, and as much sand added as will keep it in the requisite porous condition, drain the pots sufficiently and make the soil moderately firm, then at once tie the branches well out.

It is of a somewhat stiff erect habit of growth, and, unless the training is attended to in the early stages, it becomes difficult subsequently to deal with and liable to break. From this cause the plants generally seen are somewhat leggy and soon get bare at the bottom, a condition that cannot afterwards be corrected. At the time it is thus tied out take off the points of the leading shoots, place the plants in a pit or house, amongst any ordinary young hard-wooded stock, where they will be kept a little close for a short time after potting, when they may be given a fair amount of air in the early part of the day, closing the house in good time in the afternoons, and syringing them freely always when the air is shut off. This must not be omitted after growth has commenced and the weather gets at all warm, as they are very subject to red-spider; but, by timely and continuous syringing through the summer, no inconvenience will be experienced; turn them round once a week, so that they may get their leaves regularly wet on all sides. They will not probably require anything more, except a regular supply of water to the roots when the soil seems to want it; do not let the latter become so dry before water is given, as necessary with plants of more tender nature.

If any shoots show signs of out-growing the others pinch out their points; give more air by the middle of August, but keep on using the syringe until the end of September; it will not induce a soft condition of the wood, as with some things, and, as this Clianthus is not much liable to mildew, no harm will be done by the continued use of water overhead. Winter them as advised for the preceding season, and again pot in the spring; this time, if they have done well, they will require a 3-inch shift, with soil as before recommended, still keeping the shoots trained out, using a few neat sticks to keep the branches in their wonted position, but it is a plant that does not need much support: treat after potting and during the summer as last year. They will most likely flower from the principal shoots in July or August, consequently these must not be stopped, or the blooming will be interfered with; when in flower they can be placed in the conservatory, where their bright-coloured blooms, different in every way from most of the other occupants, will make them noticeable. After they have done flowering shorten the strong shoots back, and treat as during the previous autumn and winter. Again move them in the spring, giving pots as much larger as last season; this summer the plants will make a good deal more growth, from the increased root-power which they have attained, and will produce more flowers. If the pots are well filled with roots the ensuing spring, and it is deemed advisable to grow them into large specimens, they may be again moved into bigger pots; but if moderate sized plants are preferred give manure-water once or twice a week, and in the spring remove 2 or 3 inches of the surface-soil, and replace with new to which has been added one-fifth of rotten manure: by this treatment they will last for years.

This Clianthus makes a good plant for covering a back wall or clothing a pillar, either planted out or grown in a large pot, the principal thing being to keep it well and regularly syringed all through the growing season. Handsome as it is with many growers, it has got into bad repute, through the fact of its being subject to red-spider, which if allowed to accumulate upon it makes the leaves shabby and prevents free growth, yet nothing more is required to dislodge it than the free use of the syringe, as already advised.

C. magnificus differs little in its flowers from the preceding, but is of a rather more vigorous or larger habit of growth; it requires the same treatment in every way, and is in some respects a better plant for training to a pillar or similar situation: like C. puniceus, it must have a free application of the syringe. These Clianthus are not much troubled with insects, except scale and spider, as already mentioned; if they get affected with brown scale they should be occasionally well sponged over, and in the winter, when at rest, syringed with insecticide. If the white species of scale gets upon them there is no recourse but heading back into the hard wood when the plants are in a dormant state, and washing repeatedly with a strong solution of insecticide. *T. Baines.*

HYBRIDISATION.

IN your extract from the *Illustration Horticole* of a portion of a paper on the subject of hybridisation, by M. Jean Sisley, of Lyons (see your issue for November 20, p. 654), M. Sisley says: "Respecting Geranium platypetalum I applied pollen artificially this spring to a hundred flowers under glass, by taking the pollen of one flower to the pistil of another, but without obtaining any seed. Can it (he asks) be a sterile hybrid?" Should this happen to meet M. Sisley's eye he will no doubt be pleased to know that the plant in question is not sterile, as on being shown through the Chelsea Botanic Garden in July last I observed a plant of this Geranium growing in one of the flower-beds. The plant was out of flower, but still retained seed-pods upon it. And with the view of ascertaining if it could be

increased by seed, I asked permission, which was readily granted, to take two or three seeds, which I sowed soon afterwards, and the result is two plants, which I have just potted off. I cannot account for M. Sisley's plants refusing to produce fertile seeds under glass, more particularly as he appears to have applied to the pistils of the plants their own, and not foreign pollen. During the early part of last summer I placed a plant of Geranium anemonæfolium, a somewhat tender species from Madeira, in a greenhouse, and carefully emasculated several blooms long before the pollen was ripe; and, when the stigmas of the blooms so treated became sufficiently forwarded, I applied to all of them pollen taken from various Zonal Pelargoniums. All bloom-buds produced which were not emasculated were removed before they expanded, so that the plant was not allowed to produce a single grain of pollen. Nearly all the blooms operated upon ripened what appeared to be plump and well-developed seeds, which were sown as soon as they were ripe; and out of some forty or fifty seeds only one plant has come up, and, what is still more strange, this plant has no appearance whatever of a hybrid origin, bearing no resemblance to the Pelargonium family, and although evidently a Geranium, is not Geranium anemonæfolium, but appeared to be neither more nor less than Geranium pratense, so that it may be truly said that, although

"The thing is neither rich nor rare,
One can't help wondering how it got there."

For although there are plants of this variety growing upon the herbaceous border they are, nevertheless, some hundreds of yards from the structure which contained the seed-bearing plant—viz., G. anemonæfolium, and it is exceedingly unlikely that a seed of G. pratense should have got introduced in the soil in which the seeds of G. anemonæfolium were sown, yet this appears to be the only feasible conjecture than can be formed respecting the matter. And, as regards what appeared to be plump seeds of G. anemonæfolium, they must doubtless have been only empty capsules. If you will allow me to leave the subject of hybridity for that of variegation in the leaves of plants, I may mention that Mr. Alfred Fryer, of Chatteris, who has made the culture of Tricolor Pelargoniums a speciality, and who is well known as a most successful propagator of these plants, sent to me some months since a plant of the well known bedding variety known as Sophia Dumaresque. This plant had produced shoots with clear silver-margined foliage, as well as others with the usual golden-margined leaves. No means, such as budding or grafting, have been resorted to to induce this result, which is the only instance observed by me of this change in the form of variegation taking place. It would no doubt be interesting to know if any of your readers have observed similar occurrences. Should you think the subject of sufficient importance to be investigated, I could send the plant to some of the Floral Committee's meetings at South Kensington. *P. Grieve, Culford.* [We should recommend you to do so. EDS.]

GARDEN ENCLOSURES.

AMONGST various matters connected if not identical with the Villa Garden, its method of enclosure is one of the most important. In large country gardens, gradually passing through a kind of series of outworks of ornamental shrubbery and so on, into the surrounding grounds, the exact boundary is not necessarily clearly defined, garden and park may blend into each other, and the point is rather to display the beauties of the garden artistically as a brilliant foreground to the more distant parts of the landscape, than to screen or guard against possible annoyances. With what is commonly understood by the Villa Garden the case is different; here the extent of ground being more limited, possibly not extending beyond the garden itself, the first object is security from intrusion, the next very probably to shut out undesirable points in the immediate neighbourhood. In the country these matters are of less importance, a knowledge of the disposition of the various neighbours, and the likelihood of their permanence, may allow the amateur gardener to follow his taste as comfortably as if all around were his own, and in this case a hedge is often the sole boundary whether to paddock or road, but in suburban districts, where occupants change frequently, and the next garden may be without regular care for many months at a time, some security is needed against many unpleasantnesses which are apt to supervene.

To the lady gardener especially there is great annoyance in an unknown head watching operations just over the wall, or worse still the exit of some one equally unknown over a low bit of fence, painfully suggestive of what may disappear on less disturbed visits; other objects than well laden fruit boughs may dance on the breeze from the Pear and Apple trees; and immunity from such sights and visits being eminently desirable in itself, the idea occurs whether the good wall that gives security might not also be made in some cases a much more picturesque object than is usually ever attempted.

The part that is usually least attractive is the top, and here a suggestion might now and then be gathered from the walls of our ruined castles, with their self-sown wild flowers, or again from the vertical limestone cliffs, with different plants, Ivy, Honeysuckle, or Clematis, hanging in garlands, and flowers varying with the season, niched into any little cavity or creeping along the ledges.

The first matter, however, in the enclosure of the Villa Garden is security, not necessarily from thieves but from four-footed depredators, and for this reason, taking one of the slightest means of defence to begin with, if there is only a hedge above it is well to have at least a foot or two in height of brick or stone work below. If wished the masonry may be concealed by the hedge being placed in front, or boughs may be trained downwards, or Ivy upwards, to conceal it; but without some solid impervious footing to the previous growths above, it is almost impossible to keep it permanently neat. All the larger animals on the place are certain to come in occasional foray or panic right through, leaving the most grievous holes to be drawn together; and as for the smaller ones—

"If they could na mount to the top of the wave
They needl'it it through below."

Dogs, cats, and chickens, the whole set of domestic disturbers, will have their special and collective runs; and even where the scene of action is in the middle of large grounds there is neither peace nor neatness whilst the hedge can be penetrated. As a boundary or road fence the case is usually hopeless.

For an outside boundary a wall about 4 feet high with a hedge behind rising to any height that may be wished answers well; inside, even a foot of masonry clear above the ground will often be enough, whether of brick or the stone of the district; if it has a neat stone coping the effect is always good, and the grass growing thoroughly well up against it makes a clear neat line, very different from the ragged edge or rough and almost necessarily ill-kept earth that occurs under a constant shade and drip, and (if wished for full security) a strong iron railing fixed in the stone coping may be completely hidden in the hedge above.

Where it can be managed an almost upright turf bank a few feet high, continuing the slope of the hedge above, looks well, but it requires much care to keep the grass in good order, and it might often be well exchanged for the common wild Thyme, which does not need any care, and makes a beautifully even carpet whether in or out of blossom.

For a common boundary hedge Privet and Thorn are enough joined to a low wall; Holly, of course, is a far greater protection, but requires longer time for growth; and for ornamental divisions in the enclosed garden itself trimmed Box or Yew have the merit of constant neatness, and do not necessarily take much room. Double-blossomed Gorse, variegated or prickly leaved Holly, and Laurustinus well trimmed back, all have a good effect for dividing lines; and the Aucuba, with one or two of the male plants intermingled, so as to secure bright berries as well as golden leaves during the winter, is particularly desirable for any hedge near the house, as giving lines of bright cheerful colouring during the winter months.

This point (that is, cheerful tints in the hedges or screens close to the house) deserves especial care; some things, Scotch Fir for instance, twisted into a sort of rustic fence, but for seeing it, might be judged totally insufferable in any kind of dressed grounds, and a tall hedge of dark evergreen like the Portugal Laurel, which, save for a short time in the year, never varies in appearance except from its increasing size, is wearisome in the extreme. The gloomy colour and complete shutting out of all distant objects with the ever-recurring patches of protected snow lying in the same spot each winter, or the bits of scorched ground above the roots each summer, gradually become a sort of reminder of a series of events which may be well replaced by some line of division, cheerful in itself, variable in appearance, and possibly so arranged as, while it screens what is wished hidden, still allows a recognition of the existence of something beyond its line. In gardens in such populous districts as to make solid screens requisite, the water supply may usually be calculated on for requisite help, and with this to fall back on a bank may be thrown up with bright-leaved and bright-blossomed shrubs along the top, and the part below covered with creeping flowering plants, or such low bushes as may be fancied. The common Laurel, with some of the smaller Clematis allowed to run wildly over it, looks bright and cheerful, and a row of Fuchsia globosa (or any hardy kind) has a most brilliant effect in autumn, whilst the stems may be cleared away, and the plants protected during the winter with little untidiness. Erica carnea, Gentiana acaulis, Periwinkles, and many other close-growing plants that prefer being left alone, make a gradual thorough covering, and aid in giving the cheerful variety of tint which is particularly desirable in the case of a solid hedge or screen, necessarily in sight constantly.

Sometimes a stout iron fence (ornamental or not as wished) covered with bright flowering plants—Cydonia, or Corchorus japonica, Pyracantha (for its red berries), or anything else that may be fancied trained to it—is enough, just screening what is behind, but at the same time not giving such a mass as to throw a heavy black shadow regularly during some portion of the day over the immediate foreground. Sometimes a mere sunk fence (especially where the ground slopes away from the house) is the prettiest form of boundary. The abrupt termination of the lawn at the top of the frontage wall, with the incline from the other side to the foot of it, are quite sufficient defence, and the eye travels on over the division to the distant prospect without feeling of restraint. Where the Villa Garden adjoins park-land in other ownership, an open stone balustrade fence is particularly appropriate. The heavy handsome masonry gives a solid division, and at the same time a kind of terrace-like edging, pleasant to look at from either side, and from its contrast in colour and regularity of form setting off the natural surroundings to advantage.

The great difficulty, however, is the rectangular garden, enclosed with a brick wall on every side, and here it is that some hints may be gathered from the natural growths on our vertical cliffs or old ruined walls. Where the wall is low, it is much prettier to look down on a mass of Ivy running along the top than simply on bare bricks. The plants to supply it may be set at regular distances, and the whole, though apparently growing wildly, may be kept in most perfect order, and, either with or without a little earth thrown amongst it, will afford good roothold for a beautiful show of Antirrhinums, Honeysuckle, Sweet Briar, or many other half-wild plants, including the graceful yellow Welsh Poppy (Meconopsis cambrica).

A row of bricks built into the wall so to form a little shelf like a natural ledge of rock (of about half their length for the width of the projection) gives an excellent resting place for what pass generally under the head of Stonecrops. Taking the Sedums and Sepervivums and their allies, an immense variety of shape, colour, and style of growth may be obtained, some with deep green and rose-coloured foliage hanging down in graceful pendants, others making the most compact covering with their sea-green leaves and some little interest being added by the flowers. Some of the wall Ferns also look well when so placed, but for them a kind of flat buttress may be managed, showing them precisely as if in their natural positions, and, with a very little care, in quite as healthy growth. It may be made of brick, but with stone there are no difficulties at all.

The width of each buttress, and the distance between them, should first be settled, and then they should be built of small slabs of unmortared stones, the pieces chosen of such shapes as to leave large openings in places between, where the Ferns may be placed with all the natural mass of roots and soil undisturbed precisely as they grew in their original habitats, the buttress in this way being built up from the bottom of layers of stone with Fern intermingled, and soil run in at the back between it and the wall. The stones should have a slight inclination backwards, and the sides of the buttress are perhaps better partially mortared; the top may be finished with neat pieces of stone in front, and a good large well-rooted plant of Hart's Tongue well fixed in the soil and placed against the wall will make a most appropriate and flourishing crown to the whole. The Blechnum somewhat similarly placed (and in this special case unintentionally left on a bed of almost unmixed stable manure) answers perfectly, and in front the Liverwort (Ceterach) and smaller Aspleniums, especially the A. Trichomanes and A. Ruta-muraria, would be thoroughly at home.

Buttresses of two or three steps, or merely a single projection like a low square pillar, about 3 feet high, built of solid masonry at regular intervals against the wall, help to break its uniformity. An ornamental plant set in a pot on the low pillar, or the lowest step, gives a dressed look, much improved by the pot being about half the usual height and twice its width, so as to lessen the chance of breakage in a gale of wind, and also to add very much to its picturesqueness. The upper part of the buttress may be wrapped in climbers, and where a bush is needed, a Pomegranate on the sunny side, or a Magnolia, helps to diversify matters. Sometimes a sort of bracket, something like the semicircular basins of street drinking fountains may be contrived at distances along the wall, with the masonry hidden, if wished, with evergreen creepers; these filled with bright flowers changed as they go out of blossom have a cheerful effect near the house, or, used as a starting point for climbers upwards and downwards, give a deal of variety to a plain reach of wall. But with the idea once started, the ground itself will suggest endless combinations. A shady spot may be covered with Ivy, setting out with its deep colouring the masses of bright foliage or blossom on the sunny piece by the side; some

horizontal lines or semicircular wall basins would give another fresh idea near the house; wildly growing creepers would unite isolated bushes and bare walls: and the rectangular enclosure, with a little care and consideration, would grow into a picturesque whole, pleasant and cheerful to look on as an entirety, as well as in its horticultural details. *O.*

THE LÁL BÁGH.

NEARLY equidistant from the Malabar coast on the west, the Carnatic on the east, and the extreme point of India on the south, and in about the same latitude as Madras, is situated Bangalore. It is one of the many places doomed to probable disappointment on account of the change of the route of the Prince of Wales. The original intention was for the Prince to have visited the young Maharajah of Mysore, and Sir Richard Meade, the Chief Commissioner of the Province, and great preparations were made accordingly, amongst other things, for a grand *fête* in the gardens which form the subject of the present notice. Bangalore is about 3000 feet above the sea level, and the climate is a pleasant medium of tropical and temperate, without any great extremes; for three months of the twelve it is hot and dusty, with no rainfall, but for the rest of the year it is very enjoyable. Roses grow all the year round, and Apples may be had for ten months out of the twelve; while Strawberries and Peaches are in season from January to May, and even later. All ordinary European vegetables do well, including French Beans, Beetroot, Lettuce, Celery, Spinach, Vegetable Marrows, Cucumbers, Potatos, Cabbages, and Peas; but these last require much improvement. Most of the English annuals, too, grow well, and with careful attention gardens can be kept gay during every month of the year. Climbing plants, such as Bignonias, Ipomœas, Quisqualis, Passifloras, Poivrea, Antigonon leptopus, Thunbergias, Jacquemontia, Lonicera, and many others, thrive luxuriantly, some flowering more than once during the year; Ipomœa rubro-cœrulea is in bloom at this season, its lovely sky-blue flowers remaining open till about 4 P.M., when the colour deepens to a mauve tint, and subsequently to a reddish purple; the magnificent Bougainvillea figured at p. 181 of our Vol. I. for 1875, trained over the porch of the Cubbon Hotel, was unfortunately destroyed in a recent storm. Almost all the foliage plants which in this country require the shelter of glass can there be grown in the open air, or in the "half-shade" garden. Fruit trees have been imported from Europe, and take their place with the Mango, the Loquat, Guava, Pomegranate, Shaddock, Averrhoa, the Plantain, the Custard Apple, and other products of the tropics. With such a climate a greater variety of plants can be grown than would be possible almost anywhere else, and it is not, therefore, surprising that strenuous efforts have been made to make the Lál Bágh the finest garden in India. Its present condition is due, in a great measure, to the zeal and skill of Colonel Puckle, who has converted a wilderness into a very beautiful garden, and who achieved this result in no slight degree by the happy thought of training and educating the native gardeners, just as he has not confined himself to the introduction and cultivation of European horticultural novelties, but has developed and improved the resources of the country itself. The condition of the market gardeners has been greatly improved under this system, and they not only now supply Madras, Trichinopoly, Salem, and other towns on the line of railway, with fruit, vegetables, and flowers, but they are sent for to lay out gardens and ornamental grounds, and to decorate rooms on the occasion of any *fête*, and to supply the flowers and bouquets. Our illustrations, taken from photographs by Mr. Barton, of Bangalore, represent at fig. 147, p. 717, a view along the terrace which intersects the garden. This terrace is about 50 feet wide and 200 yards long; the large trees in the foreground are Spathodeas, the others are Cypresses and Araucarias. To the eastward is an ornamental band-stand and fountain, surrounded by a formal garden and broad walks, around which there there is an upper terrace. Looking north, there is a large circular lawn, with a very large raised bed in the centre, filled with the most attractive foliage plants and flowers, and with a few Araucarias and other ornamental trees dotted about. From the southern end the avenue of climbers is visible, and the old Mango grove, now turned into a "deer park, with the recently-constructed lake to the west of it. A view of the deer park is shown at fig. 146.

FIG. 146.—THE DEER PARK AT THE LÁL BÁGH, BANGALORE.

The trees in this garden are numerous and interesting, including Spathodeas, Moreton Bay Chestnuts, Lagerströmia reginæ, Grevillea robusta, Bombax, Cassia Fistula covered with blossoms, purple and white Bauhinias, Tamarinds, Mango, Thespesia, Millingtonias, with Artocarpus Roxburghii, Michelia Champaca, the Bread-fruit tree, Acacias, and many others which we have not space to enumerate. Among them, however, we must not forget to mention the superb Poinciana regia, which exists in great variety, and with which Colonel Puckle has made numerous promising experiments in the way of crossing. In April and May they are generally so crowded with beautiful bloom that the new leaves can scarcely be seen; where the soil is gravelly this is more apparent, where it is more loamy, the foliage, as might be assumed, is more deeply green and abundant, and the orange-coloured blossom forms with them a very charming contrast. Poinsettias are, as may readily be imagined, most beautiful; the whole tree bursts out in crimson beauty, which is displayed to perfection on a carpet of emerald-green grass.

There is also a mine of wealth in flowering and foliage shrubs and plants. At the sides of the terrace, and around the band-stand, formal carpet gardening is paid much attention to, and everything that has good colour, and can be pinched down to proper height, is pressed into the service. The effect of this arrangement is heightened by small intersecting paths of different coloured sand and gravel. Further back, towards the upper terrace, the flowering and

foliage plants and shrubs are similarly grouped, while here and there a handsome Araucaria Bidwillii, and A. Cookii, and other ornamental trees, are interspersed with excellent effect, to break any tendency to monotony. Among those that do well out in the open are Cannas, Iresine, Coleus, Crotons, Panax, Coccolobas, Graptophyllums, Ixoras, Allamandas, Tecomas, Daturas, Hibiscus (a dozen varieties), Meyenias, Durantas, Habrothamnus, Cotoneaster, Aralias, and a large number of others; to contrast with which there are Musas, Yuccas, Agaves, many of the Euphorbiaceæ, of singular habit and form, Palms, Cycadeaceæ, &c.; while to give points of good colour many of the climbers can be trained into a bush shape, and the Meyenias, Lantanas, Plumbago rosea, and others can be similarly pruned. Then, growing better under a little "half shade," there are Dracænas, Colocasias, Caladiums, Marantas, Eucharis amazonica, Ferns, Tradescantia discolor, and dozens of others, growing in great luxuriance, in clumps and clusters, interspersed with well-placed rockeries, that add greatly to the general effect. The more tender foliage plants and flowers are staged up in a tent-like construction, 70 yards long and 6 wide, over which the orange Bignonia forms a brilliant canopy.

The garden is not large, but great variety of cultivation is shown in it, and, by judicious landscaping, some of the surrounding points of attraction have been made to appear as though they were included within its boundary; moreover, by adaptive treatment, even rough, unpromising ground within it has been laid out with rockwork, or by some similar device has been converted into some kind of orderly arrangement.

The new rosery is of oblong-rectangular shape, formally laid out, surrounded on three sides by stone pillars bearing cluster Roses on the windward side, and on the other two Maréchal Niel is staged up with such Roses as Gloire de Dijon, Chromatella, Lamarck, &c. The remaining side of this is flanked by a collection of Pelargoniums, Coleus, Iresine, and other hardy foliage plants, backed by flowering shrubs and trees. Some 300 choice Roses are here arranged in pots in geometrical beds of coloured gravel, edged with Alternanthera rosea. This edging plant is of great value, as it can be clipped like Box, under which treatment it appears to thrive best, and to give out its brightest hue even in the hottest sun. Beyond and around the pillar Roses is a plantation of Tamarinds, Mango, and other trees, which serve to break the force of the wind. Beyond this, again, is the foliage plant house and the half-shade garden.

Quite recently great improvements have been effected by raising the surface in the low-lying parts, by thoroughly subsoil-draining the entire garden, and by constructing by means of convict labour a lake at the upper end, opposite the deer park. A large walled enclosure, comprising glass lean-to's and sheds, has also been constructed, which adds much to the facilities for cultivation and maintenance. It is in contemplation to erect an exhibition building on the upper east terrace, and to lay out the ground around it. This building is a great desideratum at present.

The "half shade" garden previously alluded to is a great success, insuring a chequered shade with a free circulation of air, without draught, for plants which would suffer from a too direct exposure to a tropical sun.

One of the summer-houses receives the name of Darwinia. It was given in a playful mood, and is thus explained. A large monkey-house was converted, by throwing down the interior partitions and erecting an ornamental verandah round it, into a very convenient summer-house, capable of accommodating sixty people at luncheon or pic-nic parties. As it has been evolved from a monkey-house, to a pleasure temple for the "improved" species, so the name Darwinia was thought to be appropriate. Near it are tennis lawn and croquet grounds on the one side, and shady walks on the other, while in front are a few effective foliage plant and flower beds on a well kept lawn.

Some time since Mr. Cameron went out from Kew to take charge of these gardens, and the report before us testifies to his intelligent zeal and his good method of "getting everything into very orderly arrangement." It is matter for regret, on more than one account, that circumstances have not permitted the Prince to visit this garden. Had he done so its merits and reputation would have become more generally and speedily made known. As it is, however, quite one of the most successful and useful establishments of its kind in India, it will rapidly rise in public favour and esteem, and perhaps serve to show in the future that our empire in the East was really associated with other things besides empty pale ale bottles.

The amount of good effected by a man of knowledge, taste, and energy like Col. Puckle, is not to be measured simply by the fact that he has succeeded in making a beautiful garden. He has, as we have seen, created a new industry, developed the resources of the country, and improved the position of the natives. The gold medal which was presented to him on the occasion of his resignation of his post as secretary to the Agri-Horticultural Society of Mysore was, therefore, no unmeaning or ill-merited compliment.

MARKET GARDENING IN THE PROVINCES.

IT is a singular fact that almost all the supplies of vegetables for provincial towns first pass through Covent Garden Market; this custom doubtless arose when London was celebrated for the immense market gardens in close contiguity to the western district of the town; these, at any rate the greater part of them, have made way for streets and roads, and the market grounds are now several miles farther out of town, and still, unable to grow a sufficient supply, many of the less hardy vegetables are sent from remote counties by rail.

The mild and humid climate of the south-western counties appears particularly suited to the growth of Cauliflowers, spring Cabbages, and such things are there produced in immense quantities and forwarded to every town in England, the greater part having first passed through the hands of the salesmen of Covent Garden.

That there are peculiar facilities for growing certain things well in certain districts is a fact not to be controverted, yet, accepting such to be the case, it seems strange that so little enterprise has been shown in establishing market gardens in the vicinity of towns large enough to consume an appreciable amount of garden produce.

All, or comparatively all, the market gardens which supply England with the finest vegetables, lie in a limited area around London, extending to the south-east into Kent, in the east into Essex, and occupying miles of the district lying to the west of the metropolis.

It has often been said that a demand is sure to create a supply; it certainly has done so as regards the products of the earth, for it is seldom there is any lack of the commoner descriptions of vegetables in any of our markets, but it remains to be seen whether such vegetables could not be supplied at a cheaper rate by growing the bulk of them as close as possible to the spot where they are to be retailed.

Such towns as Reading in the west and Liverpool in the north-west, and many others in different districts in England, are quite dependent on the supplies which come from London, and yet on farms adjacent to these towns magnificent root crops are raised, and there is no valid reason why such land would not make good and highly remunerative market garden ground. Everything is in favour of success—a large population, vast quantities of manure at a cheap rate, and excellent roads or rail for the carriage of produce.

Only those who have lived in country places can possibly know how difficult it is to obtain good vegetables, unless they grow them in their own gardens. Fifteen years since the then small, but rapidly rising, town of Newton Abbot in South Devon was entirely dependent upon the irregular supplies brought in by the farmers when they had more than sufficient for home consumption, such vegetables being of the very commonest descriptions, as Carrots, Parsnips, Turnips, and Cabbages. Any vegetable which might be looked upon as a delicacy, such as Asparagus, Tomatos, Endive, Early Peas, or even Vegetable Marrows, was scarcely procurable, and when to be had was forwarded from Covent Garden, and in consequence was very dear.

Many of the best half-hardy vegetables which are uncertain crops in most places might in this neighbourhood have been as easily grown as the very commonest description, and must have commanded a ready sale. Everything in the neighbourhood was favourable to the extensive cultivation of the best garden produce: the soil was excellent, the situation all that could be desired, being intersected by streams and lying open to the south, but protected from all cold winds by high hills; yet with all these advantages there were no market-garden grounds, although Torquay, Teignmouth, Ashford, Dawlish, and other places of importance were situated within a few miles.

At Reading the greengrocers depend almost entirely upon obtaining their supplies from town, and consignments are as regularly received by them each day from Covent Garden as though they were London tradesmen. Of the vast quantity of vegetables which pass through the markets of such towns as Liverpool it would be almost impossible to form any idea; not only must food be supplied in sufficient quantities for the vast stationary population of the place, but also for supplying the great number of ships which daily, we may say hourly, leave the port. The farmers around send to the wholesale market a great proportion of the Potatos and Turnips, these latter being Swedes, for in that part of the country this vegetable is properly appreciated, and finds a place upon almost every dinner-table during winter and spring.

In all neighbourhoods where such high-class farming as that of Lancashire is carried on, market-gardening would soon become a most profitable occupation, and the less capital and smaller number of acres required by individual cultivators would open up a lucrative business for persons of small means; nor would the benefits be confined to the producers alone, for ordinary vegetables, for which there is and must always be a constant demand in provincial markets, could be retailed with only one tradesman's profit added to the cost of production, whereas at the present time there is not only the carriage along hundreds of miles of rail to be paid, but there are also several distinct profits to be added to pay for the time and labour of each person through whose hands they may pass before they reach the consumer. *T. F.*

Foreign Correspondence.

NOTES FROM KASHMIR.—The heat beginning to be unpleasant, we determined to leave Srinagar. The absence of glass—the windows being only lattice-work—admits, of course, hot air, and in the winter must equally admit the cold. Glass and iron are at a premium in Kashmir, and we were warned to take spare shoes and nails for the horses; any procurable there are dear and of the worst, warranted to come off in the first stony torrent bed the luckless horses have to cross. Early in July we set off up the Sind valley, going first by boat down the River Jhelum, thence by the Sind river into the Anchar lake, a most miserable halting-place for the night, as the mosquitos were legion and of the hungriest. We next reached Gunderbur, and there resigned our boats, progressing by horse and dandies; the last are the land conveyances used by ladies who do not ride, and are of many shapes, some formed like a boat, of strong carpet, admit of a recumbent position, having a strong pole, single or double, which rests on one or both shoulders; four men are necessary, and they carry two at a time, changing with the two other men when tired. Another dandy is much like a chair, carried by two men at a time; and yet another is made of a carpet gathered up at both ends, the occupant sitting sideways; but these, I think, would be very fatiguing for long distances, though of course they are light. A jhampan is another form of conveyance in the hills, useful for going out to dinners or balls, as more roomy, but very heavy and unwieldy, requiring (unless a very light one) many more men than the other kinds, and very unsuitable to the rough, narrow, and hilly roads of Kashmir. Good "kahars" or bearers go well together, and get over long marches wonderfully well; but where you cannot find men of the regular bearer class, coolies are substituted, who go slowly, are apt to drop the dandy, and are soon out of breath. These "kahars" are frequently landholders, and told me they often spend the night, more or less, waking, in order to scare away the bears, who come down to feed upon the crops, and do great mischief in consequence. Rice fields abound in the valleys, irrigation being so easily laid on to the fields from the numerous rivers; the crop is verdant in the extreme, but apt to make the localities feverish.

Mules can be had in most places for tents and unbreakable baggage, but as they are not particular about throwing their loads over a precipice—as likely as not—you are obliged to use coolies largely, but the head-man of the village is bound to supply these; and as there are fixed rates of payment—mules 1*s.* a march, "kahars" 9*d.* each, and coolies 6*d.*—there is no dispute or difficulty over the sums which they receive. The muleteers have to give one-fourth and the coolies one-eighth of their daily receipts to the Maharajah's exchequer, and the head-man stands by to levy this when payments are made.

The whole of the Sind valley is pretty, but it culminates in the glorious grandeur of Sonamarg, which means—"Sona," golden, "marg," meadow. There are noble granite peaks standing out sharp, near and clear against the azure sky, towering up their 14,000 and 15,000 feet, some of them capped with eternal snow, their sunny sides clothed in the purest, brightest green, where the snow having melted off leaves the grass of the most exquisite verdure—a dainty feast for the bears, who fail not to enjoy the banquet. Then there are magnificent Pine forests, and all the nearer hills are crowned with them to their very summits—rushing rivers, and the clearest and most crystal of streams—splendid waterfalls cutting their way from out their snowy beds, through fantastic wreath and arch, and dashing down to join the rolling river. Then the exquisite undulating meadow starred and gemmed with flowers of every shade and hue, a very paradise for artists and botanists; we counted upwards of eighty different flowers, or different colours of the same flower; bright yellow blossoms of the wild Wallflower, side by side with a sapphire carpet of the deepest, bluest Forget-me-Nots, or if not such, we could find no nearer name, save that the blue was far more intense than our English ones; graceful Columbines in snowy robes of spotless white, others with white centres, and outer petals only of mauve; Campanulas deep purple as at home, others unlike any I ever saw there, with their slender stems supporting one or more delicate bells of grey or palest blue with

dark centre; Lilies white, splashed with brown; Roses pink, white and red, and some shell-like, just tinged with a blush; masses of brilliant magenta Rest Harrow and bright pink Epilobium, raising its showy head above the great grey boulders near the river's brink: nearer the snow numbers of small yellow Pansies, down in the stream sweet-scented white Primulas, Salvias of sorts. Such a harvest of beauty and colour does not often gladden one's eyes, concentrated in every ramble, whether up or down the valley. To our great surprise and delight we found numbers of wild Gooseberry trees, also Currants, and though the fruit was small and sour, we astonished the bearers by jumping out with alacrity to gather them, not having had a dish of Gooseberry fool since leaving England. Rhubarb is also found nearer the snow. The bearers, when they saw me gathering seeds and roots of flowers, always asked what medicine it was, failing to understand any botanical interest I could have in such collections.

The Darnar valley is perhaps one of the best for flowers, and as we walked up towards the snow, some of the party carrying guns having laughingly said they would perhaps meet a bear, there was a cry of "Sure enough there he is!—down with you behind the rock," and there trotted off a large brown bear; but he had heard the voices, grown cautious, and before he was within range of the deadly rifle had made good his retreat, and was lost to sight among the jungle. Sonamarg was last year used as the sanitarium during the months of July and August, when Srinagar is unhealthy, feverish, and hot. It is over 9000 feet above the sea level, and the climate cool and salubrious. It was selected last year as the nearest point at which to meet Sir Douglas Forsyth on his return from Yarkand, and there were some 150 to 200 visitors there. Most of these build log huts for themselves, which are soon run up and inexpensive where wood is so abundant and labour cheap—£2 to £5 being the sum needed to build, according to size. Other people merely roof over tents in case of rain, which falls much less heavily at Sonamarg than at Gulmarg. A very pretty and substantial little church was built at Sonamarg, in the American style—trees felled whole and laid across—and proved strong and water-tight. The meadows are covered with herds of cows and ponies grazing, and also flocks of sheep. We were told that the villages in winter are nearly deserted by the younger members, owing to the inclemency of the weather, which stays all outdoor labour; but the older members are left at home, with stores of grain to keep them alive—rather a cheerless prospect for them. The snow lies thick and deep, and all around must be enveloped in it. Bears and leopards also come down to lower latitudes as the cold increases above, and the search for food becomes harder.

Sonamarg is on the high road to Thibet, and many passing to and fro were on their way there or back. The Zogila pass, only two marches from Sonamarg, is reported to be very fine. Marmots used to be very plentiful, but are getting more scarce, and great is the glee of the sportsman who secures a snow leopard, the fur of which is much thicker than that of the ordinary leopard, and has a good deal of white in it. Barasingh, the twelve-horned deer, are to be found; markhar and ibex also.

Going up and down the Sind valley we met numbers of Thibetans, some with "yaks," others with ponies all laden; they export salt from Thibet, which is cheap and bad, and bring back grain from Srinagar. The salt imported from the Punjab is good, but of higher price.

In going up the valley it was interesting to note the varieties of trees; according to the increased elevation. First we used to encamp under the Chenar, or Plane trees; a little higher up the villages were nestling under Walnut groves; still further up nothing but Pines; after which we came to the line of Birch; above that only rocks, stones, and snow. The bark of the Birch is largely used in Kashmir as paper; in Srinagar the shopmen wrap all their *papier mâché* and other goods in it, and tie them up with dried reeds; these reeds are used also to make thick soft matting, with which they carpet their rooms, and as screens for their boats; they keep out rain and snow wonderfully well, and form a good protection from the sun.

On our return from Sonamarg we visited Mànasbal, which some consider one of the prettiest of the Kashmir lakes; the water, like that of the "Dal," is exquisitely clear, and deep down in its crystal depths we could see forests of water weeds—green, brown, pink, and crimson—and above the surface the stately Lotus (Nelumbium speciosum) raised its rosy head. Numerous villages were scattered along the tranquil shores, or shaded in their orchards, the blossoms of which would indeed be a sight in early spring. The place is noted now for the beautiful fruit which is really cultivated and grafted by an old "fakir," the cleanest and most gentlemanly specimen of his kind I have ever seen, though report does say he killed his wife. Cherries, Apricots, Mulberries, Peaches, Apples, and Pears, all prosper under his fostering care; he not unfrequently watches through the night, beating a cracked drum to keep away the bears, who probably think, as we did, his fruit the best in Kashmir. It saddens one to reflect that where Nature has been bountiful in the extreme, art and culture have sat with folded arms in the persons of the indolent Kashmiris. The fakir daily spends a portion of his time digging his grave, which has now assumed the proportions of an immense cave, in which we could walk upright for about 50 feet. In former days Mànasbal was one of the favourite retreats of the Emperor Jehan Ghir, who made there, as in most of the prettiest spots in Kashmir, pleasure gardens for the delectation of the lovely Nur Jehan (the Light of the World). We visited an old temple which is now almost submerged, but from the fragments which are still visible it would seem to be, like those at Pandretton and Payech, of Bactrian origin.

Proceeding by boat from Mànasbal we eventually crossed a portion of the Wulur or Great Lake, almost as terrible to the boatmen as the Black Sea. Swift and sudden are the storms which sweep down on its land-locked waters, and once a Rajah proceeding with his numerous attendants was overtaken by one, and they and he perished in its gloomy waters. We stayed for the night at Sopore, where there is one of the numerous rest-houses provided free for travellers by the kindness of the Maharajah, and thence again on the broad, and here placid, Jhelum, to Baramula; it is after leaving that town that the whole character of the river changes, and it becomes the rushing, roaring torrent which we follow the whole way to Kohala, which is only separated from British territory by a beautiful suspension bridge, built by our Government, but of which half the cost, I believe, was defrayed by the Maharajah. Leaving our boat at Baramula, two somewhat steep marches took us to Gulmarg, the flower meadow; more than 3 miles of lovely undulating park-like verdant meadow is indeed refreshing to the eye of one fresh from the burnt-up arid plains, and the bright green is fringed by belts of dark Pines with the ever noble background of mountains. "Nunga purbut," literally the Naked Mountain, the third highest in the world (always supposing Captain Lawson's Mount Hercules turns out a fiction), here sometimes shows his hoary head, but he is coy, and oftener far prefers to remain hidden in his cloudy canopy. As to the flowers, they were few in comparison to those we had seen at Sonamarg, but yet we noted some four kinds of Monkshood, not all growing on the meadow—for some we had to ascend another 2000 feet, to Killanmarg. One was the deepest purple, growing up near the snow, another a dirty shade of blue, and two more kinds, light and dark, had a spur beyond the hood. One of the prettiest of the Gulmarg flowers, however, was a sweet-scented Thistle, for at least it had a regular prickly leaf, the flowers were most delicate white and pink alternate blossoms, growing in a circle at intervals up the stem. I was only able to procure two seeds of this, which may, I hope, thrive in Scotland. There was also a bright rose-pink Primula, just showing its fair blossoms above the ground as we were leaving the place, so no chance of collecting its seed. Campanulas were also there, and a brilliant magenta Lychnis with a whitish leaf, and many other flowers, of which time fails me to tell to-day. *L. C. J.*, *Murree, Sept.* 24.

STRATFORD, ONTARIO, CANADA WEST.—We are indebted to Mr. Harry J. Veitch for the following extract from a letter received by him from a gardener who emigrated to Canada last spring:—

"Once over the banks of Newfoundland and in the Gulf of St. Lawrence, the scenes began to brighten, and the passage up the river to Quebec was quite enjoyable. The shores on either side are thickly studded with small villages of wooden houses, and with churches in abundance, whose roofs and spires are covered with polished zinc, which has a luminous and pretty effect. From Quebec to Fort Erie—about 800 miles—was run by railway, and the whole distance is through forests more or less. Here and there a rising village, with its white wooden houses and green Venetian shutters, was seen; but the scenery is not grand. There is a great absence of mountains, but plenty of water, and valleys with nice slopes, but no boldness except around Montreal. The bush is full of all kinds of timber—Arbor-vitæ, Savin, and Snowy Mespilus in abundance. The undergrowth includes most of the common Ferns, and of Adiantum pedatum I have found complete hedges, 3 feet high—splendid. Lilium superbum figures well. I cut one stem 6 feet high, with seven fully developed flowers, from a bulb no larger than a Walnut. Generally there is a great absence of wild flowers, as far as I have seen.

"The Portulaca is a great favourite here, and reproduces itself most vigorously. The Petunia is the same, becoming in time troublesome to limit. Most of the common annuals are to be found in gardens—such as they are. The decorative has not yet reached a very high latitude here, though I am sure it will in time. Vegetables of all kinds are to be had in abundance, but Broad Beans and Onions do not do well from what I have seen and heard. The Lima and Mont d'Or are the only Beans cultivated to any extent. We have plenty of wild fruit of all kinds, but not so of the cultivated sorts. Apples are abundant and good throughout, but so tough in the skin. Pears, Gooseberries, and Currants (red and white), Raspberries, Strawberries, Cherries, Apricots, and Nectarines, are very scarce. Peaches are very plentiful in places; Squashes, Melons, Citrons, and Cucumbers—the small kinds are a perfect nuisance. Cabbages are selling just now at 6 cents (3*d.*) each. We have no Hollies or Laurels, and very rarely is a piece of Ivy seen, and then only in a pot, grown as a window plant. I am much pleased with the country. There cannot be a doubt about its productiveness—animal, vegetable, and mineral, and the increase in population is steady and consistent. Like every other part of the globe, however, it has its little drawbacks. It is a fearful country for insects. I never before saw such a lot; but the worst of them all is the Colorado beetle. Its depredations are wonderful—it eats the Potatos down to the very earth."

Forestry.

PLANTING FORESTS IN TEXAS.—Mr. A. McKinney, of San Felipe, Austin County, Texas, contributes some very interesting facts in regard to timber culture upon the prairies of that State. The richest lands have a very inadequate supply of timber, even for firewood. The soil of these vast savannas possesses all the elements of heavy forest growth, and young timber planted would have a rapid and healthy development but for two obstacles, hitherto insurmountable. Of these the first is the fire that so often sweeps the prairies, the dry grass furnishing the material for the annual combustion of all incipient tree-growth. The occupancy of these lands by a regular farming population would remedy this difficulty.

Another obstacle to tree-culture is found in the ravages of cattle. They do not appear to eat the young trees, but use them as a counter-irritant against the stings of flies, mosquitos, and other troublesome insects. They scratch themselves against every rock and shrub above ground. "If a surveyor puts down a stake 6 inches above the surface, cattle will even lie down to rub at it till it is literally worked out of the ground." Young trees have no chance of growing unless protected by fencing. It is hoped that a low bushy tree, which our correspondent calls "weesach," and which is covered with hard, sharp thorns, defying the attrition of animals, may yet be found available as a hedge plant. It seldom grows more than 20 feet high, has short, crooked trunk and limbs, and when cut down sprouts from the root from five to fifty shoots for every one cut off. Its wood is hard and durable as fence-posts, and it furnishes excellent fuel. It is an evergreen, with a yellowish tinge of foliage, and bears a small pod of seeds, which are eaten by cattle and sheep and scattered in their droppings. The seed grows with very little interference from animals. Our correspondent is inclined to think that they will not germinate unless passed through the digestive apparatus of the animal, and suggests that scalding, a process used in the case of the black Locust seed, would have the same effect in inducing germination. *Monthly Report of the American Department of Agriculture.*

Notices of Books.

THE July and August numbers of the English edition of the *Illustration Horticole*, which have lately been issued, comprise coloured figures of Croton bellulus, a miniature Croton with long narrow pointed leaves, yellow on the disc, green at the edges and towards the points, and with short red leaf-stalks. It is stated to be a cross between A. Weismanni ♂ and C. cornutus ♀. It is an exceedingly pretty dwarf form, which will be popular for decorative purposes if it should prove a good grower. Epidendrum paniculatum is a cool-house Orchid, with large terminal panicles of pink flowers. Begonia gunneræfolia is one of M. Roezl's discoveries in Antioquia; it is of upright arborescent habit, and bears enormous Gunnera-like leaves, 16 inches in diameter; the flowers are insignificant. Astrocaryum Murumuru is a splendid pinnate-leaved spiny Palm; the leaves are 10 to 12 feet long, consisting of thirty to forty pairs of lanceolate, slightly-curved leaves, silvery-white on the under surface. The fruit is described as pear-shaped, prickly, red in colour, and with a musky flavour like that of a Melon, and as being highly appreciated by the Indians. It is a native of river banks and wet places in Brazil and Guiana. Cypripedium Parishii is one of the long-petalled species, and was described in the *Gardeners' Chronicle*, 1869, p. 814. Lastly we have Vriesia fenestralis, a provisionally named Bromeliad with the habit of V. musaica, but with beautiful reticulate venation, recalling that of Ouvirandra fenestralis. The plant has not yet flowered, so that its generic status is unknown.

—— Under the title of the *London and Provincial Illustrated Newspaper*, a new weekly publication, at the price of 3*d.*, is announced to be issued shortly, and which, if well conducted, will, no doubt, meet the requirements of a numerous body of educated and intelligent readers.

HORTICULTURAL EXHIBITIONS, 1876.

JANUARY.
19.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

FEBRUARY.
16.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

MARCH.
1.—Royal Horticultural Society, South Kensington, Meeting of Fruit, Floral, and Scientific Committees.
15.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
15 and 16.—Leeds Horticultural Society. Spring Show.
29.—Royal Botanic Society (Regent's Park). Spring Show.

APRIL.
5.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
19.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
26.—Royal Botanic Society. Second Spring Show.
27.—Royal Horticultural Society of Ireland. Spring Show.

MAY.
3.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
18.—Royal Horticultural Society of Ireland. Second Spring Show.
24.—Royal Botanic Society. Summer Exhibition.

JUNE.
7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
7 and 8.—Royal Horticultural Society. Great Summer Show.
14, 15, and 16.—Grand Floral Fête at York.
21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
21.—Royal Botanic Society. Summer Show.
29.—Royal Horticultural Society of Ireland. Summer Show.

JULY.
5.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
5.—Royal Botanic Society. Evening Fête.
12 and 13.—West of Scotland Rosarians' Society. Exhibition at Helensburgh.
19.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
19 and 20.—Royal Horticultural Society, South Kensington. Great Summer Show.

AUGUST.
2.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
16.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
23.—Isle of Thanet Horticultural Society's Exhibition.
31.—Royal Horticultural Society. Autumn Show.

SEPTEMBER.
6.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
7, 8, and 9.—International Horticultural Exhibition at Dundee.
28.—Woolhope Club Day.

OCTOBER.
4.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.

NOVEMBER.
15.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.

DECEMBER.
6.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 4, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Dec. 6	Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Dec. 7	Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Dec. 8	Sale of Roses, Shrubs, Herbaceous Plants, Bulbs, &c., at Stevens' Rooms.
THURSDAY,	Dec. 9	Royal Horticultural Society: Special General Meeting, at 3 P.M. Sale of Orchids from Messrs. Backhouse & Sons, at Stevens' Rooms.
FRIDAY,	Dec. 10	Sale of Scientific Instruments, &c., at Stevens' Rooms.
SATURDAY,	Dec. 11	Sale of Dutch Bulbs, Conifers, Roses, &c., at Stevens' Rooms.

NO ONE in the habit of seeing the numerous EXHIBITIONS OF HARDY FRUIT that now take place every autumn in different parts of the kingdom, and more especially such a magnificent series of home-grown Apples and Pears as was produced at the Royal Horticultural Society's show at Kensington on November 10 and 11, could avoid coming to the conclusion that, despite our much-abused climate, England after all is a country well-adapted to the growth of these fruits, and particularly Apples. Possibly there are few localities in this kingdom, or even any, that can vie with the Channel Islands or Nova Scotia in the intensity of colour which the fruit produced in these countries exhibit; but the matter of colour, especially in culinary varieties of Apples, we hold not to be of primary importance, inasmuch as the highest coloured sorts are far from being the best or most useful, but generally the reverse. The present season has undoubtedly been one of the most favourable to the Apple crop on record, so far as regards the greater part of the kingdom; yet, in spite of these facts, if any one ignorant of them were to visit Covent Garden and the markets of the large provincial towns, and to base his conclusions upon the retail prices he would have to pay for even culinary Apples, he would undoubtedly form a very indifferent opinion as to the Apple growing capabilities of the country. The persistent complaint of the growers, and doubtless with very great occasion, is that the prices they receive bear no comparison to that which the consumers have to pay. This is a matter that under any circumstances will take time to remedy; nevertheless the subject is of considerable importance in relation to an article that might with very great advantage come into much more general use as food for the people. The present generation of those who labour, have one obstacle to the use of cooked fruit removed, which was an effectual barrier to its being consumed in quantity by their forefathers, that is, in the trifling cost of sugar as compared with the price in former years.

Climate as well as habit, we are aware, has much to do with the nature of the food eaten by any people. We do not expect to see the ordinary labourers of this country, with the greater amount of toil they have to undergo in our much colder clime, dining off raw fruit and bread as their fellows do in the south of Europe, yet we maintain that if Apples for cooking purposes could reach the working populations of our large towns at the prices at which they ought to obtain them, and which would pay the grower provided he got his fair share, they would be much more palatable and wholesome than the vast quantities of rancid butter and cheese that are consumed. Of course those who believe in nothing but beef and beer are not likely to be convinced that anything but these commodities would sustain them, but we venture to hint that if a portion of what goes to buy these articles were spent in wholesome cooked fruit, they would be both better in health and physically as strong.

Again, reverting to the prices obtained by growers of Apples, there are those who tell us that if more were produced in plentiful seasons they would not pay for the labour of gathering and marketing; but this mode of reasoning comes from an imperfect view of the matter. If the produce were tenfold what it is, the retailers would proportionately increase in numbers, and, under the influence of competition, would place the produce in the hands of the consumer at a reasonable price, and so create a demand to an almost unlimited extent. The population increases apace, not so the area of the country, and that which could be grown by millions of tons annually, at little cost in either labour or the ground occupied, is now little more used than as a luxury, wherein it might be made an important article of food. Apart from the question of remunerative orchard culture of Apples, there is scarcely a limit to the quantity that might be grown in the place of mop-headed hedgerow trees, with their branches lopped up in a way that gives them the appearance of large-sized fly-flappers, simply to reduce their adverse influences over the cultivated crops they would otherwise overhang. Their existence is a compromise betwixt tenants on the one hand, who see nothing but injury through their presence, and landlords on the other, who will not submit to the removal of any, yet reap little in the shape of actual benefit from them, and nothing in the look of the estate. Let us not be misunderstood. We would by no means counsel the wholesale and indiscriminate destruction of hedgerow timber. There is plenty of room for trees, either for use or ornament, as well as ample space for the existence of the fruit-bearing trees we advocate, and which, for appearance sake alone, to say nothing of their use, would be vastly superior to the useless pollards, miserable examples of what can be produced by the injudicious and unskilful use of the saw and hatchet. The planting and after attention requisite to bring up hedgerow Apple trees to a bearing condition, would entail no great amount of expenditure in either money or labour, so far as the protection of the trees from cattle, until they are large enough not to require it. This can be done inexpensively by yearly tying a few Thorns round the stems. The principal thing to be attended to is, in the first place, to select varieties, like Blenheim Pippin, that possess a strong, upright habit of growth, and that naturally attain a considerable size, with tall, clear stems, that have not been allowed to throw out branches until they had attained sufficient height. If a demand for such were to spring up, trees especially prepared in this way would be quickly forthcoming.

In cases where the land is held by yearly tenure this, no doubt, would not unfrequently deter tenants from planting fruit trees on a large scale, as no one is over-anxious to plant that of which he is not reasonably insured of reaping the fruit. Consequently, where no leases exist, it is to the owners of land we must look to provide the trees; but were owners and occupiers alive to their own interests in the value of the produce that might be so obtained, any little difficulty of the above nature would be easily surmounted, the result of which would be a great increase in an article of food. An important consideration in the matter, so as to insure profitable returns, would be in the judicious selection of kinds suitable to each particular locality. There are comparatively few places in the kingdom, except where too much elevated and exposed, or the soil is naturally unsuited to the Apple, where some one or other of the many good useful varieties in existence would not succeed. Choice should be made of strong, vigorous-growing, free-bearing sorts, a portion of such that mature their fruit early, but the greater number should be late keepers, as these latter not only always secure much higher prices, but are more generally useful.

A word to those who are engaged in the production of new varieties of this, the most useful of all fruits. We have already in cultivation too many sorts. When we find growers for sale notifying that they possess over a thousand kinds, it cannot be wondered at that those who have not had very considerable practice in the culture of Apples should be puzzled what varieties to grow. But even the experienced are, from the multiplicity of kinds recommended, frequently tempted to plant too many sorts. Any one who walks through Covent Garden at any time, from the commencement of the season that the earliest Apples are in, until the latest keepers are over, cannot fail to observe how few kinds are held in sufficient estimation to cause them to appear in large quantities: the principal dependence is placed on a comparatively few well proved varieties. Henceforth anything brought out in the way of new Apples should possess, in addition to good quality of the fruit, long keeping capabilities, a free bearing disposition, and robust habit of the tree, the very essential property, which raisers have so far overlooked, of opening their blossoms late in spring so as to give a better chance to the crop escaping spring frosts.

The time for preparing the ground and planting all kinds of hardy fruits is now at hand, and on farms and estates innumberable through the kingdom, the cultivation of Apples might with advantage be greatly extended, instead of which

It often happens that old orchards get destroyed with no provision by new planting to take their place.

—— The LARGE FAIRY RINGS of which your correspondent writes, Nov. 27, 1875, do not quite come up to one which I examined a short time since. It was an old friend, which I have known more than forty years, and, I believe, the only place where I have met with Agaricus subinvolutus. When I first knew it it was of very small dimensions, but is now 20 yards across, and, what is very singular, it contrived somehow to get beyond the Scotch Firs, amongst which it had been formed, and seemed quite as prolific after it had got beyond their shade as it was before, Mr. DARWIN, who has thrown new light on so many subjects, is, I believe, studying the formation of fairy rings. At present far the best information on the subject is contained in a paper by Dr. GILBERT in the *Journal of the Linnean Society* for Oct. 11, 1875. Like Clover, the species which occurred in fairy rings at Rothampstead were developed on ground very deficient in nitrogen and potass, and yet they are richer in these substances than most other plants, and consequently when they decay they form a very rich manure for the grasses which form so conspicuous a feature in fairy rings. Dr. GILBERT collates his observations with those which he has long made on the fact of Clover being so rich in nitrogen, though nitrates are not conducive to its growth. The fungi exhausts the soil behind, which becomes incapable of supporting a fresh crop, the spawn therefore spreads into new ground continually, thus forming a ring. The decaying fungi yield a large quantity of nitrogenous matter, which is appropriated by the grasses, amidst which a new crop of fungi is developed, which in turn exhausts the soil and makes way by decay for a new crop of luxuriant grass. Dr. GILBERT is far from believing that he has exhausted the subject, and it must be recollected that fairy rings are as common in woods as in pastures, and sometimes acquire even a larger diameter. Agaricus crustuliniformis, for example, sometimes makes enormous rings, but, as they are formed amongst dead leaves, there is nothing to show their existence till the fungi themselves appear. *M. J. B.*

—— Some time since we had occasion to refer to some decayed TULIP BULBS, which, though apparently sound when planted, nevertheless became rotten, to the disappointment of the purchaser and the annoyance of the vendor. We were quite unable to detect any cause for this—no fungus was visible, nothing but decay. Lately we have heard that the rotting may be attributed to the circumstance of allowing the bulbs to remain enclosed in a bag in a damp situation; the base of the bulb is apt to rot under such circumstances. We rather doubt whether this explanation, which is good so far as it goes, will satisfactorily account for all the phenomena; in any case it may serve as a useful warning not to allow bulbs to remain long in damp places.

—— We have recently (pp. 527, 559) given extracts from the official programme of the intended INTERNATIONAL HORTICULTURAL EXHIBITION, to be held AT AMSTERDAM in 1877, but as the range of the proposed exhibition is of a much more extended nature than horticultural exhibitions and botanical congresses usually are, we desire to draw the attention of our readers specially to the programme itself as given on pp. 527, 559, in the hope that a more extended knowledge of what is contemplated at Amsterdam may result in a thoroughly successful exhibition. A more carefully drawn up programme it is impossible to conceive, and if carried out in its entirety it will undoubtedly prove the best exhibition of economic vegetable products ever brought together. From the circular issued by the organising committee, and published by us, we learn that the exhibition was intended to have been held at an earlier date, but after consideration the longer period was decided upon. We do not regret this, inasmuch as the extension of time will give greater opportunities for the realisation of the comprehensive programme. From our experience of International Exhibitions we do not hesitate to say, with regard to natural products, that they might be made vastly more useful and interesting than they hitherto have been. In the exhibitions at Paris and South Kensington, where our colonies have for the most part occupied important positions, the shortcomings have been in the faulty nomenclature of the specimens, and, what is worse, often the want of names altogether; then, again, the specimens have been recklessly collected, or carelessly dried or otherwise preserved. These things are no doubt due to many causes, the principal of which, and from which all others emanate, being want of sufficient time in getting the collections together for transmission to a distant country. To bring the consignments up to time, unqualified men are frequently employed to obtain the specimens, and in the hurry the best, or even fair, specimens are not or cannot be obtained; the specimens of plants accompanying them are badly preserved, or perchance the number or label is lost or misplaced, and the product, whether it be a gum,

FIG. 147.—VIEW ALONG THE TERRACE IN THE LÁL BÁGH, BANGALORE.

fibre, or wood, is to a certain extent valueless. It cannot be too frequently or too strongly impressed upon the collectors of natural products, that flowering specimens of the plant actually furnishing any particular product should be secured and transmitted with the product itself, and that corresponding numbers should be firmly fixed to each. Woods should not be dried too rapidly, and in the case of specimens preserved in fluid, alcohol may be considered the best medium. Small pieces of copper, with numbers stamped in them and affixed to the specimens with copper wire, will be found the most secure. These remarks will be seen to apply to many items in the programme under consideration. It is to be hoped that the committee of the exhibition will freely distribute these programmes, and that the length of time before the actual display takes place will not cause them to relax any of their endeavours to obtain in the full what is contemplated. Much time must be necessarily consumed in obtaining or preparing some of the items in the list, therefore it is well for those intending to contribute to "make a note of it," for no excuse can be given on the score of insufficient notice. Though the information sought to be obtained from the exhibits and statements or records of facts connected therewith appear at first to be a repetition of what we already know, yet if they are carried out according to the programme we may expect some new light on sources or the preparation of many articles even of common use. Thus under the head of Tobacco one of the requirements is "a collection of species of Nicotiana, with samples of Tobacco produced therefrom." From such a collection, if authentically named, a good deal of light might be thrown upon the botanical origin of our commercial Tobaccos, the bulk of which, under the name of Virginian Tobacco, is known to be procured from Nicotiana Tabacum, but how far the other commercial forms are supplied by the same species is, to say the least, doubtful. With regard to the well-known dye, madder, the roots of Rubia tinctorum, in these days of coal-tar dyes an interesting question arises on the ninth and eleventh requisitions, which are—1. "A series of stuffs, dyed partly with madder dyes, partly with artificially obtained alizarine, and with other chemical productions suited for comparisons, in addition to an opinion as to the prospects of madder industry by the continual improvements of these productions." 2. "Plants furnishing colouring matters similar to madder, with statement of whatever may relate to the culture and preparing of such dye stuffs, elucidated by dried specimens and samples." Again, with indigo, a similar collection is sought for of stuffs dyed partly with indigo and partly with coal-tar or other mineral dyes, for comparison, "in addition to an opinion as to the prospects of the indigo business under the increasing competition of chemical dyes." Other plants are also sought for from which a blue dye can be obtained for manufacturing purposes and capable of cultivation on a large scale. In the matter of caoutchouc and gutta-percha, a large subject and one of much interest presents itself, for though we are pretty well acquainted with the sources of American rubber, and it is beyond doubt that Hevea brasiliensis supplies the best rubber known in commerce, our knowledge of African rubber plants and those of the Malayan Archipelago is in a decidedly unsatisfactory condition. Vegetable oils and fats ought to be largely represented, and though our knowledge of the sources of these substances is not inconsiderable there are many that require further elucidation. The remaining sections of the programme, though interesting in themselves, do not call for any special notice. We wish the exhibition every success, and sincerely hope it will fulfil the expectations of its promoters.

—— Some few weeks since the Metropolitan Board of Works instructed its Works Committee to consider and report on the desirability of taking steps for applying to Parliament in the next session for obtaining the fee of the CHELSEA BOTANICAL GARDENS belonging to the Apothecaries Company. At the meeting of the Board on the 12th ult. this report, which was to the effect that the committee did not consider it expedient to take any steps for applying to Parliament in the matter, was brought up. Mr. NEWTON, in moving its adoption, stated that the land in question was adjacent to the Chelsea Embankment, and was held by the Apothecaries Company in trust for the purpose of growing herbs [rather as a garden for the advancement of botanical science], it reverting eventually to Lord Cadogan. In consequence of an alleged depreciation of the value of this land [right of way, water frontage, &c.] by the construction of the Embankment, the Apothecaries' Company had sent in a claim for compensation amounting to £14,000. The question had been raised as to the advisability of the Board purchasing the property, but the committee did not recommend the adoption of this course. There were only two reasons urged in its favour. The one was that if they purchased the property outright, it would put an end to all claims for compensation; the other being the power to lay out the land for building purposes, effecting a consequent saving of money. He did not think, however, that either of these reasons would be sufficient to induce Parliament to pass such a bill as that proposed. Mr. R. COX proposed as an amendment:—"That in accordance with the recommendations of the superintending architect, in his report to the Works and General Purposes Committee, dated June 21, 1875, the Board do apply in the next session of Parliament for power to acquire the gardens belonging to the Apothecaries Company, contiguous to the Chelsea Embankment, and that it be referred to the Parliamentary Committee to take the necessary steps for that purpose." A further amendment proposing to insert the words "at present" after "do not consider it expedient" was brought forward. After some discussion, in the course of which Mr. KOCHE asked if the Board could think for a moment that Parliament would ever sanction a measure promoted with such a view, the amendments were negatived by a large majority, and the motion for adopting the report of the committee agreed to.

—— What can be the SINGULAR TREE referred to in the following cutting from *Public Opinion?* The passage is highly suggestive of some (h)oaks rather than Firs! Here is the account of the vegetable wonder:—"A singular tree is now growing in a wood near Eureka, California. The tree is half Pine, half Fir. Its height is about 75 feet, and for a distance of 30 feet above ground it is Pine, the next 20 feet are Fir, and the remainder to the summit is Pine. The Fir portion of the tree is in a flourishing condition, and the foliage perfectly dense, but in the Pine portion the leaves are scarce."

—— Writing of WINDOW GARDENING a short time since in the *Gardeners' Record*, Mr. ADAIR mentions a much more promising plan of promoting it than that so much followed in the London parks and public gardens, of giving away the worn-out bedding plants just as winter is setting in. The plan is explained in the following passage from his letter:—

"Last spring a movement was made to encourage amongst the children of one or two schools of the southerly districts [of Dublin, we suppose] what is commonly called window gardening. On the invitation of some managers of the schools connected with St. Matthias' Church, I met, one day last May, at the school-house, a few ladies and gentlemen interested in the schools, and one hundred of the children. To each of the latter a plant was confided to manage till October, with the prospect of being then given absolute ownership of the plant. At the close of October sixty-five of these plants were brought back to the school-house in a state which does much credit to the care which they received. I divided them into four classes, and sixty-five plants were given to these children, one to each, and of kinds which I selected in the hope, as to some especially, of raising the taste of the little cultivator, without unreasonably taxing his or her skill. A variety of the best kinds of evergreen Veronicas and Euonymus; a few of the European Palm, Chamærops humilis; some of the Aloe and Agave group, Myrtles, Pelargoniums, &c., were amongst the selection. A somewhat similar movement has, I understand, been this year made in connection with some of the youths of the congregation of the church in Baggot Street. And now a question might be put of more general interest—what amount judiciously expended within five years from the present time, in such ways as would each pound spoken of above, advancing social improvement amongst us, save from being expended in prosecution for crime within the thirty years also now commencing?"

—— We regret to hear that in consequence of contemplated reductions in the garden establishment at HAWKSTONE, Mr. D. JUDD will shortly be leaving, and open to another engagement. We ourselves have never witnessed better gardening than that carried on at Hawkstone, and testimony to the same effect will be found in the description of the gardens there by Mr. BAINES, recently published in our columns. Such a thorough master of his profession ought not long to be unoccupied.

—— Those who have to preserve greenhouse and half-hardy PLANTS IN COLD FRAMES DURING WINTER are often driven to their wits' end during a season of frost. Two dangers have to be guarded against—frost and damp; and it often happens that in trying to exclude the first, the second is promoted. It is not difficult to exclude frost; plenty of clean dry straw with which to cover the glass, and a thickness of 12 or 18 inches of any non-conducting material, such as leaves, Cocoa-nut fibre, &c., placed against the sides of the frame in the form of a wall, will leave little reason for fear on the part of frost, and if a light waterproof cloth of some kind can be employed to cover the straw, it will serve to ward off wet, and by being fastened down at certain points, will prevent the wind carrying the straw away. Damp is certainly the most troublesome and destructive agent of the two, and, therefore, in constructing the framework of a frame for wintering plants there should be a good layer of brick rubble immediately under the layer of ashes on which the pots rest. Wet is thus quickly drained away. The ravages of damp can be much better mitigated by the constant application of forethought and preventive measures than by any means which can be applied after the enemy has fairly got possession; and unless the most rigid attention be paid at the outset, deaths from damp will surely follow. No plant should be watered which does not absolutely require it, and very little water indeed will suffice for some weeks to come: when water is given it should be on the morning of a day when the frame can be opened to admit of air being given for two or three hours. No favourable opportunity for giving air should be allowed to pass. In giving water it should not be allowed to fall on the leaves of any plant, or be needlessly spilt about the frame.

—— As a winter flowering plant the beautiful blue BROWALLIA ELATA is perhaps scarcely sufficiently recognised, and it is in some respects to be preferred to Eranthemum pulchellum. Mr. BARRON has some excellent bushy examples of this fine old greenhouse annual now in flower in one of the plant houses at Chiswick, that are loaded with beautiful blue flowers. If the seed be sown in March in a mild heat, and the plants pushed on in a stove, but pinched back to make them bushy, and then brought into a cool greenhouse in summer, they will begin to flower in August, and if placed in a warm house during winter will flower with great freedom all through the dull season of the year. In company with Plumbago rosea, Bouvardias, Euphorbia jacquiniæflora, Primulas, Roman Hyacinths, winter flowering Begonias, Poinsettia pulcherrima, and others, there need be no lack of flowers till the early springtime makes blossoms much more plentiful.

—— On arriving at Birmingham on Monday last, we were just in time to witness the commencement of the vast improvement which it is intended to carry out in the town, by the planting of trees in the approach to the New Street railway station; an example which will, we trust, be followed in other towns.

—— PACHYSTOMA WIGHTII, a pretty yellow-flowered terrestrial Orchid, is now flowering at Kew. It has the habit of Bletia, but more readily recalls the beautiful Ipsea speciosa, to which it is closely related. This is only a small plant, but if it flowers freely a specimen would be a fine object. The blooms are almost circular, and about the size of a two-shilling piece. It is a native of Northern India. The Ipsea just referred to is a fine Orchid, though apparently shy of flowering. Success would, however, well repay a little trouble in its cultivation. It is now perhaps not in any collection, but will doubtless be reimported from Ceylon, its native country. A figure is given in the *Botanical Magazine* of 1868, from a plant flowered by Mr. BATEMAN.

—— The following circular has been sent to us for publication:—

"Royal Horticultural Society, South Kensington, S.W.,
Nov. 23, 1875.

"It being advisable, in view of sundry objections offered to the circular of November 3, that a special general meeting of the Fellows of the Royal Horticultural Society be called, a meeting will accordingly be held in the Council-room, South Kensington, on Thursday, December 9, at 3 o'clock P.M., for the purpose of explaining the scheme of the Council, and of giving the Fellows an opportunity of stating their opinions on its details. The President trusts that it will be convenient for Fellows to attend, as the subject to be discussed is of the greatest importance to the interests of the Society.—By order, *J. S. Davenport, Assistant Secretary, Royal Horticultural Society.*

—— Mr. ECKFORD, who is well known to our readers as a raiser of new Verbenas, has taken a nursery business at Stroud, and is succeeded in the management of the gardens of the Earl of RADNOR at Coleshill, Highworth, Berks, by Mr. STEPHEN HAINES, late foreman at Longford Castle, Salisbury.

—— The SALE AT THE ROYAL NURSERIES, ASCOT, Berks, by order of the executors of the late Mr. JOHN STANDISH, commenced on Tuesday, November 23, and will conclude to-day (Saturday). During the sale the attendance has been larger than is usual for sales of this description, which is not to be wondered at, considering the magnitude and importance of the stock. The specimen Coniferæ and other choice shrubs in the borders went at low prices, but no doubt the purchasers had in view the cost of their removal and carriage, which is no small item to those who have to convey them to any great distance. The greatest attraction at the sale, and which brought the trade and others from a distance, were the variegated Hollies which the late Mr. JOHN STANDISH had at some considerable expense grown very successfully. The competition for these was very spirited, and they realised their full value: Perry's Weeping, from 4*s.* to 12*s.* each, and other favourite varieties brought similar prices, realising altogether about £600. The young stock obtained also large prices, and the sale altogether may be regarded as a great success. We understand that preparations will be made for a sale of the smaller stock in the spring.

— It is always interesting to notice the behaviour, if we may use the expression, of plants with which we are familiar, when the circumstances under which they occur are greatly altered or modified. On this account the notes by Colonel GRANT in the handsome volume devoted to the plants collected by him during his journey from Zanzibar to Egypt which has lately been issued by the Linnean Society are often of special interest. Some of our common British plants were encountered by him upon his journey; one or two of them assume an appearance widely differing from their normal one. Our common Nettle (Urtica dioica), for example, grew 7 or 8 feet high, with straggling white roots 2 feet in length, and was a really handsome plant, the large leaves drooping gracefully over the flowers; the upper portion only of the stem was leafy, it being bare below for 4 feet. The root is used by the natives as a purgative. Cyperus longus, which grows 3 feet high, is greedily devoured by camels. Our common reed (Phragmites communis) "extends in one great sea for 1100 miles north of 4° 55′ N. lat." The flutes and whistles of the Wagonda are made of this reed, which is said to grow as thick as the arm in Nyassa, where the natives make a fence of it. Cynodon Dactylon is used by the natives as their only bedding, being placed on the floors of their huts. The leaves of Solanum nigrum are boiled and eaten.

— In the *Bulletin of the Central Horticultural Society of France* we find the following "NEW METHOD" OF PROTECTING VINES FROM THE ATTACK OF MILDEW. A certain M. CHATOT, of Matour, had several Vines attacked by mildew for some years, and this spring he conceived the notion of putting a handful of table salt at the base of each cane. The effect is said to be eminently satisfactory; fine foliage and plump berries in the place of crippled growth and shrivelled berries.

PHOSPHORESCENCE.

THE subject of phosphorescence in fungi has been several times brought forward in the *Gardeners' Chronicle*, and a remarkable instance of it has recently been brought under our notice by Captain H. King, of Cuthurst, Petersfield, who kindly forwarded a rotten stump infested with mycelium and phosphorescent for examination. As some friends of Captain King were returning home a week ago they observed in a hollow lane a luminous appearance which was found on examination to proceed from some rotten wood which had fallen with a landslip from the bank above. Captain King first sent on to us some small pieces and afterwards a large piece of this rotten stump for examination.

The wood probably belongs to the Oak, and Captain King's man states that he has frequently seen not only the stumps but fallen Oak branches themselves in a state of phosphorescence. In the note which accompanied the first specimens it was stated that the luminosity had somewhat passed off, but on opening the box in London the whole contents shone with a brilliant phosphorescent light, so bright that the light could be distinctly seen through two thicknesses of thick writing-paper. On becoming dry the next day the light gradually passed off, but it was almost instantaneously revived on the application of moisture, which corroborates what Mr. D. T. Fish has said in the *Gardeners' Chronicle* for 1872, p. 1327, in reference to a lot of luminous wood which was supposed to be in a state of ignition, and on which water was dashed to no purpose. On getting better materials from Chithurst, the phosphorescence was seen best on the broken surfaces, and, on cutting the wood into chips with a knife, all the cut surfaces were phosphorescent. On placing the chips one upon another the luminous appearance at once communicated itself to the adjoining pieces, and the glare was not perfectly stationary, but moved restlessly about like the glare seen on phosphor paste. The luminosity would not, however, communicate itself to the fingers, or to any foreign substance, and, as seen under a low power of the microscope in a perfectly dark room, nothing but a brilliant bluish light could be seen.

There was no perfect fungus on the wood, so that it is impossible to refer to any species of fungus with certainty. In one place, however, there was a decayed purplish mass, which reminded me of the Corticium coeruleum; this consisted of semi-collapsed cells only, elsewhere there were the peculiar white papery plates of mycelium characteristic of Polyporus hybridus, and in other positions the well-known black threads known as Rhizomorpha subcorticalis were common, together with black threads probably belonging to some Sphæria. There was no odour.

Where the phosphorescence was brightest the wood was most thoroughly decayed, and the mycelium was in far greater abundance than elsewhere; this mycelium was very fine and thin, and furnished throughout with minute projections, reminding one of the suckers commonly seen in some species of Peronospora; this mycelium we have here engraved (fig. 148), together with a few cells of the wood, to show the proportion between one and the other. In many places (but not all) where the phosphorescence was strongest there was a good deal of amorphous mucilaginous matter present, and indeed in some places this mucilage was shining where no threads could be detected at all.

Wood is a non-conductor of electricity, and an electric spark will not pass along it, but on placing this phosphorescent wood in connection with the two poles from a galvanic battery brilliant sparks were at once elicited, which passed along the wood between the poles. This might possibly be owing to some inherent dampness in the wood (though it had not been artificially damped by me), for water is a well-known conductor of electricity.

Carbonic acid gas has the immediate effect of destroying life and putting a stop to combustion. No flame will live for an instant in this gas, and, for the purposes of experiment, I filled two glass jars with carbonic acid gas, generated by pouring sulphuric acid into a properly-prepared jar containing powdered chalk and water. Into the two glass jars of carbonic acid gas I dropped several pieces of the most luminous portions of the wood, with no effect whatever as regards lowering the light. No flame would burn in the bottles during the evening, but the phosphorescence of the wood suffered little or no abatement.

Oxygen gas, when applied to burning objects, causes them to burn with much greater rapidity and brilliancy, but, on the phosphorescent wood being placed in bottles of oxygen (generated by heating oxygen mixture over a spirit flame, and then collecting it in an inverted bottle previously filled with water)

FIG. 148.—LUMINOUS FUNGUS SPAWN AND WOOD CELLS, Enlarged 500 diameters.
(Black spawn at base not luminous).

little or no effect was manifest. If the brilliancy of the light was accelerated it was very slight, but the oxygen certainly had the effect of diffusing the light.

On keeping the phosphorescent wood totally immersed in water, it had no effect whatever on the luminosity, which was quite as brilliant under water as in the air, but whenever the wood got dry through being kept within doors, saturation with water soon brought on the light again. The light was always brighter after exposure to the open air.

In my experiments the phosphorescence became extinguished in three ways: 1st, on saturation in oil—although, to judge from Tulasne's experiments, oil will not always extinguish the light; 2d, by immersion in boiling water; and 3d, by freezing in solid ice. I even made the light recover after these tests. *W. G. Smith.*

CARNIVOROUS PLANTS.

FROM the number of experiments made with carnivorous plants, and the high character of the experimenters, it seems beyond doubt that the plants have a kind of household economy and turn to good account any scraps which the wheel of fortune may fling in their way; moreover, this peculiarity is an exceptional case and altogether gratuitous, as it is evidently not essential, even if it be at all needful, for such plants in the propagation of their species. There are on the table before me plants of the Drosera rotundifolia, with their withered flower-stalks and seed-pods still adhering, showing that they had gone their several rounds in company with a little wet moss, and apparently without any other support, and, having gained this end, nothing further was needed.

No one questions the presence of insects on these plants, but in what capacity are they there?—for dead flies in different stages of decay and putrefaction are but sorry evidences of plants eating insects. Is it in self-defence that these plants can poison the intruder that has been entrapped to its own ruin, and eventually reduce the victim to a pulp, or is the harmony of the parts of the plants deranged by the application of doses of raw beef or other foreign ingredients? This, indeed, would be no marvellous thing, for we see something of the kind in the gall of the Oak, where the female Cynips first wounds a branch and in the wound deposits an egg, the effect of this small wound being the production of a gall-nut as round as a Cherry and just about as large, and so like a genuine fruit that if we did not know its history we might easily be deceived by its finished gloss and firm hold of the twig that supports it. Here then is sap run mad, but it is the vegetable holding the candle to the insect, and, however erratic the freak may be, it will serve to illustrate how sap may be diverted from its normal course, and be made to feed a monster that is no friend to the Oak.

Many Ferns when they get "mothery" curl up their fronds so as to make a pent-house to protect their spore cases from rain, and this is so much the case with Osmunda regalis that its popular name is the Flowering Fern from this peculiarity. The Rose defends itself by means of its thorn, which otherwise would be of no service to the plant; it only wounds the deliquent, and lets him go bleeding away, yet not for the benefit of the plant that gave the wound. What would Dionæa, Drosera or Pinguicula give—if half that is said of them be true—to lick the blood of the victim after contact with the Dundee Rambler Rose, or the woodland Bramble, with all its spines hooked like an ancient battle-axe? This protection is equally needful in the struggle for existence, for the thorn is to the Rose what the sting of the bee is to the honey, and Nature has displayed much design in her disposition of thorns, spines, stings, &c. Even the Nettle, little regarded, has no doubt for some good end got its host of protecting daggers. All this, however, is only for defence, since, though the Nettle stings, it is not for any benefit to itself beyond protection. Hence it may well be surmised, until it is proved to the contrary, that the so-called carnivorous plants do battle for self-preservation after their own fashion, detaining their victims until death and "decay's corroding fingers mar their lives."

In the battle among plants for elbow-room, from the Pine forests of long bare poles down to the Calluna covering the hills with besom timber, the struggle is not so great or so universal as is that in the battle to propagate and hand down the species to posterity; the most unlikely plants gird on their armour at that trumpet's call. The Holly puts on some eight or ten daggers for every leaf, and thus stands on its own defence, until it has got above the browsing line, as if it had reckoned upon the attack from cattle, and had provided accordingly; but when out of danger it changes its plan and puts off all its armour, as if it trusted to its gentler deeds, its flowers and fruit, its strength and elevation. Now were this aught but a plant we should say how wonderfully wise it was, how warlike and cruel in early life, and how peaceful in age; its history would border on the sublime. The one grand object of its thirty or forty years' incessant labour—for it is an evergreen all the year round—has been to perfect itself and propagate its species.

The common Ivy is perhaps the most variable shrub which we possess, for when altogether left to itself it crawls meanly along the ground, and produces neither flowers nor fruit, eating up by its strong bundles of roots any fatness that there may be in the soil, but let it once get to a prop of any kind—rock, wall, or tree, and the coarse roots then give way to neat suckers that cling to whatever comes within reach, often strangling the tree that supports them. The elegant twigs of the Ivy creeping on some hedge-bank, like ready-made garlands, change the shape of their foliage more than once during their lives, for when this plant is like the Holly, high enough to be out of danger, it will no longer clasp nor twine, but devotes all its powers to flower and fruit, and all its changes were only means towards this end.

However odd these and many other plants may be in their habits, yet we do not find them storing aught above their collar or changing the fiat with which they began to take root downwards and feed in the dark; whereas the carnivorous plants would seem to use their leaves as caterers for flesh, and their motto must be "Slay and eat." Now though climbers and twiners, by means of their tendrils, twist and turn to feel their way, like a blind man groping for his staff, yet no one thinks of crediting them with any sense beyond that of touch, which they undoubtedly possess; but the insectivorous plants have not even the span of those plants that bear tendrils, and the plant that has to depend upon insects for its supplies seems put to the very lowest round of the ladder, and to be very awkwardly fed, after a new fashion, above as well as below the collar; but the sap above and below the collar of most plants has separate functions.

Plants protect and defend themselves by flight to higher regions, as in the cases of the Holly and Ivy I have named, and no one wonders at the deed, because it is common, and, like the bulk of those of the vegetable kingdom, developes its character slowly; whilst the Fly-trap (Dionæa) closes its jaws upon the intruder "quick as the spark from smitten steel." When the larger morsels, such as the whole carcass of a fly, come to be disposed of, any extraneous help, such as hanging in the larder for a few days, one would think well of it if it is to be fitted for digestion.

Let us suppose a London house-fly, after sipping porter from the table of some tap-room—for all the world knows what topers they are—sailing away in this drunken state to the bog, and, when his feet and feelers are fast in the stocks of the Sundew, we see him die a lingering death, and, without a *post mortem* examination, we know that the said liquor has been in his body. This is one of the likeliest liquids to turn acid, and in this case the litmus test-paper tells the effect but not the cause, for the functions of the plant may be, and doubtless are, more or less deranged by extraneous applications. The knots and knaurs on many trees give examples of sap-producing oddities. The bunches of tiny twigs on the Birch, all stunted, have no apparent function, nor can they do any service to the mother tree; yet it is evident that there must be a gushing supply of sap to support some fifty or a hundred small twigs in good health; the thick bark, however, hides the stream from observation, not to mention that the specimen is placed high on the tree, whereas the whole structure of the Drosera is almost transparent, and more like a thing of wax than a living plant. That certain chemicals applied like a plaister to the leaves cause paralysis in some cases, and in others only a kind of sensitive playfulness, is entirely due to the plants being outwardly touched, and does not in any case originate with the plant itself. All observers agree that the plant takes action, but they differ as to whether the plant has the power to digest and turn the dead flies to account or not. My friends and myself have watched eagerly and patiently to see the flies dished up, but all in vain—

"And still we gazed, and still our wonder grew,"
How plants digest who have no cud to chew.

Alex. Forsyth.

Home Correspondence.

Agaricus personatus Dangerous.—This is one of our commonest edible fungi; it was formerly sold in Covent Garden Market, and is even now exposed for sale in the market of Nottingham under the name of "Blue Hats," whence Mr. Thomas Moore brought some specimens to a meeting of the Royal Horticultural Society about a year ago. The Rev. M. J. Berkeley, in his *Outlines of British Fungology*, says of this species that it "has been supposed to be occasionally dangerous," but as far as I know the same observation is printed in no other handbook published in this country. Mr. Peter Inchbald, of The Lodge, Hovingham, York, has sent me some typical specimens of A. personatus this morning, asking for the name and giving me the information that the keeper had gathered a dish of it and cooked it for the table, with the result that soon after taking it the whole party—himself, family and mates—were seized with vomiting and pain in the pit of the stomach. From this it would seem that the fungus is really at times dangerous, and should be eaten with caution. Agaricus personatus could well be spared from our edible lists, for it is often rank and disagreeable, and it seems sometimes really dangerous. *W. G. S.*

Gas and Trees.—About two years ago I succeeded in carrying a resolution in the Vestry of St. George, Hanover Square, to extend the existing line of trees on the south side of Piccadilly the full length of the park rails, which was publicly reported and much approved of; but the resolution was, unfortunately, afterwards rescinded by a small majority in the Vestry. And now the public, in place of having more trees, seems likely to lose the few it possesses, for the gas company have this week placed a large main under the footway, the gas leakage of which must of necessity permeate the roots of the trees, and probably eventually destroy them altogether. I have resolved to again raise the question of adding to those justly admired trees, but if my supposition as to the injurious effect of coal gas upon them is correct it would be of little use. Kindly give your opinion upon the subject. *J. Barlow.* [There can be no question as to the injurious effect of gas on the roots of trees, and none, we should have thought, as to the desirability of planting trees on the south side of Piccadilly. EDS.]

The Snowflake and Eureka Potato Competition.—Please allow me to quote a portion of Messrs. Hooper's circular, which was sent to all competitors, and which Messrs. Hooper omitted in their reply last week to my letter of the preceding week. Whether it was a designed or accidental omission I cannot say, but as it bears considerably upon the whole question I think I am justified in directing attention to it. These are their own words (capitals included):—"Wishing to have the above New Varieties of Potatos fairly tested in Europe, Hooper & Co. offer Special Premiums amounting to Fifty Guineas to British Cultivators, which will be awarded to Growers of the *largest quantity* from One Pound of Snowflake and Eureka; Twenty-five Guineas to each variety, to be awarded as follows:—*For the largest quantity of Snowflake Potatos grown from 1 lb. of seed*, 10 Guineas. For the second largest, 5 Guineas," and so on to the sixth largest, for which one guinea was offered. The prizes for Eureka were in every respect similar to those for Snowflake. By this it will be seen that the prizes were offered for quantity only, and those who obtained the most from the specified quantity of seed are entitled to the prizes. Nothing can be more plain, for it is twice stated that the growers of the "largest quantity" are to have the prizes, and I should have been perfectly justified in claiming the first prizes had I exceeded by only 1 oz. the weight grown by the "second largest" competitor. Messrs. Hooper state that they had no "right to anticipate the judgment of the Society by recommending any particular action;" perhaps not, but they certainly had the right, after offering prizes for a specified object, to see that that object was kept in view when the awards were made. No one I think can deny that I have just cause of complaint, or that I am writing unnecessarily when I state the fact that the weight of Potatos grown here exceeds by upwards of 600 lb. (taking the two varieties together) the quantity grown by Mr. Pirk, the gentleman to whom the 1st prizes were awarded. Had I known in the early part of November what I now know, I would have sent all my diseased Potatos to Kensington, and left the responsibility of the act with Messrs. Hooper. *Frederick Ford, Capesthorne, Chelford, Crewe.* [An excellent way of propagating the Potato disease! EDS.]

Potatos from 1 lb. of Seed.—Although not openly expressed, there evidently existed in the minds of the writers of the paragraph at p. 622, and of the reporter at p. 627, doubts respecting the truth of the statement, that upwards of 1000 lb. of Potatos had been grown from 1 lb. of seed. Doubtless it was a startling announcement to make, but it is none the less true; more especially would it surprise those who have had little or no experience with the American varieties, or those who imagined that they had been grown in the ordinary way of growing Potatos. In my case it was simply as an experiment that I adopted the plan by which I grew the quantity that appears to many so extraordinary. Being a competitor for Messrs. Hooper's prizes, they appointed an agent to superintend the weighing and planting of the sets, and the lifting of the crop. Everything I did to them was done openly; no secrecy on my part was either attempted or desired. The Potatos for planting were cut into sets, weighed, and counted, as I cut them, by almost a score of persons. They were planted on the following day in the presence of Messrs. Hooper's agent and others, and many a laugh was had at my expense when they saw how carefully I planted them. When the Potatos first appeared above ground I was thoroughly ashamed of them, for they were but little, if any, stronger than seedling plants; but with the encouragement they received, by the end of July the haulms, if fully extended, would have covered a radius of 4 feet from the main stem. During the summer I had many visitors who, having heard of these Potatos, desired to see them, and on some of them expressing a wish to see them lifted, I invited them to come on the day I intended to raise them. Eurekas were lifted on August 21 in the presence of between twenty and thirty witnesses, and weighed at the same time, the weight being 1082½ lb. This was fairly and honestly obtained from 1 lb. of seed, not one set more than 1 lb. was planted, and I am convinced that I can exceed even this great weight another year. In fact, I am ready to undertake to grow a ton of Potatos (2240 lb.) from 2 lb. of Eureka, and to grow them entirely from sets, no cuttings or any unusual way of increasing the plants to be adopted. *Fredk. Ford, Capesthorne, Chelford, Crewe.*

Notes from Arundel.—I notice in your columns last week a short paragraph to the effect that the Duke of Norfolk is restoring the old keep. On a recent visit to this glorious place I saw the work proceeding, and can speak to the painstaking manner in which it is carried forward. But it is not the keep only which the noble Duke is interested in, it is with the place as a whole. The old dung-pits in the garden are now splendid span-roof houses, the old lean-to's have all been re-roofed, and the work of improvement is to be seen on all sides. The latest improvement is to build a splendid new house for the young gardeners. In the town old cottages have been taken down and new ones erected, which are simply semi-detached villas, lofty, and well built. Some time back it was hinted to the Duke that the water from the town wells was not pure; he immediately, with a generosity that does him credit, supplied the town at his own cost with stand-pipes and purer water, free of all expense. There has been little said of Arundel Castle Gardens since the days of Mr. M'Ewen, but I shall be greatly disappointed if we do not hear more of them shortly. With a noble and generous employer, a talented gardener, and a climate which all may envy, I look upon Arundel as superior to all places within my knowledge. *R. Gilbert.*

Allamandas are very rapid-growing stove climbers, most profuse bloomers, and not ill to please with soil; mine are growing principally in road scrapings. I have got the roof of one of the stoves here almost covered with them, which are now flowering in great profusion. The flowers are considered by most gardeners as worthless for decorative purposes because they will not last long; it is true they will not last if they are cut with a long portion of wood attached to them, and arranged loosely in trumpet-shaped vases, for in this way they soon become like so much wet rag. A system that I have practised for some time past is to get a glass vase similar to a dessert dish, with a pedestal about a foot high; in this I put a good handful of Swiss moss, and elevate the centre above the sides of the dish, and fill it with water. I then get a quantity of single blooms, and arrange them so that the broad segments of the flowers will rest on the moss. Certainly they have a flat and stiff appearance, but the introduction of a quantity of leaves or a few Fern fronds wonderfully relieves it, and a vase filled in this way is not to be despised at this dull season of the year, when good flowers are scarce. *J. Ollis-head, the Gardens, Wimbledon House.*

Pinus aristata.—Mr. Meehan wonders that I have not claimed for Pinus Balfouriana what he believes to be its undoubted right, and he says, American botanists would readily accord—the priority of name over Pinus aristata. He may be well assured that I should be the last man knowingly to suffer a leaf to fall from the chaplet of my old friend, Professor Balfour, but the fact is that the two trees do not seem to me to be the same. Probably Mr. Meehan has never seen the original *Oregon Circular* in which Balfouriana is figured, and as that paper is now somewhat scarce, I would suggest that a reproduction of the figure would be useful. [We shall adopt the suggestion. ED.] When specimens of Pinus aristata first came into this country the similarity of the foliage struck me, and I compared them with the figure of Balfouriana, and I came then to the opinion which I still hold, that it would be impossible to regard the two as synonymous without attributing a greater degree of inaccuracy in his drawing to Dr. Greville, who figured them, than his known reputation for scrupulous fidelity would warrant. I remember that the Oregon Committee (of which I was then secretary) were all satisfied with the correctness of the drawing, of which, besides, the accuracy of the other figures that we do know is a good voucher. Still the cone from which it was drawn, no doubt, yet exists in the Botanic Museum at Edinburgh, and Professor Balfour or Mr. M'Nab will be able to satisfy any doubts you or Mr. Meehan may entertain on the subject. *Andrew Murray.*

Porter's Excelsior Potato.—In reference to some remarks by Mr. Alex. Dean (at p. 658), I wish to say a few words, but not in the same spirit. Why Mr. Dean should get so angry, and wrote in such a manner, I am at a loss to understand, as, not having had any stock of the above Potato to dispose of, he should have left those to complain who might think they had reason to do so. I did not need to mend my position, as insinuated, seeing that, with the full knowledge that my Potato was out, I could have sold ten times the stock I have before leaving London; and it was not to benefit myself, nor injure any one, that I advertised as I did. I do not think that he need be so much afraid that either the shadow or the substance of dishonesty will cover in this case any but the dishonest; and I have yet to learn that I have done anything exceedingly unfair, as Mr. Dean asserts. I did not advertise until after the few parties who had any amount of stock—true and pure—worth offering, had offered the same to me, no doubt believing they could do best by such a course—and others with small lots, if disposed to sell, would likely take the same course, and those so offering get the fullest benefit, being shown the price I can secure. Some parties, however, offered, even to me, Potatos known not to be Porter's Excelsior (but rather like it in general appearance), and hitherto not called so, and of declared inferior quality, which of course I refused. Considering it exceedingly likely that such might be offered to others, I thought it right in the interest of Potato growers, as well as for my own name, to take some steps, however much it might lay me open to misconstruction—to give warning of what might be expected; hence my advertisement, which certainly might, considering the facts, have been put in stronger terms, as "other Potatos have been offered," instead of "may be offered." I flatter myself that unprejudiced English

and other growers will justify my procedure under the circumstances. I have made Potato growing a hobby (not my business) for some years at considerable loss, which I do not expect ever to make up by sending out sorts. I yet, though a small and poor man, would rather far have purity than pence, and I shall endeavour that what may be sent out under my name shall be true and pure. Mr. Dean speaks very confidently as to Excelsior being widely distributed. How has he become so well informed? I have yet to learn that it can be called widely distributed. Only a very few, I believe, have got it beyond Aberdeenshire, and not a great many in Aberdeenshire; and if spurious stock were offered to me, is Mr. Dean quite sure that such may not have been offered to him? *Wm. Porter, Old Meldrum, Nov.* 24. [We have received another letter from Mr. Porter, in which he denies the accuracy of the assertions made by Mr. Farquhar in our last, but we cannot find room for it this week. EDS.]

Veitch's Autumn Giant Cauliflower.—I have grown the above invaluable Cauliflower since its first introduction, and have never observed the least tendency to variation. The plants have always shown remarkable uniformity in growth and general appearance, so much so as to be almost prototypes of each other, showing the great care there has been exercised in growing and saving the seed to keep the stock so pure. It will be much to be regretted if this splendid Cauliflower is already showing signs of degeneracy, or does not continue to retain that trueness and fixity of character that has already gained for it such a deservedly good reputation. For my own part, I do not think that this is likely to take place if ordinary care be taken in saving the seed, and the name of the firm sending it out is a sufficient guarantee that it will be. It may be that your correspondents have been supplied with spurious seed, from other kinds having got accidentally mixed in. Anyhow, the "Giant" must still make his appearance in every garden where a Cauliflower is grown, and it is to be hoped that he will always be found in the future, as he has been in the past, constant and true, and, without exception, the best and most reliable autumn Cauliflower in existence. *J. Sheppard.*

— I am not a little surprised to see so many bad reports of Veitch's Autumn Giant Cauliflower and Snow's Winter Broccoli, particularly as I am a large grower of both for a private establishment—not less than from 3000 to 4000, about equal quantities of each—and mine are as fine a lot as I ever saw or would wish to see. I get my seed direct from James Veitch & Son. The only difference I find is that, owing to the cold sunless autumn Snow's are rather late in coming in, but what do come are fine and good. *Thomas Speed, The Gardens, Chatsworth.*

— In reference to the above, I beg to differ from your correspondents, Messrs. Carlton and Batters, who, at p. 689, state that it is difficult to procure true; with me it is true to the letter, and better examples could not well be found. From a sowing of two packets made on April 12 I have been cutting from the beginning of September until the present time: by planting from the seed-bed each second or third week, as soon as the plants get large enough, no one need fear of having a supply—to use the term, to shake hands with our invaluable friend (Snow's Winter White Broccoli), which has been plentiful with me for the past fortnight. I procure mine each season from Messrs. Veitch of Chelsea. Of the latter, many gardeners say to me in passing—"Where do you get your seed from? My Snow's Broccoli is quite a different thing." *Henry Gadd, The Gardens, Wollaton, Nottingham.*

Plumbago rosea.—I can fully endorse all that your correspondent, Mr. Ollerhead, says in favour of the above as a valuable winter blooming plant, and if placed in moderate heat, so as to be near the glass some time before the flowers expand, they will be found to stand tolerably well in a cut state, if not placed on tables that are standing in rooms in too close proximity to the fires. Flowers cut from the moist atmosphere of a stove, especially if grown in bottom-heat, have but little chance of standing fresh more than a few hours when placed in positions of that kind. The best place for cut flowers in rooms where large fires are kept is in the recesses of windows, so that they stand a foot or so clear of the glass; in such positions they are much more effective and last double the time it is possible for them to do when exposed to a current of dry heated air. In the body of a room this is constantly the case, and therefore it is most trying for flowers just out of a close moist atmosphere. *J. Sheppard.*

Epiphyllums on the Pereskia Stock.—Growers of these having any doubts as to the suitableness of the Pereskia aculeata as a stock on which to grow Epiphyllums successfully should see some plants in the grand flower room at Orwell Park. They are just now worth a journey to see, and are in the height of their beauty. Some of the plants are perfect pyramids, at least 7 feet high and 4 feet through, and as they are dense plants with almost every tip laden with one or two flowers, some idea of the display they make may readily be formed. Several of the plants have been grafted and worked up to their present size within the last seven years, and to keep them to their present shape and dimensions Mr. Wallis informs me that he has to reduce the length and number of the shoots by breaking them out at the joints. The plants are beautifully green and in luxuriant health, and it is much to be regretted that such splendid specimens could not be exhibited at some of the London meetings, where their presence would cause a sensation. As Mr. Walliis is so successful in the cultivation of these a few words from him as to his treatment would, I have no doubt, be most acceptable to many of your readers. *J. Sheppard.*

The Autumn-bearing Raspberry.—In answer to Mr. Morgan, I think, but am not quite sure, that my autumn-bearing Raspberry is the old double bearing. Without entering into a discussion as to the flavour of the autumn fruit, surely it is better to have it than not? The autumn-bearing Raspberry has this advantage over the common sort—that it bears two crops and takes less room. *William Wickham, Binsted-Wyck, Alton, Hants, November* 27.

— Just a few lines to try to set E. Morgan (p. 689) right about the autumnal Raspberries. As far as the two names, Old Double-Bearing and Merveille des Quatre Saisons, are concerned, I have always failed to see any difference in the kinds as they have been sent me. I have the Quatre Saisons, and I find it a profuse bearer in October and November. I have also Semper Fidelis—an upright-growing and very abundant bearing sort. I have had good crops this year upon both, but I do not, as your correspondent does, consider that this has been a very good season for autumn-fruiting kinds, especially here. The fruit and leaves, too, have been almost washed off the bushes by long-continued rains. I do not know how Mr. Morgan cultivates his autumn-bearing kinds, but my way is in the winter to cut down every cane close to the ground, and then to well dress the plants with short manure and earth, laying on a good coat, and allowing it to remain to be washed in by the rain. Next spring the plants grow away strongly, and form strong and fine canes. These are generally well loaded with fruit in the autumn—I say loaded, because the fruit grows on the top ends of the canes, and weighs them down. The other kinds generally grow upon side branches, and the bushes may be said to be covered with fruit. *J. Scott, Merriott.*

— I have grown the autumn-fruiting varieties of Raspberries for many years, and have found their fruit very useful, especially when required for flavouring ices. In the midland counties it requires the months of September or October to be dry and warm for a good crop to be depended upon; but I should think in the South of England they would bear abundantly every autumn. The following varieties are the best bearers, viz., the October Red (Merveille des Quatre Saisons), and October Yellow (Merveille des Quatre Saisons à Fruits Jaunes). I likewise grow the Autumn Black and the large Orange, but these varieties are not to be depended on for a crop like the first two sorts. As the autumn-fruiting Raspberries do not bear or ripen fruit freely in July or August, like our summer kinds, the canes must be cut down, in February or March, close to the ground. When the young canes in May are too thickly placed on the old stools, they must be thinned out to three or four, and tied to stakes as they progress in their growth. The soil cannot be too rich, and they should likewise have a good top-dressing of rotten manure, for the Raspberry roots very close to the surface of the ground. *Wm. Tillery, Welbeck.*

— I think your correspondent, Mr. E. Morgan, p. 689, will admit that Red Currant tart is decidedly improved by a sprinkling of Raspberries; and if he is a gardener, having a gentleman's table to study, he will also admit that "variety" and "a change" are required in every day's dinner arrangements, the fare never being two day's alike. And fruit tarts and puddings are subject to the same rule. Now Red Currants when grown against a north wall will hang and keep good till November—they surpass indeed, in their keeping qualities, Morello Cherries and most Plums, and when getting late in the year they are more valuable, for the reason that fruit for making tarts with is scarce. For several years we have had plenty of Currants, but the Raspberries have been wanting after the summer fruiters were over. A neighbour in the adjoining parish had some autumn-fruiters, and sent us some canes last winter; they were planted, and afterwards cut down to within a foot or less of the ground. They made nice growth, and bore a good crop the present autumn upon this new growth, and I need scarcely say they were highly valued, their flavour being certainly very good, and not to be despised by a prince. *Thomas Wynne, Gr., Hemsby.*

How to Establish a Rookery.—Having read with interest Mr. Ollerhead's letter at p. 689, wherein he says, after many fruitless attempts his employer has succeeded in establishing a rookery, allow me to ask Mr. Ollerhead if he will be good enough to state the way in which he succeeded in establishing such rookery. My employer would be glad to know the best plan to adopt, with a view to succeeding here, where there is every convenience afforded for the same. In reference to rooks not being able to crack Walnuts, I beg to state that at one place where I lived as gardener the gentleman offered me a consideration if I succeeded in shooting a rook, as they were very troublesome in the fields, where the corn was just coming through, and it was not long before I succeeded in shooting, or rather winging one. This rook I took to the garden, which was principally walled in, and turned him out. The under gardener took great interest in the old fellow, in fact he became a great favourite with us. The garden was infested with grubs, so much so that to grow Lettuce was almost out of the question, as the grubs used to eat them off just below the surface. However they gradually disappeared, and we could grow Lettuce as well as our neighbours. Certainly at times the rook would do a little damage, but then if a crop of anything was coming up we could make him a prisoner for a week or so, and it was astonishing to see how hard he would strike a Walnut against the stones to break it open, as there were many trees on the place. *John Keep, Gr., Oak Lodge, Southgate, N.*

Ardisia crenulata.—Whenever I have seen this plant mentioned (in catalogues, treatises, or plant dictionaries) it is always alluded to as a stove plant. So treated, it has always sorely disappointed me. Instead of its being covered with its dark green foliage and small scarlet and green berries, it has always, unless great attention is paid to keeping it clean, an innumerable quantity of fat brown scale (Coccus testudo), and the foliage filthy with their excrementitious matter, and very much so if the stove is kept sufficiently hot to grow such things as Allamandas, Dipladenias, Ixoras, and even Lasiandra, as they ought and can be grown. All the Ardisias that I have seen growing in various gentlemen's gardens, if grown entirely in the stove, produce the same effect, having nothing to recommend themselves but 1, 2, or 3 feet of bare stem, with perhaps a foot of meagre-grown foliage on the top, and perhaps a few straggling berries—very probably none at all. To all who are similarly situated I would say, Do as I have done—endeavour to reform the culture of this valuable winter berry-bearing plant. Having two plants in February, 1864, I cut them down to within 2 inches of the pot. In a few weeks they broke into growth, and when the shoots were from 2 to 3 inches long I shook the plants entirely out of the soil, and gave them a shift into a pot only sufficiently large to hold their roots without cramping them. When they had made some new roots (which was in April) I moved them to a cool greenhouse, with intent to keep them there in July. They had grown to about 1 foot; not showing any inclination to break side shoots I pinched out the ends of the shoots. In September the plant had shot out shoots at almost every leaf up the stems, from 3 to 6 inches in length, and almost all commenced to bloom, subsequently producing an abundant crop of berries, which have for the most part continued on up to this time. By July in the present year one had reached 1½ and the other 2 feet high, with plenty of side shoots, and commenced to bloom in July, leaving on those two plants thousands of their pretty little leaves, and, with an abundant quantity of their dark green healthy foliage, superior to anything of the sort I have seen when grown in a stove—seen in the space of twenty-one months those plants transformed from a mop-like plant to the greatest beauty they are capable of obtaining. The only advantage of the stove to them would be to colour their annual berries a few weeks earlier. I have enclosed for your inspection a side shoot from the plant that is only 1½ foot high, leaving on the same plant twenty-nine side shoots equal in health and leaves to the one sent. In growing them entirely in the greenhouse or cool vinery, the growth is more of a stubby character, and the plants are more easily kept clean and healthy. *Walter Bishop, Bylaugh Park, East Dereham.*

Sutton's Tom Thumb Savoy.—I have found this a valuable vegetable for autumn use; it is in every way superior to any Savoy I have ever grown in quality, flavour, and sweetness. Unlike the other Savoys, which are somewhat coarse, this king of Savoys can with pleasure be used for the dining-room in turn with Brussels Sprouts, Cauliflower, &c. It can be grown on borders or narrow slips of ground where the larger kinds would look out of place in well-kept gardens, but the dwarfness of this kind is greatly in its favour, as it only grows about 12 inches high, and can be grown in rows planted about 12 inches apart each way. I think this a grand thing, and one that ought to be grown in every garden, especially in small gardens where short of ground. *J. Lane, Pyrgo Park Gardens.* [Our correspondent's praise of this variety is well deserved, but the same remarks would apply equally as well to

Little Pixie, King Coffee, and the Dwarf Ulm, which are one and the same thing. EDS.]

Eugenia Ugni.—"S. D. A.'s" account of his large shrub of Eugenia Ugni would be more instructive if we knew his locality, and whether it received protection during the winter. *H. K.*

The Mistleto in Perthshire.—I see that in some late numbers of your paper there has been some discussion about the Mistleto—whether it does best in sheltered or exposed situations, and one writer mentions its being found as far north as Perthshire. So far as I am aware, this is the most northern place in which the plant is found, and for the information of all who feel an interest in the subject I will briefly state its history. About a dozen years ago a beautiful bunch was sent me from England, and I stuck a great number of the berries on various Apple trees in our garden. Many of the seeds germinated well enough but failed to strike into the bark. Upon one tree, however, in the most exposed part of the garden, two plants established themselves safely, and have grown very well ever since, but they have not yet borne fruit, and in winter they suffer much breakage from high winds. Our place is on the north side of Kinnoull Hill, within 1 mile of Perth, and about 200 feet above sea level. *J. G., Murray's Royal Institution, Perth, November* 25.

Benthamia fragifera.—I enclose a few specimens of the fruit of Benthamia fragifera, grown in the gardens at Enys, near Penryn, in Cornwall. They were kindly sent my sister by a friend who gathered them on or about November 14. The trees in the garden at Enys are now covered with the fruit, which appears in this ripe state to be only too great a favourite with the birds. From this, and the fruit being "eaten by the inhabitants of the Himalayan hills," it seems as if it might be turned to some use; but the fruit in itself is so beautiful as an out-of-doors November ornament that I send it on to you as possibly of interest. *O.*

The Rector of Woodstock and Red-skinned Flourball Potatos.—We have grown the above sort for the two past seasons in the garden here. The former is a very fine round early sort, quite distinct from any other we know. It produces a good crop of equal medium-sized tubers, rich and floury when boiled. The only fault we find is in its liability at a rather early stage to attacks of the destructive Peronospora. It is, however, very early, and worth persevering with. The latter sort is the best we have to withstand the disease, which has proved very disastrous in this locality. The crops of many sorts in gardens are fully one half useless. American sorts, although generally good croppers, are not approved of around here, and will soon be all discarded. *J. Webster, Gordon Castle.*

Lasiandra macrantha. — In my reply to Mr. Baines at p. 592, I said that I had no desire to hold any further controversy on the above subject, and had Mr. Baines left out the last sentence of his rebuting reply on p. 623, I should have adhered to his statement. I am bound to inform Mr. Baines that I am well versed in the culture of the plants I mentioned, or I should not have advanced a proposition in opposition to a man of his ability and experience. Twenty-five years under glass and twenty-one as a head-gardener, ought to have initiated me into some knowledge of the culture of stove plants. On reviewing the whole subject I find it was not the matter of time that the plants bloomed that was mentioned. Circumstances connected with the same plants would cause them to bloom at almost any period of the year. It was simply and distinctly stated that in growing Allamandas just as they ought and can be grown, the Lasiandras in the same house would grow too weak to bloom. On seeing that report, and knowing at the same time that the very same plants were growing in the same house, and all precisely alike under my charge in the most perfect health and beauty, and blooming most luxuriantly with well-developed blooms, I ventured to oppose the treatment laid down for their culture by your worthy contributor; it was then, as now, not my desire to say anything that ought to offend. What I stated was simple fact. I now doubt whether Mr. Baines, in all his experience, ever had the plants mentioned growing in separate houses more healthy and better blooming than they do in the same house under my charge. *William Bishop, Bylaugh Park, East Dereham.*

Heat without Cost.—I suppose I ought to be sorry for and grateful to "S. E."—sorry, because my article on the above made him sorry; grateful, because he has hastened to reiterate the science of lime burning. Somehow or another I confess I am neither, as I already knew all the science that "S. E." teaches, and if "S. E." had only read my article through, his sadness must have given speedy place to gladness—that is, if he cares at all for cheap heat for horticultural purposes, including the "driving of manufactories," as he puts it. True, the latter was not named in my first paper in the *Gardeners' Chronicle*, but he will find in the *Agricultural Gazette* for October 9 that I have not by any means been forgetful of the far-reaching benefits of free heat. It may also be news interesting to "S. E.," and indeed to all your readers, to state that it is proposed to drive all the machinery for the manufacture of hothouses, &c., at Garston by a steam-engine worked from a boiler over the lime-kiln. Did the subject require it, some exception might also be taken to "S. E.'s" science. He seems to confound the mixing of lime or chalk in a common furnace with the conversion of lime or chalk into caustic lime in a kiln. There is a wide distinction between the two processes. In order also to pull up the loss of heat as much as possible in lime burning, he speaks of two amounts of heat, when one only is employed. One he designates a considerable amount to raise the chalk to a red heat, and the other as a still greater amount to drive off the carbonic acid gas. Does not the red heat do that then? Supposing "S. E." takes an experimental lesson in science, and puts his head over a limekiln at a red heat, would he not be suffocated with carbonic acid gas? Again, the lime cannot possibly add to the amount of heat, because it is not combustible. No doubt this is the general teaching of science; but what is the driving out of carbonic acid if not a species of combustion? Limestone is a carboniferous rock full of organic remains, and there may be a species of combustion without consumption. Science says no; but it is hardly fifty years ago since a humble collier drove his locomotive along smooth iron rails in opposition to all the science in England, that with one voice declared the thing impossible. It can hardly be more wonderful that limestone should give out heat in parting with its carbonic acid than that it should do so in raising it. "S. E." says the heat of lime in slacking represents part of the heat taken from the coal when the chalk was burnt. Does he mean that the heat of the coal was latent in the lime until the water woke it up?—a very mechanical solution of a common but most interesting phenomenon. The heat of lime in the act of slacking has mostly been attributed to chemical changes, rather a mere giving back of the coal heat put into it in the kiln. But "S. E.'s" object in all this is obvious enough. Granted that it takes so much heat to raise lime or chalk to a red heat, so much more to drive off the carbonic acid gained, a third lot to be locked up in the burnt lime to let some gas in again by slacking with water, and of course precious little of the heat of the coal reaches the boiler. But facts, burning facts like those seen at Garston, are worth tons of such special pleading and spurious science as this. There are the limekilns heating the boilers, making the gases, and very soon also will be driving all the machinery in the place. True, "S. E." says that gas cannot be made free of cost for fire to convert the coal into coke and gas, but it is. The retorts over the kiln waste no heat, but they augment it. How they did this was pointed out in my first communication. The coal within, in its conversion into coke or gas, gives out an intense heat, and this goes straight to the surface of the boiler. No one at Liverpool could fail to be struck with this, and most were surprised to find that this limekiln, with the retorts over it and between it and the boiler, was the most powerful of the three in proportion to its size. But the greatest merit of limekiln heating, prominently adverted to in my first communication, and which "S. E." seems to ignore, is that it saves the heat that would otherwise be utterly wasted, and sets it, as I have elsewhere expressed it, a second job as it finishes the first at the mouth of the kiln. Surely your correspondent can have nothing to say to the harnessing of free caloric to such useful work as that I have already indicated, such as the heating of hothouses, &c.; and if it pays people fairly well—and it does—to burn lime as a matter of trade, and waste all this heat at the crown of the kiln, it must surely pay better to make equally good lime, and provide heat, light, and driving-power into the bargain. Unless any one can urge reasons against getting all the work and power possible out of heat it is impossible to find fault or flaw in the Cowan patent system of warming and lighting buildings of all kinds. As lime, and heat, and light, and driving force must be had, and are each provided separately by coal, it follows that if all can be had from the one process of lime-burning, some of this will be free of cost. Mr. Cowan uses no more coal to make his lime than others, consequently his lime, or his heat, or his gas, or his steam-power, must be had for nothing. Even "S. E." must see this, though it carries him part of the way towards perpetual motion. No doubt could we chain caloric to an endless circle of work, and confine it so as to lose none, we should come to that. Enough for the present that limekiln heating saves much heat hitherto utterly lost. As to the boilers displaced at Garston, the late proprietor, Mr. Meredith, was hardly the man to put down worthless ones. I believe they were mostly good boilers, in fair working order, and think I can venture to affirm that if "S. E." will make his appearance at Garston with a boiler which he says will effect a much greater saving than that effected by the limekiln, Mr. Cowan will give him a hearty welcome and speedily fix it to 8000 feet of piping; and should it heat the kiln, I would also suggest that the Royal Horticultural Society should award the gold medal to "S. E." Heat without cost does not necessarily mean without the consumption of anything that costs money; but as two or three products can be had from the heat previously expended in the production of one, virtually some of such products cost nothing. As to your other correspondent, "Jonathan," he seems a wonderful man. He has been to Hatfield and seen a railway cutting to get the lime away from the kiln, that must have cost a little fortune in itself, but says nothing about seeing the kiln heating the little town of glasshouses right nobly. Probably he stuck fast in the cutting. It does not matter much, for he calls Mr. Bennett's positive testimony, after two years' experience of one of the largest limekilns in the country, negative testimony, that can only have one effect—induce Mr. Bennett to drain or puddle out the water in his stokeholes; and to encourage him in the latter process, says that he has kept out the water of a lake from an ice-house only 12 feet from it and 12 feet under it with 11 inches of clay. Why, lime-kiln heating is nothing to that—assuming of course that the strata were porous or broken, and that the water wanted to come in. "Jonathan" goes on to say that he has a good opinion of the invention, and that his employer contemplates adopting it, but that Mr. Bennett's excuses, that his houses at Rabley are already heated, and that he is within 2 feet of the water line of the earth, bar his progress and stop the way. "Only let Mr. Bennett lead off, and I am ready to follow," virtually cries "Jonathan." Well, Bennett has led already, to the satisfaction of most people, but where they saw success "Jonathan" found a "railway cutting," and he cannot be expected to lead off again to incur needless expense and to get into a muddle with water to allow "Jonathan" to try his hand and fail with his network of puddles on the slopes about Barnet. Really this is too bad. I have the highest respect for Mr. Bennett's energies and abilities, but I submit that limekiln heating is now too well established for its merits to be dependent on Mr. Bennett adopting it on the slopes about Barnet, or "Jonathan's" success in heating the Cave of Adullam by that means in the North of England. *D. T. Fish.*

Beet, Endive, and Cauliflowers. — These are three most useful articles, and which cannot be dispensed with in the establishments of the wealthy. Beet is one of the chief ingredients of the salad bowl during the winter months, and is also served with fish when Cucumbers are not procurable. Being a staple article of diet it is necessary that it should be tender and succulent, not coarse and fibrous. It should also be of a high colour, dark crimson being the most desired. A bad-coloured Beet is not tolerated on many tables, and consequently it is not safe for any grower to confine himself to any one variety, as offered in the various seed catalogues, unless the seed has been grown and saved by oneself. How difficult it is to get the Pine-apple Short-top true to name, or, indeed, anything approaching its likeness, as sent out by Mr. Henderson when he lived at the Pine-apple Nursery. The produce of seed bought for this variety has this year yielded an excellent crop of Mangel Wurzel of a red Radish colour. Happily I had not confined myself to one variety alone. The second article named in this paper, *i.e.*, Endive, is of the first importance for making salads during the winter, and where such are required daily, and also to be produced well blanched, it is of no slight importance that the kinds we purchase, sow, and finally plant out should be true to name. In some establishments the proprietor is quite a connoisseur in salads, as in other things, and will detect the difference in the various varieties grown for the purpose, and as a rule the green curled, white curled, and moss curled sorts, blanched under a slate, are more preferable to any others blanched out-of-doors either by being tied up or covered flatly with slates or tiles; and in growing a breadth of curled Endive what a lot of "rogues" there are amongst them—at least, such is the case with mine. I now come to the Cauliflower, and this is occupying a little attention amongst the readers of the *Gardeners' Chronicle* at the present time. Veitch's Autumn Giant has been very good with me this autumn, and a horticultural authority walking round the gardens during the last month pronounced them the "best he had seen this year." Still they were not so large as we have had in previous years, but quite large enough. A Cauliflower, the mould of which will allow it to be pulled to pieces for certain purposes in cookery, is very useful; and I find by experience that the young plants in each sowing, if left about 6 or 8 inches apart in the bed, after the permanent plantings are made, will produce small heads no larger than one's two thumbs, which are eagerly sought for to encircle boiled chickens and fowls. Grange's Early White Cape Brocoli is an old acquaintance, and a serviceable article, as it comes in

in autumn, is of a good colour, and does not grow too large; but my plantation of them this year is composed of all "rogues"—not one true, and not one fit to cut, whilst Backhouse's are coming in, and we have cut some. *Thos. Wynne, Great Hemsby Hall, Great Yarmouth.*

Tomtits.—Can any of your readers give any reason for the congregation of these birds into flocks this season? This morning about 10 o'clock, just before the snowstorm came on, we counted on the Chestnuts and Limes growing around our ice-house over 150, and many more were flying about from tree to tree—I should think in all over 200. We have often seen from twelve to twenty together, but we have never before seen so many as on this occasion. *J. Lane, Pyrgo Park Gardens, Nov.* 25.

The Horticultural Association of the Future (see p. 690).—In examining the principles upon which a horticultural Association ought to be founded, and the intentions by which its executive should be actuated, we cannot do better than to take as a basis for our observations the early part of the career of the Royal Horticultural Society of London—a society which, although it has unhappily failed to realise, permanently, the intentions of the eminent and able men who originated it, nevertheless started in the right direction, and gave during the early part of the present century an impetus to botanical science which entitles it to the grateful recollection of horticulturists throughout the country. Now a society having important objects in view, and which ought to be prepared to enter upon a career continually increasing in usefulness, must contain at starting and in perpetuity such elements of action in harmonious combination as will ensure not only temporary but continuous healthy vital energy. There should be certain recognised and wise principles by which the proceedings should be governed, analogous, we may say, to those which regulate successful private enterprise; and these principles or rules should be so clearly understood and so thoroughly guaranteed as to make departure from or violation of them impossible. The executive of the Royal Horticultural Society, then, appears at first to have comprised men of three classes, or men of threefold capabilities, namely, of botanical science, of practical horticultural knowledge, and of administrative talent, for we find that the Society prospered for some years in three several directions—abroad, by correspondence with other learned societies, and by the efforts of its collectors; at home, by the education it imparted to gardeners, and the impulse it gave to horticultural taste; and in a business direction, by the perfect freedom from financial embarrassments which for a considerable period honourably marked its career. So far then this society must be deemed worthy of respect, nay, more, of imitation, whether its views were quite so comprehensive as those which should actuate the society of the future is not so certain. Let us consider what the leading horticultural society of the present day ought to be. It should, without entering into rivalry with any existing botanical societies, embrace all branches, theoretical and practical, of the science. It should, without any attempt at or assertion of monopoly—afford the utmost possible encouragement to individual enterprise. It should be a centre wherein all kinds of botanical knowledge should be stored, and whence it might be disseminated. It should not only enforce the policy of planting trees with a view to utility, but demonstrate how horticulture may be a means of elevating public taste by exhibiting new and beautiful combinations of trees, shrubs, and flowers, in order to show adequately what, perhaps, has never yet been fully accomplished—the wonderful and inexhaustible resources of this department of Nature, and its high value when developed into a branch of decorative art. Its operation should not be confined to this country, but also extend to our colonies, obtaining reports concerning the nature and capabilities of the various soils, preventing ignorant waste of valuable timber trees, and giving facilities for the introduction of such vegetable productions as climate and soil may suit. Its herbaria ought to be the richest, its library the most complete in the world. Why, with the wealth, intelligence, and incalculable resources of this great country, the influence of a British Horticultural Society ought to be felt to the very limits of the habitable globe. To suppose that such views are Utopian, or unpractical, is to do injustice to our age, to our country, and to our capacity. If man was originally placed in a garden "to dress it and keep it," much more is it his duty to make the whole world resemble a garden, to guide into the most beneficial channels the great reproductive and regenerative vegetal forces of Nature! What grander mission can be conceived than that of taking the initiative in enlightened efforts for ameliorating the material condition of the globe, increasing the supply of the luxuries and necessaries of life, filling waste places with beauty, and, in fact, turning to the most profitable account some of the important material conditions under which man in his present state is necessitated to exist? It is time, then, that a British Horticultural Association, actuated by principles such as these, took root in the country; and that it may be established if the men who, possessing a theoretical and practical knowledge, will, setting aside all narrow views and petty interests, heartily combine, it would be absurd to question. But to become a success, to worthily represent horticultural science, the executive must emphatically consist, as regards the majority, of horticulturists. What would be said of a Royal Academy of Arts of whom the bulk were merely purchasers or amateurs—or of a College of Surgeons consisting in the main of medical experimentalists? And is it not quite as absurd to suppose that the affairs of a body representing a branch of science such as horticulture—resulting from long study, observation, experiment, and practice—is, can be other than mismanaged when ignorance and incapacity dominate, and scientific and practical men are virtually excluded from its Council? A horticultural society thus composed is unworthy its name, and will assuredly have other interests at heart than legitimate ones. But, profiting by the errors of the past, the new Horticultural Association must be truly characterised by its title. It must have men at its head whose names command respect abroad, and whose positions give them weight at home. It may invite the co-operation of the public, but must rely for support upon the country at large, not upon eleemosynary or casual help from residents in some specially favoured district. Such a society has now become a necessity of the time, and in the path here indicated is briefly traced a career for the Horticultural Association of the future. *G.*

Rooks and Walnuts. — In the *Gardeners' Chronicle* of November 27 Mr. Ollerhead "begs to differ with Mr. Record as to the rook not having power to open or break the shell of a Walnut, he having experienced quite the reverse this season." I quite expected to find in his communication some evidence or observations explanatory of the means by which the rooks opened or broke the shells of the Walnuts, but he seems to lose sight of the question he prescribes for himself, as he only mentions the fact of the rooks keeping up their depredations and pillaging until the last were off the trees. Few people will believe, without strong evidence, that rooks can break Walnuts by sheer pressure of their bills—after the same fashion as a boy with a good set of teeth would crack a Filbert; and if the Walnuts were broke in any other way by the rooks I am sure Mr. Record and most of the readers of the *Gardeners' Chronicle* will be obliged to Mr. Ollerhead if he will give us the result of his observations this season, and tell us how the shells were opened or broken. *Rook.*

Seakale Culture.—Some time ago I saw a correspondent recommend Seakale to be earthed up like Celery, in place of covering with pots. As I am anxious to try that method I want to know if the Seakale must grow and the earthing up follow the growth, as in Celery, or, if I read it correctly, *i.e.*, cover the crowns now with 1 or 2 feet of dry sand; and when the outside cracks in the spring show growth, you will then find the Seakale fit for cutting. An explanation will oblige. *Amateur.*

Reports of Societies.

Royal Horticultural: *Dec.* 1.—David Wooster, Esq., in the chair. Owing to the severe weather there was a very thin attendance at this meeting, and it was with some difficulty that a sufficient number of Fellows were got together to form the necessary quorum. The Rev. M. J. Berkeley commented upon the excellence of some Smooth Cayenne Pines from Frogmore, and explained the well-known system adopted there of planting the Pines out in ridges on beds about 6 feet deep of Oak leaves. A seedling Capsicum named Princess of Wales, shown by Mr. Westcott, of Raby, ought, he thought, to have been shown before the Fruit rather than the Floral Committee. It was then stated that a yellow-fruited variety of Capsicum produced a Pepper quite different to Cayenne, and which in India was called Sauger; he had received some from his sons, and he liked it much better. Owing, as Mr. Berkeley thought, not so much to excessive moisture as to a want of sun, fruit generally was very poor in quality, and does not keep well this year. Many Pears which usually kept well, this year perished at the core before they became ripe, and especially so was this the case with that well-known sort, the Louise Bonne of Jersey. Mr. Berkeley then called attention to several seedling Apples brought before the Fruit Committee, and mentioned a remark made at the committee that it was strange exhibitors did not taste the fruits themselves before sending them for adjudication, as, by so doing, the members of the committee would be saved the trouble of tasting many utterly worthless things put before them.

The Chairman proposed a vote of thanks to Mr. Berkeley for his uniform kindness in so readily placing his vast stores of knowledge at the service of the Fellows on the occasion of these meetings, and he (the Chairman) also observed that the thanks of the Society were also due to the members of the Fruit and Floral Committees for the valuable services which they had rendered to the Society during the present year. The meeting then adjourned to January 19, 1876.

SCIENTIFIC COMMITTEE: *Dec.* 1.—A. Murray, Esq., in the chair.

Corticium amorphum?—Mr. Berkeley made some remarks on a curious fungus on the bark of a tree—sent by Dr. Buchanan White. The fungus presented on its hymenium both basidiospores and asci, with sporidia, and it is to be made the subject of further investigation.

Diseased Poinsettias.—Mr. Judd, gr. to Lord Hill, sent some diseased Poinsettias. The first symptom noticed was an exudation of milk-sap from the stem, just as the coloured bracts began to show themselves. The colouring matter of the bracts is destroyed, and the bracts ultimately shrivel. The roots appear perfectly healthy. The specimens were referred to Mr. Berkeley for examination and report.

Insects on Tussack Grass.—Mr. A. Murray reported on the specimens which had been referred to him at a previous meeting. The Tussack-grass on Sir James Matheson's property in the Hebrides has suffered from insect agency, and sundry larvæ were found therein, which were now determined by Mr. Murray and Dr. Candèze, of Liège, to be the larvæ of the Ghost Moth, Hepialus humilis, and the pupæ of a Staphyline beetle, Creophilus maxillosus, a carrion-eating, not a plant-eating beetle, whose presence, therefore, in the Tussack was accidental, or at least not injurious.

Liberian Coffee.—Professor Dyer showed leaves of this from Monrovia, sent by Herr J. A. Crüwell, the German Consul, and which were supposed to be affected with the leaf disease of Ceylon. Cursory examination did not bear out this view, but the leaves will be examined and reported on at a future time.

Injuries Inflicted by Insects.—Mr. A. Murray read a paper advocating, *inter alia*, the formation of a joint committee from various societies for the purpose of collecting statistical and other information as to the nature and amount of the ravages effected by insects. The paper excited great interest, and will shortly be published in our columns, together with some remarks by Mr. Berkeley on the same subject, showing what had been saved to the country by the measures adopted in consequence of his recommendations in the Hop gardens of Kent.

The Hon. and Rev. J. T. Boscawen called attention to his insecticide, which consists of camphor dissolved in methylated spirits to saturation, and mixed with soft soap to the consistence of cream. When diluted so as to be fit for use with a syringe, this had been found a most efficacious substitute for fumigating in the case of mealy-bug, scale, red spider, &c.

FLORAL COMMITTEE.—Dr. Denny in the chair. This, the last meeting of the year, was as usual a rather poor one, but few members being present and few subjects shown. Mr. R. Clarke, florist, Twickenham, sent a beautiful group of Cyclamens in flower, including a small batch of a strain which produces larger flowers, and which in addition to mere size have other points of quality to recommend them. From Mr. Westcott, gr., Raby Castle, Durham, came a nicely fruited plant of Capsicum Princess of Wales, a seedling raised from the well-known varieties Prince of Wales and Yellow Gem, with pods larger than either of the parents, but of the brighter colour of Prince of Wales. In habit of growth it is much stronger than either of its parents, but more of the character of Yellow Gem. Messrs. J. Waterer & Son sent several specimens of the John Waterer variety of Thujopsis borealis aureus variegatus, which is apparently a good grower, and well marked by its occasional spray and shoots of a rich golden colour. Votes of thanks were accorded in each instance.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. From Mr. Jones, the Royal Gardens, Frogmore, came three very handsome Smooth Cayenne Pines, weighing about 8 lb. each, and to which a Cultural Commendation was awarded. Messrs. Kinmont & Kidd, nurserymen, Canterbury, sent three seedling Apples:—Duchess of Edinburgh, a seedling from Court of Wick, and King of the Pippins, small in size, of a rich canary-yellow colour, but very acid in flavour; Winter Devonshire Quarrenden, a seedling from the old Devonshire Quarrenden, and possessing all the qualities of that variety, with the addition of greater size, but which lacked the fine flavour of many varieties in use at this season; and Swanerd's Seedling, also raised from the Devonshire Quarrenden, smaller in size, paler in colour, and of no commercial value. From Mr. Laxton, Stamford, came eleven seedling Apples, under numbers, which for the most part were worthless. Mr. Paul, Waltham Cross, also sent several seedlings, which were either not worth further cultivation or not in good condition. Mr. C. Arnold, Paris, Ontario, Canada, sent examples of three seedling

Apples, mostly of high colour, but of poor quality as regards flavour and texture. From the Society's Garden, Chiswick, came a collection of about sixty varieties of Onions, grown there this year, and of which an official report will shortly be issued.

Obituary.

WE learn from the *Revue Horticole* of the death of M. MAS, President of the Central Pomological Congress of France, and one of the most distinguished pomologists of the age. Coming so soon after the decease of M. André Leroy, the loss will be doubly felt.

The Villa Garden.

Now that frost is beginning to lay its firm and icy grasp on the land, and a fall of snow is imminent, the question arises—What work can be prescribed for the Villa gardener under such apparently hostile circumstances? Something, surely.

GREENHOUSE.—This, as we have before stated, is an appendage to many Villa residences, and just now many little duties suggest themselves to the observant gardener. First comes the important duty of excluding the frost from tender plants. In our last paper we stated that we were giving a trial to one of Schreiber's True Friend lamp stoves, and as far as our experience has gone, we are of opinion that it is indeed a true friend to Villa gardeners who have unheated plant structures. All the contrivances we have yet tried must give place to this one for simplicity of working, and for the excellent heat it dispenses at a very moderate cost. Fearing that the heat given forth might prove too dry for the leaves of the plants near to the roof of the house, we place on the top of the stove (and by lifting off the cover at the top a convenient opening is found) an ordinary garden pan filled with water, and the heat rising from the burner causes this water to be given forth as steam, and this moistens the air, and the leaves of the plants appear to be benefited by it. Whether in the event of a very hard frost, one of these lamp stoves would completely exclude the frost from an exposed house, 18 feet by 10 feet, remains to be seen; but a second lamp would, we think, do the work effectually. As a general rule the conservatories attached to Villa residences are considerably smaller than this; and when larger, either a brick flue or hot-water apparatus is added.

Precautions can be taken so as to mitigate, as far as possible, the effects of frost when it proves irresistible in times of undue severity. In the first place all plants should be kept as dry as possible when frost has set in for the drier the soil about the roots so is the danger from frost lessened; and it should be borne in mind that during the winter months that plants are to a great extent at rest, and plants can be kept dry for a considerable time without fear of injury from drought. Another point is that the most tender plants should be put in the warmest part of the house, and that particular part soon suggests itself. In the case of a lean-to house, *i.e.*, a house built against the wall of a dwelling with the roof sloping to the south or west, the warmest places, and least open to the attacks of frost, will be on those shelves placed against the wall of the dwelling, rather more than half way up. On such a shelf we winter our choicest tender succulents, and that with comparative safety. The sunny side of a house is generally the warmest, but in the case of a lean-to house the shelves in the front are generally against the glass, and there they are much more exposed to the action of the frost than when placed against the back wall. Any plants that it is not expedient to keep quite dry are assisted by having their surface soil frequently stirred. There is certainly a lessened danger in the case of such plants, as compared with plants the surface soil of which is hard and firm. Then care should be exercised that no water should be spilt about the house, or allowed to remain on the shelves. This happens in the case of plants that are watered on the shelves where they are standing. In order to avoid this, we use an ordinary garden pail about two-thirds filled with slightly tepid water. The pot srequiring water are immersed in this nearly up to their rims until the ball is pretty well saturated; and then the pots are stood in a sieve placed on the top of an empty pail so that the water can drain into it. This prevents water from accumulating at the base of the pots, and there is always danger of its freezing in a cold house. As a matter of course water is administered only when the weather is favourable; but there is no knowing when a change may take place, and mildness may change to severe frost. Again, in the case of an unheated structure, it is well to keep it as dry as possible during the dullest season of the year, as the ravages of damp as well as frost have to be guarded against.

To some these directions may appear almost puerile, but let it be borne in mind that we are writing, not for those who have well ordered and arranged greenhouses and conservatories, with heating apparatus at once elaborate and ample, but for those who are in the very alphabet of their gardening experience, and to whom simple rules are always welcome.

THE FRUIT GARDEN.—A seasonable job at this time of year is to be found among the Raspberry canes, in cutting away all the old decayed wood. The fruiting wood of the summer decays in the autumn, and is replaced by young wood of the same summer's growth, which will yield fruit next season. In the case of strong plants, four or five canes may be left for next season, and they should have their tops removed, leaving them 4 feet or so in length, and then let them be tied together at the top to keep them from being shaken about by the wind. Some manure should also be placed about the plants when the weather is dry, and the ground firm enough for it to be wheeled or carried on, and this should be forked or dug in, leaving the soil a little rough. The Gooseberry, as well as the Raspberry, is almost certain to be found in Villa Gardens, and the pruning of these, though sometimes delayed till the spring, may be got through at once, or as soon as convenient. It gives the garden a tidy appearance when it is done. The usual plan is to cut the young shoots close in to the old wood, forming a sort of short spur, leaving a shoot as a leader, which is shortened beck to 4 or 6 six inches in length.

In the case of small gardens, Gooseberry trees require to be kept within bounds, or they soon occupy space. When the pruning is done, a sharp knife and a pair of thick gloves are required; and as soon as the job is finished the cuttings should be raked off and burnt, unless it is required to plant some of them to make young trees; but this is hardly requisite, as good bushes can be had at such a moderate cost. The cuttings from the Gooseberry bushes should never be put on one side to rot, as the prickles are a long time decaying, and the points remain sharp for a considerable time.

Any fruit trees required to fill up gaps, &c., may now be planted, but let it be done as if the trees were really deserving of some attention. It is not requisite that the trees, whether standard, pyramid, or bush, be planted deeply; but a wide hole, answering to the diameter of the roots, should be dug, and the roots spread out with great care. Then sprinkle over them till they are quite covered some such soil as siftings from the potting-bench; then fill in what was dug out, and tread down firmly, unless the soil is wet and clayey; and then defer the treading process for a time. Standard trees especially should be staked, to prevent them being swayed about by winds and becoming loose in the ground.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DEC. 1, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Nov.	In.	In.	°	°	°	°	°	°			In.
25	29 85	+ 0.16	39.2	32.9	6.3	35.4	— 6.2	30.8	83	N.: N.E.	0.00
26	29.80	+ 0.11	36.8	29.8	7.0	33.0	— 8.6	30.0	89	N.: N.E.	0.00
27	29 87	+ 0.17	38.8	29.4	9 4	34.1	— 7.5	31.1	88	N.E.	0.00
28	29.94	+ 0.23	36.5	33.8	2.7	34.7	— 6.9	32.4	91	NNE: N.E.	0.03
29	29.78	+ 0.07	38.1	31.0	7.1	34.2	— 7.5	28.7	80	N.E.	0 00
30	29.69	— 0.04	35.1	28.2	6.9	31.0	— 10.7	24.3	74	NNE: N.E.	0.00
Dec. 1	29.68	— 0.05	33.1	26.3	6.8	30.2	— 11.5	22.1	70	N.: N.N.E.	0.00
Mean	29.80	+ 0.09	36.8	30.2	6.6	33.2	— 8.4	28.5	82	N.E.	sum 0.03

Nov. 25.—Dull, cold, and snow fell till noon. Occasionally fine afterwards.
— 26.—Dull and cloudy. Fine at intervals. Slight snow before 7 A.M.
— 27.—Overcast, dull day. Sleet at 9 A.M.
— 28.—Dull, and cold day. Occasional thin rain and sleet.
— 29.—Dull, and very cold day.
— 30.—Overcast, very cold day. Occasional thin snow.
Dec. 1.—Dull, and occasional snow throughout. Fine from 2 P.M. to 4 P.M.; but a very cold day.

—— During the week ending Saturday, November 27, in the vicinity of the metropolis, the reading of the barometer at the level of the sea decreased from 30 inches at the beginning of the week to 29.95 inches by the morning of the 21st, increased to 30.21 inches by the morning of the 23d, decreased to 29.98 inches by the afternoon of the 26th, and increased to 30.08 inches by the end of the week. The mean reading for the week was 30.08 inches, being 0.17 inch higher than that of the preceding week, and 0.21 inch above the average.

The highest temperatures of the air observed day by day varied between 46½° on the 23d, and 36¾° on the 26th; the mean value for the week was 41¾°. The lowest temperatures of the air observed night by night ranged from 29¼° on the 27th, to 36° on the 24th, the mean value being 33°. The mean daily range of temperature in the week was 8¾°; the greatest range in the day being 12½° on the 23d, and the least 6¼° on the 25th. The mean daily temperatures of the air were as follows:—21st, 38°.9; 22d, 37°.9; 23d, 39°.4; 24th, 38°.3; 25th, 35°.4; 26th, 33°; 27th, 34°.1; and the departures in defect of their respective averages were 2°.8, 3°.8, 2°.3, 3°.3, 6°.2, 8°.6, and 7°.5. The mean temperature of the air for the week was 36°.7, being 4°.9 below the average of observations extending over a period of sixty years.

The highest reading of a thermometer with blackened bulb in vacuo, placed in full rays of sun, was 75° on the 23d; the mean for the week was 61°. The lowest reading of a thermometer on grass, with its bulb exposed to the sky, was 23¾° on the 27th; the mean for the seven low readings was 28½°.

The direction of the wind was N. and N.E., and gentle in motion. The weather during the week was dull, cold, and the sky cloudy.

Rain fell on Wednesday, the 24th inst.; the amount measured was 0.03 inch.

Snow fell on the 25th and 26th inst.

In England the highest temperatures of the air observed by day at the height of 4 feet above the ground were 48° at Truro, and 46½° at about London; at Bradford 41¼° was the highest temperature in the week; the mean from all stations was 44°. The lowest temperature of the air observed by night was returned as 21° at Truro, but I think must be an error; the next lowest was 26° at Eccles, and 26¾° at Bristol, and at Leeds 32° was the lowest temperature in the week; the mean value from all stations was 29°. The range of temperature in the week, omitting Truro, was the greatest, 18½°, at Eccles, and the smallest at Bradford and Leeds, both 10°; the mean range from all stations was 15°. The mean of the seven high day temperatures was the greatest at Truro, 44¼°, and the least at Wolverhampton, 38½°; the mean of the week from all stations was 40½°. The mean of the seven low night temperatures was the largest at Leeds and Sunderland, both 35°, and the smallest at Eccles, 31½°; the average value from all stations was 33°. The mean daily range of temperature in the week was the greatest at Newcastle, 10½°; and the least at Leeds, 5¼°; the mean daily range from all stations was 7½°. The mean temperature of the air for the week from all stations was 36½°, being 3¼° higher than the value for the corresponding week in 1874. At Truro the mean temperature was the highest, viz., 37¾°; and at Wolverhampton it was the least, viz., 35½°.

Rain fell to the amount of 1¾ inch at Hull, and three-quarters of an inch at Norwich, Sunderland, and Newcastle-on-Tyne; at Truro and Liverpool no rain was measured; the average fall over the country was a quarter of an inch.

The weather during the week was dull, cloudy, and very cold. Snow fell generally over the country on the 25th and 27th.

In Scotland, the highest temperatures of the air ranged from 51° at Perth to 41° at Dundee. The lowest temperatures of the air varied between 32½° at Greenock and 28¼° at Aberdeen. The average of the former was 45¼°, and that of the latter was 30¾°. The range of temperature in the week was 14½°. The mean temperature of the air from the several stations was 36¾°, being ¾° lower than the value for the corresponding week in 1874. The highest was 37½°, at Edinburgh, and the lowest 36°, at Paisley. Rain was measured at Dundee to the amount of 1¼ inch, which was the greatest fall in the week; at Greenock and Paisley no rain was measured; the average fall was half an inch.

At Dublin the highest temperature was 47½°, the lowest 26½°, the mean 38¾°, and the fall of rain 0.35 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—The summer flowering occupants of the stove being now at rest, with an absence of soft immature shoots and leaves upon them, advantage of this should at once be taken to as far as possible eradicate the worst kinds of insects, such as scale and mealy-bug. There are numbers of plant growers who, from the fact of their always having their houses more or less infested by these intolerable pests, are

not in a position to judge what it is possible to effect in the cultivation of stove plants. Where this most troublesome and rapidly increasing insect has a footing its existence renders the growing of many of the finest flowering stove subjects all but impossible in a state sufficiently large to exemplify their true character, unless by an expenditure of labour such as rarely is at command; and the effects of the incessant process of cleaning by the use of sponge and brush, even when these are used with the greatest care, is such as to materially injure the appearance and reduce the blooming capabilities of the plants. We often hear it said that it is impossible to thoroughly extirpate mealy-bug when it has got fairly established in plant-houses where heat is constantly used, yet such is by no means the case, as we have proved more than once, even when the whole stock, so far as those that the insect will live upon, was affected; but it requires no little amount of determined perseverance, and a considerable expenditure of labour. Yet it would not be easy to point in a direction where labour could more profitably be bestowed, so far as ultimately economising this most important element. When an attempt is to be made to completely destroy mealy-bug all plants, such as specimen *Ixoras*, *Franciscas*, *Dipladenias*, *Gardenias*, *Medinilla*, *Combretums*, *Tabernæmontanas*, *Rondeletias*, *Clerodendrons*, *Ipomœas*, and anything the insect will thrive upon, should be well cut back so far as to remove all soft growth and considerably to reduce the size of the plants. It is worth while to sacrifice some flowering growth as a means of more readily dealing with the pest. A good supply of whatever insecticide is preferred should be provided; we have found "Abyssinian Mixture" and "Fowler's Insecticide" the best, and quite equal to accomplish the desired object. These should be used at six or seven ounces to the gallon, which strength hard-wooded plants at rest will bear; each house affected should be begun at one end, and every plant on which the bugs will live should be dipped or thoroughly washed with the syringe over a vessel large enough to catch the liquid from the plants laid down over it; all roof climbers must be taken down, cut in and dipped, or washed so that the insecticide reaches every part above the soil. Soft-wooded subjects that will not bear the mixture strong enough to kill the insects should be cut well back and the stools dipped. The whole stock ought to be regularly gone over, repeating the application sufficiently often to destroy both living insects and their eggs; about four thorough dressings will generally effect their destruction. All plunging material should be removed, the walls pointed so as to close up every crevice, and a couple of coats of good hot lime-wash applied, using it tolerably thick, the whole of the woodwork well painted, so as to leave no hiding places here. By thus simultaneously destroying the living insects and their eggs on both plants and wherever in the house they can find a harbour, their complete extirpation will be effected. But, to succeed, the work must be carried out with a persistent determination to vanquish the enemy. To do this it is also essential to study the nature and habits of the insects. Brown scale is much more easily destroyed than bug, not requiring the insecticide to be used in so strong a state; white scale is not so often troublesome on stove plants, and is so difficult to kill that few things grown in heat will bear any dressing strong enough to destroy it, consequently, except in the case of any plant that is not too large to be dealt with easily, or that is of more than ordinary value, it is better to put them in the fire. Many remedies are advertised to destroy mealy-bug, some by touching the affected parts of the plant with a small camel's-hair brush or similar contrivance, but, unless with some odd plant or two that might be infested, the labour required to effect complete destruction in this way is too great.

Where *Hyacinths* are wanted early a few should be placed in heat, as also *Narcissus*. In introducing these to the stove or forcing pit, if only recently removed from the usual bed of ashes, or similar material in which they have been covered, the necessary precaution must be taken of not submitting them all at once to the influence of full light, or the leaves will be crippled; nothing is better than small inverted empty flower-pots, which will at first admit enough light through the hole in the bottom; after a few days they may be tilted a little, and afterwards, when the advancing leaves have gradually become green, they may be altogether removed. For this early work the plants should be stood as near the light as possible, and not kept too hot. *Lily of the Valley* should at once be potted in sufficient quantity to supply the requirements for this favourite flower, the old method of using the crowns indiscriminately—both those that had bloom in them and those that had not—was simply a mistake, often ending in much more leaf than flowers. With the imported roots few are sent that have not flower in them, and in using home-grown *Lily of the Valley* the strong blooming crowns alone should be chosen; by this means disappointment is avoided, and a very considerable saving of room effected. *T. Baines.*

FRUIT HOUSES.

THE ORCHARD HOUSE. — Little will for some time be required to be done in this structure, as all root-pruning, re-potting, and surface dressing should have been performed during the first half of the last month; and, if not already done, the soil surrounding planted out trees should be well mulched with good stable manure, which will tend to keep the soil in a healthy and friable condition, and will also keep out frost, and to some extent prevent evaporation from the soil; while, to effectually conceal the offensive appearance of the manure, the surface should be covered with some dry littery material, such as soft hay, straw, Fern fronds, or moss. Trees in pots should, for the present, be grouped together somewhat closely, and the pots should be hid and protected from frost by dry litter of some kind; while Chrysanthemums and other half-hardy plants may be made to occupy all spaces set at liberty by the more close disposal of the fruit trees; and as the Chrysanthemums go out of flower, they should be replaced by ornamental or berry-bearing hardy shrubs in pots, such as Cotoneasters, Cratægus Pyracantha, Skimmia japonica, Laurustinus, Aucubas, variegated Hollies, Daphnes, Euonymus, Retinosporas, Chimonanthus fragrans, Jasminum nudiflorum, &c. These should be attended to with water as may be found necessary, and the pots in which they are growing should be neatly covered and concealed with Moss, which will prevent the soil from being frozen, and will also have a neat appearance. It will be necessary during mild weather to occasionally sprinkle the surface of the moss with water, so as to keep it in a green and growing condition. A selection of plants similar to the above should be kept in pots for this purpose; and during summer, or when not required for the embellishment of this structure, they should be plunged in any convenient situation in the open air, where they would be little if any trouble. Roses of all sorts in pots may also be wintered in this structure, which may also, at the present season, contain potted plants of the Christmas Rose, together with Snowdrops, Violets, Primroses, and sundry other winter and early spring-flowering plants, which will tend to render this house interesting, and, if of considerable dimensions, an agreeable promenade during the winter months. As it is undesirable to in any degree excite the fruit trees by a high temperature, the house should be kept as cool as possible, and unless during the prevalence of high wind, and during sharp frost, the ventilators may be kept open by night as well as by day. *P. Grieve, Culford, Bury St. Edmunds.*

Enquiries.

He that questioneth much shall learn much.—BACON.

81. NORTH DURHAM would be glad of any information, based on experience, as to what kinds of sub-tropical plants would be likely to succeed in the climate of North Durham. He has tried Ricinus Gibsoni and Abutilon Thompsoni, which were both very good. Any hints as regards their culture, propagation, and arrangement would be acceptable. He has also tried carpet bedding, and finds Alternantheras do very well. [No doubt Wigandias and Polymnias, amongst the more stately subtropicals, would also succeed.]

Answers to Correspondents.

ADIANTUM FARLEYENSE: *Beginner.* This comes from the West Indies, and requires the ordinary temperature of a moist stove. It should be watered freely, but not excessively, during the winter season.

BOOKS: *A. W.* The new edition of Thompson's *Gardeners' Assistant*, which will probably soon be out. *E. N. B.* The title is *Andeutungen uber Landschaftsgartnerei, verbunden mit der Beschreibung ihrer praktischen Verwendung in Muskau.* It was published at Stuttgard in 1834.

CONIFERÆ: *E. H. B.* A surface dressing of rotted leaves and vegetable refuse is found highly beneficial at Dropmore. 2. Being free-growing climbers, those you mention will probably not suffer any material injury from the proposed covering of earth.

DAMAGED LEAVES: *M. J. B.* The samples sent bear very much the appearance of having been injured by the application of some deleterious substance, though what that may have been we cannot say. The damage is on too large a scale to have been caused by sun-burning from bad glass, unless, indeed, yours is very bad indeed.

FUNGUS: *Inquirer, Reading.* The common name of the fungus is, as you say, Hedge Witch or Wood Witch; the scientific name is Phallus impudicus. We have never heard of the odour being positively deleterious to health.

GREENHOUSE: *G. H. C.* We should think not; but it is one of those questions on which legal advice should be taken on the spot.

MRS. PINCE GRAPE: *B. Water.* This is a late Grape, and all late Grapes require a considerable amount of heat to grow them well. Mrs. Pince requires heat to get the berries properly set, and heat to ripen them well. When well grown it is a most excellent sort, and keeps long in good condition. We would recommend you to give it a good trial.

NAMES OF FRUIT: *W. Farr.* Your fruit was smashed and rotten when received, and all the labels were rubbed off.—*F. D.* 2, Dumelow's Seedling; 3, Early Nonpareil; 5, Downton; 8, Old Nonpareil; 9, French Crab; 10, English Lemon Reinette.—*R. Wrench. Apple:* Cox's Pomona. *Pears:* 3, Urbaniste; 8, Althorp Crassane.—*John Hill.* Your Pear is Marie Louise.—*Dickson & Robinson.* Your Pear is not recognised, and is, besides, worthless.

NAMES OF PLANTS: *J. M. B.* 1, Viburnum cotinifolium var.; 3, Leycesteria formosa; 6, Spiræa sorbifolia. The others next week.—*W. C. T.* The plant from California is Zauschneria californica.

PRINCE PÜCKLER MUSKAU.—We learn from a correspondent that the estate of Branitz, mentioned a p. 681, is not in Silesia, but in Over-Spree-Wald, Province of Brandenburg, and can be easily reached by train from Berlin to Cottbuss, some 60 miles (English) distant from the German capital.

WALNUT TIMBER: *Geo. Francis.* This is most in demand for gunstocks, but as to what is its general market value, and which the best market to dispose of it, we cannot say.

WIND: *J. Scott.* Air in motion.

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time, to inform him of the fact.

CATALOGUES RECEIVED.—J. M. Thorburn & Co. (15, John Street, New York, U.S.A.), Wholesale List of American Grown Seeds for the European Markets.—Robertson & Galloway (157, Ingram Street, Glasgow), Catalogue of Gladioli and Liliums.—Messrs. Howden & Co. (Inverness Nurseries and Post Office Buildings, Inverness), Catalogue of General Nursery Stock for 1875-76.—Messrs. Hogg & Wood (Coldstream and Dunse), Catalogue of Nursery Stock.—The Lawson Seed and Nursery Company (1, George IV. Bridge, Edinburgh, and 54, Bishopsgate Street Within, London, E.C.), Catalogue of Forest Trees, Shrubs, &c.

COMMUNICATIONS RECEIVED.—D. T. F.—J. C. & Co.—J. S.—W. P.—F. Corbould.—James Clarke.—S. P. O.—T. B.—J. Taylor.—H. & S.—G. B.—Solway.—T. B.—Hamptonian.—Captain J. T.—B. S. W.—J. C. L.—J. B.—W. S.—A. B. C.—J. Child.—G. Dingwall.—C. Y. M.—R. W.—A. v. G.—J. P.—J. McM. (thanks).—R. W. T.—A. M.—No Surrender.

*** IMPORTANT NOTICE.—*The next number of the* AGRICULTURAL GAZETTE *will be* PUBLISHED *on* MONDAY, *December* 6, *in time for the Evening Mails, containing a Full Report of the London Markets, and of all other Agricultural Intelligence up to the hour of going to press.*

Markets.

COVENT GARDEN, December 2.

The cold weather has slightly checked supplies, but as stocks are heavy prices remain the same. Quotations for best samples of Grapes are better, while for inferior there is no alteration. Pines are a complete drug. Enquiries for Kent Cobbs have been few. *Jas. Webber, Wholesale Apple Market.*

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per doz.	42	0–60 0	Heaths, in var., doz.	12	0–30 0
Begonias, per doz.	6	0–12 0	Heliotrope, per doz.	6	0–12 0
Bouvardias, do.	12	0–18 0	Hyacinths, Rom., do.	12	0–30 0
Chrysanthemum, do.	4	0– 9 0	Mignonette, do.	5	0– 8 0
Cyclamen, do.	12	0–24 0	Myrtles do.	3	0– 9 0
Cyperus, do.	6	0–12 0	Pelargoniums, scarlet, per doz.	6	0– 9 0
Dracæna terminalis	30	0–60 0	Primula sinensis, do.	4	0– 9 0
— viridis, per doz.	12	0–24 0	Solanums, do.	6	0–24 0
Epiphyllums, do.	18	0–42 0	Tulips, per doz.	9	0–18 0
Ficus elastica	1	6– 7 6	Veronica, do.	4	0–12 0
Fuchsia, per doz.	6	0–12 0			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, 12 sprays	1	6– 4 0	Pelargoniums, 12 spr.	1	6– 3 0
Camellias	4	0–12 0	— Zonal, do.	0	6– 1 6
Carnations, 12 blooms	1	6– 4 0	Primula, dbl., p. bun.	1	0– 1 6
Chrysanthem., 12 bl.	1	0– 4 0	Roman Hyacinths, 12 sprays	3	0– 6 0
— 12 bunches	4	0–12 0	Roses, indoor, p. doz.	2	0– 6 0
Cyclamen, 12 blooms	0	3– 0 6	— outdoor, 12 bun.	9	0–12 0
Epiphyllum, p. doz.	1	0– 3 0	Spiræa, 12 sprays	1	0– 3 0
Eucharis, per doz.	4	0–12 0	Stephanotis, 12 sprays	6	0–12 0
Gardenia, per doz.	6	0– 9 0	Tuberoses, per doz.	2	0– 4 0
Heliotropes, 12 spr.	0	6– 1 0	Violets, 12 bunches	1	6– 3 0
Mignonette, 12 bun.	4	0– 9 0			
Narcissus, per dozen	3	0– 6 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4	0–	Leeks, per bunch	0	2– 0 4
— Jerusalem, p. lb.	0	3–	Lettuces, per score	2	0–
Asparagus, per bund.	30	0–40 0	Mint, per bundle	0	4–
Beans, Scarlet Runners, per lb.	0	6–	Mushrooms, per pott.	1	0– 2 0
— French, per 100	2	0– 3 0	Onions, young, bun.	0	4– 0 6
Beet, per doz.	1	0– 2 0	Parsley, per bunch	0	4–
Brussels Sprouts, lb.	0	4–	Potatos (new), baskt.	1	0–
Cabbages, per doz.	1	0– 2 0	— Sweet, per lb.	0	6–
Carrots, per bunch	0	6–	Radishes, per bunch.	0	2– 0 4
Cauliflowers, p. doz.	2	0– 4 0	— Spanish, doz.	1	0–
Celery, per bundle	1	6– 2 0	— French	0	6–
Cucumbers, each	1	0– 1 6	Rhubarb, per bundle	2	0–
Endive, per doz.	1	0– 2 0	Salsafy, per bundle	0	9–
— Batavian, p. doz.	2	0– 3 0	Seakale, per punnet	2	0– 3 0
Herbs, per bunch	0	2– 0 4	Shallots, per lb.	0	3–
Horse Radish, p. bun.	3	0– 5 0	Tomatos, per doz.	1	0– 2 0
			Turnips, per bundle.	0	4–

Potatos—Rocks, £5; Regents, £6 to £7; Kidneys, £7 to £8 per ton.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 6	Oranges, p. 100	6 0	12 0
Cobbs and Filbts., lb.	0 6	0 9	Pears, per doz.	1 0	4 0
Grapes, per lb.	1 6	6 0	Pine-apples, p. lb.	2 0	6 0
Lemons, per 100	6 0	10 0	Walnuts, p. bush.	8 0	12 0
Melons, each	2 0	4 0			

SEEDS.

LONDON: *Dec.* 2.—Considerable activity is now seen on our seed market, and in Clover especially. There have been some large speculative transactions. The bulk of the business, however, has been in French samples, which now exhibit a further advance of 2*s.* per cwt. From Germany and America the offers of red seed are still meagre. White Clovers, on account of their scarcity, are held for long prices. For Alsike there is a good sale at a rise of £5 per ton. Present quotations for Trefoil seed range very much higher than those of the last few seasons. Foreign Italian is creeping upwards. Good Rapeseed readily finds buyers on former terms. In Mustard seed there is scarcely anything doing. The cold weather has given an impetus to the demand for blue boiling Peas. Canary seed keeps steady. For foreign spring Tares we have a good inquiry at the late advance. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

Business at Mark Lane on Monday was characterised by dulness, and the chief of that effected in Wheat was at some reduction from the previous Monday; even for fine Australian offers of less money were not in all cases refused. Barley was slow of sale, and malting qualities were generally cheaper. Malt remained nominally unaltered in price. Oats were from 3*d.* to 6*d.* per quarter dearer. Maize was steady, and somewhat higher in price; Beans and Peas were offered on former terms; flour was very hard to move, and only the best descriptions supported previous rates.—On Wednesday trade was quiet, and there was no material change in prices. The show of English Wheat was small, and the fresh arrivals of foreign were less extensive, but the demand remained slow, and millers seemed indisposed to purchase at previous quotations. Malting Barley was weak, but grinding and other kinds were moderately firm. Malt was dull. Oats were in large supply and hardly so strong in tone. Maize was equally as dear, and late rates were given for Beans and Peas. Flour was cheaper to sell.—Average prices of corn for the week ending Nov. 27:—Wheat, 46*s.* 8*d.*; Barley, 36*s.* 10*d.*; Oats, 26*s.* 5*d.* For the corresponding week last year:—Wheat, 43*s.* 6*d.*; Barley, 42*s.* 10*d.*; Oats, 27*s.* 11*d.*

CATTLE.

At Copenhagen Fields on Monday choice quality beasts were not plentiful, and commanded a high price. A fair clearance was effected of all kinds. The number of sheep was nearly the same as last week. Although there were a few more calves, the demand being good they were readily disposed of at full prices. Quotations:—Beasts, 4*s.* 6*d.* to 5*s.* 6*d.* and 5*s.* 10*d.* to 6*s.* 4*d.*; calves, 4*s.* 8*d.* to 6*s.* 8*d.*; sheep, 5*s.* 10*d.* to 6*s.* 4*d.* and 6*s.* 8*d.* to 7*s.* 8*d.*; pigs, 4*s.* 8*d.* to 6*s.*—On Thursday the market was moderately supplied, and the trade generally without essential change. For beasts the demand was slow, but the rates obtained supported Monday's currency. In sheep inferior qualities gave way in price, and top quality went at 4*d.* under Monday's quotation. Calves were in moderate supply, and prime qualities were fully as dear as last market.

HAY.

There was a good supply of fodder at Whitechapel, and rather an active demand prevailed for the better qualities of hay. Other kinds were comparatively slow of sale, and prices remained without change. Prime Clover, 100*s.* to 157*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 144*s.*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 50*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 130*s.* to 140*s.*; inferior, 90*s.* to 110*s.*; superior Clover, 150*s.* to 160*s.*; inferior, 100*s.* to 130*s.*; and straw, 48*s.* to 52*s.* per load.

POTATOS.

At the Borough and Spitalfields markets English supplies continue extremely short, and prices rule higher. Foreign continue to arrive largely, and meet a steady sale at rather improved rates. Quotations:—Regents, York, 160*s.* to 180*s.*; other English ditto, 120*s.* to 160*s.*; rocks, 80*s.* to 90*s.*; Dutch rocks, 70*s.* to 90*s.*; French Shaws, 70*s.* to 80*s.*; Belgian kidneys, 90*s.* to 100*s.* per ton.—The imports of foreign Potatos into London last week included 19,984 bags 212 tons from Antwerp, 796 bags 2 bushels from Rotterdam, 314 sacks from Boulogne, 412 tons 6916 bags from Harlingen, 2 sacks from Brussels, 52 barrels from New York, 670 bags from Bremen, 21 bags from Dordt, 438 sacks from St. Nazaire, 1662 bags 1 barrel from Hamburg, and 1919 tons 5031 sacks from Dunkirk.

COALS.

The market on Monday was characterised by firmness, and previous prices were fully maintained. Wednesday's market was but ill supplied with house coals, and the small business done was at previous rates.—Quotations: Bebside West Hartley, 20*s.* 3*d.*; West Hartley, 20*s.* 3*d.*; Walls End Tunstall, 23*s.* 3*d.*; Walls End East Hartlepool, 25*s.* 3*d.*

SUTTONS'

CATTLE SHOW PRICES

FOR THEIR

HOME-GROWN SEEDS.

(Carriage Free.)

Although we anticipate high prices for all Seeds later on in the season, we are prepared to Book Orders

TAKEN at the ISLINGTON SHOW ONLY

at the following moderate quotations:

Sutton & Sons

PRIZE STOCKS of MANGEL WURZEL.

SUTTONS' BERKS PRIZE YELLOW GLOBE.—Per pound, 1*s.* 6*d.* Cheaper by the cwt.

SUTTONS' MAMMOTH LONG RED.—The heaviest and best long Mangel. Per pound, 1*s.* 6*d.* Cheaper by the cwt.

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SUTTONS' GOLDEN TANKARD.—For which Messrs. Sutton were awarded the Highland Society's Gold Medal as being the most nutritious Mangel Per pound, 1*s.* 6*d.* Cheaper by the cwt.

ORDINARY STOCKS of MANGEL, 1*s.* per pound.

SUTTONS' IMPROVED GREEN KOHL RABI.—The handsomest and heaviest in cultivation. Per pound, 1*s.* 9*d.* Cheaper by the bushel.

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SUTTONS' IMPROVED DRUMHEAD CABBAGE—Growing to a weight of 75 lb. each. Per pound, 3*s.* Cheaper by the cwt.

SUTTONS' IMPROVED CHAMPION SWEDE—The hardiest, handsomest, and heaviest growing variety in cultivation. Per pound, 1*s.* Cheaper by the bushel.

SUTTONS' PRIZE STOCKS of TURNIP SEED.—White-flesh varieties, per pound, 1*s.* Yellow-flesh varieties, per pound, 1*s.*

SUTTONS' MIXTURES of PERMANENT PASTURE GRASSES and CLOVERS.—Best quality, 36*s.* per acre. A reduction on quantities over ten acres.

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NEW SWEET-SCENTED RHODODENDRONS now offered for the first time, the most novel and beautiful ever raised. NEW INDIAN AZALEAS and a fine collection of AZALEA MOLLIS. A Descriptive Priced LIST forwarded to any address on application to ISAAC DAVIES, Nurseryman, Ormskirk.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free. Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants. BROWN and BLACK PEAT, for general purposes. Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each. FRESH SPHAGNUM, 10*s.* 6*d.* per sack. WALKER AND CO., Farnborough Station, Hants.

PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17*s.* per ton. A small sample will be sent by Post, free. W. TARRY, "Golden Farmer," Bagshot, Surrey.

COCOA-NUT FIBRE REFUSE—Sure Protection against Frost. Twenty bushels 6*s.* 8*d.*, 50 for 12*s.* 6*d.*, truck, 45*s.* Delivered free within 6 miles, or on rail. THOMAS HODGES AND CO. (late H. WRIGHT), Eagle Steam Fibre Works, Hatcham Road, Old Kent Road, S.E., and 81, Bishopsgate Street Without, London, E.C.

THE LONDON MANURE COMPANY (ESTABLISHED 1840) Have now ready for delivery, in fine dry condition—WHEAT MANURE, for autumn sowing. PURE DISSOLVED BONES. PURSER'S BONE MANURE. PURSER'S BONE TURNIP MANURE. SUPERPHOSPHATE. NITROPHOSPHATE. NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c. 116, Fenchurch Street. E. PURSER, Secretary.

SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6*s.* Supplied to Seedsmen and Chemists. Prepared by JOHN KILINER, Wortley, near Sheffield.

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1*s.* 6*d.* and 3*s.* per bottle—1*s.* 9*d.* and 3*s.* 4*d.* per bottle, if packed for travelling, of the Manufacturers, EWING AND CO., Norwich.

BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass. Retail 1*s.* 6*d.* and 2*s.* 6*d.* per bottle, of the Sole Manufacturers. BELL AND SON, 10 and 11, Exchange Street, Norwich.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

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F. STEVENSON'S ABYSSINIAN MIXTURE, Warranted to Destroy Mealy Bug, and all Insects infesting Plants. Unequalled as a Winter Dressing for Vines and Fruit Trees. Sold by all Nurserymen and Seed Merchants, in Bottles, 1*s.* 6*d.*, 3*s.*, 4*s.* 6*d.* & 5*s.* 6*d.* each. Inventor and Sole Manufacturer, F. STEVENSON, STAMFORD ST., ALTRINCHAM, CHESHIRE. Entered at Stationers' Hall.

CONSERVATORIES and GREENHOUSES Erected or Heated in any part of the Country. Plans and Estimates free. R. STEVENS, Horticultural Builder, Bromley, Kent.

QUEENSLAND.—Intending Emigrants to Queensland are specially requested to note that the *Western Monarch*, leaving London on November 30, is the last ship this year for Brisbane. For Free or Assisted Passages apply to the Agent-General for Queensland, 32, Charing Cross, London, W.C.

GOVERNMENT EMIGRATION.

SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*: one year and under twelve, £2 15*s.* NOTICE.—The next Ship, "Earl Dalhousie," will sail from Plymouth on the 15th of this month. For passages and further information apply to the AGENT-GENERAL, 3, Westminster Chambers, Victoria Street, S.W.

HOT-WATER PIPES, BOILERS, AND CONNECTIONS AT WHOLESALE PRICES.

PLEASE TO WRITE FOR ILLUSTRATED PRICED LISTS.

ESTIMATES GIVEN AND GOODS SUPPLIED TO ORDER.

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HOT-WATER APPARATUS ENGINEER,

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NOW READY, A NEW AND THOROUGHLY REVISED EDITION OF THE

COTTAGER'S CALENDAR

OF

GARDEN OPERATIONS.

ORIGINALLY COMPILED BY THE LATE SIR JOSEPH PAXTON, M.P.

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"We are quite glad to see this useful little book once more, and it is like a whiff of perfume on the heather in bloom to read on the wrapper 'two hundred and twenty-first thousand.' We advise all who are interested in the promotion of cottage gardening to sow this little book broadcast."—*Gardeners' Magazine.*

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"It has been carefully revised by an experienced gardener, and the lists of vegetables, fruit, and flowers have been corrected by the substitution of the most approved modern kinds, in place of those which were mentioned in the first edition, and many of which have ceased to be worthy of cultivation. It is a thoroughly sound, practical treatise; but it has been so long before the public, and so deservedly appreciated, that any special commendation of it now is unnecessary."—*Midland Counties Herald.*

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Price 3d., Post Free 3½d.

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Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS'S Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,

THOMAS ROBERTS, 112, Victoria St., Westminster, S.W.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

WEST of ENGLAND Manufactory.

Horticultural Buildings, Hot-water Apparatus, &c. **V. SKINNER,** CROFT, **BRISTOL.**

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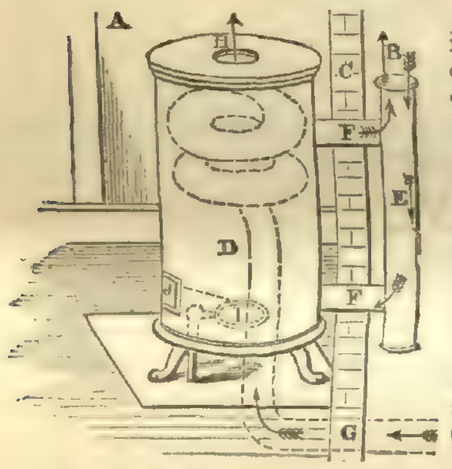
FOR

Warming and Ventilating Small Conservatories.



The only Gas Stove in which the product of combustion is entirely excluded from the Conservatory.

Made in Wrought Iron, £3 3s.

Made in Copper, £5.

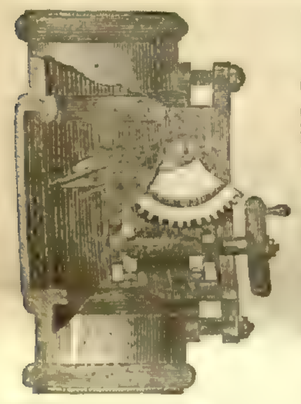
Height, 28 inches; diameter, 14 inches.

It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).

Illustrated Prospectuses and Testimonials on application.

J. F. FARWIG AND CO., 36, Queen Street, Cheapside, E.C

This Stove introduces a strong current of warmed (not burnt) fresh air.



MESSENGER'S PATENT VALVES for Hot or Cold Water, Gas, &c., are the cheapest perfect Valve made. They are in general use throughout Scotland, England and Abroad.

MESSENGER'S Patent ELASTIC-JOINTED PIPES, for Hot or Cold Water are the cheapest Portable-Jointed Pipes made, and the most perfect. Illustrated Price List free on application to

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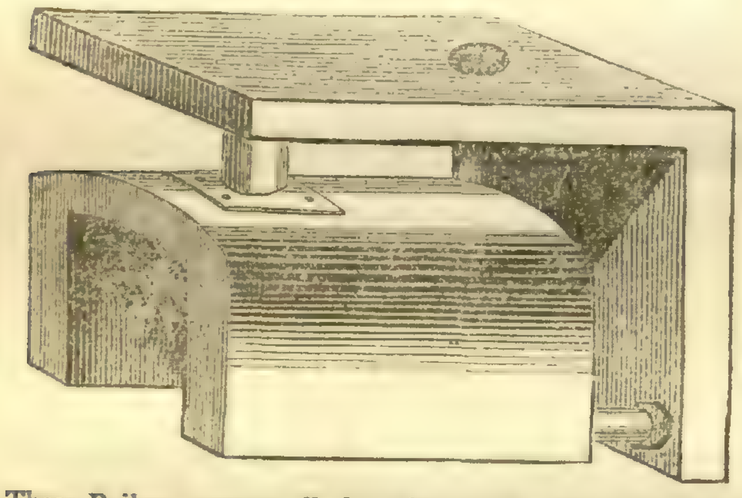
JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0

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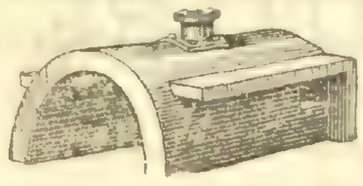

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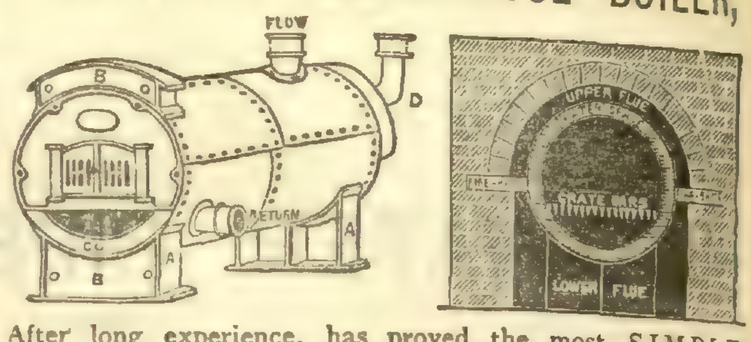

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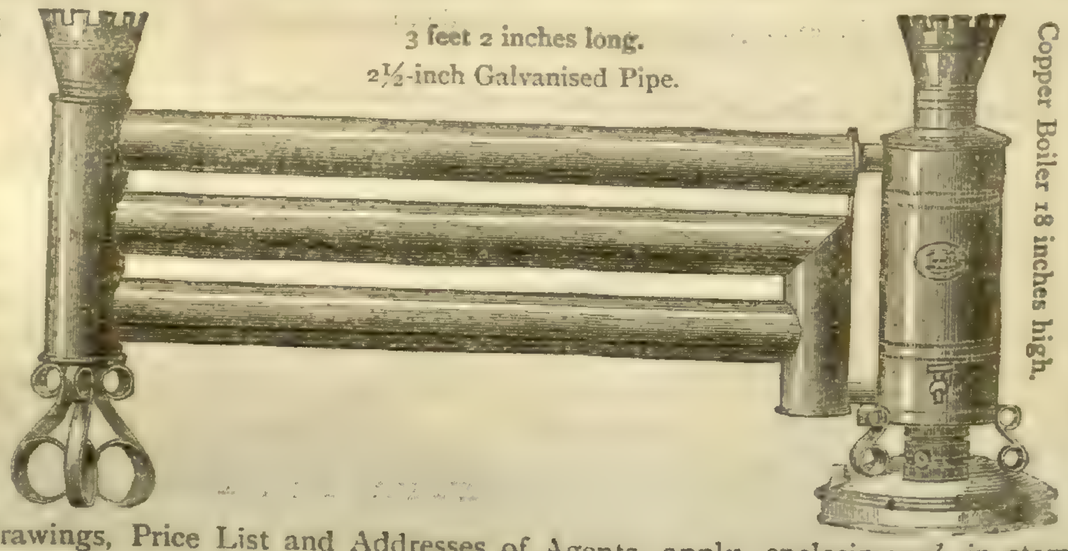

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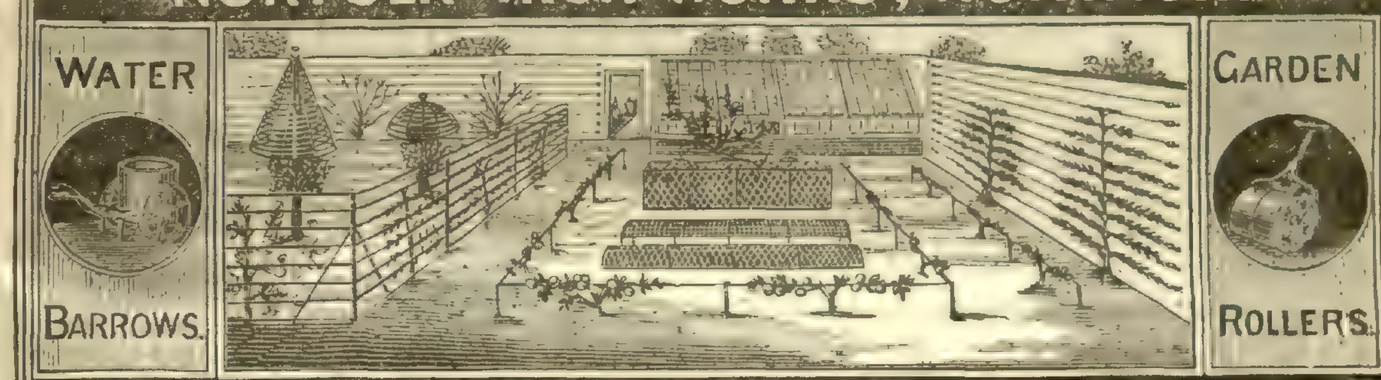

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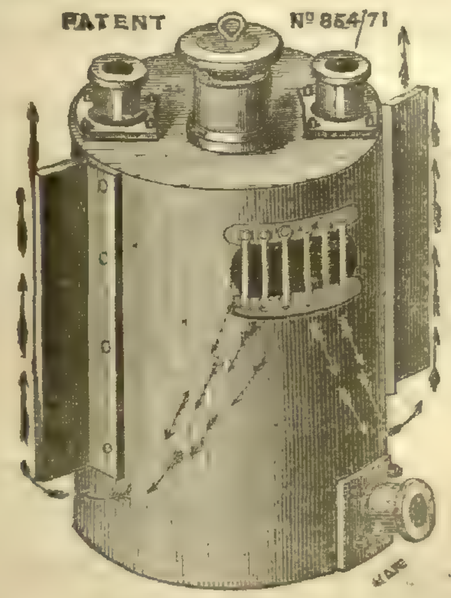

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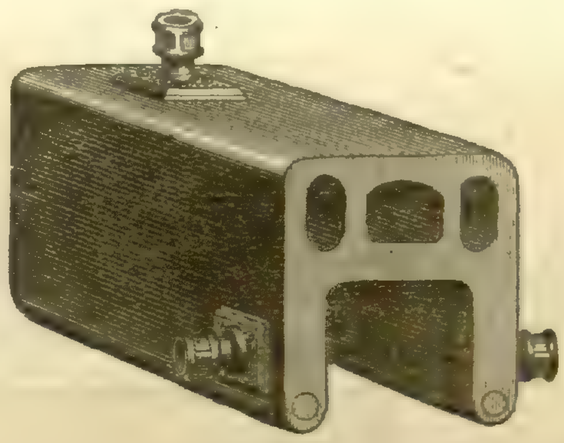

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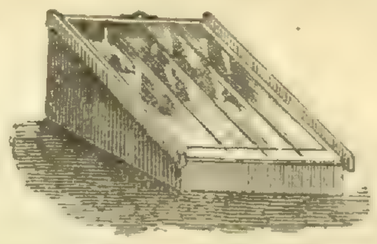

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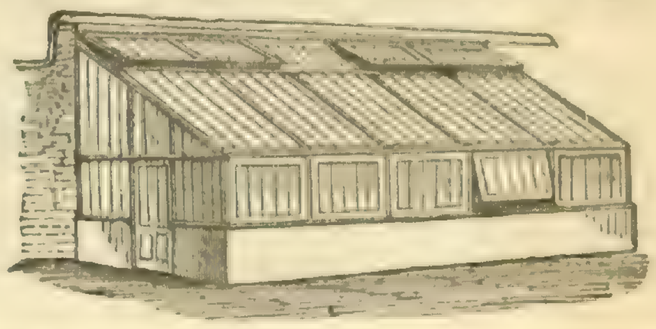

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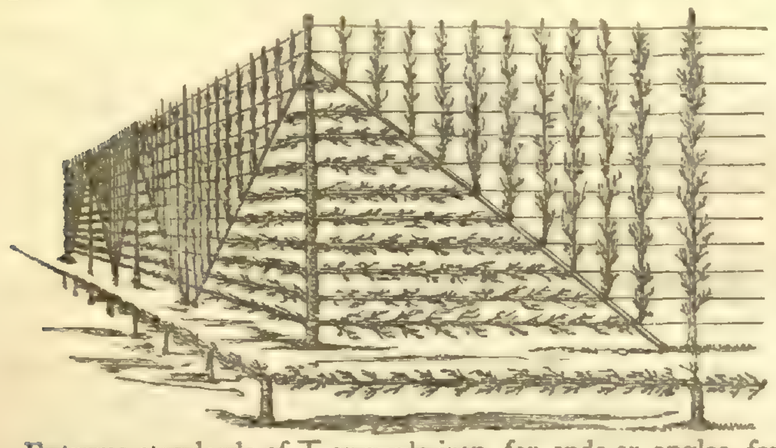

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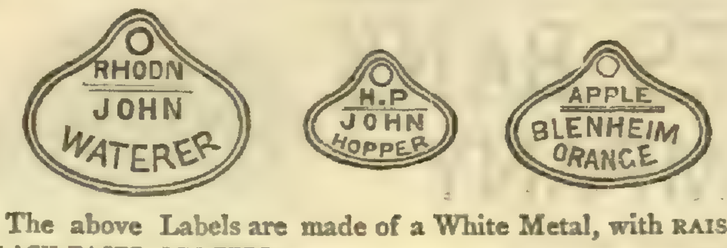

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THE

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Schedules will be shortly issued.—By order,
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RASPBERRY CANES (Semper Fidelis).—Tenders invited for about 2000 of the above.
B. H. RAMSDEN, Harley Gardens, Brandy Carr, near Wakefield.

FASTOLF RASPBERRY CANES, 15,000, strong. 4s per 100; BLACK CURRANT TREES, 10,000, 4-yr. old, 8s. per 100; RED CURRANT TREES, Ruby Castle, 8000, 4-yr. old, 5s. per 100. Apply to
W. SELBY, Jun., Oldbury, Ighthorn, Kent.

HANDSOME BEARING MULBERRIES.—One hundred to select from, 800 smaller sizes in stock. Apply to WOOD AND SONS, 172, Old Kent Road, S.E.

To the Trade.

RED CURRANTS, extra strong, 10s. per 100.
RODGER, M'CLELLAND AND CO., 64, Hill Street, Newry.

Fruits for Forcing.

MESSRS. RIVERS AND SON beg to offer fine Trees in pots, well set with Fruit Buds and ready for Forcing, of PEACHES, NECTARINES, FIGS, and GRAPES, of approved kinds only. Carriage paid to London.
The Nurseries, Sawbridgeworth, Herts.

WANTED, WHOLESALE SEED LISTS.
G. E. ELLIOTT, 139, Bradford Road, Huddersfield.

WANTED to Purchase, a Truckload of EVERGREENS for Christmas, consisting of Laurel, Box, and Berried Holly and Mistleto. Address, stating price per weight, to
H. AND A. GREENWOOD, Fruit Merchants, Batley, Yorkshire.

WANTED, HOLLY, YEW, and PORTUGAL LAUREL BERRIES, OAK ACORNS, and BEECHMAST. Lowest cash prices to
D., *Gardeners' Chronicle* Office, W.C.

WANTED, Immediately, a large quantity of EVERGREENS, HOLLY in Berry, MISTLETO, &c., for Christmas Decorations. Send price per Ton to
THOMAS MILNER, Nurseryman, 102, Goodwin Street, Bradford.

The Oxford Roses, on Cultivated Seedling Briar.

GEORGE PRINCE'S Priced and Descriptive CATALOGUE now ready. All Roses are grown exclusively on the above stock at this establishment.
14, Market Street, Oxford.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Fruits.—Roses.

A. M. C. JONGKINDT CONINCK'S Wholesale TRADE LIST of FRUITS and ROSES is now ready, free on application.
Large quantity of home-grown, very sound bulbs of LILIUM AURATUM.
Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

ROSE SHOWS, 1875.—50 First Prizes, 25 Guinea Silver Challenge Cup, and other Premier Prizes. See Cranston & Mayos' DESCRIPTIVE ROSE CATALOGUE for 1875. Address,
CRANSTON'S Nurseries, King's Acre, Hereford.

Special Culture of Fruit Trees and Roses.

THE DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS (by THOMAS RIVERS) is now ready; also CATALOGUE of Select ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
The Ottershaw Nursery, Chertsey.

WM. POTTEN can still supply FRUIT TREES and ROSES, as advertised in the *Gardeners' Chronicle*, Nov. 6. W. P.'s LIST will be sent to all applicants.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

THE MILE ASH ROSES are recommended as specially hardy and healthy. The plants are superb this season. LIST free on application.
EDWIN COOLING, Mile Ash Nurseries, Derby.

Dwarf and Standard Roses, &c.

ROSES, splendid Dwarf, as fine as can be bought, 6s. and 9s. per dozen, 50s. per 100; Standards, 12s. and 15s. per dozen, 100s. per 100, all good leading varieties. GOOSEBERRIES, Lancashire Show, 3s. and 4s. per dozen, 20s. per 100. CURRANTS, Red, White, or Black, 3s. per dozen, 18s. per 100. Trade Price on application.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Vines, Vines, Vines.

B. S. WILLIAMS begs to announce that his stock of VINES is now in fine condition, and ready for sending out. It comprises all the leading kinds, strong Canes of Pearson's Golden Queen.
For prices and description see BULB CATALOGUE.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

To the Trade.

GOOSEBERRIES.—10,000, in leading sorts for kitchen and dessert, clean, stout stems, fine, well-formed heads, with free, healthy growth. For prices see New Trade List. Retail prices, 3s. to 6s. per dozen; 21s. to 35s. per 100. EWING AND COMPANY, Norwich.

SEAKALE and ASPARAGUS, extra strong, for Forcing; very fine. Price on application.
FRANCIS & ARTHUR DICKSON & SONS, "Upton" Nurseries, Chester.

To the Trade.

SEAKALE, excellent Roots, and any quantity, 80s. per 1000, single hundreds, 10s. ASPARAGUS, RHUBARB, and PÆONY. Post Office Orders, payable High Street, will receive the earliest attention.
A. ATWOOD, 5, Simpson Street, Battersea, S.W.

Cooling's Matchless Broccoli.

GEORGE COOLING, NURSERYMAN and SEEDSMAN, Bath, has to offer his usual supply of carefully saved SEED of this unequalled variety of SPRING ROCCOLI, and will be glad to quote price of the same to the Trade. Retail price, per packet, 1s. 6d.

Mangel and Swede.

JOHN SHARPE can furnish, on application, his quotations for the choicest Stocks of the above, selected and grown by himself.
Bardney Manor, Lincoln.

Johnstone's St. Martin's Rhubarb.

EARLIEST and BEST in CULTIVATION for Open Ground, has a splendid colour and excellent for Forcing. Strong roots, 9s. per dozen. Trade price on application.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

To the Trade.—Seed Potatos.

H. AND F. SHARPE are prepared to make Special Offers of SEED POTATOS grown on their own Farms from the finest selected stocks. Their List this season comprises all the English and American varieties worthy of cultivation. The prices will be found very moderate.
Seed-growing Establishment, Wisbech.

SALES BY AUCTION.

Auction Mart, Tokenhouse Yard, E.C.
FINAL SALE THIS SEASON.

Extensive consignment of choice Double CAMELLIAS and AZALEA INDICA set with bloom-buds, fine PALMS for table decoration; 1000 good plump bulbs of English grown LILIUM AURATUM; also a quantity of flowering bulbs of the choicest and most handsome LILIES from California and Japan, together with a large quantity of selected HYACINTHS, TULIPS, CROCUS, GLADIOLI, and other DUTCH FLOWER ROOTS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, without any reserve whatever, on MONDAY NEXT, at the Auction Mart, Tokenhouse Yard, E.C., near the Bank, commencing at half-past 11 o'Clock precisely.

On view the morning of Sale. Catalogues had at the Mart, and at 98, Gracechurch Street., E.C.

City Auction Rooms, 38 & 39, Gracechurch St., E.C.
Consignment from Ghent for Absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on TUESDAY, December 16, at half-past 12 o'Clock precisely, about 200 choice Double CAMELLIAS and AZALEA INDICA, compact plants, 1 to 2 feet, beautifully set with bloom-buds; 500 handsome Standard, Dwarf, and Climbing ROSES, of the best varieties; choice Hardy AMERICAN PLANTS and CONIFERÆ SHRUBS, selected FRUIT TREES, with a Collection of DUTCH BULBS, ERICAS in flower, PRIMULAS, CINERARIAS, CYCLAMENS, &c.

On view the morning of Sale. Catalogues may be had at the Rooms, and of the Auctioneers, &c., 98, Gracechurch Street, E.C., and Leytonstone, E.

Lilium auratum.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY and THURSDAY, December 13 and 16, several Thousand Bulbs of LILIUM AURATUM just arrived from Japan in very fine condition, and lotted to suit the Trade and Private Buyers.

On view the morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 16, at half-past 12 o'Clock precisely, a large IMPORTATION of ORCHIDS from the cool districts of the United States of Colombia, including a quantity of a very handsome Odontoglossum, which gives fine spikes of handsome, large, richly spotted flowers (dried specimens of the flowers and spike can be seen at the Sale); also a number of mixed Anguloas and Lycastes as collected, several probably new; Oncidium auriferum; a quantity of good-looking Cattleyas, which have been collected in a fresh district and are therefore probably new; and some good plants of the chaste Anguloa uniflora, with various other Orchids; also an importation of Saccolabium Blumei majus, and Aerides maculosum, one of the most beautiful of Aerides; an importation of good plants from Eucador of the true Cattleya maxima.

On view the morning of Sale, and Catalogues had.

TO LET, a SMALL COTTAGE, in good repair, with about Two Acres of Land that has been in Cultivation. Good situation for Pigs and Poultry. One mile from Farnborough Station. Respectable references required.
Apply, A. S., Woodley Cottage, Cove, Farnborough, Hants.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

THE SECRETARY of the ROYAL AGRICULTURAL BENEVOLENT INSTITUTION has the pleasure to acknowledge the MUNIFICENT SUM of ONE HUNDRED POUNDS, received in aid of its Funds, from Mr. HENRY WILLIS, of Old Windsor, through Mr. Charles S. Cantrell, one of the Society's Honorary Local Secretaries. This is the second donation made by Mr. WILLIS during the present year. The Secretary also begs to acknowledge a Donation of TEN GUINEAS, received from Mr. AUGUSTUS SCHLUSSER, of Wimbledon, through the same source.

Lilies by the 100 or 1000.
For Planting in Borders, Shrubberies, among Rhododendrons, Massing in Beds, or Grouping among Shrubs.

MR. WILLIAM BULL, being an annual importer from their native habitats of immense numbers, can offer Choice and New LILIES, also the well-known ordinary showy sorts, at very low prices when taken in quantity.
Special quotations on application.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

TACSONIA INSIGNIS.—SEED of this splendid novelty can now be supplied. Price per packet, 2s. 6d. As a Greenhouse or Conservatory Climber it has few rivals. Its large, "lustrous crimson" flowers, fine deep green, stout foliage, and ample growth, render it a welcome addition to the choicest collections. Well-established plants, 7s. 6d. each; extra strong, 10s. 6d. to 21s.
JAMES BACKHOUSE AND SON, York.

Evergreen Hedges.—Box, Green Hollies, and LIGUSTRUM OVALIFOLIUM.

R. NEAL, having a very large Stock of the above, can offer the same by the 100 or 1000 at a very low rate.
Also 10,000 ACER CAMPESTRIS, from 5 to 8 feet in height, clean-grown stuff.
Price on application.
The Nurseries, Wandsworth Common, S.W.

Darlingtonia, Sarracenia, Dionæa.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the above interesting Pitcher and Carnivorous Plants, of which a large consignment has been received in perfect condition.
SARRACENIA FLAVA, strong imported plants, 60s. per doz.
,, PURPUREA, established plants, 30s. per dozen.
DARLINGTONIA CALIFORNICA, the handsomest and rarest of Pitcher Plants, strong, 90s. per dozen.
DIONÆA MUSCIPULA, nicely growing plants, 36s. per doz.
Also, nice young plants of DORYANTHES PALMERI, at 24s. per dozen.
Single Plants at a proportionate increased charge.

New Cucumber.

COOLING'S KING of the CUCUMBERS, a cross between Long Gun and Telegraph, combining the best qualities of both varieties. Fruit 18 to 24 inches; colour deep glossy green, very smooth and handsome; flesh, crisp and solid, very free bearer. The best Cucumber ever sent out. Price, 2s. 6d. per packet. Trade terms on application.
Mile Ash Nurseries, Derby.

To the Trade.
Home-grown GARDEN and AGRICULTURAL SEEDS.

H. AND F. SHARPE'S Wholesale Special Priced LIST of the above Seeds of 1875 growth is now ready; it comprises all the best sorts in cultivation. The quality is very fine, and the prices will compare favourably with those of other growers.
Seed Growing Establishment, Wisbech.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

Araucaria imbricata.

WILLIAM BRYANT begs to offer, as above, in well-furnished plants, transplanted spring, 1874, at the following prices:—

1½ to 2 feet ..	24s. per doz.	2½ to 3 feet ..	40s. per doz.
2 to 2½ feet ..	30s. ,,	3 to 3½ feet ..	48s. ,,

The Nursery, Rugby.

Gilbert's New Melon—A. F. Barron.

W. AND J. BROWN are favoured by Mr. R. Gilbert, Burghley Gardens, with sending out the above New Melon, being assured that it is in advance of any preceding it. Received First-class Certificate at the Stamford Horticultural Show: see *Gardeners' Chronicle*, November 20. Price per packet, 3s. 6d.; trade terms on application.
Nurseries, Stamford and Oakham.

Planting Season.

CHARLES BURGESS begs to offer the following:—Strong Standard, Pyramid and Dwarf-trained FRUIT TREES, ROSES, Evergreen and Deciduous FLOWERING SHRUBS, English OAKS, ELMS, and LIMES, up to 10 feet; Larch, Spruce, and Scotch FIRS, and a general Nursery Stock. Prices on application.
The Nurseries, London Road, Cheltenham.

Cranston's Nurseries.—Established 1785.

THE FOLLOWING CATALOGUES are now Published:—
Descriptive CATALOGUE of ROSES, 1875—1876.
Descriptive CATALOGUE of FRUIT TREES.
Descriptive CATALOGUE of CONIFER TREES and SHRUBS.
Descriptive CATALOGUE of BULBS.
Descriptive CATALOGUE of GREENHOUSE and HERBACEOUS PLANTS.
Descriptive CATALOGUE of SEEDS. Address,
CRANSTON AND MAYOS, King's Acre, near Hereford.

To Noblemen, Gentlemen, and Others who are REPLANTING this AUTUMN.

R. NEAL begs respectfully to call the attention of the above to his large and varied stock of Hardy SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS, CLIMBING PLANTS, &c., which are now in fine condition for removal. An early inspection invited.
CATALOGUES may be had on application.
The Nurseries, Wandsworth Common, S.W.

AVENUE TREES.

	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 ,,
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 ,,
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 ,,
,, Scarlet, 10 to 14 feet high	8 to 10 ,,
,, Double, 10 to 14 feet high	8 to 10 ,,
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 ,,
ELMS, 15 to 18 feet	7 to 9 ,,

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots. They are unquestionably the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.
Knap Hill Nursery, Woking, Surrey.

Red Lodge Nursery, Southampton.

W. H. ROGERS begs to call attention to this extensive Nursery, which offers unlimited supplies of FRUIT, FOREST, and ORNAMENTAL TREES, SHRUBS, and AMERICAN PLANTS of every size and description. For Specimen CONIFERS, Hardy Scarlet and other choice RHODODENDRONS the Nursery is unrivalled.
Priced CATALOGUES and every information may be had gratis on application.

Lilium auratum (Imported).

THE NEW PLANT and BULB COMPANY beg to announce the arrival of their first consignment of the above, in magnificent condition, at very low prices. Lion Walk, Colchester.

Lilium auratum (Home-grown).

THE NEW PLANT and BULB COMPANY have still on hand splendid bulbs, at very low prices. Lion Walk, Colchester.

Lilies, all Known Kinds (Home-grown).

THE NEW PLANT and BULB COMPANY invite intending purchasers to send for one of their CATALOGUES, which, in addition to Lilies, contains a selection of the best Hardy Flowering and other Plants in cultivation, all remarkably good, and such as will give a fine effect next season. The Trade liberally dealt with.
Lion Walk, Colchester.

Richmond Nurseries, Richmond, Surrey.
To GENTLEMEN, NURSERYMEN, LARGE CONTRACTORS, LANDSCAPE GARDENERS, and OTHERS.

G. AND W. STEELL beg to call the attention of all Planters to their very extensive and fine grown NURSERY STOCK, consisting of an excellent selection of Ornamental Evergreen and Deciduous Shrubs and Tree, Standard and Dwarf Rose Trees, Standard and Dwarf Variegated and Green Hollies of the newest and best varieties, Standard and Dwarf Fruit Trees, &c., which they can highly recommend for their fine growth and moving qualities.
N.B.—Where large quantities are required they can be supplied at very low prices.

New Broccoli.

CHRISTIE'S SELF PROTECTING LATE WHITE.—The finest late Broccoli in cultivation.
Mr. NISBET, *gardener to* Sir Thomas Whichcote, Bart., *Oswarby Park, says*:—"Having seen Mr. Christie's Broccoli growing for the last three seasons I have no hesitation in recommending it as being the finest of all Broccolis I have yet seen, and for hardiness of constitution I know of no Broccoli to compare with it."
The above has been selected from numerous testimonials received in favour of this very valuable Broccoli for late use.
Per packet, 1s. 6d.
A limited quantity to offer to the Trade. Price on application.
EDMUND PHILIP DIXON, Seed Merchant and Nurseryman, Hull.

New Roses.

WM. PAUL AND SON beg to offer the following NEW ROSES:—
STAR of WALTHAM, 7s. 6d. to 10s. 6d. each.
QUEEN of WALTHAM, 5s. to 7s. 6d. each.
These have been acknowledged by many of our first Rose amateurs, who had seen them blooming in the Nurseries here, to be two of the best novelties of the season.
Coloured Plates, free by post, 1s. each.
250,000 ROSES, new and old, now on Sale, of superior qualities, at very reasonable prices. Priced Descriptive CATALOGUE free by post.
PAUL'S Nurseries, Waltham Cross, Herts.

LILIUM AURATUM.—Plump and sound English-grown bulbs at 30s., 42s. and 60s. per dozen. Imported bulbs from Japan have now arrived, in first-rate condition, price 18s., 24s. and 30s. per dozen.
As Mr. WILLIAM BULL annually imports many thousands of Lilies direct from their native habitats in various parts of the world, he can supply all the choicest sorts at very moderate prices. Good and varied selections can be made by Mr. W. B. at 18s., 30s. and 42s. per dozen.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Surplus Nursery Stock.

JOHN GRIER, of The Nurseries, Ambleside, Windermere, begs to intimate to the Trade, and Others engaged in Planting, that he will be very glad to quote Prices of the following, which he can supply in Quantity:—
PORTUGAL LAUREL, 2 to 3, 3 to 4, and 4 to 5 feet.
CUPRESSUS LAWSONIANA, 2 to 3, 3 to 4, and 4 to 5 feet.
COMMON YEW, 2, and 2 to 3½ feet.
THUJA GIGANTEA (or LOBBII), 4 to 5 and 5 to 6 feet.
PINUS AUSTRIACA, 18 to 24, and 24 to 30 inches.
RETINOSPORA PISIFERA, 3 to 4, and 4 to 5 feet.
THUJOPSIS BOREALIS, 3 to 4 and 4 to 5 feet.
ARAUCARIA IMBRICATA, a few fine specimens, from 5 to [12 ft.
All have been transplanted at proper intervals, and will consequently move with safety.
The Nurseries, Ambleside.

STANDARD CHERRIES.—Special offer of the above, very fine Specimens of the following kinds:—

Bigarreau Early Black	Elton
,, Large Black	Empress Eugenie
,, Monstreuse de Mezel	Governor Wood
,, Napoleon	May Duke
,, Reverchon	Morello
,, White	Turkey Black Heart.
Early Rivers	

Also strong LIMES, 7 to 8 feet.—Carriage paid to London.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

EAST LOTHIAN STOCK SEED (Genuine), in three distinct Colours, saved by Mr. Campbell, late Gardener at Traprain, the original Raiser of this celebrated Stock, in packets 1s., 2s. 6d., and 5s. PANSY, from choice named flowers, in packets, 2s. 6d. and 5s. BALSAM, CALCEOLARIA, COCKSCOMB, POLYANTHUS, AURICULA, in packets 1s. to 2s. 6d. each, free by post. A Special Offer to the Trade.
ORMISTON AND RENWICK, Seed Merchants, Melrose, N.B.

EXTRA STOCK FOR SALE, Cheap.
APPLE STOCKS, 1-yr. and 2-yr. 1-yr.
PEAR STOCKS, 2-yr. 2-yr.
RASPBERRY CANES, Fastolf.
,, ,, Yellow Antwerp.
CURRANTS, Black Naples, strong.
,, Red Grape, strong.
,, Cherry, strong.
YEWS, Common, 1 to 2 feet.
IVIES, Irish, strong, from ground, and 1-yr.
JASMINE, White and nudiflorum.
FORSYTHIA FORTUNEI.
VIRGINIAN CREEPERS, strong.
HOTEIA JAPONICA, strong.
DIELYTRA SPECTABIL S, extra fine.
HAZEL, extra stout, 2½ to 3 feet.
LIMES, strong, for quartering, and fine specimens.
R. H. POYNTER, Nursery, Taunton.

To the Trade.

WILLIAM RUSHFORTH, Woodhouse Hill Nurseries, Leeds, offers as below, all of good quality:—

1000	Strong Dwarf MOSS ROSES	per 100	20s.
2000	Strong DIELYTRA SPECTABILIS ..	,,	20s.
1000	Strong SPIRÆA JAPONICA	,,	20s.
5000	DOUBLE SULPHUR PRIMROSES ..	,,	15s.
4000	Good SEAKALE	,,	5s.
1000	LABURNUMS, 6 to 7 feet	,,	18s.
1700	ALGIERS IVY, strong, in pots	,,	40s.
3000	VIRGINIAN CREEPERS	,,	8s.
300	ARALIA SIEBOLDII, in pots	,,	50s.
4000	TREE BOX, 2 feet	,,	15s.
100	SWEET BAYS, 3 to 4 feet	per doz.	24s.

WORCESTER PEARMAIN APPLE.

Awarded a First-class Certificate by the Royal Horticultural Society, October 6, 1875.

Fruit 2¾ inches wide, and same in height, conical; skin smooth, brilliant red, with minute fawn-coloured dots; flesh very tender, crisp, juicy, and sweet, with a very pleasant flavour, perhaps the most valuable of all for market. The tree is as productive as Lord Suffield Apple, and one of the handsomest fruits in cultivation. Ripe end of August, and will keep till Christmas.

Maiden Trees, 10s. 6d. each; Pyramid or Trained Trees, 21s. each. Coloured Plates, 6d. each.

RED HAWTHORNDEN APPLE.—Dr. Hogg describes this as large, oblate, and angular; skin smooth, greenish yellow, with a red blush next the sun; flesh white, tender and juicy, with a sprightly and agreeable acidity. A very early and valuable culinary Apple; ripe August and September. Maiden trees, *7s. 6d.* each; Pyramid or trained trees, *10s. 6d.*

YORKSHIRE BEAUTY APPLE.—Dr. Hogg, in his *Manual*, says this fruit is 3½ inches wide and 3 inches high, roundish, flattened, and angular; skin bright yellow, with a bright red blush on the sunny side; flesh tender and juicy, with an agreeable acidity. A first-rate culinary Apple for August and September, the great size and excellent quality ought to commend it as a good orchard fruit for the market. Maiden trees, *5s.* each; Pyramid or trained trees, *7s. 6d.*

NEW GOLDEN LABURNUM.—Unquestionably the finest hardy golden-leaved tree known, of immense value for park and garden scenery; it will take a foremost position among pictorial and garden trees; the foliage is a brighter golden-yellow than the flower of the ordinary Laburnum. First-class Certificate awarded by the Royal Horticultural Society, August 4, 1875. Price *10s. 6d.* each; Standard and extra strong trees, *21s.* Coloured plates, *6d.* each.

OTHERA JAPONICA.—A new and beautiful evergreen shrub. One of the most distinguished Japanese travellers says this is perhaps the prettiest evergreen they have in Japan; it grows about 20 feet high, has dark green leaves and a profusion of bright red fruit; it is very effective and perfectly hardy. Price *10s. 6d.* each; extra strong, *21s.*

CLIMBING ROSE, COUNTESS of OXFORD.—The old variety in all respects, except in being a free climber. *7s. 6d.* each.

FIFTY ACRES OF FRUIT TREES.

Standard and Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, very fine trees for walls.

Standard, Pyramid, Dwarf, Bush, and Cordon APPLES, PEARS, PLUMS, and CHERRIES.

ORCHARD HOUSE TREES, Established in Pots, for Immediate Fruiting.

PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, APPLES, FIGS, ORANGES, and MULBERRIES.

VINES, Planting Canes, 3*s.* 6*d.* to 5*s.* each; Extra Strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* each.

All the above of superior quality, perfect in form, roots, and health, and true to name.
See Descriptive Price List.

TWELVE ACRES OF ROSES,

Standards and Dwarfs, all the popular sorts; 80,000 choicest Tea-scented and Noisette Roses, in pots. Extra strong Hybrid Perpetual Roses, in pots for immediate forcing. Climbing Roses in great variety. *See Descriptive Price List.*

FOR SHRUBBERIES.

	Per 100.
LAUREL, Colchic, the best hardy variety	3 to 4 feet, 35*s.*
„ Portugal, very fine	1½ to 2 feet, 35*s.*
„ Portugal, very fine	2 to 2½ feet, 50*s.*
„ Caucasian, very fine	2 to 3 feet, 50*s.*
„ Round-leaved, extra fine	2 to 3 feet, 70*s.*
„ Six distinct and beautiful vars.	2 to 3 feet, 50*s.*
COTONEASTER SIMONSII, fine	3 to 4 feet, 35*s.*
PYRUS JAPONICA	2 to 3 feet, 50*s.*
EUONYMUS RADICANS VARIEGATA	1 foot, 40*s.*

	Per 100.
CISTUS LAURIFOLIA, in pots	1½ to 2 feet, 50*s.*
ARBUTUS (Strawberry tree)	1½ to 2 feet, 60*s.*
„ (Strawberry tree)	2 to 2½ feet, 75*s.*
CEPHALOTAXUS DRUPACEA	1½ foot, 60*s.*
TREE IVIES, full of flower	1 to 1½ foot, 75*s.*
LAURUSTINUS	1 to 1½ foot, 40*s.*
BROOMS, White and Yellow	2 to 3 feet, 30*s.*
YEW, English, bushy	1½ to 2 feet, 40*s.*
„ English, bushy	2 to 2½ feet, 60*s.*
„ English, bushy	2½ to 3 feet, 80*s.*
„ Golden, bushy	1 to 1½ foot, 90*s.*

	Per doz.
JUNIPER, Chinese	4 to 5 feet, 36*s.*
„ Chinese	5 to 6 feet, 42*s.*
OAK, Austrian Evergreen	2½ to 3 feet, 30*s.*
„ Austrian Evergreen	3 to 4 feet, 42*s.*
„ Ford's Evergreen	3 to 4 feet, 36*s.*

	Per doz.
CRYPTOMERIA ELEGANS	2 to 2½ feet, 21*s.*
PICEA PINSAPO	2 to 2½ feet, 36*s.*
„ PINSAPO	2½ to 3 feet, 42*s.*
YUCCA GLORIOSA PENDULA	12 to 15 in., 12*s.*
„ GLORIOSA PENDULA	15 to 18 in., 18*s.*

	Per 100.
IVY, strong, for climbing	3 to 4 feet, 40*s.*
VIRGINIAN CREEPER	3 to 4 feet, 40*s.*

	Per 100.
ROSES, Climbling, in variety	3 to 4 feet, 40*s.*
HONEYSUCKLES, in variety	3 to 4 feet, 40*s.*

JUNIPERUS CHINENSIS.—One of the hardiest and most ornamental Shrubs in cultivation, and especially valuable to the landscape gardener. In spring it is quite golden with its numerous flowers, which, when shaken with the wind, give off a cloud of yellow dust; and if the plant be kept closely pruned, the young growth becomes so luxuriant and leafy that it gives an entirely different, but equally pleasing effect in its silvery tinge and rigid outline. When left to its own growth it forms a noble green pillar, highly suitable to stand in pairs by a garden walk. Eight to 9 feet, 10*s.* each; £4 4*s.* per dozen.

PICEA PINSAPO.—A very handsome, densely branched tree. The branches are very thickly placed in whorls and spread horizontally, thus giving a singularly beautiful appearance. It is one of the most distinct and desirable trees for ornamental planting, especially for a lawn. Its perfect symmetry of form is so striking that it should have a place in every collection. Eight to 10 feet, 25*s.* each; £12 per dozen.

ABIES DOUGLASII.—This, the most noble of Evergreen Firs, is of rapid growth, hardy, produces valuable Timber, close, heavy, and free from knots, of the colour of Yew wood. It is a native of California, where it grows upwards of 300 feet high, with a trunk 10 feet through. The flagstaff at Kew is of this tree, and was, when growing, 309 feet high. There is at Dropmore (Bucks) a specimen measuring at the present time 100 feet high, and 90 feet through the branches, with a trunk 9 feet in circumference at 4 feet above the base. It was raised from seed sown by Mr. Frost, the present gardener, in 1828, and is now a model of beauty. 12 to 15 feet, 12*s.* 6*d.* each, £5 per doz.

THE SILVER CEDAR of MOUNT ATLAS.—Now is the time to plant this eminently beautiful tree, unsurpassed for majestic grace and picturesque grandeur even by the Cedar of Lebanon, which it much resembles; and many consider it a variety, but its leaf is more silvery, it grows twice as fast, and its timber is very valuable. Noble trees, 10 to 12 feet, 25*s.* each, £12 per dozen.

DECIDUOUS FLOWERING SHRUBS in 50 beautiful varieties, 30*s.* per 100.
AVENUE AND ORNAMENTAL TREES, many thousands in great variety. See Priced Lists.

STANDARD ORNAMENTAL TREES.

If less than Six of any kind are Ordered an increased Price will be charged.

	Per doz.—*s.*	*d.*
ACACIA, Decaisneana, pink	24	0
„ Bessoniana, crispa, hispida (Rose Acacia), monophylla, sophoræfolia, viscosa, weeping white	21	0
AILANTUS, glandulosa	18	0
„ glandulosa, extra strong	36	0
ALDER, cordata, incana, macrophylla, and quercifolia	12	0
ALMOND, fruit bearing	21	0
ASH, common, 10 to 12 feet, 60*s.* per 100	9	0
„ aucubæfolia, cucullatus, flowering	18	0
„ juglandifolia, monophylla, orange-barked	18	0
„ salicifolia, small twigged, spectabilis	18	0
„ Waterer's variegated	18	0
„ weeping, and gold-barked weeping	42	0
BEECH, purple-leaved, 8 to 10 feet	42	0
„ purple-leaved, 10 to 12 feet	60	0
„ crested-leaved, Chestnut-leaved, Fern-leaved	42	0
„ Oak-leaved, variegated	42	0
BIRCH, Fern-leaved, silver, weeping, 8 to 10 feet	300*s.* per 100	
„ silver, weeping, 9 to 12 feet	90*s.* „ 12	0
„ silver, weeping, 14 to 16 feet	125*s.* „ 18	0
BIRD CHERRY, Virginian	12	0
BROOM, golden, yellow Spanish, white Portuguese	18	0
BROUSSONETTIA, papyrifera	48	0
CATALPA, syringæfolia, and Kæmpferi	42	0
CHERRY, double-blossomed	24	0
„ Mahaleb variegata	21	0
„ hortensis rosea, pendula, and latifolia pendula	30	0
CHESTNUT, Spanish	18	0
„ American, Fern-leaved and variegated	30	0
COLUTEA, red and yellow	12	0
CORNUS, mas variegata	21	0
COTONEASTER, Simonsii	21	0
CYTISUS, austriacus, elongatus, elongatus purpureus	24	0
„ nigricans, purpureus major, sessilifolius	24	0
„ stricta and Weldonii	24	0
ELM, Camperdown, weeping	42	0
„ campestris aurea variegata, Kaki (fine), montana pendula	36	0
„ elegantissima pendula	150*s.* per 100	24 0
„ English, 10 to 12 feet	100*s.* „	15 0
„ English, 14 to 16 feet	150*s.* „	21 0
„ Chichester, 10 to 12 feet	100*s.* „	15 0
„ Chichester, 14 to 16 feet	150*s.* „	21 0
„ Berardii, betulæfolia, emarginata, filicifolia	21	0
„ myrtifolia, monumentalis, purpurea	21	0
„ pyramidalis, Dampieri, plumosa, silver var.	21	0
„ suberosa microphylla, suberosa pendula	21	0
„ viminalis pendula, viminalis fol. variegatis, Webbiana, Wheatleyi	21	0
GENISTA, anxantica, præcox, and purgans	30	0
GUELDER ROSE	21	0
HORNBEAM, cut-leaved and weeping	24	0
HORSE CHESTNUT, scarlet, 7 to 8 feet	24	0
„ „ scarlet, 10 to 12 feet	36	0
„ „ scarlet, extra strong stems	60	0
„ „ white, 9 to 10 feet	18	0
„ „ discolor, double white, double red	30	0
„ „ macrostachya, Memmingerii, ohioensis, rubicunda nana, variegated and yellow	30	0
JUDAS TREE, purple and white	42	0
KOLREUTERIA, paniculata, 5 to 6 feet	30	0
LABURNUM, Alkengerii, English, Scotch, purple, quercifolia	18	0
„ weeping	30	0
LARCH FIR, 8 to 10 feet	9	0
„ „ 10 to 12 feet	12	0
„ weeping (true)	42	0
„ microcarpa and japonica	18	0
LILAC, Charles X., Persian red and white, Siberian and white	30	0
LIME, red twigged, 9 to 10 feet	140*s.* per 100	18 0
„ red twigged, 10 to 11 feet	175*s.* „	24 0
„ red twigged, 11 to 12 feet	200*s.* „	30 0
„ red twigged, 12 to 14 feet	250*s.* „	36 0
„ red twigged, extra strong stems	42*s.* to	60 0
„ weeping		42 0
„ latifolia alba, Beaumontea (weeping)		30 0
„ dasystyla, yellow-twigged, Fern-leaved and vitifolia		30 0
MAGNOLIA, acuminata, 5 to 6 feet		42 0
MAPLE, campestre punctata		42 0
„ colchicum rubrum		30 0
„ negundo, 5 to 6 feet	40*s.* per 100	6 0
„ „ 8 to 10 feet	60*s.* „	10 0
„ „ variegata, 5 to 6 feet stems	125*s.* „	18 0
„ „ „ 7 to 8 feet stems	175*s.* „	24 0
„ campestre, laciniatum, pennsylvanicum rubrum		18 0
„ rubrum, striatum, tataricum rubrum, virginicum rubrum		18 0
MOUNTAIN ASH, 9 to 10 feet	70*s.* per 100	10 0
„ „ large-berried and yellow-berried		18 0
„ „ weeping and variegated weeping		36 0
OAK, scarlet		30 0
„ Turkey		24 0
„ weeping		42 0
PEACH, double-blossomed		30 0
PEAR, weeping		30 0
POPLAR, grandidentata pendula		30 0
„ Black Italian, Lombardy, Ontario, and silver-leaved	84*s.* per 100	12 0
„ „ „ „ „ extra strong	100*s.* „	18 0
PRIVET, golden variegated weeping, longifolium and weeping		30 0
PYRUS, Aria (White Beam), hybrida, tomentosa pendula		18 0
„ Malus floribunda, spectabilis		18 0
„ albo-plena, imperialis, Kaido, Riversii		18 0
„ spectabilis, Tenorei, carnea nervosa, Fontainebleau		18 0
SIBERIAN CRAB, scarlet and yellow-fruited		18 0
SNOWY MESPILUS, botryapium, florida, grandiflora, ovalis		18 0
SUMACH, typhina (Stag's-horn)		18 0
SYCAMORE, 10 to 12 feet	75*s.* per 100	12 0
„ extra strong	18*s.* to	30 0
„ purple-leaved and variegated		24 0
THORN, Paul's double crimson, double pink, 150*s.* p. 100		21 0
„ double white, single scarlet, and in great variety to name		21 0
TULIP TREES		42 0
WILLOW, caprea tricolor, Kilmarnock, weeping		30 0
„ Wolseyana, weeping		30 0
„ American weeping, Babylonian weeping		24 0
„ Solomon weeping, and Vitellini		24 0
„ extra strong, weeping	30*s.* to	60 0

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Dwarf-trained PEARS.
Dwarf-trained APPLES.
Dwarf-trained PLUMS.
Dwarf-trained CHERRIES.
Dwarf-trained PEACHES.
Dwarf-trained NECTARINES.
Pyramid APPLES.
Pyramid PEARS.
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BEAUTIFUL FLOWERS,

FOR WINTER AND SPRING.

Very Easy of Culture. Carriage Free.

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Choice Collections of Flower Roots.

Arranged for various-sized Gardens for Winter and Spring Blooming.

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No. 1.	A complete Collection for Spring Flowering, in open ground	2	2	0
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No. 5.	A complete Collection for Winter and Spring Flowering in Pots and Glasses	2	2	0
No. 6.	A complete Collection in quantities proportionately reduced	1	1	0
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No. 8.	A complete Collection for Window Decoration	1	1	0
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ONE GUINEA COLLECTION contains Thirty Selected First-class Show Roses.

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THREE GUINEA COLLECTION contains One Hundred of the Finest Roses, New or Old, in cultivation, Selected from upwards of 600 Varieties.

Either of the above Collections will be carefully packed and forwarded, on receipt of Cheque or Post Office Order payable to

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Twenty Thousand of the Finest Varieties of GREEN AND VARIEGATED HOLLIES, 4, 5, 6, 7, 8, and 10 feet.

The Plants are all handsomely Grown and properly Rooted.

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JOHN KEYNES

Has a few first-rate Fruiting Canes of this magnificent variety. It is unquestionably the finest Black Grape in cultivation for growth and flavour: 21s. each. No Planting Canes. J. K. can also supply a few other kinds grown from last year's eyes, for which he is so celebrated. Fine fruiting well-ripened Canes, 10s. 6d. each. None left for the Trade.

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Fine well-ripened not overgrown plants as usual. These Roses, not having been forced, will grow on any soil.

CATALOGUES now ready. Amateurs, try them.

Castle Street, Salisbury.

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Trees, Shrubs, Roses and Fruit Trees,

ALSO

CLEMATIS, &c., for 1875-76,

Free by Post on application to

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THE KNAP HILL CYPRESS,

Cupressus Lawsoniana erecta viridis.

ANTHONY WATERER

Will be happy to supply beautiful specimens of this famous hardy Evergreen, at the following prices:—

3 feet high, 2½ feet in circumference, 30s. per doz.
4 feet high, 3 to 4 feet do., 42s. to 60s. per doz.
5 feet high, 4, 5 and 6 ft. do., 10s. 6d., 15s. to 21s. each.
6 and 7 feet high, 6 to 7 and 8 ft. do., 21s. to 31s. 6d. each.

No cuttings have been taken from the plants here referred to, which are simply perfect in growth and splendidly rooted.

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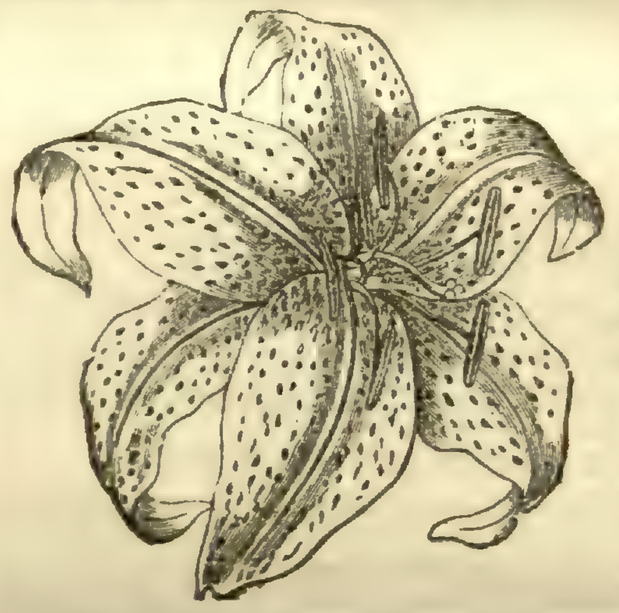

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Has much pleasure in offering the following selection of 26 varieties of Dwarf Roses in excellent plants on

THE CULTIVATED SEEDLING BRIAR,

for 25s., packing included.

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LARCH—20,000, 3-yr. transplanted, 3 to 4 ft.; SCOTCH FIR (true native), 50,000, 3-yr. transplanted, 2 to 2½ feet. Fine, well-rooted stuff, grown in a Private Nursery, for Sale.

Seedlings supplied by the undersigned, to whom apply for further particulars.

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Standard APPLES, PEARS, PLUMS, and CHERRIES.
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Dwarf-trained MOORPARK APRICOTS, PEACHES, NECTARINES, PEARS, and CHERRIES.
Dwarf Maiden MOORPARK APRICOTS and PLUMS.
ASHTON RED and MIDSUMMER YELLOW GOOSEBERRIES.

TRANSPLANTED FOREST TREES.

HORNBEAM, 2 to 3 and 3 to 4 feet.
ELM, Cornish or stricta, 3 to 4 and 4 to 5 feet.
HAZEL, 2 to 3 feet.
OAK, English, 5 to 6 and 6 to 8 feet.
,, Turkey, 4 to 5 and 5 to 6 feet.
POPLAR, Black Italian, 2 to 3 and 3 to 4 feet.
WILLOW, Huntingdon, 2 to 3 feet.
PRIVET, Evergreen, 1 to 2 and 2 to 3 feet.
PINUS AUSTRIACA, very fine, 2 to 3, 3 to 4, and 4 to 5 feet.
SPRUCE FIR, 3 to 4 and 4 to 5 feet.
,, ,, fine Christmas trees, 3 to 4 and 4 to 5 feet.
SCOTCH FIR, 4 to 5 and 5 to 6 feet.
BOX, Green, 1½ to 2 and 2 to 3 feet.
MAHONIA AQUIFOLIA, 1 to 1½ foot.
LAURELS, Common, 2 to 3, 3 to 4, and 4 to 5 feet.

FINE STANDARD TREES FOR PARK PLANTING.

BIRCH, 6 to 8, 8 to 10, and 10 to 12 feet.
OAKS, English, 6 to 8 feet.
ELM, 8 to 10 and 10 to 12 feet.
CHESTNUTS, Horse, 6 to 8 feet.
ACACIA, 6 to 8 and 8 to 10 feet.
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THORNS, in variety, 6 feet.
SYCAMORE, 6 to 8 and 8 to 10 feet.
POPLAR ARGENTEA, 8 to 10 feet.
LABURNUM, 6 to 8 and 8 to 10 feet.
BEECH, 6 to 8 and 8 to 10 feet.
NORWAY MAPLE, 6 to 8 and 8 to 10 feet.
WHITETHORN or QUICK, very fine, 3-yr and 4-yr. transplanted, in small or large quantities.
SEAKALE, ASPARAGUS, and RHUBARB, extra strong roots for forcing.

The whole of the above are in fine condition for removal. Prices on application to

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NEW PEAS FOR THE PRESENT SEASON.

KNIGHT'S NEW PEA, "THE STAR OF INDIA."—A fine new late wrinkled marrow Pea, growing to the height of about 3 feet, with fine long well-filled pods, containing Peas of a delicious flavour. It keeps on the bloom much longer than most other Peas of the same class, and will be found a desirable acquisition for exhibition and market gardening purposes. Per quart, 5*s.*; per pint, 3*s.*

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DUKE OF CONNAUGHT (KNIGHT'S).—This fine new Pea is of branching habit, about 3 feet high, very prolific and bearing large curved pods, containing seven to eleven Peas, which are of excellent flavour; useful for second and general crop, also for late sowing, as it is never affected by mildew. A fine exhibition and market Pea. Per quart, 2*s.* 6*d.*; per pint, 1*s.* 6*d.* Prices to the Trade on application

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IMPORTED ORCHIDS from BRAZIL. IMPORTANT OFFER.

BURLINGTONIA DECORA PICTA, 10*s.* 6*d.* to 21*s.*
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CATTLEYA CRISPA, 5*s.*
,, LEOPOLDII, 7*s.* 6*d.* to 21*s.*; extra strong, 42*s.*
,, MARGINATA, 15*s.* to 21*s.*; extra strong, 31*s.* 6*d.*
HOULLETIA SPECIES, 7*s.* 6*d.*
LÆLIA CINNABARINA (true), 7*s.* 6*d.* to 21*s.*
,, PRÆSTANS, 21*s.* to 42*s.*
,, PURPURATA, 7*s.* 6*d.*, 15*s.*, 21*s.*; extra strong, 42*s.*
MILTONIA CANDIDA, 15*s.*
ONCIDIUM CRISPUM, 7*s.* 6*d.* to 21*s.*
,, ,, vars., very distinct, 21*s.* to 42*s.*
,, FORBESII, 21*s.*
,, MARSHALLIANUM (true), collected in full bloom (dried flowers to be seen), 3 to 5 guineas.
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SCUTICARIA HADWENII, 10*s.* 6*d.* to 21*s.*
ZYGOPETALUM MAXILARIA, 21*s.* to 42*s.*

Special quotations for large quantities.

Also, fresh imported SEEDS of LATANIA BORBONICA, at 10*s.* per pound.

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IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 16, at half-past 12 o'Clock precisely, a large importation of ORCHIDS from the cool districts of the United States of Colombia, including a quantity of a very handsome ODONTOGLOSSUM, which gives fine spikes of handsome, large, richly spotted flowers (dried specimens of the flowers and spikes can be seen at the Sale); also a number of mixed ANGULOAS and LYCASTES, as collected, several probably new; ONCIDIUM AURIFERUM; a quantity of good-looking CATTLEYAS, which have been collected in a fresh district, and are therefore probably new; and some good plants of the chaste AUGULOA UNIFLORA, with various other ORCHIDS. Also, an importation of SACCOLABIUM BLUMEI MAJUS and AERIDES MACULOSUM, one of the most beautiful of Aerides; an importation of good plants from Ecuador of the true CATTLEYA MAXIMA.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

CATTLEYA MAXIMA.

MR. J. C. STEVENS will include in his SALE, on THURSDAY, December 16, at his Great Rooms, 38, King Street, Covent Garden, W.C., CATTLEYA MAXIMA, collected by M. Wallis in the very same locality where the late M. Warscewicz first detected it, in 1857. The plants sent home by M. Warscewicz arrived all dead, and no other Collector has since been in this locality. M. Wallis saw no flowers on the plants, finding them in fruit, but there is no doubt that it is the Cattleya of which M. Warscewicz spoke to Dr. Reichenbach in the highest terms, leaving him a sketch showing the flowers in a many-flowered spike of large size, dark purple, with a very long beautifully reticulated lip, quite distinct from any other Cattleya. Prof. Reichenbach has had the kindness to describe it in this week's *Gardeners' Chronicle*, p. 740, and to give a copy of M. Warscewicz' sketch, which will be shown at the Sale.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

COCOA-NUT FIBRE REFUSE—Sure Protection against Frost. Twenty bushels 6*s.* 8*d.*, 50 for 12*s.* 6*d.*, truck, 45*s.* Delivered free within 6 miles, or on rail.

THOMAS HODGES AND CO. (late H. WRIGHT), Eagle Steam Fibre Works, Hatcham Road, Old Kent Road, S.E., and 81, Bishopsgate Street Without, London, E.C.

PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17*s.* per ton. A small sample will be sent by Post, free.

W. TARRY, "Golden Farmer," Bagshot, Surrey.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.

BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.

FRESH SPHAGNUM, 10*s.* 6*d.* per sack.

WALKER AND CO., Farnborough Station, Hants.

THE LONDON MANURE COMPANY (ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA.
Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass. Retail 1*s.* 6*d.* and 2*s.* 6*d.* per bottle, of the Sole Manufacturers,

BELL AND SON, 10 and 11, Exchange Street, Norwich.

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SATURDAY, DECEMBER 11, 1875.

HOPS.

"Hops, reformation, boys, and beer,
Came into England all in one year."

So says the proverb, but, unfortunately, in this, as in other cases, a proverb is not to be trusted as a source of information. Popular tradition, however, is tough, and we often find the Hop treated as an introduced plant in popular botanical works, although there is little doubt that it is a genuine native of this country, entering as it does into our national beverage, which is one of the popular accompaniments of all English festivities, and notably of the approaching season, for does not another familiar saying tell us that

"Christmas comes but once a year,
And when it comes it brings good cheer"?

A short sketch of the history of the Hop in this country may, therefore, be of interest at the present time. Of so well known and important a plant much has of course been written, and we may mention the account of it in *Pharmacographia*, from which some of our facts are borrowed, as being, like all other portions of that work, full of information upon various points connected with it.

The beverage to which the name ale was formerly applied was distinguished from beer by the absence of Hops, or rather, the addition of Hops to the ale caused the beverage to take the name of beer. Thus the *Promptorium Parvulorum* gives "Bere, cerevisia hummulina," as distinguished from ale, which was not hopped; and Parkinson says: "The ale which our forefathers were accustomed onely to drinke, being a kinde of thicker drinke than beere, is now almost quite left off to be made, the use of Hoppes to be put therein altering the quality thereof, to be much more healthfull, or rather physicall, to preserve the body from the repletion of grosse humors, which the ale engendred." The herbs chiefly used in imparting a bitter or aromatic taste to malt liquor before the general employment of Hops still retain names which indicate their former use: the ground Ivy (Nepeta glechoma), for example, is still known in various districts as Alehoof, or Alehoove, a name which signifies that which will cause ale to heave, or work. "The women of our northern parts," says Gerard, "do tun the herbe ale-hoove into their ale;" and the plant was also called Tunhoof, for a similar reason. The signification of the verb to tun, as given by Halliwell, is "to put liquor into casks or barrels;" but this meaning requires extension if it is intended to include such a passage as that just cited. Ray speaks of the use of ground Ivy, especially in the north of England, in the clearing or purifying of ale, which, he says, it effects in the space of twenty-four hours, but this use was gradually discontinued when Hops became generally employed. The Costmary, or Alecoast (Tanacetum Balsamita), which one occasionally sees in old farmhouse gardens, was employed in a similar manner, and takes its name, according to Dr. Prior, from the Latin *costus*, some unknown aromatic, and ale, so called from its having been formerly esteemed an agreeable bitter, and much cultivated in this country for flavouring ale. A curious coincidence in the spelling or sound of names—similar to that which exists between Ranunculus sceleratus and its English equivalent, the *celery*-leaved Crowsfoot—is found in the fact that the Cherokee name for Gillenia trifoliata is Alescostote-este, which means bitter-root. Other herbs used in flavouring ales were Sage—Gerard speaks of "sage ale,"—the Sweet Gale (Myrica Gale), and, according to Holinshed, Long Pepper and Bay berries, but these last in addition to Hops.

The use of Hops would appear to have originated in an opinion as to their medicinal properties: this is intimated in the passage we have quoted from Parkinson, and Gerard supports the same view when he says they "rather make [beer] phisicall drinke to keepe the body in health than an ordinarie drinke." The date when they were first cultivated in England is somewhat doubtful. Hop gardens existed in France and Germany in the eighth and ninth centuries, and it is stated in *Pharmacographia* that Bohemian and Bavarian Hops have been known as an esteemed kind since the eleventh century. A grant is said to have been made by William the Conqueror in 1069 of certain Hops and Hop-lands in Shropshire, but this is not altogether free from doubt. "Hops for brewing were among the produce which the tenants of the Abbey of St. Germain in Paris had to furnish to the monastery in the beginning of the ninth century; yet in the middle of the fourteenth century beer without such addition was still brewed in Paris."

The history of the introduction of the Hop into general use, as given in our public records, is by no means devoid of interest. It is stated that in the fourth year of King Henry VI. (1425—26) an information was laid against a person for putting into beer "an unwholesome weed called an Hopp;" and that in the same reign Parliament was petitioned against "that wicked weed called Hops." But Mr. Albert Way, in the *Promptorium Parvulorum*, says that "no record of the prohibition has been found, and the petition does not appear in the Rolls of Parliament:" while it is stated in *Pharmacographia* that the authority for this statement is an isolated memorandum in the Harleian manuscripts. In the reign of Henry VIII. their use seems to have been fully established, although the brewer of the royal household was prohibited from using it in his ale. Tusser gives full details for its cultivation in his *Points of Husbandry*, from which we cite one verse as showing that the movement of the plant had been observed as long ago as that period:—

"Get into thy Hop-yard, for now it is time
To teach Robin Hop on his pole how to clime:
To follow the sunne, as his property is,
And weed him and trim him if aught go amiss."

In the Statute Book for 1552 the cultivation of Hops is distinctly sanctioned; and in 1574 Reynolde Scot published a black-letter treatise, with woodcuts, expressly on the cultivation of Hops, which is called, *A Perfite Plat Forme of a Hoppe Garden*. In 1603 English-grown Hops were extensively used, as appears from an Act of James I., and, although their use was petitioned against, and nominally condemned in the same reign, this prohibition was but little attended to. Another article which "the famous city of London" also petitioned against would be now-a-days regarded as being even more indispensable than Hops. Blith, in *The English Improver Improved* (published in 1653), says "It is not many years since the famous city of London petitioned the Parliament of England against two anusancies, and these were Newcastle coals, in regard of their stench, &c., and Hops, in regard they would spoil the taste of drink, and endanger the people." But from this time forward the general use of Hops was thoroughly established. An Act passed in the reign of Queen Anne inflicts a penalty of £20 upon all brewers who shall use any other bitter than Hops in their malt liquors, and a similar enactment under George III imposes a fine of £5 per cwt. upon those who shall adul-

terate Hops by giving them scent or colour by drugs, while the cutting of Hop-bines growing in a plantation is made felony "without benefit of clergy."

Phillips, in his *History of Cultivated Vegetables*, draws attention to the fact that the Hop is the only native plant that is under the control of the Excise. By 9 Anne, cap. 12, a duty of 1*d.* per pound was laid on all Hops growing in Great Britain and made fit for use, and all Hop grounds were required to be entered, on pain of a penalty of 40*s.* per acre. In the same Act an additional duty of 3*d.* in the pound was laid on all Hops imported over and above other duties; and Hops landed before entry and payment of duty, or without warrant for landing, are by that Act to be forfeited and burnt, the ship is to be confiscated, and the person concerned in importing or landing is forfeit £5 per cwt. The present Excise duty is 1½*d.* per lb., and the Customs duty (which is now reduced to £1), was, in 1860, £2 5*s.*; the revenue from these two duties alone amounted in the year mentioned to the sum of £79,439. Both as imports and exports Hops are of considerable importance; in 1872 the former amounted to 135,965 cwt., while the quantity exported was 31,215 cwt.

Although the chief use of the Hop is that connected with our national beverage, it has been put to other purposes of some little importance. Cloth of considerable strength is made from the fibrous stems of the plant in Sweden, and the Society of Arts in 1791 awarded a premium to a Berkshire farmer who had succeeded in a similar manufacture. The attention of paper makers has also been directed to this as to most other fibrous plants. The young shoots are sometimes cooked and eaten like Asparagus, and are said to be very good; in Gerard's days these "buds or first sprouts" were used in salads, although that author regarded them as "more toothsome than nourishing." *B. M.*

New Garden Plants.

CATTLEYA MAXIMA, *Lindl.*

There is an old tale, for private circulation, "that we don't altogether" know Cattleya maxima, Lindl., a plant only observed once, in 1851, by the late Warscewicz. It is just now the right moment to look into the question, as will be seen.

Cattleya maxima was published by the late Dr. Lindley as early as July, 1831, from a flower gathered by Ruiz and Pavon near Huayaquil, then kept in Mr. Lambert's herbarium, now to be seen at the British Museum. Our readers will know that Mr. Lambert was not only the author of several books, and the patron of the botanist, David Don, but also the possessor of a herbarium, very grand for his time, and rich in plants with shining leaves, which Mr. Aylmer Bourke Lambert used to prefer to any other specimens. If we consider the time (1831) when it was described, the description is just *hors de ligne*, and our excellent Warscewicz was then in Poland, where they grow no Cattleyas, this may be satisfactory for explaining the keenness (to take a very mild expression) of the statement just alluded to above.

I myself possess a flower from the same origin, I understand from a memorandum. The celebrated Spaniards were told the flower was the "flor de Nevidad." I possess the same plant gathered at Guayaquil by Dr. Spruce, these flowers being quite equal to the copious Loxa specimens, collected by Messrs. Hartweg, Smith, Wallis, and thirty garden flowers at hand. And yet there is a certain basis for the above mentioned assertion. Warscewicz brought to England from the Western Cordillera two kinds of Cattleyas for the sale superintended by Mr. Stevens, sen., February 6, 1852. One set was alone: it consisted of seven lots, named "Cattleya Warscewicz." This was decidedly a great mistake, since Cattleya Warscewicz came from Frontino, now so well known. I have not the least doubt the sketch made by Warscewicz's enthusiastic pencil was a rather modest representation of C. maxima.

The second set came totally dead. It was announced as coming from "Quindios"—a very great mistake too, since Warscewicz himself, when speaking very highly of this plant, whose flower he had painted in dark purple, gave me the more exact locality—a western one. I have obtained dried flowers, yet they look like skeleton leaves, so much destroyed are they by mould; and I even suspect they do not belong to this, but to C. maxima, from the shape of the lip. This lip is represented in the second Cattleya unusually long, the lateral very obsolete lobes scarcely reaching more than one-third of the length of the long wavy middle lobe, hanging down like the tongue of a bloodthirsty lion. My late friend Warscewicz distinctly mentioned that it grew very little above the level of the sea. If there was but one sketch I could suspect the representation (bearing a raceme with five flowers, perhaps of more, since one does not see its top) was nothing but an enthusiastic caricature of C. maxima. But there is that second sketch, proving that Warscewicz understood to do some justice to the true C. maxima. That is the actual state of the question. Finally, the hope of coming to the point is given. M. Wallis has just gathered—at M. Warscewicz's exact locality, at a very low level above the sea—a Cattleya. He has been so discreet as to collect a very moderate quantity, and one may reasonably expect the plant not to be soon deprived of value by a stupid introduction. These plants are destined to appear at Mr. Stevens' rooms—the grandest Orchid market of the world. M. Ortgies, of Zurich, who kindly undertook to guide M. Wallis' European affairs, wrote me about the expected lot. I have written down what I can say, and have also sent to M. Ortgies copies of the two sketches of Warscewicz; copies of the same may also be seen at Kew in Dr. Lindley's herbarium, where, however, no doubt by some mistake of Mr. Skinner, what I call "maxima" is named Warscewiczii, and the gorgeous thing is said to come from Quindios. M. Wallis having found the plant in fruit only may this time, exceptionally, be forgiven for not having sent dry specimens. *H. G. Rchb. f.*

ONCIDIUM BIFRONS, *Lindl., supra, p.* 708.

A thousand thanks for the anticipatory Christmas box my young friend, Mr. Nicholas Brown, sends me by your kind assistance. It is, however, a very great pity that the chief intended charm of the box, the novelty, cannot be fully acknowledged.

I have known myself the fresh flowers of Oncidium bifrons, when they came into Dr. Lindley's hands, November, 1856. The plant could not be quoted in Walper's *Annalen*, vi., since the enumeration is only intended to go upwards to 1855, as may be seen with full assurance by looking to the title of the volume. If Mr. N. Brown would go in the lower library of the Kew herbarium, close to the entrance, he might look to the *Gardeners' Chronicle*, 1871, p. 675. There he may see that I reduced Oncidium bifrons, Lindl., to Oncidium Warscewiczii, Rchb. f. A comparison of the typical flower given by me, and ascertained by Dr. Lindley to answer well to my description with the flowers of bifrons will justify me for this reduction in the opinion of my young friend. As to Oncidium Warscewiczii itself, I have known it since 1850, and described it as early as 1852 in v. Mohl and v. Schlechtendal, *Bot. Zeitung*, p. 693. It is No. 56 of Oncidium in Dr. Lindley's *Folia*. It is described once more in my *Beiträge Orchid. Centr. Am.*, p. 19. It may be found in Walper's *Annalen*, vi., 727. Even in these columns it is by no means such an unfrequent guest as Mr. Brown suggested, having been mentioned 1857, p. 84, c. xyl.; 1870, p. 560; 1871, p. 675; 1874, vol. i., p. 48, and 1875, vol. iv., p. 708—the time before last in honour of a wonderful spike kindly sent by Mr. O. O. Wrigley. After all these statements I cannot regard myself very guilty. *H. G. Rchb. f.*

FINISTÈRE.*

YOUR correspondent, "C. T.," completes the interesting account of his peregrinations through that noble department, Finistère, with the somewhat pagan regret that Christianity has "unfortunately" swept away every trace of Druids and Gallic priestesses; consoling himself, however, by the thought that "it is something also to have trodden spots once the sanctuaries of those mythical personages." Where "C. T." finds his authorities for the existence of his Gallic priestesses I know not, unless it is in Strabo's account of the "hieron" at the mouth of the River Loire (*Liger flumen*), which I need hardly say is some distance from Finistère and the land of the Agnotes, Osismii, and Corisopiti, where a colony of grass-widows held orgies; whilst, again, the mighty Druids, the priests of the Celtic race, erected no sanctuaries whatever.

However, there are some relics still standing, perhaps Gallic, but certainly not erected either by Druids or priestesses, in Finistère, yet intact, and as yet not swept away by Christianity. Not only has Christianity not entirely swept these mighty Pagan monuments away, but perhaps "C. T." will be surprised to hear that there yet exist semi-pagans (nominally Christians) who are yet "cultores idolorum et veneratores lapidum" in the remote corners of Brittany, and the symbol of the cross has been engraved upon many a menhir which the peasantry have worshipped and would worship, cross or no cross. Similar superstitions will be found to have existed not so long ago, if even it does not actually exist now, in out-of-the-way places in Ireland, Wales, and Cornwall.

I forward a drawing of five menhirs which form a portion of an "alignement" at Jeuré, on the promontory of Crozon, mentioned by your correspondent.

The peninsula of Crozon is well worthy of a visit, especially by an archæologist. The best way of visiting it is to take boat from Brest to Lanvéoc, thence a car to Hôtel du Commerce, a sufficiently primitive inn at Crozon, near to which are the curious lines of amorpholiths at Kerdonadec, arranged in the form of a Swastica-like cross. Beyond are the standing stones of Jeuré, which are represented in my drawing, and near is one of the numerous little but solid windmills of which your correspondent makes fun. Some of these mills are tolerably ancient, and everything ancient on this coast is attributed to *les Anglais*. The Bretons generally are well inclined towards the English, and are proud to be able to say that they understand Welsh. From Crozon a car had better be taken to Camaret, near which are some most interesting alignments overlooking the sea. I cannot help thinking that they form the skeleton (unfinished or destroyed) of a Gallic oppidum, but I am open to conviction, *i.e.*, every conviction that does not involve Druidic humbug. From Fret near Crozon to Brest there is a steamer plying, which coasts along Ile Longue, Le Trébéron with its quarantine station, Ile des Morts, where is a powder factory; by Quélern and its fortifications; and by Roscanvel to Pte. Espagnol, then to Brest. *S. P. Oliver, Capt. R.A.*

* See *Gardeners' Chronicle* of March 13, p. 333, and March 20, p. 365, 1875.

GREENHOUSE PLANTS—XXVIII.

THEIR CULTURE AND MANAGEMENT.

CORREAS.—The varieties of these plants mostly grown are hybrids raised by crossing the New Holland or New South Wales species, the best originating from the scarlet-flowered C. speciosa crossed with the green-flowered C. virens. They vary in colour—from scarlet to deep crimson in the tube, with a green or lighter-coloured band near the apex of the flower. They are very free-growing plants, of compact habit, much easier to manage than many things that have been introduced from the same countries. They are free flowerers, different varieties coming in bloom from April until the close of the year, individually lasting in flower for two or three months in succession. The blooms are tube-shaped, about 2 inches long, hanging from a stalk produced from the mature growth. Why these Correas are not more grown for conservatory and general decoration seems unaccountable, as they have much to recommend them for such purposes, not the least of which is their ability to bear, whilst in flower, being placed in a more confined situation, with a less amount of light than many subjects would stand without injury. The absence of these and a number of other things that, when well grown, are both very handsome and also distinct, can only be attributed to fashion, the infectious influences of which are very often as apparent in the plants we grow, as in many other matters. This, and the too general disposition evinced to grow subjects that are difficult to manage, shuts out from general cultivation in our greenhouses many plants that might with advantage be much oftener met with.

The Correas, being comparatively strong rooters, will succeed potted in either peat or loam, but, where the former can be had in good quality it is preferable; it should not be used too fine, and ought to have added to it a fair quantity of sand, so as not alone to insure porosity when the plants are first placed in it, but to maintain this condition for years, as with ordinary care they will last long. They should never be subjected to any reduction of the ball, or shaking out process, consequently it is necessary in the first instance to prepare the soil so as to insure its lasting capabilities. Young plants in 5 or 6-inch pots, if procured any time after their summer's growth is completed, should be wintered in a house with a temperature of from 38° to 45° in the night. Give through the winter as much water to the soil as will keep it in a suitable condition for the roots, which will suffer if allowed to get too dry. Correas do not make so much root as many hard-wooded plants, therefore it is not advisable to attempt giving them more than one shift during the year. It is best to re-pot them about the middle of April. If the pots are well filled with roots give them a 3-inch shift: make the new soil tolerably firm. A day previous to potting see that the ball is well moistened, but do not give any water afterwards until it is absolutely required. If the material on which the pot stands is kept damp, the length of time betwixt the operation of potting and the necessity for giving water will be prolonged. To further extend this keep the house a little close, the increased

warmth produced by which will assist growth. After potting immediately train the shoots out so as to give a well-furnished bottom to the plants. They are rather inclined to an erect habit of growth, and are sufficiently strong in their wood to do without much support from sticks. This latter frequently leads to the omission of tying them out whilst young, which has the certain effect of spoiling them by their running up and leaving the bottoms scant of shoots. Stop the points, to induce them to break back and form bushy specimens. All through the spring and early part of summer close the house soon in the afternoons to assist growth, and damp the plants overhead at the time of shutting up; in very bright weather a little shade in the middle of the day will help them. Do not let the soil ever become so dry before water is given as in the case of delicate hard-wooded subjects. Should any shoots take the lead so as to unduly rob the weaker ones, pinch the points out and bend them down so as to give the others a chance of equalising the growth.

In August cease syringing overhead, and give air plentifully night and day to ripen up the growth. This is necessary to mature the young wood, which will cause it to flower more freely, but the ripening process need not be carried so far as with many hard-wooded plants, Correas not being at all subject to suffer from mildew. They should be wintered in a similar situation and temperature to that recommended for the previous winter. About the same time in the spring as before repot again, giving a 3-inch shift, and use the soil in a little more lumpy condition. They will flower nicely this season if all goes well with them, yet in the case of these plants it is better to pot at the time advised than to defer it until after they have bloomed, as it will in no way interfere with their flowering. Whilst in bloom they may be placed anywhere in the conservatory where they will not be too much crowded with other things. When the flowering is over they should at once be moved to a situation such as

FIG. 149.—I. A. ARGENTEA PECTINATA MINOR.

that in which they have been grown, and their shoots shortened back and tied out. Winter as previously, and again move into larger pots in the Spring, giving them 2 or 3 inches more room, according to the greater or less quantity of roots they are found to have; treat as before through the early part of summer. This season they will make well-furnished small specimens, and will bear a good head of bloom. Attend to the tying, so as to keep them in shape; but at no time will they require more than a limited quantity of sticks to hold the principal shoots sufficiently open. After they have flowered again go over them, and shorten back the growth. It will not be advisable to re-pot in the ensuing spring as before, for unless very large plants are required they may be kept for years in a healthy flowering condition by the use of manure-water, given once a week or so through the growing season. They will be found to answer for ordinary decorative purposes better when thus grown to a moderate size than if larger; and as these Correas are not difficult subjects to manage, a few young ones can from time to time be started to take the place of such as get old and worn out.

C. bicolor, C. cardinalis, C. Brilliant, and C. magnifica will all be found worth a place, and repay the comparatively little care required to grow them in a much better condition than they are often seen in.

Insects.—Correas are little subject to the attacks of such insects as usually infest the greenhouse. Thrips sometimes make their appearance upon them, and must be destroyed by fumigation or dipping. They also sometimes get affected with scale, both white and brown, if they are placed under or in contact with other things on which the insects exist, which, with these and similar plants, should be guarded against. Remove the brown species by the use of sponge and brush; for white scale repeated dipping, or syringing with strong insecticide in the winter season will be necessary. *T. Baines.*

THE COMMON HOLLY AND ITS VARIETIES.—VII.

B. LEAVES SILVER-VARIEGATED.

§ Spines marginal, numerous, strongly developed.
* Spines plane, not divaricate.
† Leaves silver-edged.
‡ Leaves large, nearly or quite 3 in. long.

76. I. A. HANDSWORTHENSIS, Lawson; handsworthensis argentea variegata, Barron; Handsworth,

FIG. 150.—I. A. HANDSWORTHENSIS.

Waterer; Handsworth New Silver, Fisher; argentea longifolia, W. Paul; Fisherii, Smith (fig. 150).—This is a remarkably handsome variety of Silver Holly. It is one of the series with purple-tinted bark, and is a free and vigorous grower. The leaves are elliptic-oblong, 2½ to 3 inches long, margined with very strong prominent spines, which lie in the plane of the leaf, with scarcely any tendency to divarication; the disk is mottled with green and greyish green, and there is a distinct and tolerably even margin of creamy

FIG. 151.—I. A. ARGENTEA PENDULA.

white, the strong conspicuous marginal spines being also white.

77. I. A. ARGENTEA PURPUREA, Lawson (fig. 152).—A fine broad-leaved variety with purple bark. The leaves are broadly ovate, 2¼ inches long and about 1½ inch broad, the disk mottled with dark green and grayish green, and the edge flat and spiny, irregularly belted with creamy white. Very distinct as regards the form of the leaf.

78. I. A. ARGENTEA PENDULA, Barron; pendula argentea purpurea, Lawson; pendula variegata, Smith; albo-marginata pendula, W. Paul; Perry's Weeping, Waterer (fig. 151).—A fine and well-known variety, of weeping habit, of vigorous growth, and having purple-tinted bark. The leaves are 2½ to 3 inches long, ovate or ovate-oblong, the margin furnished with large conspicuous spines, somewhat less crowded and regular than in the variety handsworthensis; the surface is green, freely blotched with greyish green, and the margin is irregularly but often boldly marked with creamy white.

‡‡ Leaves medium size, about 2 inches long.

79. I. A. OBSCURA, Fisher.—One of the purplish-barked series. The leaves are ovate, very thick, scarcely more than 2 inches long, and about 1¼ inch wide, with coarse, distant spines, the surface dark green, sometimes mottled with grey, and having an obscure, irregular, creamy margin.

80. I. A. ARGENTEA PECTINATA MAJOR, Lawson.—This variety has green bark. The leaves are oblong-ovate, 2 inches long, 1⅛ inch broad, dark green, with a well-defined, even creamy-white edge; the spines are not very large, and they are set on in tolerably regular order.

81. I. A. ARGENTEA ERECTA; Upright Silver-striped, Waterer.—In this variety, which was introduced to the Knap Hill Nursery by Mr. R. Godfrey, the leaves are about 2 inches long, flat, with a very

FIG. 152.—I. A. ARGENTEA PURPUREA.

regular marginal series of strongly-developed spines, in this respect somewhat resembling handsworthensis; the leaves have a mottled green centre, and a broad creamy white margin. It is one of the berry-bearing forms.

‡‡‡ Leaves small.

82. I. A. ARGENTEA PECTINATA MINOR; pectinata minor, Lawson; argentea angustifolia, W. Paul; Narrow-leaved Silver-striped, Waterer (fig. 149). A green-barked variety of free growth, dense and compact in habit. The leaves are ovate or ovate-lanceolate, 1¼ to 1¾ inch long, less than 1 inch wide, the spines numerous and rather strongly developed for the size of the leaf, usually flattish, but sometimes partially wavy, the disk green, mottled, and streaked with grey, and with a broadish, tolerably regular edge of creamy white. One of the most desirable and ornamental of the smaller-leaved silver-variegated varieties.

83. I. A. ARGENTEA LUCIDA, W. Paul.—A variety with reddish-brown bark, ovate leaves, 1¼ inch long, margined with flat or slightly wavy spines, the disk green mottled with grey, the edge of the blade and the spines creamy white.

84. I. A. INGRAMII, Fisher, Barron.—A very distinct, small-leaved Holly, with purple bark. The leaves are elliptic ovate, 1¼ inch long, about half an inch wide, evenly bordered with plane spines; the disk is of a dark olive-green, somewhat mottled and rugose, the teeth and margin greyish white, the markings being freckly with no distinct outline.

85. I. A. SERRATIFOLIA ALBO-MARGINATA, Barron.—A pretty little shrub with purple bark, the twigs of which appear to be erect. The leaves are linear-lanceolate, about 1 inch long, with fine regular spines, the disk mottley green, and the margin creamy white, most strongly developed at the apex of the leaf. *T. Moore.*

BROUGHAM HALL, WESTMORLAND:

THE SEAT OF LORD BROUGHAM.

THIS place is situated southward, and at a short distance from Penrith. The principal approach is from the bridge that at this point spans the river Lowther, here a goodly stream, winding its tortuous course through the fertile valley, from whence the distant hills in almost all directions are seen to great advantage. Although the place may not be so intimately associated with long-passed events historically connected with this part of the country as are many of the numerous old buildings with which this division of the kingdom is thickly stndded, and which even through the crumbling decay of their massive walls speak to the beholder of men who in their day played a part that made its mark on the times in which they lived, yet the Brougham Hall of to-day will ever have attached to it an interest of its own as having belonged to and been the residence of one of England's greatest orators, who for a long series of years was ever in the van amidst those who took an active part in the most liberal measures of his time—the late Henry, Lord Brougham. Leaving the river, the road winds to the left up a steep ascent to the east of the mansion where it joins another approach that leads from a second entrance on the Appleby Road at the opposite side of the park. This drive is through an avenue of noble Oaks, some of which girth 20 feet at a height of 6 feet from the ground. This avenue, according to existing records, has been planted over 300 years. We enter at the east, through a massive gateway, evidently of ancient origin. Once through this gateway, inside the spacious courtyard, with its verdant grassy surface, the first things to attract the visitor's attention are the strong walls, Ivy-clad, the latter so well in keeping with the character and antiquity of the building, and which without their mantle of green would have an overpowering effect. In pausing for a moment to view this part one could not help reflecting that amongst the all but innumerable plants that have been introduced from every clime where the foot of civilised man has trod, there is not one that can be compared to the Ivy for adorning the most stately works the builder's art has ever produced, especially from the time the masonry has acquired the grey tinge of age. In this court are several altars in a recess, supposed to have been brought from the Roman station at Brougham Castle, near by. The western end of the mansion is the oldest, and conveys the best idea of the place. Here it extends to the verge of the high ground that rises almost perpendicularly from the level plateau that margins the river. It is from a distance in this direction that the building is seen to the greatest advantage, and the beauty of the situation fully realised. Its commanding position and appearance from this point has led to its being called "the Windsor of the North." At the eastern end of the court already alluded to is an entrance to the pleasure ground and flower garden. The latter more properly consists of a series of beds, and a chain border flanking a broad walk, some 300 yards in length, running parallel with the building, something after the fashion of the series of beds that bound the walks at Hampton Court. It is gratifying that an old pile like Brougham Hall has been spared the infliction of a geometrical garden close to its ancient walls. The style and plain character of the floral arrangement used are much more in keeping with the place than a flower garden after the model fashion, than which cannot exist a greater incongruity when associated with an old mansion. At the eastern extremity of this walk is a fountain and basin. The plants used are of a mixed character. Viola Blue Perfection is found by Mr. Campbell, the gardener here, to answer remarkably well; nothing could be more effective, covered as it was with a profusion of flowers at the end of July, when in many places this family of plants begin to look shabby. In the drier southern parts of the kingdom we rarely find Violas through the summer in the condition they are seen in the more humid atmosphere and soil of this locality. The above named variety was here associated with golden variegated Thyme: the combined effect of these plants was very good. Amongst bedding Pelargoniums Artemus Ward was in especially fine condition. This part of the place commands a magnificent view westward over the distant lake hills, Helvellyn and Saddleback: to the south for a considerable breadth the grounds form a natural level expanse of the greenest possible turf, which never appears in this locality to have such a disposition to produce those vegetable pests of a perfect lawn, Dandelions, Daisies, and Plantains, that are so troublesome in the drier South. At a distance in this direction is seen Hugh's Crag viaduct of the London and North-Western Railway, 100 feet in height; with a finely-wooded rising background behind it, thus having an imposing appearance; here also is caught a glimpse of the river—an important addition to a very fine landscape. At this part are some splendid trees, especially Cedar and Weymouth Pine, and a remarkable old Yew, with its bottom branches perfect down to the turf on which they lie. The terrace here is on a level with the tops of the trees, 70 feet high, in the deer park, to which the descent is rapid. This park is of considerable extent; near its western extremity is a group of magnificent Silver Spruce, from 10 to 12 feet in girth; the perfectly sheltered position, and rich deep alluvial, yet sufficiently dry soil (a deposit from the river) in which they grow suits them admirably. In such a situation coniferous and taxaceous trees of this description attain their wonted size, and assume a character not possible in the unsuitable places they are often planted. The park lies southwards from the Hall, has considerable undulations, and, like most in the neighbourhood, is splendid grazing land. Skirting the park eastwards from the mansion is a walk on the extreme edge of the southern bank of the river, the bed of which here also is considerably below. From this are seen the eastern Cumberland hills, and immediately in front the interesting ruins of Brougham Castle. By following this descending path the western point of the kitchen-garden is reached, in which are the various plant and fruit houses, some feet above the river level. The first structure is a greenhouse of considerable size, mainly filled with good plants of Coprosma Baueriana variegata, Kalosanthes, Fuchsias, Pelargoniums, and similar decorative subjects.

Adjoining is a Peach-house, 50 feet in length. The principal trees are planted outside, and are trained to the roof some half way across the house, so as not to shade those on the back wall, which is also occupied with Peaches and Nectarines. Some are grown in the shape of small standards; the trees that occupy the main part of the house are both large and in fine condition: they were bearing a splendid crop of fruit. The most essential element to successful Peach culture is at command here without stint—an unlimited supply of water pumped up by steam-power to the mansion on the higher ground, from whence it is laid on to all the houses. This is as it should be; no garden is complete without a plentiful supply of water, that can be used without recourse to underground tanks and wells. The construction of these is all very well, where, from the natural position of the garden, there is not a possibility of supplying by pressure, but where pumping or drawing up by buckets has to be resorted to during the busy season there are few places where there is a sufficient amount of labour at command to give to Vine and Peach borders, inside as well as outside, half the quantity of water they really require, to say nothing of culinary vegetable crops, Strawberries, and a host of other thirsty things, that frequently all want a supply at a season when there is the least time to attend to them.

The next is a vinery planted by Mr. Campbell eight years ago; the sorts grown are Black Hamburgh, Black Alicante, Lady Downes (not so well liked as the Alicante), and Madresfield Court, which has been substituted for Mrs. Pince; the Vines have each three canes, and were bearing a very heavy crop of good Grapes.

The next house is filled with Muscats—Bowood and Alexandria; the crop here was even superior to that in the preceding house, the largest bunches down near the bottom of the Vines—no bad evidence of their condition, as there probably never was an instance of Vines that were in a bad state bearing good fruit close to their lower extremities. The Vines in both these houses are planted inside, with a 12-feet outside border; but we should suppose that, with the exception of giving them a start, any special preparation is neither required nor of use, as the natural soil appears in every way such as they delight in; at least this was the impression given by a Vine that exists in the next house—a Black Hamburgh, planted some forty years; it has been headed down by degrees, two or three rods each year, and has now sixteen bearing canes. It would be difficult to imagine anything in finer condition than this old Vine with its renewed bearing wood; the weight of fruit upon it was enormous,—considerably too much: many of the bunches would run from 4 lb. to 5 lb. each. In this house also was a Grizzly Frontignan, heavily laden with its highly flavoured fruit. The natural soil, as already alluded to, is of an excellent loamy nature, a yard in depth, resting upon a gravelly subsoil. Mr. Campbell removed 2 feet of the surface soil from the roots of the old Vine in the last house, and replaced it with new, which evidently has had a beneficial effect.

Near this is a span-roofed range, the first of which is a long house, containing more soft-wooded plants. In a continuation is a house filled with mixed stove plants and Orchids. Amongst the latter most noticeable were two blocks, each covered with a dozen plants of Phalænopsis grandiflora; they were in good health, but, as usual with Phalænopsis when on blocks, they do not attain so large a size as when grown in some material that will afford them more sustenance. A number of Dendrobiums were growing remarkably well, evidently liking the treatment they receive; they include D. Devonianum, still one of the finest Orchids in cultivation; D. Cambridgeanum, a plant somewhat difficult to manage, and which does best suspended near the glass—it was here extremely strong; D. Farmerii, D. fimbriatum oculatum, and numbers of D. nobile, unequalled in the whole family as a decorative plant; Vanda cœrulea and V. suavis.

In the adjoining house was Cattleya Trianæ, a quantity of Odontoglossums and Lycastes, with a number of the most useful winter-flowering Orchids. Calanthe Veitchii and C. vestita, both plants of very easy growth, reasonable in price, with a natural free disposition to bloom continuously for many weeks at a season when flowers are scarce; they are deserving of general cultivation, even where Orchids are not made a speciality; they will succeed in good fibrous loam just as well as in the best Orchid peat that can be obtained.

Next is a late Peach-house some 90 feet in length. The trees are planted inside, the roots having access as well to an outside border; they are a mixed assortment, consisting of Crawford's Early, Acton Scot, Barrington, Grosse Mignonne, and Walburton Admirable: these, as in the earliest house, are in fine bearing condition.

On the walls outside Plums do well. Kirke's, Jefferson, and Golden Drop are the most liked, as appearing to answer the locality best. Apricots also seem to thrive better than in many localities, the trees attaining a very large size without the disposition to die off by odd branches, as is generally the case in situations where both atmosphere and soil are drier. The number of varieties of Pears and Apples that will succeed is much more limited than in the southern parts of the kingdom. Amongst Pears those that seem to do well are Glou Morçeau, Easter Beurré, Beurré Rance, the seldom failing Marie Louise, and Louise Bonne; these two latter sorts will, we believe, grow and bear well over a greater extent of the kingdom than any others possessing equal excellence in the quality of their fruit. Apples that answer well are Syke House Russet, Golden Pippin, Golden Reinette, King of the Pippins, Reinette du Canada, and Mother Apple. Pear and Apple growers in this district appear to have realised the fact—that might with advantage be acted upon in many other parts of the country—not to plant kinds that are uncertain in their disposition to fruit yearly; even in the south of the kingdom, where quantities of sorts will succeed that it would be useless to plant so far north, the temptation to grow an unlimited number of varieties has often the effect of seriously reducing the store in the fruit-room at the time of gathering. These hardy fruits at Brougham Hall bear equal evidence with those grown under glass, as does the general keeping of the place, of Mr. Campbell's carefulness and abilities. *T. Baines.*

SEAKALE CULTURE.

SEAKALE blanched by earthing-up is, to my taste, greatly preferable to the same vegetable blanched under pots, being plumper, tenderer, more succulent, and better flavoured, owing to the absence of all evaporation and intrusion of light during growth. I was taught the plan years ago by a first-rate market gardener, who would not have persevered in the method had he not found it to his advantage. It saves the first expense of pots, and the yearly care and trouble of storing them; on the other hand, earthed-up plants are not quite so easily and rapidly forced. But for those who require a long succession of Seakale, a certain number of stools can be forced under pots, and the main crop grown by earthing-up. For this the plants should be set in an open part of the garden in a single row, which allows them to stand at closer distances from plant to plant. If not in a hurry, the seed may be sown in line where the plants are to remain, and then thinned out so as to leave the intervals desired. Seakale, however, bears transplantation better than Asparagus, and comes more quickly into use. Suppose the plants established by a good summer's growth, as soon as the leaves detach themselves naturally from the crowns clear away all weeds and rubbish from around them, and cover the line of crowns with a ridge of light friable garden mould, perfectly free from any admixture of rank manure or decaying vegetation, to the height of 18 inches or 2 feet in the middle of the ridge, according to the strength of the stools. Such earth is better than sand or ashes, which find their way into the sprouting shoots, and are difficult to get out completely by washing. The ridge formed can be flattened by the back of the spade, and left so to remain till spring. If mould suitable for earthing-up can be borrowed from a distance, so much the better; if not, it must be taken from trenches opened on each side of the row of Seakale, as with Celery. But in that case it will be prudent to fill the trenches with long manure, or even with any rubbish at hand, to prevent the frost, in a hard winter like this with

which we are threatened, from penetrating too near the roots and retarding the growth.

The earthing-up must be completed in December, or while the plants are still dormant, and finished off once for all, instead of being gradually done, as for Celery; because, if growth has commenced under the action of light, the shoots will acquire a bitterness and a discoloration which no subsequent blanching can remedy. It is this error in cultivation which has prevented Seakale from making its way in France, although the *Bon Jardinier* calls "Chou Marin ou Crambe maritima, excellent légume, indigène, très-cultivé en Angleterre, et digne de l'être également en France." Some even, thinking to give it a fair trial, have had the glaucous green leaves cooked like Spinach, and, on finding it uneatable, have consigned the roots to the rubbish heap. Nevertheless, well-grown Seakale properly blanched receives on French tables the approval which it deserves.

Some gardeners have thought to blanch Seakale by covering the stools with dead leaves and vegetable rubbish, whose fermentation also forces it a little; the result is Seakale beautifully white, but of so detestable a flavour as to be scarcely eatable, which is fortunate, because if eaten it would probably prove unwholesome. I obtain Seakale earlier than the main crop, sometimes by several weeks if sunny days are numerous, from a row of plants growing at the foot of a south-east wall. These are earthed up in December with earth barrowed to them, and kept up in its place over them by a board in front, so that very little breadth of border is occupied, and the line always looks neat and tidy. When the crop is all eaten—and it is generally finished by Easter—the board is removed, the earth barrowed back to the spot whence it was taken, and the plants left to grow at will until the season returns to re-cover them. If it be desired to combine the earthing-up system with forcing by stable manure, the Seakale can be grown in two or more parallel rows. After earthing-up, fermenting dung can be thrown between the ridges and by the side of each outer ridge, either for a part or the whole of their length. But Seakale so grown, even without any forcing, precedes Asparagus as a vegetable—one of its merits. Cracks in the ridge of earth indicate approximately when the young shoots are fit for cutting. I should add that the earth about them must be removed with caution, as they are exceedingly brittle. When cutting we have a pail half full of water at hand, into which each shoot is put as cut, thus avoiding unnecessary breakage. *E. S. D.*

PLANTING ON CHALK SOILS.—III.

IN this, the third communication on the subject of planting on chalk soils, I propose to enumerate the trees and shrubs that have lived and grown fairly with me, but which cannot be said to have been eminently successful. Such plants are worthy of trial, and in some situations may perhaps succeed better than they have on my land. They may be styled as plants of the second class for cretaceous districts.

In these classifications it is difficult to draw a hard and fast line as to which division some of the plants should occupy—some grow so fairly well in the more favourable situations that they might almost be ranged with those that have best succeeded; while others have been so ill-nourished and weakly, that it might perhaps be better to place them with those to be altogether discarded. After enumerating the trees and shrubs of this division, I will point out those to which the foregoing remarks especially apply.

II. TREES OF THE SECOND CLASS FOR PLANTING ON CHALK SOIL:—

Coniferæ.

Abies Menziesii
" alba
" nigra
" Morinda
Libocedrus decurrens
Picea balsamea
Picea cephalonica
" lasiocarpa
" pectinata
Pinus Cembra
" Sabiniana

Deciduous Trees.

Acer macrophyllum
" platanoides laciniatum
" " Lobelii
" rubrum
" saccharinum
Ailantus glandulosa
Amygdalus Persica flore-pleno
" " camelliæflora
" " dianthiflora
Castanea vesca asplenifolia
" " aureo-variegata
Cerasus sinensis flore-pleno
Fagus sylvatica heterophylla
" " asplenifolia
Fraxinus excelsior laciniata
" " pendula
" Ornus
Juglans nigra
" regia
" " laciniata
" " pendula
Liquidambar styraciflua
Liriodendron tulipifera
Magnolia tripetala
Paulownia imperialis
Pavia californica
" flava
" macrostachya
Platanus occidentalis
" " pendula
" orientalis
" pyramidalis
Populus fastigiata
" tremula
Pyrus Malus baccata
Quercus Cerris
" " pendula
" coccinea
" palustris
" Robu
" " nigra
Robinia grandiflora
Salix caprea pendula (Kilmarnock Weeping Willow)
Sophora japonica
" " pendula
Tilia alba
" " pendula
Ulmus montana pendula

Shrubs.

Arbutus Unedo
Aucuba japonica
Berberis japonica
Chimonanthus fragrans
Chionanthus virginica
Cytisus albus
" scoparius
Daphne Mezereum
" " alba
Exochorda grandiflora
Forsythia suspensa
" viridissima
Fothergilla alnifolia
Halesia tetraptera
Hibiscus syriacus
" " flore-pleno
Hydrangea Otaksa
Laurus nobilis
Magnolia conspicua
" " Soulangeana
" " Lenné
" " superba
" " Norbertiana
" grandiflora
" purpurea
Prunus sinensis flore-pleno
" triloba
Syringa Emodi
" Josikæa
" persica
" vulgaris, and its varieties, 12 or 14 in number
Ulex europæus flore-pleno
Viburnum macrocephalum
" plicatum

It is quite possible that time and more extended trials may rectify or modify the foregoing list. As some trees become more established, their adaptability to chalk soil may be apparent and they may pass to those of the first rank; while others as they penetrate deeper into the chalk, may seriously suffer and show that they cannot remain permanent occupiers of the soil.

Among the Coniferæ, I may mention that Abies Morinda is the most promising of the genus in the second class, and seems improving. Libocedrus decurrens deserves similar comment; the same as regards Picea cephalonica and pectinata; but Picea lasiocarpa, which did well for the first three years, is becoming sickly and feeble—a circumstance greatly to be deplored, as it is a most charming tree. I fear it will soon declare itself as quite unsuited to the chalk.

Of the deciduous trees it may be remarked generally that the varieties are often less robust than the typical form of the species, and this is especially the case where the former are grafted on the latter; indeed, one often loses the choice head which was grafted on the common stock, and the parent instead grows vigorously. This probably occurs on all soils, but with me it has been provokingly frequent; and I fancy it is more apt to occur where the plants are not quite adapted to the ground in which they grow. Acer macrophyllum has done so well during the past year that it might almost be placed in my first list, and A. rubrum thrives if planted very small, and protected by nurses; otherwise, it is very disappointing. Two trees of the double Peach (Amygdalus Persica flore-pleno) have done so well this year that they are quite among the best of the second class. The two cut-leaved varieties of the common Beech (Fagus sylvatica asplenifolia and heterophylla) are among the most difficult of grafted trees to establish when transplanted, and I have had sad experiences with them in successive years, but three that are now safely rooted are growing fairly well, and will repay the trouble that has been taken. Juglans nigra and J. regia, with the varieties of the latter, do best where the loam is deep and they are not battered with the wind. The less chalk the better for the Liquidambar, but where the loam is deep it grows sufficiently strong. None of the Planes can be said to flourish; they look promising at first, but they become cankery and die back, and I fear they will pass to the third class—those to be discarded on such soils as mine. Apples do not flourish on the chalk, but none have done so badly as the Crab (Malus baccata).

Sophora japonica stands low on this second class, but its weeping variety stands higher; exactly the same may be said of Tilia alba.

Of the shrubs in this class I have little to say. Berberis japonica will, I fear, have to be given up, but in shady situations and with the better sort of loam it may succeed. The Snowflower (Chionanthus virginica) has sent up such vigorous shoots from the crown of root this year that the shrub is clearly suited to the soil, and may establish a position in the first class. Though the Daphnes do well in some cottage gardens near me they have failed on my ground. The Hibiscus stands so low in this class that I fear it must be given up. The two lovely species of Prunus, sinensis and triloba, are also in a bad way. The Lilacs are improving, but, to my great regret, Viburnum macrocephalum and V. plicatum are both sickly and unpromising; this is remarkable, as it is a lime-loving genus, taken as a whole, and much to be regretted as these are both extremely beautiful flowering shrubs.

III. The third class of trees and shrubs—*those that will not grow on chalk and must be discarded*—is happily a small one, as far as my experience goes; and I must add (as I wrote regarding the last class) that more extended observations may perhaps still more diminish it. But unfortunately some very choice trees are hopelessly unavailable upon chalk lands.

Coniferæ.

Abies Albertiana
" canadensis
" Douglasii
Cupressus Lawsoniana gracilis
Cupressus Lawsoniana argentea
Pinus Strobus
Taxodium distichum

Deciduous Trees.

Betula alba incisa pendula
" " pendula
" " " elegans
" " " Youngii
*Calophaca wolgarica
*Caragana jubata
Fraxinus excelsior aucubæfolia
Morus nigra
Pyrus vestita
Robinia hispida
Salix babylonica

Shrubs.

Berberidopsis corallina
Magnolia gracilis

None of the so-called "American" plants have been tried on my land. I had long ago seen the uselessness of planting Rhododendrons and Azaleas on the chalk, so I did not attempt their cultivation.

The failure of certain of the Coniferæ has been very remarkable, but it has been so distinct that there can be no mistake about it.

Abies Albertiana and A. canadensis have gone regularly to the bad, getting weaker and more sickly every year. With A. Douglasii the failure has been more rapid and complete. I planted several, both as specimens and in clumps, with other trees as nurses, but the result was the same in every instance, without exception or modification; the foliage became pale, then yellow, and then fell off, and the attempt at growth became feeble and ceased. I planted many, and have not one alive on the chalk. In one corner of my ground the loam rests on gravel, and there is no chalk; here A. Douglasii grows freely and healthily. The failure of this species on chalk is very remarkable; it grows admirably on the upper greensand, which is a calcareous soil; and moreover A. excelsa, its near ally, is the best conifer I know of for chalk land. Pinus Strobus is another singular instance of marked failure; of fifty trees planted forty-eight died outright, and of the two remaining one is very sickly. The single tree that flourishes is in exceptionally deep and good loam, and has not reached chalk. It is a curious fact that, while Pinus Strobus thus declares its antipathy to chalk soil, its very close ally, P. excelsa, grows in vigorous and rampant health; I have not lost one of the latter species, nor have I a sickly tree of it; indeed they grow with remarkable vigour and strength. Taxodium distichum has died on three successive years.

Of the deciduous trees the losses have been principally of grafted specimens, and this may have arisen from the circumstance already mentioned, that grafted trees greatly suffer by transplantation. In my short list nine are grafted varieties; I have, however, made repeated trials of most of them, but with the same unfavourable results. *James Salter, F.R.S.*

EFFECTS OF IMMERSION ON PLANTS.

M. ROBINET, of Toulouse, has lately contributed to the *Revue Horticole* an account of the injuries caused to certain plants by the floods at Toulouse, the substance of which we here reproduce.

During the terrible inundations which devastated Toulouse from the 22d to the 25th of last June, in the nurseries, certain beds of plants were subjected to rapid currents, and were covered with water for two days only. Those which were able to withstand the current, and were not uprooted, have not sensibly suffered; other beds were covered with wet mud of from 10 to 15 centimetres [4—6 inches] in thickness until July 15, but, in spite of the tops of many of the plants not being covered, they have suffered very seriously.

The following plants are completely lost, even without having been much submerged:—Almond trees, common Acacias, Laurustinus, Japanese and Californian Privets (Ligustrum ovalifolium), Box trees, Mahonias, Service trees, Japanese Varnish tree, St. Lucie Cherry trees, and most of the coniferous plants. Hawthorns, Pear and Apple trees, Chestnuts, Thujas, Silver Birches, Catalpas, &c., which were covered with water for eight or ten days, have not suffered much; but those from whose base the mud, of the thickness of from 15 to 25 centimetres [6—10 inches], could not be removed, blacken with rot, and perish every day.

Among the trees which it is customary to plant in avenues, Poplars and Weeping Willows not only have not suffered, but they are striking out roots from the buried trunk. Neither have the Plane trees, Alders, young Elms, Celtis, or Catalpas suffered much; but of those which were completely submerged—Birches, Sophoras, Hornbeams, Beeches, dwarf Walnut trees, Maples, and Ash trees—a certain number have perished. Acacias, both the common and other varieties, which have not already perished, are very much blanched. Lime trees, Japanese Varnish (Ailantus), and Chestnut trees have lost their leaves; it seems doubtful whether they will shoot out again, the two first especially. Almond trees, Cherry trees, Cytisus, Soapworts, Service trees, Paulownias, St. Lucie Cherry, Cerasus Padus, Pteleas, &c., many Peach trees, Caraganas, are mostly lost. The young Pear and Apple trees, first year's shoots, and young

* Grafted on Caragana arborescens.

Apple trees of two or three years' growth, where the soil has remained covered, blacken with rot, and perish every day. Pears grafted two years ago on the Quince do not appear to have suffered much. The greater part of the evergreens and some Conifers are losing their leaves up to the level of the immersion. A collection of Cacti and some Euphorbiaceæ remained under water for four days without suffering. This reminds me of some pieces of stem of Epiphyllum which fell into the water of a greenhouse pond, and which in a few days struck out roots.

Plants of Caladium esculentum have covered the mud which spread over the masonry, and are magnificent in their vegetation. Balsams and Phlox decussata have not suffered. These facts recall a circumstance, when, with the object to rid a Pandanus amaryllidifolius of a little white coccus, which was increasing in the hothouses, I conceived the idea of submerging the top-shoots of the plant for six hours: at the end of that time the insects were not dead, but the submerged part of the plant was entirely so, which shows that all plants cannot bear the same amount of submersion.

I ought nevertheless to say that only a small number of the nurseries of Toulouse have suffered by the inundation, but nevertheless the evil done is considerable, as the losses amount to nearly 300,000 fr.

It is, however, to be expected that the harm done in the nurseries is not yet complete, for many hectares have been again covered with 50 centimetres and more in depth of mud.

After the statements made by the horticulturists, including loss of habitations and materials, 600,000 fr. will not be too much to make up the loss; however, only seven or eight have been injured by the flood, amongst which three very seriously.

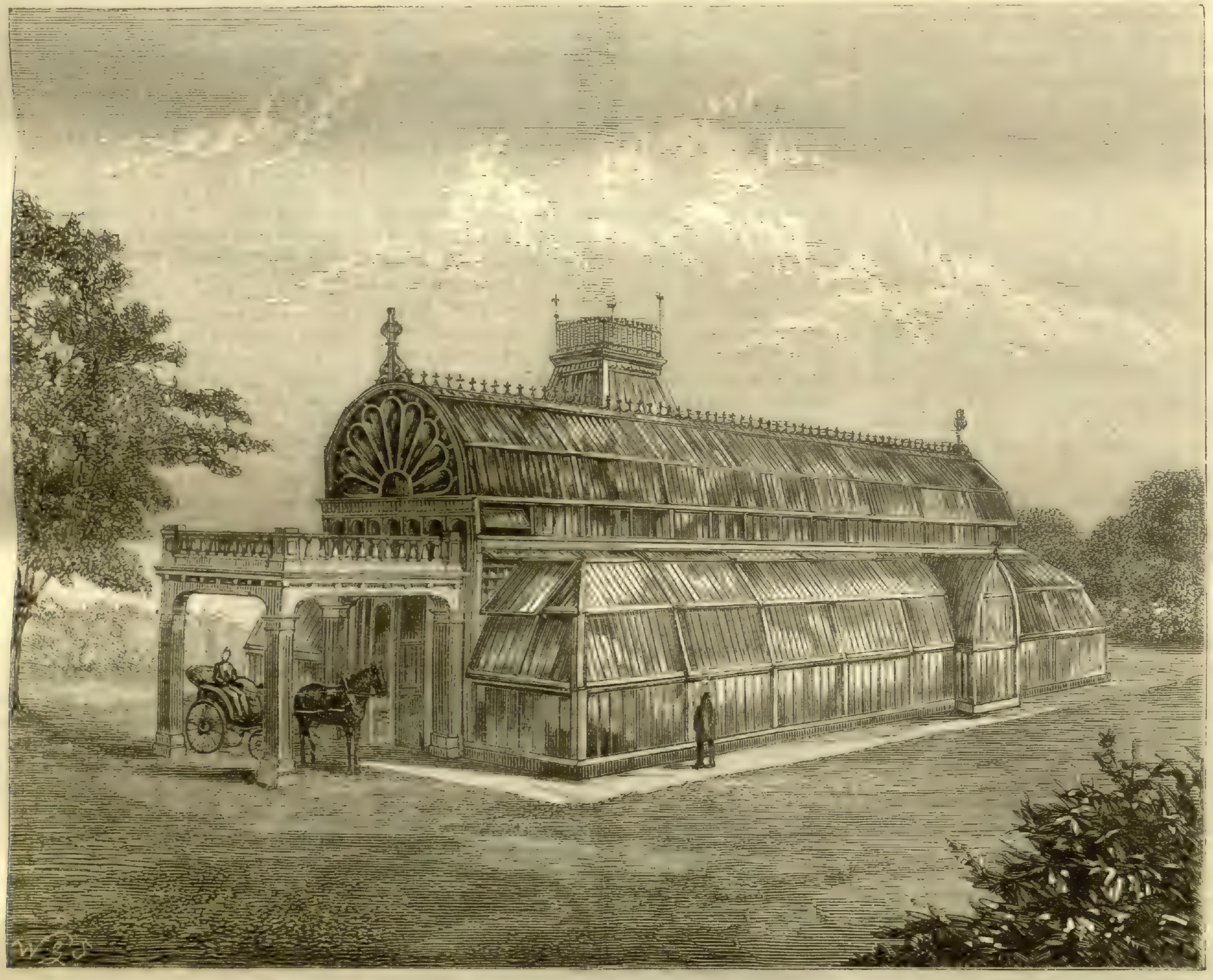

FIG. 153.—CONSERVATORY CHAPEL, FOREST HILL CEMETERY, UTICA, N.Y.—EXTERIOR VIEW.

DRACÆNAS.

THERE are few plants grown for the beauty of their foliage that can at all compare with these for decorative purposes, or that will stand half the amount of cold and rough usage the Dracænas are capable of enduring. Those who have had anything to do with furnishing gas-heated apartments know how difficult it is to get anything in the plant way that will stand even a few hours without suffering injury, but the Dracæna is almost an exception, as it may be kept in tolerably fair condition in such an atmosphere for months at a time. When subjected to the uncongenial air of a room it is of the greatest importance that its leaves should be kept thoroughly clean, and to ensure this they should be sponged carefully over at least once a week, using for the purpose a nice soft sponge and clean soapy water. All plants will repay any attention this way, but none more so perhaps than the Dracænas, as their leaves appear to brighten considerably under the treatment, and present a very pleasing, polished appearance.

As to propagation of these popular favourites, that is the easiest thing possible; and any one who can grow a plant at all cannot possibly fail with a Dracæna. In respect to propagation they may readily be increased to almost any extent, even with only one or two plants to start with, provided these have a good length of stem, and there is no objection to sacrifice the plant for the time being by cutting it up into lengths. If there is, and the plant cannot be spared for the purpose—as might be the case with some of the new and valuable varieties—even this may be got over, for if the plants are turned out of the pots large fleshy roots will show themselves, and the whole, or a greater portion, of these may be severed without doing any or but little injury to the plant. If these are placed in sandy soil in a brisk moist bottom-heat of from 70° to 80° they will soon break, when, by potting them carefully and replunging them, they will grow rapidly on and soon make fine plants. So free of growth are they when favourably circumstanced as to heat and moisture that there is scarcely any limit to the size to which they may be grown.

Dracænas are, however, generally preferred of moderate size and with a single stem, but it often occurs when the plants attain a little age that they become bare of leaves near the pot and have a leggy appearance. When this is the case they may be easily reduced in height by a very simple process. Every one acquainted with gardening matters has heard something of ringing or removing a portion of the bark from fruit trees to induce fruitfulness: although the system is not to be commended, the same practice will cause plants to emit roots at that particular part, provided they are either layered or bound round with a bundle of moss containing a little sandy peat; and this is a safe and ready way of increasing many plants that are difficult to propagate. Suppose a Dracæna to have become leggy or too tall for the purpose required. The way to reduce it, and still have the head serviceable, is to pass a sharp knife gently round the stem so as to cut through the bark, and then carefully remove about an inch, so as to form a ring round the stem. Over this let a wad of moss containing a little sandy peat be bound and syringed daily for a few weeks, when the stem will be found to have rooted at the part so operated on, and it may then be severed and potted without disturbing the ball of moss. By this means a sturdy dwarf plant will at once be obtained, having fully developed richly coloured leaves right down to the surface of the pot. The old piece of stem will then be available for propagating purposes, and may be cut up into inch pieces and treated as advised for the fleshy roots. If it be desired to work up a stock quick even these may be split in halves, so as to double the number. The old stump should be placed in a brisk bottom-heat, where it will soon send up a quantity of suckers, which can either be taken off to grow on as single plants or they may be left to form large specimens, when, with several stems developing into large heads, they form a rich mass of colour not readily surpassed. There is no plant so suitable for table decoration as the Dracæna, and as it can be so easily propagated and quickly grown there is no reason why it should not be worked up and sold at a cheap rate, when it would quickly replace many more common and less suitable plants now sold for decorative purposes. To grow them quickly, with highly-coloured leaves, they require a nice moist heat with plenty of light, and only a very thin shade during the summer. The Dracæna is not over fastidious as to soil, as it may with careful watering be grown more or less successfully in any ordinary mixture, such as is generally in use for common potting purposes. The soil, however, it succeeds best in is a mixture of peat and loam, in about equal parts, with just a dash of sand to keep it open. Where peat is at all scarce leaf-mould may be substituted, and will be found to answer the purpose nearly as well. As Dracænas are rather fond of moisture at the root, the soil in which they are potted should be used somewhat rough, so as to allow the water to pass freely through. While growing they like a humid atmosphere, and a

temperature varying from 65° to 80° will suit them perfectly. If not subjected to bottom-heat a little hardening off soon fits them for standing in rooms, where they will last a long time in positions where many other plants would succumb. For summer decorations in conservatories they are quite unrivalled, as, independently of the brilliant colouring of their leaves, the graceful outline and general contour of the plant renders them altogether better adapted for associating with the architectural embellishments of a house than is the case with most others.

A *jardinière* here, having finely coloured plants of D. Cooperii, and the richly spotted Abutilon marmoratum worked in alternately, with a good plant of D. Guilfoylei in the centre, made a very effective group during the summer months and was greatly admired.

As to varieties, the gracefully recurved leaves of D. Cooperii, combined with its rich crimson colour, render that one of the most fitting and attractive to use as single specimens in conspicuous positions or for table decoration. D. Mooreana, Guilfoylei, and Shepherdii are all fine varieties, having pale richly-coloured leaves that show up in pleasing contrast with the crimson marking of such as D. terminalis, grandis, and others of that class.

D. Chelsoni and regia, again, are fit companions to such as D. Youngi and others of robust growth. Now that hybrids of the above varieties have been raised there will be no lack of beautiful sorts to satisfy even the most ardent admirers of this class of plants, and the only danger appears to be that they will soon become as common as the Coleus and Begonias of the Rex type, that were so popular a few years back, but are now hardly noticed. It is to be hoped Dracænas will not share the same fate. *J. Sheppard, Woolverstone.*

A CONSERVATORY CHAPEL.

MR. RODERICK CAMPBELL, gardener at the Forest Hill Cemetery, Utica, N.Y., has favoured us with several photographs of a new conservatory and mortuary chapel which has been erected at that place, and which is destined to be used for holding the final services over the remains of the dead, instead of a stone-built structure, which proved unsuitable for that purpose during winter, on account of the very low temperature which prevailed.

The idea is so novel that we have at once caused illustrations to be made, and borrow the following remarks on the subject from the *American Agriculturist*, to which excellent journal they were contributed by Mr. Peter Henderson, the well-known New York horticulturist:—

"Since the time that Sir Joseph Paxton conceived the idea of the first Crystal Palace, and carried it into execution, the use of glass in structures of various kinds has widely extended. Among all the purposes which glass structures have been made to serve the city of Utica, New York, is, so far as I am aware, the first to use one as a receiving chapel for its dead. As is the custom in modern burial places, the Forest Hill Cemetery at Utica had a chapel with ready access to the receiving vault. This chapel was built of stone, and was found to be quite unsuited to holding funeral services during the winter months. In view of this difficulty, Mr. Thomas Hopper, one of the trustees of the cemetery, last Fall conceived the idea of a combined chapel and conservatory, and at once prepared plans for a structure of this kind. The main body of the building is 80 feet by 36 feet on the ground, and 25 feet in its greatest height; in addition there is on each side a lean-to or wing, 10 feet wide, 13 feet high, and running the length of the main structure. In front there is a covered porch or carriage way, where those who attend the funeral can alight without being exposed in stormy weather. The main portion of the building or auditorium is arranged for holding the last services, movable seats and all needed accessories being provided. Under each wing or lean-to on the sides, there being no partition between these and the main building, is abundant room for the display of rare and beautiful plants, which may be arranged differently, if desired, on each occasion. It is certainly a pleasing idea to see all that is mortal of those who in life were dear pass to their final rest amid such surroundings, but this is not the only view to be taken of such a chapel, and however soothing may be its effects upon the feelings of the bereaved, its sanitary influences are still more important. The ordinary method of holding the services at the open grave in inclement weather results in more serious consequences than most persons are aware of. Thousands of persons, especially those made feeble by their constant care of the deceased, contract disease which ends in death, by standing on frozen or snow-covered earth during the often too prolonged funeral services. In the usual stone chapels the case is not much better; being used only occasionally they are but partially warmed, even when heated at all, but in the conservatory chapel the heat required to keep the plants in good condition makes the place always ready for funeral services."

We may also mention, on the authority of Mr. Henderson, that the conservatory, an exterior view of which is given at fig. 153, is situated on the edge of the cemetery grounds, about 200 feet east of the main entrance. It is constructed in the form of a triple arch, the middle one being the highest, the side arches joining the main arch just beyond the highest part of their curve. The conservatory proper is 80 by 36 feet in size, and is constructed almost wholly of glass. In front of the building is a porch, or *port du chaise*, 12 by 13, supported by two pillars, under which the funeral parties alight without exposure. On entering, the visitor finds himself in a vestibule, 20 by 16 feet, separated from the rest of the building by glass partitions. From the vestibule a door opens into the auditorium and conservatory. This part of the building is 60 feet in length. The auditorium is 16 feet wide, and directly under the main arch, which is 25 feet high. The floor is laid with alternate strips of Ash and black Walnut, sufficient space being left between the strips to allow the heat to rise from below. On either side are benches, of the same material, for those attending the funerals. Under the side arches, which are 13 feet high, are flower-beds, 10 feet wide, extending on either side the whole length of the building. Hothouses are divided off by a glass partition in the front part of the building on either side of the vestibule, where tropical plants, requiring a higher temperature, are kept. From the vestibule a stairway leads to a gallery of the same size as the vestibule, and from which a very good view of the interior (fig. 154) can be obtained. On the west of the conservatory, and about the centre of it, is the tower and observatory, 40 feet high. In the basement of this are two large boilers, which supply the building with heat. The heated water from these boilers flows through 2000 feet of 3-inch pipes, laid under the floor, and when cooled returns to the boilers to be warmed over again. The superintendent's room, 16 by 20 feet, is over the boiler-room. It contains a large map of the cemetery. On the north side of this room is a piazza, under which is a fumigating room, in which plants are placed and freed from vermin. Over the superintendent's office is the observatory, from which a spiral stairway leads to the roof. From this observatory a good view of the city, the

FIG. 154.—CONSERVATORY CHAPEL, FOREST HILL CEMETERY, UTICA, N.Y.—INTERIOR VIEW.

hills beyond, and the Mohawk valley to the west can be had. The building is supplied with water from two large reservoirs on the top of the hill, and at an altitude of 155 feet higher.

It will be seen that the building is complete in every respect, and well adapted for the purpose for which it was intended.

The cost of the whole has been in the neighbourhood of 13,000 dols., which includes the fitting up of the gardener's cottage, just east of the conservatory.

The Cemetery Association of Utica have the services of Mr. Roderick Campbell, a young Scotchman of education and intelligence, with an excellent knowledge of landscape gardening and horticultural matters in general. We learn that it is the intention of the Association to provide houses in which plants may be grown for the decoration of the grounds of the cemetery. Of course the floral decoration of cemetery grounds is nothing new, it being carried to a remarkable extent at a cemetery with the same name—Forest Hill—near Boston, where there are ample facilities for producing the plants; but the credit of the valuable idea of combining a chapel and conservatory is, so far as we are aware, entirely due to Mr. Thomas Hopper, of the Utica Cemetery Association.

EGYPT AS A FRUIT GARDEN.

THE fertility of Egypt in grain, cotton, sugar, and other agricultural products, has come to be well known, and its magnificent displays of vegetable produce at the various International Exhibitions on the Continent of late years, coupled with its large and increasing exports, have drawn the attention of merchants and capitalists very prominently to it. Even at the International Exhibition of Agriculture and Horticulture held at Cologne this year, Egypt was most prominent in its large and varied collection, and received the grand diploma of honour. But it is chiefly to the fruit production of Egypt that we would draw attention, because of this least is known. An admirable descriptive report on the fruit trees of Egypt, published in a Continental journal, by M. G. Delchevalerie, the chief gardener of the Khedive, at Ghezireh, enables us to condense much valuable information, which is new as to the variety and yield of fruit in Egypt. For more easy reference, we will follow his alphabetical arrangement :—

Apricot: "Micmich" of the Arabs.—Apricots are abundant in the fruit markets in May and June; the varieties known as "beledy," and "amhoe," as well as the European kind, "frangy," are cultivated in gardens to the number of about 150,000, producing more than 50,000 cwt. of Apricots. The number of trees in the gardens of Cairo is about 60,000, and there are not less than 4000 in the gardens of Fayoum, Beni-Sainf, Minieh, and Upper Egypt; the rest are grown in Lower Egypt.

The price of small Apricots in the markets of Cairo is about 1*d.* to 1½*d.* per pound. A large quantity are eaten ripe in the summer, and an Apricot paste is made by slightly drying the pulp of the fruit and rolling it. It is then dried to a soft consistence, and Almonds and nuts incorporated with it. This Apricot pulp keeps a long time, and makes an excellent preserve.

Almonds: "Louz" of the Arabs.—There are about 10,000 Almond trees in the gardens of Cairo, but very few in other parts of Egypt. They are almost always eaten green, and none are dried for export. The sweet Almond is that cultivated, and very rarely the bitter variety.

Bael (Ægle Marmelos).—The fruit of this tree, which is somewhat like an Orange, is very palatable, and its aperient qualities in the removal of habitual costiveness have been well ascertained. It is grown in some of the gardens of Cairo, and fruits about the middle of summer. The perfumed pulp within the ligneous husk makes excellent marmalade. The fruits will keep for an indefinite time, and long exhale their delicious perfume.

Apples: "Tiffah" of the Arabs.—The Apples raised in Egypt are a little better than the Pears grown, but with the exception of a few kinds they are small and without flavour. The desire to have this fruit induces the Egyptians to cultivate about 10,000 trees in their gardens; the crop yielded is, however, of small importance, while those of European growth are abundant in the markets of Cairo and Alexandria.

Balanites ægyptiaca: "Heglig" of the Egyptians.—This tree grows spontaneously, and is cultivated in the Upper Nile, where its fruits of the Date kind are largely consumed. This tree is venerated by the inhabitants of the Upper Nile, because the fruit has the form of a heart, and the leaves of the tongue. In olden times the tree was extensively cultivated in Thebaide. It is grown in a few gardens in Cairo, where it flowers and fruits, but the fruit has not the flavour of that of the Upper Nile.

Plantain: "Mouz" of the Arabs.—This Musa is cultivated generally in gardens, shaded from the winds by the shelter of the walls. It fruits in summer and also in autumn. There are about 140,000 Bananas cultivated in gardens, about 100,000 of which are in Cairo and its environs, and the rest in Lower Egypt. They are eaten fresh, and also after they are ripe. The bunches of fruit are gathered before they are perfectly ripe, and wrapped in dry straw to mature. It is one of the best fruits of Egypt; each Plantain stem bears one and sometimes two bunches of fruit, containing each from 25 to 35 fine large Plantains, which invariably fetch a high price in the markets. The culture of the Chinese Plantain (Musa sinensis) has been also commenced, having been introduced in 1868. The stem is not more than 3 feet high; its fruits have the combined flavour of the Pear, the Pine-apple, and the Melon; the bunches are very large, and bear about 200 small fruits.

The Baobab (Adansonia digitata), "Gonzales" of the Egyptians.—This tree attains colossal proportions in the Upper Nile, where the pulp of the fruit serves as food for the natives, and is equally relished by the monkeys. The fruit is sometimes sold in the markets of Cairo.

Carob (Ceratonia Siliqua).—This fine and ornamental tree bears numerous pods among its large branches. The fruit is used as food by the natives, and also employed in medicine. There are, however, not more than a hundred large trees scattered here and there over the gardens of Egypt. Each tree will yield about 3 cwt. of pods yearly.

The Cherry tree (Cerasus Avium) is cultivated as a curiosity in some gardens, but produces nothing. Large quantities of Cherries are, however, imported during the fruit season to Alexandria, by the mail steamboats, which embark them at the ports of Syria, the islands of the Grecian Archipelago, and Italy.

Citron: "Cabbade" of the Arabs.—This tree is cultivated for its fruits, which are employed to make candied peel and other excellent preserves. About 3000 trees are grown in the gardens of Egypt, of which about one-third are in Cairo, and the remainder in Lower Egypt. The Calabash Citron is also grown, the large fruits being much employed for making preserves.

The Cocoa-nut has been grown in the gardens of the Khedive some few years, but it is not yet possible to say that it has become thoroughly acclimatised in Egypt. One species, Cocos flexuosa, prospers equally with the Date in the gardens of the Khedive, and accommodates itself marvellously to the climate of Cairo. Specimens, of two years old, which were planted seven years ago, and are, therefore, now nine years, are already 21 to 24 feet high, and 4½ feet in circumference at the base of the trunk. The packet boats from India bring to Suez large quantities of Cocoa-nuts, which are sold retail in the bazaars of Cairo during winter and spring.

The Date is cultivated all over Egypt, and in many localities grows spontaneously, forming regular forests. The number of Date trees cultivated in Egypt is estimated at 4,000,000, and the total yield is computed at 15,000,000 cwt. of fruit. The trees in Egypt are distributed as follows:—

Alexandria	51,701	Minie and Beni Mazar	114,110
Rosetta	39,582	Assyout	465,061
Ismailia	200	Oasis of Syona ..	277,381
Behera	44,535	Girgeh	201,774
Province of Garbye..	193,606	Kené	228,587
Menoufye	14,900	Esné	669,355
Town of Cairo ..	3000	Province of Dakhalie	94,467
Suez	739	,, Charkie	450,186
Fayoum	400,000	,, Galioubye	105,974
Beni-Souef	74,840		

The varieties of Dates which are sold fresh in the markets are the Yellow, the Red Honey, much esteemed, and the Bourlos, a large Date, brought from the seacoast. Among the dried Dates, which are sold in winter and spring, the choicest are those of Ibrim, the Sultan Date, the Lite Date, and the Sakkouty, &c. From July to November the fresh Dates are abundant in the markets. The sale commences with the early varieties, and ends with those which are most backward. The Date paste or compressed Dates of the oasis of Upper Egypt is excellent, and, with the Tamarind pulp of Suaken, Darfour, Edjaz, and Cairo, constitutes a valuable source of provision for the caravans.

The Doum Palm grows spontaneously in Upper Egypt, where it constitutes veritable forests, which, by their curtains of foliage protect the culture carried on between the banks of the Nile and the borders of the desert. The pulp of the fruit is more medicinal than alimentary. The Arabs eat it, and it has somewhat the flavour of gingerbread.

Figs: the "Tynbeledy" of the Arabs.—This tree is grown in the gardens and fields in the environs of Cairo and Alexandria. The varieties are known under the names of Sultani, Hegazi, Abyad, Essoud, Gorabi, Smyrli and Comitra, and are excellent eating fresh; most are thus eaten, and very few dried for keeping. There are about 50,000 Fig-trees cultivated in Egypt, and the yield of fruit is about 20,000 cwt.

Grapes.—Very fine table Grapes are grown in Egypt at the present time, especially the Muscat of Egypt or Alexandria, the white Grapes of Greece, and the Benati, Mallaoui, Sultani, and Sabaoui, &c. There are not more, however, than 225,000 Vines in Egypt, of which 50,000 are at Cairo, 55,000 at Alexandria, 10,000 at Fayoum, and the rest distributed over the other provinces of Egypt. The yield of Grapes is estimated at 10,000 cwt., a quantity insufficient for the local consumption, and large quantities are imported at Alexandria. The culture of the Vine flourished in Egypt in the time of the Ptolemys, and the ancients distinguished several kinds of wine. Wine making is not now carried on in Egypt, in consequence of the principles of the Koran, which prohibit the use of wine.

The slopes of Mariout, near Alexandria, were formerly covered with Vines, of which the traces are still visible, although these slopes are now abandoned to troops of Bedouins. There used to be several kinds of wine made in Egypt, of which the most celebrated were the Maréotique wine, made in the neighbourhood of the Lake Maréotis; the wine of Thebaide, much vaunted by Athenius; the wine of Captas, so light that it was given to fever patients; the Toéniotique wine, which, mixed with water, had the colour of the honey of Hymettus; the wine of Plintine, where, according to Hellanicus, the first Vine grew; the wine of Anthylle, the best, most aromatic and mellow to the lips. The culture of the Vine in Egypt dates back to a prodigious antiquity. According to an ancient tradition, it was a goat that first gave the idea of pruning Vines. This animal having browsed on a Vine, it was noticed that the following year the yield of fruit was more abundant than ordinary, and profiting by this idea the Vine was afterwards regularly pruned.

Many varieties of Vine in Egypt have the property of producing several crops of Grapes in one season. The early Grapes ripen in the commencement of summer in Egypt, and the late ones do not keep beyond the close of the summer. With the second crop Grapes are obtainable in the middle of winter. The Muscat of Alexandria ripens its fruit at the close of December, with proper care given to the Vines after the first crop. It is in the climate of Minieh in Middle Egypt that the Vines have principally this tendency, and the gardens there produce several crops of Grapes in the year. *P. L. S.*

(*To be continued.*)

Forestry.

PLANTING.—Hill and moorland planting may often with advantage be suspended during the short, cold days in the middle of winter. I seldom plant in December and January, except for ornamental and shelter purposes; and the reasons for so abstaining are that the women and children required to help in planting suffer so greatly from the cold and wet, especially when the herbage is rough, that injurious results to their health often accrues: also the distance that the work often is from home necessitates the going to and coming from it being done in the dark, or lodgings having to be paid for, together with the shortness of the day and unfavourable state of the weather. These and other considerations induce me to confine the operations of planting during the next ensuing two months to such operations as the removing of large trees, shrubs, &c., and to leave the planting of the general forest stock to be done in October, November, February, March, and April.

Trees exceeding 10 or 12 feet in height are better to be dug or ringed round one, two, or more years previous to transplanting, in order that too many roots may not all be cut at once. If the tree to be removed is very large, it should stand several years after being dug round, so that the cut roots may properly heal, and new fibres be produced. In forming the trench round the tree, the diameter of the circle within must be regulated by the size of the tree and the apparatus for removing it. Without some very powerful and expensive machine it is seldom commendable to remove trees with balls of earth exceeding 6 or 8 feet diameter; but with the common "janker," which consists of two very high and strong wheels, pole, and cranked axle, trees of 1 to 2 tons' weight, including ball of earth, are safely and expeditiously removed at very moderate expense. When the trench is dug out the same earth should not again be filled in, but the trench should either be entirely filled with fresh earth, or at least the excavated earth mixed with some of a richer and better quality.

Too much importance need not, however, be attached to digging round and preparing trees for transplanting, since it is found in practice that those dug and removed the same season often succeed equally as well as those dug about and prepared.

With due attention paid to the following particulars, every reasonable expectation will be fulfilled, and every satisfaction afforded in transplanting large trees for immediate effect and shelter.

1. The trees, whether of large or small size, should be perfectly healthy and of vigorous growth, this

being the condition (all things being equal) in which a tree can best sustain and overcome the injuries and privations which even the most successfully transplanted trees meet with in removal.

2. The tree should be symmetrically grown and well balanced, and the branches upon it more numerous than large. The girth of the stem should also bear a proper proportion to its height, which is found to consist of as many inches in girth a little above the swell of the roots as it measures feet in height. A tree, for example, which girths 24 inches, should stand 24 feet high, and so in proportion with others.

3. No tree should be lifted out of a clayey or wet soil and put into a dry one, neither out of soft peat soil or rich black loam, and planted into soils of an opposite extreme of quality, as by so doing the roots previously formed are induced to rot and decay. This is especially the case in transplanting out of clay soils; in all such cases the results in my experience have proved a complete failure.

Tree roots of probably every species grown in clay degenerate when removed to dry and better soil, and on examination they are found to have rotted away back to the base of the stem; and, as in Oaks, after many years languishing they produced a new class of roots suited to their change and conditions of life.

4. The next necessary precaution is against deep planting. Nothing looks worse than a tree standing so deep in the ground that the swell or spread of its base is obscured. This is often produced by the loose soil into which the tree had been transplanted subsiding afterwards, and this being the case all such trees should be placed a few inches above the level of the surrounding ground to admit of subsidence. Better that the tree be placed too high than too low in the ground, both for appearance sake and the health of the tree.

5. The removal of all trees requiring mechanical appliances should be done before the sap rises in the stem, as any injury to the bark is very unsightly and hurtful to the tree, and it is much more readily displaced by a bruise or stroke when the sap is in circulation than in the dead of winter when comparatively inactive.

6. It is of very decided advantage to the tree to lighten its top a little when transplanted. The tree having been deprived of its necessary anchorage by unavoidably cutting some of its best roots, and the means of diffusing its sap throughout the whole structure of the tree being correspondingly diminished, the top branches, unless removed, wither and decay, and the wind, acting too severely upon the head, strains and fractures the existing roots, frequently uprooting the tree altogether.

7. For a few years after transplanting a large tree, it requires some artificial means of anchorage, for which purpose a few large stones laid so as not to touch the stem but directly over the roots answers well, both by keeping the tree steady and encouraging moisture about it.

Where choice of trees for successful transplanting can be had I make the following:—The Lime, Sycamore, Elm, Ash, Oak, Willow, and all varieties of Poplar, observing in all cases that the soil into which the trees are planted is of nearly the same kind and quality as that in which they grew. *C. Y. Michie, Cullen House, Cullen, Nov.* 30.

Natural History.

TOADS.—The toad is a most useful thing in a garden. I had a plant dreadfully infested with woodlice almost destroyed by them, and a toad located himself himself close by as its protector, and in order to be ready in an emergency he made in the mould a hole all but deep enough to hide himself in, but not deep enough to prevent his having a thorough good view of the plant; and when a woodlouse, beetle, or anything of the kind appeared near him or the plant, out he came and pounced upon it—"You are mine!" This was wholly his work. I only watched him sometimes, greatly pleased at the success. Another time as I was one day walking along a path in the garden I saw a toad approaching; the pace was quick for a toad, but I soon saw what he was after. Just on before him was a beetle which I expected to see caught, but ere there was apparently time for them to meet, the beetle had disappeared, so quickly that my eye was not quick enough to see it taken, but no doubt it was in the toad's mouth for I heard a click which told the tale of capture. Two other toads seemed to have concerted between them how to act one evening so as to take a border regularly, and in order to do their work well it appeared to be arranged that one of them should go on the border and the other stay outside, having the Box edging between them; and so they did their work of clearing, keeping just opposite the one to the other though they could not see each other, and I was watching them from the window above. I wish we could all act with good feeling towards such useful creatures. They do much good and no harm, but I have every reason to believe they are sometimes treated most cruelly. *R. T.*

Notices of Books.

Timber and Timber Trees, Native and Foreign. By Thomas Laslett. Macmillan & Co.

The title and sub-title above quoted may be taken to indicate, in no ill-defined manner, what are the merits and what the defects of the book to which they are attached. In all that relates to timber Mr. Laslett's book is most valuable, condensing, as it does, in small compass, a large amount of practical experience, and embodying facts of the highest importance, and such as we do not know where to lay our hands upon with equal readiness elsewhere. Here our praise must stop. When timber trees, as trees, are dealt with, the author's want of knowledge is as conspicuous as his familiarity with their products is manifest. The botanical errors and physiological misstatements and inaccuracies are so numerous, that it is very greatly to be regretted that the author did not secure the co-operation of some competent person in this portion of his volume. If the errors we allude to were mere matters of technical detail, they might be passed over without notice in virtue of the excellence of the other portions of the work, but as they are errors which might involve practical consequences to foresters, or to consumers of timber, it becomes a duty to point them out. It is quite clear, from what the author says at p. 9, that he has but a very confused and inaccurate notion as to the way in which timber grows:—"The woody layers when first formed are full of sap, but they change and gradually become solidified by the compression of each subsequent layer; and it seem obvious, that as each zone is moulded upon the one of the previous year's growth, it would, by cohesion, become amalgamated with it." In the face of the many excellent manuals and elementary works now before the public, such a statement as that just quoted seems quite inexcusable on the part of any one professing to be a teacher. A little further on we are told that "most writers upon the subject of the growth of timber are agreed in ascribing the hardening of the inner layers of the wood to the indurating action of the juices upon the fibres and on the tissues." A sentence or two further on we read that the sap "congeals" between the wood and the bark, and forms a new layer. What "writers" the author can have consulted we cannot imagine, as he does not inform us himself upon the point. The botanical details given are often, especially in the case of foreign woods, as inaccurate as the physiological explanations, but we forbear to give further illustrations, though almost every chapter furnishes them, and pass on to the more grateful task of commending the more practical portions of the work.

The chapters on the defects of trees, including heart-shake, cup-shake, star-shake, contain, in few words, a great deal of valuable information. Our author attributes these defects, and especially cup-shake, "to deficiency of cohesive matters between the woody layers," a deficiency "resulting from sudden changes of temperature, from the roots passing through a peculiar vein of soil, and even from frosts; violent and sudden gusts of wind and storms may also help to produce it."

We quite agree with our author as to the nature of the causes just mentioned, but his explanation of the effects is as vague and inaccurate as his anatomical and physiological statements usually are. An arrest of growth, an interruption to the process of solidification, might be productive of the effects above mentioned, and might and do occur intermittently, according as circumstances are favourable or the reverse. A similar alternation gives rise to that phenomenon well described by the author at p. 24:—

"It would seem that the fine trees found in forests and elsewhere, whether it be natural to them to have straight stems or curved ones, have not always been so fair-looking, or so symmetrically shaped as we find them when of an age and size fit for felling, but that in early life they have not unfrequently assumed a wavy, rambling, or, it may be, unsightly appearance, which was only improved upon as they attained to greater strength and approached maturity. This supposition will, I think, be readily allowed by any one who has passed through a copse, or maiden forest, in search of a straight sapling for a walking-stick, and experienced the difficulty of finding one suitable for the purpose."

The author's remarks on the mode of testing the strength of timber are excellent, and the information given under this head is most valuable. Our space will only allow us to make the following extract, showing the thoroughly practical character of this part of the work:—

"It should be borne in mind that in determining the scantlings to be employed, there are to be taken into account the possible chance of a short or twisted grain, a spiral turn of the fibre, knots, faulty or otherwise, and the risk which the practical builder must always run of having some defects hidden beyond the possibility of detection in, perhaps, his best-looking pieces. It would, therefore, be obviously unsafe to subject them to anything like the strain which the ascertained average strength of the specimens tested would seem to warrant charging them with. . . .

"Instances of weakness, both transversely and tensilely, similar to those which are given in table 7, are not unfrequent, and may occur, as before stated, in good-looking specimens of any species of timber; and this again serves to show that it would be unsafe to arrange the various parts of any construction according to the highest calculated strength of any timber to be employed."

The details relating to the resistance offered by timber of various kinds to a crushing force applied in the direction of their fibres, are also of very great value as affording data for determining the proper proportions to be given to uprights and pillars.

The chapter on the felling of Oak in spring and winter places before the reader in a very concise form the arguments for and against the practice of barking in spring and felling in winter. The author quotes, in reference to this matter, the opinion of Ambrose Bowden, relative to a ship built at Woolwich of timber barked in the spring, and felled in the following winter. Nearly fifty years later the ship was pulled to pieces, and rebuilt with the same materials, in such good condition were they found to be. Other evidence of a like character is recorded. With reference to this point, we should be glad of more extended observations as to the prevalence of star-shake in timber felled in the usual way, or after barking. Most valuable too are the author's records of experiments on various foreign timbers, including the Australian Eucalypts, and a large number of woods from all parts of the world. To these we can now only direct the special attention of readers interested in such topics, though possibly we may avail ourselves of the author's pages at some other time. As the details here given will probably be in constant use for reference, we may confidently hope that a second edition will shortly be prepared, and that it will be purged of the copious botanical errors and vague and faulty physiological statements which disfigure its pages.

—— Whilst the country is being flooded with so much trash, in the shape of cheap literature for the young, it affords us great pleasure to announce the intended publication in January next of *Whitaker's Journal*. Mr. Whitaker, whose *Almanac* is so well known, intends to make his magazine quite as entertaining as the "penny dreadfuls," while at the same time it will be so carefully written that parents may unhesitatingly place it in the hands of their sons and daughters. We heartily wish him success.

—— The last two numbers of the *Annales des Sciences Naturelles* contain papers on the Formation of Gum in Fruit Trees, by M. E. Prillieux, to which we have already called attention; Researches on the Respiration of Plants, by MM. Mayer and De Wolkoff; Observations on the Pandaneæ of New Caledonia, by M. Brongniart; and on the Microscopical Structure of the Leaves of Grasses, by M. Duval Jouve.

—— Dr. J. C. Brown, formerly Government Botanist at the Cape of Good Hope, is preparing a work for the press on the *Forest Science and Forest Economy of France*. Messrs. Henry S. King & Co. are to be the publishers.

—— Appended to the *Journal of Botany* for the present month is an "Outline of the Flora of Sussex," by Mr. W. B. Hemsley, containing a list of all the plants known to be wild in the county arranged in districts according to the river drainage.

—— The *Florist and Pomologist* for December contains a coloured plate of Begonia Emperor, a cross between B. Clarkii and × B. Chelsoni. The flowers are bright orange-red, the habit good; so that altogether it is considered to be one of the finest of the tuberous-rooted Begonias, and Messrs. Veitch may be congratulated on its introduction. The other coloured plate represents a Pear, Louise Bonne d'Avranches (*alias* of Jersey) Panachée, whose striped colouring adds beauty to the other good qualities of this favourite Pear.

PUBLICATIONS RECEIVED.—Provident Knowledge Papers, No. 14: Provident Dispensaries. By G. C. T. Bartley.—Vegetarianism. By F. W. Newman (Tweedie & Co.); reprinted from "Fraser's Magazine."—Fragmenta Phytographiæ Australiæ, fasc. lxxviii.—Journal de la Société d'Horticulture de France.—Journal of Botany.—Le Cultivateur de la Région Lyonnaise.—Le Moniteur Horticole Belge.—La Revue Horticole.—Science Gossip.—The Gardener.—British Wild Flowers (Van Voorst), which has now advanced to the grasses.—British Popular Customs, Present and Past. By the Rev. T. F. Thiselton Dyer, M.A. (George Bell & Sons).—A Pamphlet on "The Potato Disease. The Constitutional Malady Theory *versus* the Fungus Theory." By Eccles Haigh, Freshfield, Liverpool.—Bund's Law of Compensation for Unexhausted Agricultural Improvements (Butterworth's).

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 11, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Dec. 13	Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Camellias, Azaleas, Palms, &c., by Protheroe & Morris.
TUESDAY,	Dec. 14	Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Dec. 15	Sale of Bulbs and Hardy Plants, at Stevens' Rooms.
THURSDAY,	Dec. 16	Meeting of the Linnean Society, at 8 P.M. Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Dec. 17	Sale of Scientific Instruments, at Stevens' Rooms.
SATURDAY,	Dec. 18	Sale of Roses, Shrubs, and Dutch Bulbs, at Stevens' Rooms.

M. CHARLES NAUDIN has recently laid before the Academy of Sciences of Paris a note on the VARIATION IN HYBRID PLANTS of the second generation fertilised by their own pollen. The example now given is a striking one, and is quite parallel to what has been often observed by himself and others. In 1874 M. NAUDIN found a hybrid between Lactuca virosa, the wild Lettuce, with rough spiny leaves, and the smooth Laitue de Batavia (Dutch Cos). The hybrid of the first generation was fertile, and from its seeds issued a progeny exceedingly variable, but in which the characteristics of the two species were mixed in varying degrees. Twenty of these were reserved for future study. Of these twenty no two were alike. At the same time, while there was so much variation, so strange an intermixture of the characters of both parents, there was no new character produced—nothing which might not be met with in one or other of its parents. The variation, great as it was, was confined within limits which were never overstepped. If we may be permitted the comparison, M. NAUDIN'S protean Lettuces were like the coloured fragments in a kaleidoscope—never twice alike, although always consisting of the same elements.

The consideration of these facts leads M. NAUDIN to the question of heredity—that force, if we may for convenience so call it, which ensures the perpetuation of particular forms and which though sometimes latent yet occasionally manifests itself, as in the case of those "sports" and bud variations which are commonly attributed to the sudden re-appearance of hereditary peculiarities heretofore latent.

But what is this hereditary force? and whence comes it? are questions pertinently asked by M. NAUDIN; and the reply he gives hinges on the following considerations:—Motion is in his idea the passage from one state of equilibrium to another; the course it takes is always that in which there is least resistance. From this it follows that once it has begun to proceed in a certain course, its tendency to continue in that course increases, because it enlarges its sphere of action, and overcomes obstacles. In other words, the more remote the commencement of the motion, the more fixed its direction, the greater resistance it offers to obstacles. This law is universal. Even in the case of the moral nature, we know how habits grow from the repetition of particular acts, till habit becomes second nature. Heredity then, for M. NAUDIN, is an inveterate habit long since contracted, strengthened by the efflux of time, and becoming more and more irresistible as time goes on. In the case of organisms perpetuated by the sexes, the offspring necessarily combine the hereditary proclivities of both parents, and, of course, of their respective ancestors. Hence M. NAUDIN is led to conclude that "species" originated in a large number of individuals of the same structure, derived from the same "proto-organism," and that the numerous reciprocal crosses effected between these individuals have determined the direction in which their posterity has become evolved. Originally sexuality consisted in the mere conjugation of like structures (as seen in the lower algæ and in some fungi), but in time the law of division of labour began to operate, so that the individuals became sharply defined as of the male or of the female sex, as the case may be, and reproduction involving the co-operation of two individuals of opposite sexes was henceforward the rule. When the enormous influence of hereditary tendencies exerted through countless ages is considered, it is no wonder that there should be a persistence of specific forms; and the probability that they will never deviate from the course marked out for them by circumstances becomes increasingly great. An alteration could only be brought about by the exertion of some force sufficient to neutralise or overcome the hereditary tendency. Is such a change possible? If changes are brought about by variations in the surrounding conditions, or environment, as Mr. SPENCER terms it, it must be remembered that the alteration is in the organism itself, it does not imbibe it from the external conditions; moreover, the conditions themselves tend to equilibrium in all directions, and hence their power to modify organisms becomes gradually less.

M. NAUDIN proceeds to call attention to the small number of variations which are found when a large number of seeds of the same species are sown (as in a Wheat field, for instance), where the conditions over the whole field are uniform. When we see cultivated plants producing varieties, as in the case of Vines and fruit trees, everything leads to the conclusion that these variations are due to the effect of crosses, made perhaps ages ago, long prior to domestication, and that their inconstancy from generation to generation is simply due to reversion. The preservation of specific types and of sexual reproduction (as contrasted with that by means of buds) seem to M. NAUDIN to stand one to the other in the relation of effect to cause. Previous to the occurrence of sexuality forms are supposed by him to have been vague, not distinguished by recognisable limitations, and more or less affected by external conditions, but, once sexual agency established, hereditary influence made itself felt with doubled force in each generation, and rendered impossible those transformations and passages from one species to another which are relied on by the new school in their speculations as to the origin of species.

M. NAUDIN, however, appears to us after all not widely to differ from those whose opinions he controverts, for he admits that analogous structures have had a common origin, but he says this point of departure was anterior to the differentiation into sexes, and that we must seek for this point of departure in the proto-organisms in which life originated on the globe. M. NAUDIN, as it seems to us, overlooks here the fact that these proto-organisms exist still—that they play their part now as in all time that we are cognisant of—that the creative power, for aught we see to the contrary, is as potent, even if less directly manifest, as it ever was. These proto-organisms exist in a sexless condition—anon sexes are created, and then, as M. NAUDIN points out, heredity commences. We own we cannot share M. NAUDIN'S conclusion that the doctrine of transformation or evolution is the negation of hereditary action—still less that it offers no explanation of binary or sexual reproduction. On the contrary, we should consider it as a most important step in the evolution from the simplest to the most complex condition of an organism. These are tremendous questions to be evolved out of the study of cross-bred Lettuces and "rogues" in the seed-beds, but if science, as M. NAUDIN says, is little likely ever to lift the veil which conceals the beginning and the end, she may succeed in eliminating impossible hypotheses.

THE meeting convened by the Council of the ROYAL HORTICULTURAL SOCIETY, to consider the propriety, or otherwise, of curtailing the privileges of the Fellows of the Society in the matter of transferable tickets, was held on Thursday last. The time at which the meeting was held precludes our giving a full report of the proceedings—a circumstance which we regret the less as the discussion which took place had for the most part but a remote interest for horticulturists. Lord ABERDARE, the new President, occupied the chair, and spoke well and fairly to all sides. The President was supported by most of the members of the Council, and the meeting was numerously attended, among those present being Lord CARDWELL, General SCOTT, Sir H. THRING, Lord BURY, Lord A. CHURCHILL, and many others, representing chiefly, but not entirely, the interests of the local Fellows. Horticulture was for all practical purposes but feebly represented. We cannot say that we regret this, as the matter in dispute is one which concerns chiefly the local Fellows. We would only point out that if they imagine they can enjoy the exclusive privileges afforded by a first-class London square *plus* a noble conservatory, first-class bands and first-class shows, they must be prepared to pay accordingly. We say nothing about the more legitimate objects of the Society, as it is abundantly obvious that they care for none of these things. Lord ABERDARE placed very clearly before the meeting that the Society had to face year by year a decreasing revenue and a general loss of confidence, and he intimated that one cause of the decreasing revenue was the too free use—some say abuse—of transferable tickets; and he called on the life Fellows and the Fellows generally to make a sacrifice of a little, with a view of retaining the whole. Otherwise, as it was plainly hinted, the whole would be lost. It came out in the course of the discussion that the Council was all but unanimous in recommending the abolition of transferable tickets, there being only one dissentient on the Council. The feeling of the meeting, however, was clearly against any material curtailment, and ultimately a resolution was carried to the effect that the Council be requested to reconsider the question of Fellows' privileges, and the meeting was adjourned for that purpose.

Having thus stated the general conclusion arrived at, it is hardly necessary to say much as to the points raised by the several speakers. With few exceptions all that was said was from the local Fellow point of view. Lord ALFRED CHURCHILL and Mr. BATEMAN advocated views more in consonance with the objects of the Society, but, generally speaking, horticulturists were conspicuous by their absence, or, at all events, by their silence. Now, what does this show, but that the mainstay of the Society—as a horticultural society—is sick of the whole affair, and ready, if a fair chance were offered, to start a new society and quit the old one? It is, we believe, very far from their wish to do anything of the kind, and for this reason: if they left the local Fellows to the enjoyment of their own elysium these latter would, of course, claim to be the Royal Horticultural Society; and what a farce—shall we say disgrace?—that would be we leave our readers to judge.

It cannot be said that the horticulturists have not done their part, or are not doing their duty,

to maintain the Society. When called upon in the interests of the Society the horticulturists combined to make a show which was considerably above the average. Then look at the committees—the Floral, Fruit, and Scientific—sees the work they do, and the men who compose them; consider also the useful work still done, though under heavy disadvantages, at Chiswick. In the face of this it is fair to ask what the local Fellows do, or have done. Absolutely nothing. It may be said they pay their subscriptions, so do the others; and then as to the use, fair or inordinate, of transferable tickets, who make use of these tickets? Not the horticulturists—as a class, decidedly, most of them never enter the garden except on business connected with the Society. There is, then, nothing unreasonable in asking the local Fellows to contribute out of their wealth to the maintenance of a garden kept up for them alone, and which is only of the remotest possible value to horticulture. If they will not do this, by all means let them take the garden into their own hands, and let the Society go its own way. The horticulturists would gladly exhibit, would gladly carry on the proper work of the Society at South Kensington or anywhere else, but they object to be saddled with the responsibilities of an establishment which is not only of no use to horticulture, but which brings disgrace and discredit upon it. The local Fellows want skating rinks, fireworks, balls, promenades, and all the rest of it. Well and good—let them have them, but do not let them call themselves a Horticultural Society or divert resources more properly applicable to horticulture for these purposes. They talk loudly about the necessity of keeping the garden open as an additional lung to the Metropolis. By all means let it be so, but this is a curious cry from gentlemen who would exclude everybody from the enjoyment of it except themselves and the persons to whom they transfer their tickets!

We admit that curtailment of privileges is a very questionable policy, but what other can be suggested short of skating rinks and things unobjectionable in their way, but quite out of the business of a horticultural society to promote. To our thinking Lord ALFRED CHURCHILL hit the mark nearest when he advocated the severance of the horticultural element from a party who have neither knowledge of, interest in, or sympathy with, the objects for which the Society was founded. His Lordship pointed out what were the proper duties of a horticultural society, advocated provincial shows, a federation of the local societies throughout the kingdom, the establishment of practical lectures and the appointment of teachers of practical horticulture in the provinces—the appointment of a Foreign Secretary to revive those relations with foreign Societies which have been allowed to lapse. In all this he has our hearty sympathy, indeed it is, in the main, the very programme upon which we have so often insisted. But we quite agree with him also, that all this cannot be done so long as we are weighted with an unprofitable garden and an unsympathetic body of Fellows. An independent Society might do all this, but there are tremendous obstacles in the way of a new Society; and by founding a new one we should not escape from the responsibilities of the old one. Nevertheless, it is clearly merely a question of time. Either the local Fellows must do their duty, and not avail themselves of advantages at 50 or 100 per cent. below cost price, or they must make up their minds to be left rolling on the wheels of a skating rink, with a heavy debenture debt round their necks, and Her Majesty's Commissioners taking toll for the rent while the horticulturists pursue their legitimate objects elsewhere.

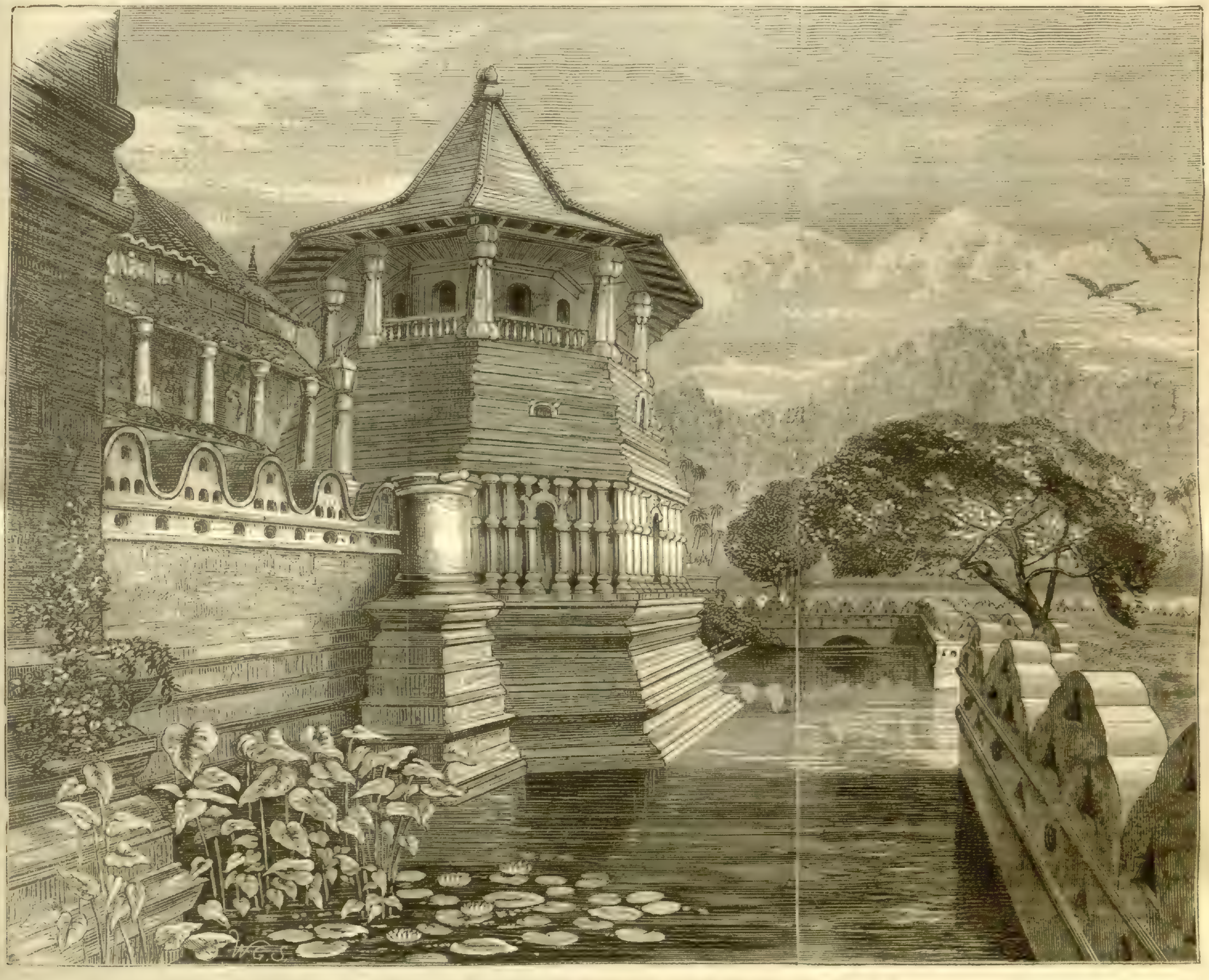

FIG. 155.—MALIGAWA TEMPLE AT KANDY: SHRINE OF THE TOOTH RELIC.

—— THE experiment of planting the EUCALYPTUS GLOBULUS in the unhealthy Campagna of Rome, with the object of destroying the influence of the miasmatic exhalations from the ground, has, says the *Times*, been tried for several years, particularly in the locality of the Monastery of St. Paul Trois Fontaines, where a priest named GILDAS has had the plants under cultivation. In some communications addressed to the Société d'Acclimatation de Paris, M. GILDAS states that the trees have thriven, and that he believes they have given indications of their power in arresting disease, though as yet they are not sufficiently numerous to produce much effect. The most important statement made by him, however, is that a decoction made from the leaves of the tree possesses valuable properties in cases of fever, and that many persons have been cured of that disease by drinking the "elixir," which is also a preventive of fever. A similar preparation of the leaves in the form of a powder is also made, which has the advantage of keeping good longer than the decoction. The merits of the discovery will be placed under the notice of the

medical profession, and a more trustworthy report will probably soon be made.

—— MM. FRŒBEL, of Zurich, have issued a coloured plate of BEGONIA FRŒBELLII, described in our columns in 1874, vol. ii., p. 552, by M. ALPH. DE CANDOLLE. It is a tuberous species, which will probably prove hardy in the South of England or on the West Coast of Scotland, at any rate with a little protection. It flowers freely, bearing trusses of erect scarlet flowers. We had the opportunity of seeing it in the open at Cologne, and thought highly of it as a bedding plant.

—— M. BOULADE, in the *Cultivateur de la Region Lyonnaise*, recommends the following plan for preserving the COLOURS OF FLOWERS in the dried state:—Place the flowers between several sheets of unsized paper—filtering paper; place these sheets between two fire-bricks, and place the whole in a stove or oven heated to 60° to 70° Cent. Change the papers after an hour. After two or three hours the flowers will be sufficiently dried, and their colours preserved.

—— Mr. GEORGE ORMISTON is appointed to design and superintend the formation of extensive gardens and pleasure-grounds for Mrs. SINGER, Oldway, near Torquay, South Devon.

—— The next meeting of the INSTITUTION OF SURVEYORS will be held on Monday evening, December 13, when a paper will be read by Mr. W. D. GARDINER, entitled "The present state of the Law as to the Right to Light." The chair to be taken at 8 o'clock.

—— The following ORCHIDS are now IN FLOWER in Mr. B. S. WILLIAMS' nursery at Upper Holloway:

Restrepia antennifera
,, maculata
Masdevallia ignea
,, amabilis
,, polysticta, fine specimen with fifteen spikes
Lælia anceps
,, elegans
Odontoglossum Insleayi
,, leopardinum
Lycaste Skinneri
Maxillaria picta aurea
Oncidium ornythorhynchum
,, anomalum
,, cucullatum
,, flexuosum
,, tigrinum
Cypripedium insigne, seventeen plants
Odontoglossum Ehrenbergii
Calanthe Veitchii
,, vestita rubra occulata
,, vestita lutea
,, Turneri
Cypripedium barbatum
,, Harrisoni
Cymbidium Mastersii
Pleione lagenaria
Lælia præstans
Cattleya labiata
Burlingtonia sp.
Oncidium Warcewiczii
Phalænopsis amabilis
Angræcum pertusum
Sophronitis cernua
Sarcanthus multiflora
Oncidium suave
,, fuscatum

—— The series of papers on LILIACEÆ, which Mr. BAKER has contributed to the Linnean Society, and the last of which was read on the 2d inst, deserves more wide recognition than the publication of a learned Society is likely to afford. No good monograph at all approaching completeness had previously been published. Authors have to a large extent copied what their predecessors have set forth without modification. Sometimes they have even adopted the mischievous course of altering and re-arranging the work of those who have preceded them without having had access to their specimens. Mr. BAKER has availed himself of the splendid collections at Kew, and in other herbaria, and he has availed himself largely of the cultivated specimens in the Royal garden, and of those which have been sent to him from various nurseries and private establishments. Access to fresh specimens is of the more importance in such a case, as dried specimens of Liliaceæ are often more than usually incomplete and unsatisfactory. The juxtaposition of the finest herbarium in the world with the most serviceable botanical library and the most important botanical garden, has thus been of signal utility in this instance. Mr. BAKER'S acute and laborious investigations have not been confined to the mere description and allocation of species, but he has not overlooked those very important questions connected with morphology and geographical distribution which give life to the dry bones of systematic botany, and link it indissolubly to the great science of living beings. We would fain hope that Mr. BAKER'S papers, now scattered in the *Journal* of the Society, may be collected in the form of a separate work. If a list of all the known cultivated species, with references to figures, descriptions, and ascertained synonyms, could also be issued, it would form an important instalment towards that new edition of the *Hortus Kewensis* which is so greatly needed at the present time, and towards the completion of which so many detached fragments already exist ready for the compiler's hand.

—— THOMAS ANDREW KNIGHT'S notion that the GOLDEN PIPPIN, like other fruit trees, had degenerated, and would ultimately become extinct, finds few adherents now-a-days. Proof to the contrary was afforded a few days since, when the Rev. T. GORING, of Wiston Park, Sussex, sent a dish of veritable Golden Pippins for the dinner of the Horticultural Club. Unfortunately, however, they arrived too late for service on that occasion. The original tree was in the Deer Park, and was of great age; the fruits sent were from grafts from the old stock, and, owing to the late season, were not so fully flavoured as usual.

—— The WIMBLEDON GARDENERS' IMPROVEMENT SOCIETY held a meeting on Monday last, when Mr. TURNER, of Southmead, read a long and excellent paper on the cultivation of Chrysanthemums. This is a popular flower in the locality, and some of the members ranking amongst the principal competitors at our leading Chrysanthemum shows, there was consequently a sharp and spirited discussion. The subject for discussion at the next meeting is the propagation of stove plants, an essay on which will be read by Mr. HALL.

—— The beautiful coral-like fruit with which the so-called TEA TREE (LYCIUM BARBARUM) has been loaded in some localities this autumn has suggested the inquiry whether it had ever been turned to any useful purpose. So far as we know, no experiments have been made in this direction, but it is at least probable that it would be worth while to institute a few judicious investigations into the matter, especially as we learn from Dr. BRANDIS that the fruit of allied species is eaten in India. The berries of L. europæum are eaten in the plain districts of the Punjab, Sindh, and Guzerat; camels and goats feed on the branches; the plant is used as fuel, and wattled frames for the walls of huts are made of it. In the Ladak region the sweet but flavourless fruit of L. ruthenicum is also eaten. The name "Tea tree" or "Tea plant" (by which the commonly cultivated Lycium is generally known in England) originated, according to LOUDON, in a curious mistake. It was at first called the Duke of Argyll's Tea tree, from the circumstance of a Tea plant (Thea viridis) having been sent to the Duke of ARGYLL at the same time as the Lycium, and the labels having been accidentally transposed. A somewhat similar occurrence explains the name Thé de l'Abbé Gallois, by which a Chinese dwarf variety of the Elm is known in France. An Abbé of that name, in the reign of LOUIS XV., imported the plant from China, supposing it to be the real Tea tree.

—— Another fact to be added to those bearing on the effect of STOCK on SCION, and on the contagion of variegation:—M. J. VAN DRIESSCHE, of Ghent, has, as we learn from the *Revue de l'Horticulture Belge*, grafted Abutilon Darwinii on to the variegated A. Thompsoni, with the result that the leaves produced on the scion became variegated also, as in the form called A. tessellatum. Facts of a precisely similar character have been recorded previously.

—— With the present number the *Revue de l'Horticulture Belge* concludes its first volume. This publication has more than redeemed its promise, for the later numbers are decided improvements on their predecessors. An article, couched in most eulogistic terms, on Kew, by M. FRANCAIS CRÉPIN, will be read with interest. The neatness and good keeping, the Palm-stove, the flower beds, the lawns, the museums, the herbaria, all come in for a word of praise; and last, not least, the ladies' cloak-rooms and other conveniences excite a sentiment of approval in the mind of our *confrère*.

—— We learn from Mr. CAIE that the thermometer stood at 16° on the 7th inst. at Inverary Castle. On the same day the barometer was at 30.7, with a partial fall of snow on the low ground, heavier on the higher lands. The air continues dry, and the wood of evergreen and deciduous trees, being well-ripened, injury from frost is not anticipated. We fear, however, that a very different tale will have to be told of the southern districts of this country.

—— On December 1 the annual meeting of the DARLINGTON GARDENERS' INSTITUTE was held, Mr. BOUSFIELD in the chair. There was a good attendance of members, and the Chairman said he was happy to be in a position to report a balance at the banker's, which he was not able to do with regard to the Horticultural Society. The Society was instituted by Mr. EDWARD PEASE, and it was fulfilling the objects of its founder. He was sorry to say they were about to lose the services of their secretary, who had discharged his duties most indefatigably. Mr. KENT (Secretary) read the balance-sheet, which showed that the income amounted to—members' subscriptions, £15 14*s.*; honorary members' ditto, £11 16*s.*; rent of room, £14 17*s.* 6*d.*; balance from last year, £11 5*s.* 3*d.*; total, £53 12*s.* 9*d.* The expenditure amounted to £38 15*s.* 2*d.*, leaving a balance to the good of the Institute of £14 17*s.* 7*d.* The report stated that they had hoped to have doubled their balance, but they were unable to do so, on account of unlooked for expenditure. Apart from the balance in hand, the Treasurer of the Gardeners' Festival Committee had handed over £3 0*s.* 3*d.*, this sum to be devoted to the purchase of suitable books, as the committee may direct, and presented to the Institute. Mr. EDWARD PEASE, the founder of the Institute, still took an unabated interest in its affairs, and had most generously presented twenty-five very valuable books to the library. One of them—*Hyel's Arte of Gardening*—a rare, old, and costly book, was printed 303 years ago. Mr. PEASE also wished the list of books entered into the proposal book to be forwarded to him from time to time, so that he may know what books members are desirous of having placed in the library. The number on the roll was 87 members and 25 honorary members, or 112 in all. There had only been two papers read—one by Mr. HUNTER, on "The Vine," and one by Mr. PETCH, on "Garden Gossip."

—— A question is raised in the *Gardeners' Chronicle* (p. 720) as to the esculent quality of AGARICUS PERSONATUS. Some years since the late Professor HENSLOW sent me a quantity of Mushrooms consisting entirely of this species, which formed part of a basketful of which some persons in Queen Street, Cambridge, had partaken, and had died in consequence. As A. personatus has not only the reputation of being wholesome, but is sold in some of our markets, it was supposed that some deleterious species had been mixed with the others, and had proved fatal. Having no doubt about the species being wholesome, though far from first-rate food, on being consulted by a ketchup manufacturer whether an occasional specimen amongst true Mushrooms would render his sauce unwholesome, I said, without hesitation, that there was no fear. It would seem then from this additional information that I was wrong. It is, however, pretty certain that species which are in general wholesome occasionally contain such a portion of their peculiar alkaloid as to be dangerous. The contrary also seems to be the case, or I cannot account for Sir W. C. TREVELYAN frequently eating Boletus luridus with impunity. *M. J. B.*

—— The *Gardener* for the present month opens with a sensible article on the necessity for "rest" in the cultivation of plants. "Ripen your season's growth properly, and then give a long period of complete rest." No one will question the excellence of this advice; but if it were more thoroughly understood that rest does not imply inaction, but rather change of work, the lesson might be forcibly impressed. During this so-called resting period many physical and chemical changes take place—concentration of liquid juices, changes in their chemical composition, consolidation of tissues, and the like, all aptly enough summed up in the expression "ripen the wood." A plant "at rest" is really no more inactive than the chrysalis of a butterfly, in which such wonderful transformations are taking place.

—— An entirely new Sheet Almanac, designed and engraved by Mr. WORTHINGTON SMITH, will be issued with the *Gardeners' Chronicle* for January 1, 1876. The Index to the present volume will be published with the number for December 25.

—— The sale by Messrs. PROTHEROE & MORRIS at Messrs. LUCOMBE, PINCE & Co.'s nurseries, Exeter, has been a success, and those who attended it did well, as there was no reserve price on a single lot, and whilst some things fetched a fair price there were good bargains amongst the lots, which were arranged so that in each day's sale there should be a fair general assortment of everything, yet each day was marked by some speciality. Thus a magnificent lot of full grown Cider fruit was put in on Friday (the farmers' day); this was sold at an average price of 75*s.* per 100, but, strange to say, not a single farmer attended the sale. At the end of the sale Mr. PROTHEROE announced that early in February Messrs. LUCOMBE, PINCE & Co. had arranged for another sale, of three or four days' duration, of the same description of stock as heretofore offered, as those gentlemen intended introducing an entirely new description of stock into a portion of their nurseries. Great cordiality and good feeling have existed throughout the sale, and not a single lot was disputed. Between three and four thousand lots were offered, and some being taken together where the auctioneer had large buyers to deal with, the number of plants offered at once amounted to 6000.

BUDDHA'S TOOTH.

LAST week we laid before our readers some views in the Lál Bágh, a public garden destined to have been the scene of a festal reception of the Prince of Wales, who was, however, prevented from carrying out his intention by reason of the presence of cholera in Southern India. In Ceylon, where the Prince is at the time we are penning these remarks, the Prince has visited the Temple of Buddha, near Kandy, and inspected Buddha's tooth. Of that temple we now give an illustration (fig. 155, p. 749) from the pencil of Captain Oliver. Buddhist relics are as plentiful in Buddhist countries as are similar objects in Roman Catholic countries. The history of Buddha's tooth may be gleaned from the following extract from an article in the *Athenæum*:—

"After Buddha's obsequies, a priest is said to have

carried the left upper eye-tooth to Dantapura, in Kalinga or Coromandel; and there it is said to have remained for several centuries, until it was carried to Patna by the orders of Pándu, a Brahmanical king. Pándu endeavoured by every means to destroy the relic: it was smashed on an anvil and thrown into a ditch, but nothing could harm it; and the king ultimately became a devout Buddhist. The relic was then brought back to Kalinga, but new dangers awaited it; fresh enemies attacked the city; and the Prince of Dantapura, finding resistance hopeless, enjoined his daughter, Hemamála, and her husband, Danta-Kumara, to escape by sea, and fly with the sacred treasure to Ceylon. On their way they were shipwrecked, and a snake-king stole the relic from the princess while asleep; but a saint intervened to force him to restore it, and the fugitives reached Ceylon in the year A.D. 312, where the reigning monarch solemnly enshrined the tooth in a temple at Anuràdhapura. Since then, the relic has experienced many vicissitudes of fortune. It has been successively transferred to fourteen or fifteen different places of residence in Ceylon; in 1560 it was seized and destroyed by the Portuguese, but the native authorities maintain that the genuine relic was concealed, and only a spurious one given up to the invaders; and the tooth of Buddha played an important part in the insurrection against the English in 1818. It is now kept in the Málegáwa Temple at Kandy, and 'only the other day the Ambassadors from Burmah, returning from Europe, appeared in state before the shrine there, in fulfilment of the special commands of their king, and offered it many tokens of homage and devotion.' The tooth itself is described by European visitors as a piece of yellowish ivory, 2 inches long, and curved; but fervent Buddhists meet every objection with the assertion that in Buddha's time men were much larger than they are now!"

The luxuriance of the tropical vegetation strikes all travellers. We have on several occasions given illustrations of the vegetation and scenery of this island, and *à propos* of His Royal Highness's visit to the Botanical Garden we may mention that an account will be found at p. 439 of our vol. i. for 1874.

The daily papers have also recorded that the woods which cover the hills in the neighbourhood of the temple containing the tooth exhibit a most varied flora—Orchideæ, festoons of flowering creepers (Ipomœas and Bignonias), the Guilandina Bonduc, with its silicious seeds, the powerful jungle rope (Bauhinia scandens), and other lianas, especially the Bauhinia racemosa, that most extraordinary of all climbers, resembling in form and dimensions the chain cable of a man-of-war. So near indeed is the jungle to the temple that when Sir Emerson Tennant was at Kandy a leopard used to come to drink in the garden of the neighbouring palace. The conspicuous tree is a Bo tree, and beyond the bridge over the moat is the lovely lake of Kandy.

EPIPHYLLUMS ON THE PERESKIA STOCK.

I DO not think that I have anything new to say respecting the treatment of these plants. Nevertheless, with your kind permission, I shall have much pleasure in responding to Mr. Sheppard's desire (see p. 721). The Epiphyllums here are grown on the Pereskia stock. The latter is easily propagated in an ordinary stove or propagating pit. Cuttings, 6 or 8 inches in length, inserted in sandy soil round the edge of a 32 or other sized flower-pot, according to the number required, soon strike root. They are then potted off singly, and encouraged to grow freely. If at this time they can be stood on a hotbed of leaves it will greatly assist in producing robust growth. When extra strength is required, as for tall pyramids, some of the strongest plants are cut back to within a foot of the surface of the pot, having previously allowed them to become rather dry at the roots. When they begin to grow again the strongest shoot of each plant is selected, and encouraged to grow with all possible strength, keeping the shoot tied up to a stout stake until the desired height is attained.

The stocks are then allowed to ripen for a time, and are grafted any time during the summer months, the latter operation being very simple, and carried out as follows:—A sloping incision is made with a sharp knife, extending down the stock about an inch. A scion is thus selected of the same diameter as the stock, and after preparing it wedge-shape, it is inserted into the incision, and fixed in its place by taking one of the needle-shaped spines from the stock, and passing it from the front side like through stock and scion. A piece of moss is then tied over the union, and kept damp with the syringe; in three weeks or a month, according to season and circumstances, the union will be complete. For tall standards I usually put on three scions, one at the top of the stock, and one on each side lower down. Short standards for table decoration I put on one scion only, but usually choose one inclined to branch nicely. In grafting tall stocks for pyramids, say 6 feet in height, I insert the scions a foot apart, commencing a foot from the top of the pot, and put them on all sides of the stock; these, with the attention above named, soon grow and usually occupy the same pots in which they are grafted until the following spring. Those intended for the largest specimens receive a liberal shift, that is, from a 9-inch to a No. 1 or 2 pot, care being taken in watering until the roots reach the sides of the pots.

At the time of potting the stems are tied to iron stakes, and each scion is also secured to the stake by copper or lead wire. The iron stakes we use here for the pyramids have three strong prongs or feet to them, and fit to the insides of the large pots, and when the plants become very large an iron girdle is fixed round the outsides of the pots under the rims, and some stout galvanised wire is fastened to loops on the girdle, and then secured to the iron stake, thereby giving great stability when the plants are moved from place to place. The Epiphyllums are grown in an intermediate house and usually come into flower by the middle of November. Before the flowers become fully expanded they are taken to the flower room or conservatory, where their beauty generally lasts up to the middle or end of January following. When their flowering season is over, they are allowed to become dry at the root and then receive a pruning; this is done by breaking each shoot back to a suitable joint, finally leaving the plants as symmetrical in shape as possible. They are then taken back to their quarters in the plant house, where they receive a top-dressing of fresh soil. As growth commences they are gradually treated to more water at the root, and as the days lengthen manure-water is given in abundance; they are also syringed freely morning and afternoon. No shading is given, but plenty of air is admitted on all favourable occasions. By this treatment the plants make an abundant growth of stout well matured substance. As the days shorten moisture is reduced at root and top, the plants gradually cease to grow, and commence to expand their beautiful flowers at the time above named.

Reverting for a moment to the Pereskia stock, I must say that I think it the best of all stocks for the Epiphyllum; I know they will grow well on the square-stemmed Cereus speciosissimus, but they do not flower nearly so profusely on that stock as they do on Pereskia aculeata. I have good proof, too, that the varieties of Epiphyllum will succeed for very many years on the Pereskia stock, as there are two large plants here on that stock from twenty to twenty-five years old, and they show no sign of decay or unhealthiness, and are at the present time flowering as profusely as their junior companions. The soil or compost that we use here for the growth of these plants consists of a light fibrous loam, with a sprinkling of sharp sand, cow-dung, and some porous brick broken up into small pieces. Looking at the great beauty of these flowers, their glowing colours and rich shading rivalling the most gorgeous of our summer-flowering exotics, and giving their profusion of blossoms over a lengthened period of the year when floral beauty is most treasured, and requiring but ordinary means and skill to cultivate, one wonders how it is that the many varieties of Epiphyllum are not more generally cultivated. *John Wallis, Orwell Park.*

Home Correspondence.

Planting on Chalk Soils.—In his most interesting list of trees and shrubs which flourish on a chalk soil, Mr. Salter does not mention Phlomis fruticosus. I, unfortunately, live on a soil whose chalky aridity is to me a cause of constant grief and disappointment. It is all solid rag 3 feet below the surface, but Phlomis fruticosus flourishes with extraordinary and irrepressible vigour, and, when its large golden-yellow Sage-like blooms are fully out, is a beautiful sight. I can do nothing with Weigelas. Philadelphus grandiflora is gorgeously rampant. Buddlea globosa is killed by frost. Where can I get a small tree of Halimodendron argenteum grafted on Caragana arborescens, and tall enough to be out of the reach of sheep? *H. Harpur-Crewe, The Rectory, Drayton-Beauchamp, Tring.*

Fairy Rings.—In your last issue "M. J. B.," in writing about Fairy Rings, says that an "old friend is now 20 yards across." It occurred to the writer that he had a note of one of larger dimensions, and on referring to a pocket-book used in April, 1870, I find the measurement of one is 24 yards across. In the course of five years this ring will doubtless be a trifle more across. It is in a grass field on the estate of Charles Magniac, Esq., Colworth, Beds. *R. M.*

Steudnera discolor.—In some remarks on this plant, in your last week's issue, *vide* p. 708, Mr. Brown writes: "Mr. Ball states that S. discolor was imported from India, but this is most probably incorrect, as the other species and those of the genera most nearly allied to Steudnera are all from America." I must misunderstand it, or surely he cannot mean what is penned. The records of most of my introductions are so carefully and accurately kept that a mistake is almost impossible. On referring to them I find the plant in question came from Calcutta by the steamship *Sirius*, and arrived in London on December 20, 1871. Moreover Mr. Brown may rest assured that I should not state positively that I imported a plant from a certain country unless it was the fact. Possibly Mr. Brown intended to imply that although the plant had been imported from India, it probably was not indigenous to that country. However, it is not for me to surmise what Mr. Brown really meant, doubtless he will feel it only right to explain. *William Bull.*

Poinsettia pulcherrima.—These are so good with us this season that a note as to their culture may not be unacceptable to the readers of the *Gardeners' Chronicle*. Having a number of old plants that had been neglected, and never likely to make respectable stuff, cuttings were taken from them on June 21, and inserted singly in thumb pots, in sandy loam and peat. They were plunged in a bottom-heat of 74°, where they soon struck, and were then shifted into 48-sized pots, and again plunged in heat till the roots had fairly started into the new soil, after which they were moved to a cold frame, and there grown till the end of September, since which time they have been grown in a Pine stove. The plants average about 2 feet in height, and retain their foliage to the rim of the pot; many of the heads measure 18 inches across, and are of the most brilliant crimson imaginable. Two grand points in their culture are, that the plants should never be allowed to get dry enough to flag, as the foliage is sure to drop; and, next, weak guano-water should be given at each watering after their introduction into heat. Herewith I send for your inspection a sample of bracts and foliage [which are very fine. EDS.]. *W. Wildsmith, Heckfield.*

Seakale Culture.—"Amateur" (p. 723) should cover the crowns of his Seakale before growth commences; finely sifted coal ashes are better than sand, and should be placed in mounds of from 15 to 18 inches in height. For a late supply this is the best way of growing it, but earlier batches are best grown in the usual way, viz., pot coverings for the crowns, and stable litter and leaves for warmth. *W. Wildsmith, Heckfield.*

Ugenia Ugni.—In answer to "H. K." the fine shrub of the Ugenia is totally unprotected, but the garden in which it grows, in Cork, is sheltered from the north and open to the south. At present the fruit, as it dries, sheds a sweet perfume all around. *S. D. A.*

Temple Gardens.—To prevent disappointment to any one, kindly let me state in the next number of the *Builder* that the old tree referred to by Nathaniel Waterall has had to be removed to make room for the new buildings that are to be erected in the gardens. It was a fine specimen of the Catalpa syringiflora, and is said to have been planted by Sir Matthew Hale. Such parts of it as were found to be sound have been taken care of, and will be made up into several useful articles. It belonged to the Middle Temple Garden. *The Clerk of Works.*

Plumbago rosea.—Will Mr. Sheppard kindly say how long he has kept the flowers of this plant in a presentable condition after being cut. I have grown the plant more or less for a number of years, but I never found that the flowers lasted long under any circumstances. The three Melon-houses here are now occupied as follows:—One with Alternantheras and similar bedding plants, the second with the earliest batch of Poinsettias, Eucharis, and Scutellarias; and the third with a later batch of Poinsettias, Scutellarias, and Bouvardias. Against the back walls of these houses are two return pipes, and above them is a narrow stage, on which I have grown the Plumbagos. The three houses are kept at different temperatures, in fact the two end ones have been kept cold or nearly so for a long time, until the weather necessitated the use of fire-heat, and now that the latest batch of Poinsettias are making their bracts we have increased the temperature to assist them, and this additional heat also proves beneficial to the Plumbagos. During the time that we kept this house cool the Plumbagos looked very sickly, and a good few of the shoots perished, but since the heat has been applied they have much improved. Since the last batch of Melons was cleared out of the centre house the average temperature has ranged about 60°, and no water has been put in the troughs on the pipes since it was withheld for the ripening of the Melons, the atmospere being kept sufficiently moist from the watering of the plants, and by keeping the floors damp. The Plumbagos against the back wall of this house have grown rampantly and are now covered with thousands of flowers, the uppermost of which are within 2 feet of the glass. The whole of the plants are fully exposed to the light, except the back portion of the leaves which face the wall. I have cut racemes of flowers from the summit and the base of the plants, and put them in a vase placed in a favour-

able position, but I do not see a bit of difference in their lasting properties. It will be seen from these remarks that the plants here are not subjected to bottom-heat, neither a great amount of top-heat with much atmospheric moisture, and, after testing them a number of times, I should be very much afraid to use them in rooms where flowers are expected to have a fresh appearance for at least twelve hours; and to grow them on a moderately cool system, I must confess, has proved very unprofitable with me. If it would thrive under the latter treatment and produce flowers of greater substance, it would greatly enhance its value, as the flowers would be hardier and last longer, but under anything approaching cool treatment the plant does but eke out a miserable existence. *James Ollerhead, The Gardens, Wimbledon House.*

Mushroom Beds.—"N. P., Kensington," asks, at p. 658, for information as to the result of making up Mushroom beds in the way he describes. I myself made up two beds in that way, and can assure him they have done well. I made them up with a thick layer of new leaves at the bottom, and the horse droppings on the top, and in a week's time I spawned the beds, and then put on a layer of soil about an inch thick, giving both layers a good beating with a mallet for the purpose. After that I kept my Mushroom-house at about 65°, and in three weeks I could see that the bed on the ground floor had commenced working. In a month I commenced to cut, but a bed on a shelf did not begin to work for six weeks. I made my beds up on September 7, and have been cutting Mushrooms for a month; my top bed is just now worth looking at. If any one about to make up new beds will try this plan, they need not fear having a crop. *John Newton, Gr. to W. Birley, Esq., The Larches, Preston.*

The Shepherd's Purse.—At p. 677 you have an interesting article on the above-named plant, wherein the writer states that "We should seek in vain to determine its native country." Is not England its native country? I am led to believe that few plants that have been introduced in this country have ever become a pest to us; perhaps the only one in this century is the Anacharis Alsinastrum, a well-known water plant. I have lived on the east coast, at Seaham, for more than twenty years, and during that time I have yearly come in contact with ballast plants. It may not be known to all that ballast consists of chalk-gravel soil, the dredging of rivers in foreign parts. This is used to balance the vessels instead of goods. Vessels take coals from these ports to foreign ports, and on their return must have ballast, or goods of some kind for ballast. Now the thousands of tons that are yearly brought over is remarkable, and the material is at times cast along the coast, or used for railway embankments. Now comes the most interesting part of this subject. The first year various species of foreign plants (annuals), not over numerous, spring up. The second year the ground seems to be invaded by foreigners, which grow as thick as they can stick; they consist of annuals, biennials, and perennials. The annuals are chiefly Goosefoots of seven or eight species, Poppy, Groundsel, and a few others, but my notes would be too long were I to give a list of them. These seem to a certain extent, at first sight, to have established themselves, as if they meant to root out all the British species, for they grow from 1 to 6 feet high; but their reign is of only short duration, for Jack Frost comes and slays the lot before they have time to ripen their seeds. The third year we have the same kind of plants, but not so strong in constitution, for we find the biennials and perennials are covering the ground thickly, and year by year we find fresh plants springing up of different species from those we first saw; and lastly, we find our native plants gradually gaining ground, chiefly the grasses. One plant I find trying to hold its own, and struggling on for ten to fourteen years; but it has to succumb to its fate. Now, on the bordering cultivated fields I never saw a foreign plant growing, unless it is a strong species of Groundsel, which shows that these foreign species do not, as a rule, increase on this coast, because, as I think, the season is too short to ripen their seeds. I quite agree that such species as Thistles are imported into this country by the wind, for some years ago I was on a dredging excursion, and when some 30 miles from the English coast we met large flocks of Thistle seeds blowing towards the English coast. The captain told me it was a common sight in autumn, when the wind was north-east, thus showing one way by which plants are introduced. *R. H. D., Dec. 3.*

Prehistoric Rockwork.*—Mr. W. G. Smith makes a good suggestion with regard to the reproduction of megalithic structures in concrete for the ornamentation of our rock gardens and parks, which I trust will not be overlooked by our landscape gardeners. Instead of the meaningless aggregations of rocks and stones, the actual model of a cromlech or menhir would attract much more interest. It would be highly interesting if some enterprising company, the Alexandra Palace Company, for instance, were to set the example on a large scale. The stone-circles of various countries could be most instructively reproduced for comparison. Nothing can be more impressive than an approach through an avenue of huge boulders, following out the ideas of the primeval architects as exhibited at Carnac in Morbihan and elsewhere; the size of these boulders should be arranged so that they increase in bulk as you proceed up the avenue. Small and insignificant, gradually they become grander, until at the final *temenos* or enclosure they are colossal. With regard to dolmens, cromlechs, *grottes de fees*, *allées couvertes*, &c., numberless examples may be found—witness those in Carmarthenshire and elsewhere in Wales, whilst in Ireland still more numerous structures of this description are to be found in all stages of dilapidation. I enclose a few specimens of the work of these ancient cyclopean architects from Morbihan, in Brittany, where they have attained their greatest pitch of perfection. Should it not be out of place in your journal, I will in a future communication make a few remarks on the various types of megalithic structures. *S. P. Oliver, Capt. R.A.*

* See *Gardeners' Chronicle*, September 4, 1875 (p. 293).

Madresfield Court Grape.—I have much pleasure in forwarding you this day (December 3) a bunch of the Madresfield Court Grape. Should you deem it worthy, I trust you will give your impartial opinion as to the merits and condition of the same. It may be interesting to many of your readers to have your disinterested opinion in regard to the sample forwarded, as so much has been said against the above Grape. The bunch enclosed is a truthful average of thirty I have hanging at the present time in good condition, and which promise to hang until the new year. It is not my intention to belaud the merits of this Grape beyond its deserts, but merely to inform those that may be interested in the same, that it is a Grape that will hang for a considerable time, of fine appearance and flavour, having first-class qualities as an intermediate Grape. *Hy. Battram, Cyfarthfa Castle.*

Re-naming Potatos.—This practice appears to be gaining ground rather than otherwise, and it is one that will be certain to lead to awkward complications on the exhibition table. Thus, Carter's Ashtop Fluke is but a Lapstone Kidney; Carter's Main Crop the old Red Emperor, and Carter's American Bread-fruit Bresee's Prolific. The reported Chiswick trials demonstrate the correctness of the two first statements, and numerous trials made this season demonstrate the correctness of the last. It is the small country exhibitions that are likely to suffer from the practice, especially as provincial Potato competitions are on the increase. They, seeing assumed new sorts put forth by some leading firm, purchase in the full belief that they are distinct varieties, and lay themselves open to disqualification when they exhibit. The practice also tends to bring into disrepute really distinct new varieties, as a suspicion may attach to them that they also are old sorts re-christened, which is not encouraging to those who labour in the hope of improving this most useful vegetable. *A. B. C.*

Names of Fruits.—We have a quantity of fruit sent to us for the correct names, and in looking over a collection the other day we were forcibly struck with the great difference in the appearance of the same fruit from standard trees and even from walls with different aspects. In the case of Pear Passe Colmar it was so great as to give one the idea that there were four distinct kinds. Would it not be a great assistance to the referee to have the fruit sent to him for inspection labelled "from standard," pyramid, E. or other wall, as the case may be. We beg to throw out this hint for the benefit of your authority, who seems to have plenty on his hands. *T. Bunyard & Sons, Maidstone.* [A very good suggestion, which should be generally adopted. EDS.]

Lasiandra macrantha.—One word more and I have done with this subject. There is such a thing as plant growing and plant growing; a standard of excellence that would satisfy one grower might not satisfy another. If Mr. Bishop has grown this Lasiandra in a way to satisfy himself, along with Ixoras, Dipladenias, and Allamandas, in a house that evidently by his own showing, at the time of the latter plants coming into flower was not nearly hot enough to grow them as they ought to be grown, it does not in the slightest affect what I advanced in regard to the Lasiandra. Any one who has had experience in the cultivation of such subjects as these knows that when a plant that does not like so much heat is placed amongst others that do, many things may be resorted to that will accommodate the former, but it always ends in a compromise, by which the plants that require strong heat suffer. Moreover, it is never advisable to use more heat to any plant than is requisite to bring out its true character. *T. Baines.*

Rector of Woodstock Potato.—Like your correspondent, Mr. Webster (p. 722), I found this variety to be the first attacked in the garden here with the Peronospora. It is one of the handsomest Potatos, and of the very best quality of all the second early kinds, but it is evidently one of the thin-skinned white sorts, that are most liable to the disease. Bountiful, another of Mr. Fenn's seedlings, a kidney variety with a red skin, grew in the same border, but, being later in ripening, showed a very small percentage of diseased tubers, and was likewise of good quality. The leathery red-skinned variety named Scarlet Prolific seems to be as nearly disease-proof as any sort yet grown, for with me this year the haulm of it was quite green and very few tubers diseased when taken up in October. The fungus seems unable to pierce the cuticle of its hard, woody haulm and the thick skin of its tubers, but it is only of second-rate flavour, and requires to be kept till very late for use. This variety, I believe, originated at Clipstone Park with Mr. Woods, the farm bailiff there, and was a selected round red stock from Millett's Manifold, a late red kidney, which I sent him. Manifold I grew for some years, and always found, when the disease was very prevalent, that it escaped better than some coarse red-skinned sorts, such as Flourball and others. Last year I fertilised some flowers of the American late red variety, Brownell's Beauty, with the pollen of Scarlet Prolific, and selected one large plum that seemed to have the most seed in. This seed was sown early in the spring in a pot, and grown in a mild heat in a pit till the young plants were large enough to be potted singly into small pots. They were afterwards planted out on a warm south border, being forty-four plants in number, and the haulm kept quite green and healthy until the tubers were lifted in the first week of November. Although the seed all came from one plum, the small tubers lifted are of all shapes and colours, there being red and white kidneys and some of a round shape, as well as others with black and purple skins, and whites with speckled, red, and purple eyes. This cross may produce from some of these varieties a disease-proof kind of better quality than the Scarlet Prolific, for Brownell's Beauty is one of the best American sorts for flavour as well as a good cropper. *William Tillery.*

"Woodman, Spare that Tree."—We have in our trial ground a fine young standard tree of Matthew's Eliza (Groom's Princess Royal) Pear, which in 1873 bore a few fine fruit, which we considered worthless, and decided to have the tree re-grafted. In 1874 it grew more, and they were of inferior flavour, though handsome. This, a rather unfavourable season, it has given us nearly 2 bushels of clean, handsome fruit, which are all that can be desired, so that we are now pleased to let it stand. It is a very handsome growing tree, and the fruit does not drop, as many kinds do. We have noted other kinds which vary very much with the season, hence we beg to suggest that growers would do well to wait before they destroy any kind of fruit which does not at once satisfy their wishes or expectations. *T. Bunyard & Sons, Maidstone.*

Frost-line. — Is it generally known amongst young gardeners that a thermometer placed 1 foot from the ground reads lower than one at 4 feet high. By calling attention to the fact, it may perhaps warn them to provide shelter accordingly for all very dwarf-growing subjects. It may be serviceable, too, perhaps, to note that it is low-growing subjects from 12 inches downwards that suffer the most from a severe frost. From observations I made in 1860 and 1871 the frost line appears to reach its maximum from 8 to 14 inches from the ground. *Blue Apron.*

Warner's King Apple.—I have sent you to-day a specimen of Warner's King Apple, the weight of which when gathered was 20¾ oz., the circumference 15 inches. Is it above the average size for that variety grown in England? [Yes. EDS.] I see some of the Jersey growers exhibited specimens as heavy on Nov. 10, but see no home-grown ones quite so heavy. The tree is a dwarf bush, has been planted four years in its present position, on a strong holding loam with a clay subsoil well drained. The tree bore a good crop, many of the others being nearly of the same size and weight. *Geo. Sandy, Gr. to the Hon. M. E. G. Finch Hatton, Haverholme Priory, Sleaford.*

Lachenalias.—Allow me to add to the article at p. 679 that if the pots are placed in saucers of water, the water being about 2 inches in depth, the plants will make a more vigorous growth, throw up longer flower-spikes, and the foliage will be of a much darker hue; in fact, they will make altogether better plants. *Somerset Gardener.*

Mushroom Culture.—An instance of most successful Mushroom growing having come under my observation during the present and last winter at Branksea Castle, I have no doubt but that your readers would be pleased to learn the treatment adopted by the gardener there, Mr. G. Taylor, more especially as he has but little dung at his command, and no regular Mushroom-house, the beds being made on the

floor in a shed at the back of the vineries. At the present time the bedsare literally covered with Mushrooms in various stages of growth, and during the past week he has gathered more than 2 pecks from one small bed. I feel assured that although his method of growing may not be new, yet to such of your subscribers as may be similarly circumstanced a knowledge of the way to get crops such as he now has would be welcome. *R. W.* [Mr. Taylor has favoured us with a photograph of his beds, which are made up for the most part of the common Bracken Fern, and the plan seems to answer admirably. EDS.]

The Weeping Willow.—Few trees are more graceful and more becoming in suitable situations than the Weeping Willow. Its hardiness and free growth render it "everybody's tree." The name Babylonica was erroneously applied to the tree, under the supposition that it was the tree upon which the captive Israelites hung their harps. Populus euphratica, a species remarkable for its multiform leaves, is, however, probably the tree intended by the Psalmist. The present tree is believed, on the authority of Professor Karl Koch, to be really a native of China. Our present illustration (fig. 156) shows a fine specimen of the tree in the Oxford Botanic Garden as it appeared in winter guise, when its naturally elegant boughs were resplendent with icy crystals, producing a most charming appearance. After a frost such as this, the tips of the shoots often die, and are shed like the leaves in autumn, on the ground beneath. From the earliness at which its leaves are produced, its young foliage is rather apt to be injured, but little permanent damage results. Every reader will remember the connection between this tree and the history of the first Napoleon and of the poet Pope.

White Flowers for Winter.—Here are two useful subjects, easy to manage, and at all times to be depended upon if the treatment has been right. I allude to the old double white Primula and Carnation La Belle. On the culture of the Primula I need say nothing, as that is well understood. Of the Carnation it need only be said that the plants should be liberally treated, and trained on a trellis. I grow mine in large 12-inch pots, trained on a balloon-shaped trellis. They are not allowed to expand any flowers during summer, as I pick them off as the buds show themselves. About the beginning of November I introduce them into a day temperature of 60°, and 55° by night; here they flower freely nearly all the winter. *Blue Apron.*

Potatos from One Pound of Seed.—In regard to the extraordinary produce Mr. Ford states that he has obtained from 1 lb. of seed Potato sets, there is a matter of great importance that is not clearly expressed in his note, and upon which may "thereby hang a tale." Did Mr. Ford obtain 1082 lb. of Potatos from 1 lb. weight of seed tubers, or from 1 lb. weight of cut sets, taken from several pounds of tubers? He states, "the Potatos for planting were cut into sets, weighed, and counted, &c.," and therefore his own method of putting it is responsible for the suppositon that it was not 1 lb. of tubers, weighed first, and then cut up, but 1 lb. of sets cut from tubers, and then weighed afterwards. If the latter was the case, it is evident that at least three times the number of good eyes could be obtained beyond what could be cut from 1 lb. of tubers. I beg Mr. Ford not to imagine that I suggest any impropriety of that kind, but I say again, his own words lead to that implication. One thing is certain, no possible good to horticulture, even in the humble branch of Potato culture, can accrue from this sort of competition. It may result in something to brag about, but nothing better. If it is a paying mode of advertising, what a pity the late Mr. Paterson had not hit upon it to promote the sale of his Bovinia, which is rather a better and handsomer Potato than Eureka. In any case, the putting of a little more cash into the pockets of the esteemed Scotch Potato raiser would have been a pleasure to him, and a source of gratification to his numerous friends. *A.*

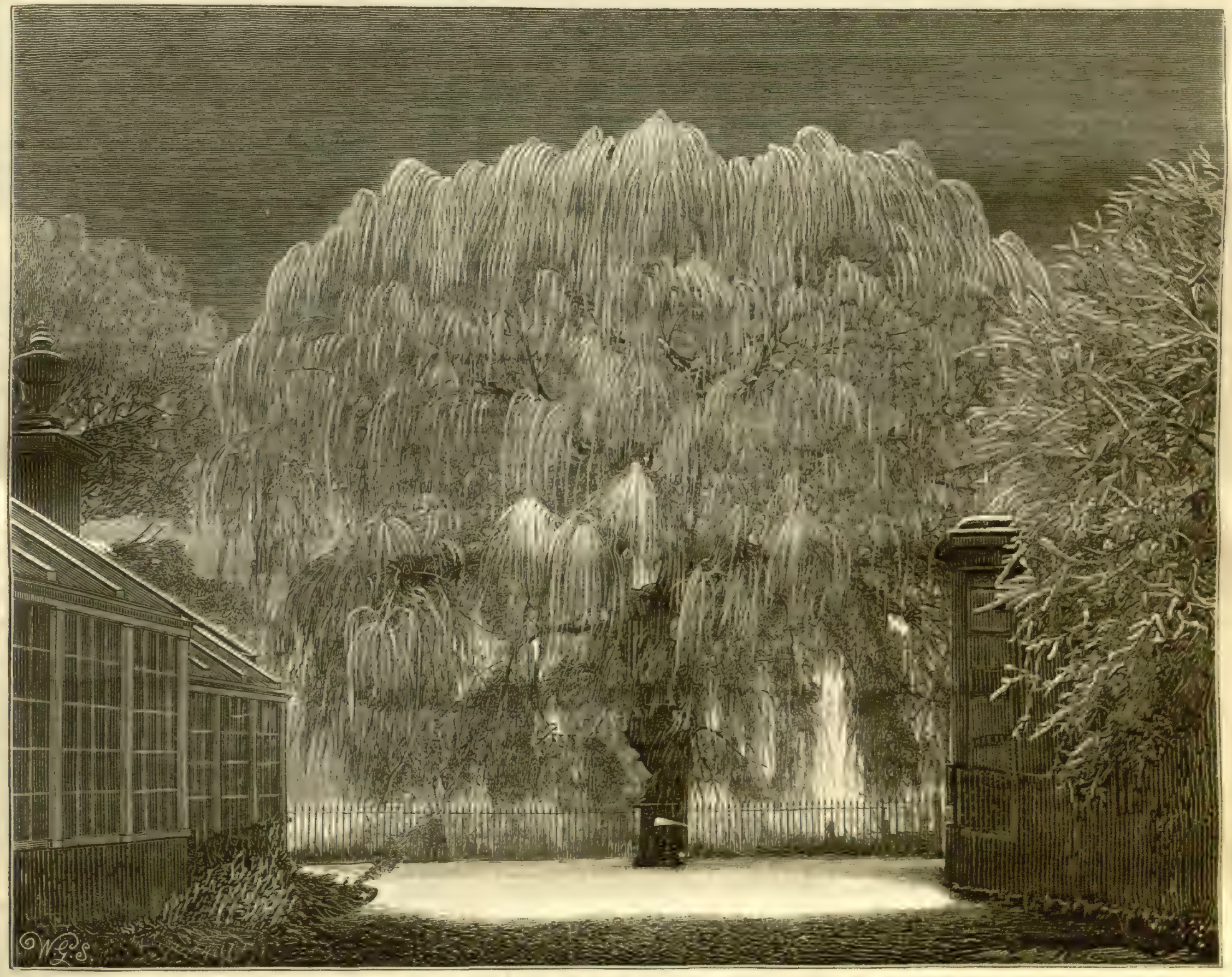

FIG. 156.—SALIX BABYLONICA, IN THE OXFORD BOTANIC GARDEN.

The Weather in Devonshire.—No doubt some of your readers are under the impression that Devonshire, being one of the most southern counties and possessing some of the most favourite winter resorts for invalids, escapes the severity of the weather attending our winters which visits the more northern counties. On scanning the reports of the weather in your periodical of last week by Mr. Glaisher, I there find that Truro, which is much more south than this, registered the lowest temperature of last week, namely 21°, and which was stated possibly in error, but which I should conclude was right, when I presently give our register here. It is very singular that the different stations as they approach north decrease, at Bristol, 26¾°; Leeds, 32°; Greenock, 32½; while at Aberdeen it was only 28°. Here I registered on the night of the 26th ult. 17°, on the 29th 21°, and December 1, 21°; which is considerably below the average of the country. The last week, on December 3, 19°, the 4th, 21°, and last night 17°. The wind has not varied from the north and north-east since the 25th ult. up to the present time, except on the 28th to south-east for a few hours. At mid-day to-day (December 6) it commenced snowing slightly and continued ever since; at dusk it came down faster, and at the time of writing (7 P.M.) it is an inch thick, and every appearance of continuing, the wind being north by north-east. My thermometer is a self-registering, maximum and minimum combined, and when I say that this morning the earth was frozen so that a spade could not penetrate it, its accuracy cannot be questioned; moreover, as I have taken a register of the weather for nearly six years, I have no doubt about it. Its accuracy has been questioned because at only a distance of a mile and a half from here only 22° was observed, but when I state the difference of the situations, perhaps I am right in saying such difference in the thermometers is quite possible. Where 22° was observed, it is situate close to the mouth of the river Exe, where it has the benefit of the breeze from the salt water, which is known to have a warming influence on the atmosphere in close proximity. Here where 17° was registered it is situate in the valley of the River Ken, and within 40 yards of the marshes,

which have several times this season been covered with several feet of water. The thermometer is about 2 feet 6 inches from the ground. Those who believe in the old adage about the abundance of Holly berries being a sure sign of a severe winter, will have their faith confirmed. *D. C. Powell, Powderham Castle, Exeter.*

The Chrysanthemums at Garbrand Hall, Ewell, Surrey, are now in a perfect blaze of bloom. They are exhibited to the best advantage by being arranged on each side of the walk of the orchard-house, while at intervals the tallest forms completely arch overhead, thereby greatly enhancing the general effect. They comprise all the best kinds of the different types, and reflect the greatest credit upon the skill of Mr. Child, who has certainly brought them as near as possible to perfection. Among the best there are the following :—Lord Derby, Dr. Masters, George Glenny, Grandiflora, Empress of India, Miss M. Morgan, Mr. Jay, Venus, Mr. Brunlees, Alarm, Fingal, Yellow Dragon. Sir E. Landseer, Jardin des Plantes, Sam Slick, Golden Beverley, Mrs. Geo. Rundell, Gloire de Toulouse, Mrs. Heale, Guernsey Nugget, John Salter, General Bainbrigg, Prince of Wales, Hercules, Rev. J. Dix, Prince Alfred, Bella Donna, Fair Maid of Guernsey, Princess Teck, Orange Perfection, and Lady Hardinge. *Wallace Morse, Epsom.*

The Thames Embankment.—The trees on the Embankment on the left hand from the City are a disgrace, and must become a mere laughing-stock to any foreigner or one who would point to it as a thing of beauty, high and low, crooked and stunted, knock-kneed and half-dead. Who now living can hope to realise its would-be attractions? Pay a visit even to the Charing Cross Gardens, and see what is deemed ornamental enough for a central tree of the most conspicuous portion of the ground, viz., a stump, with a few one-sided shoots, deformed in body and crippled in limb. I see a large tree, after standing some eighteen months, has become at last defunct, and has been replaced by another—with an Englishman's eye to putting on door-plates—lop-sided ; and thus what might at once be ornamental and prove an improving taste, is marred by an indifference to order and beauty, and only goes to prove the necessity of a Board not only for what should be done, but the manner of doing it. *W. S., in the "Builder."* [Notwithstanding the statements made in a highly laudatory article on the Embankment trees and gardens which appeared a week or two ago in the *Daily News*, neither are in a condition which reflect much credit on the gardener in charge. One of the latest additions of an ornamental character (?) to the Charing Cross Garden is the fowl-pen near the tool house, at the District Railway entrance ! EDS.]

Limekiln Heating.—Your correspondents are singularly divided in the expression of their opinions on the merits of the limekiln system of heating. One side bestows on it unqualified censure, while such writers as the luminous and logical Mr. Fish lavish on it an equally unqualified praise. I think it is as undeserving of the one as of the other. There are probably very few places, if any, where the kiln can be made pay its expenses. I imagine it would have the best chance of doing so in a locality where both fuel and limestone are scarce and dear, for there the saving in the coal bill will be in proportion greater, and the lime will also sell at a proportionately higher figure. But even when thus circumstanced there should be in the immediate vicinity a regular demand for the lime, or there will be a considerable loss by its becoming slaked, and so comparatively valueless. The bulk of the lime burned here often lies over for many months, and then has to be sold a bargain to the farmers in the neighbourhood. There is at present a heap of about a thousand barrels waiting for a purchaser, which will probably be doubled in quantity by spring. It will then sell, wet and dry together, for something like 5*d.* a barrel, or say 3*s.* 6*d.* a ton. The lime, if allowed to accumulate near the garden until air-slacked, becomes when stirred, even in calm weather, a positive nuisance, coating everything around it for hundrens of yards with a white adhesive covering, which acquires in a short time a stony consistency, especially on glass, from which it is as difficult as it is necessary to remove it. They are quite unreasonable who, with the same weight of coal, expect to warm to a given temperature equal quantities of water with a limekiln and an ordinary furnace. A certain weight of fuel will give out only a fixed quantity of heat, and if merely enough coal is put on the kiln to warm the water it will be insufficiently warmed in direct proportion to the quantity of heat absorbed by the limestone. The lime, it is true, in cooling returns a small portion of the heat, though nothing in comparison with what is rendered latent. But Mr. Fish, and those, I presume, on whose behalf he writes, have much more confidence in the inspirations and happy thoughts of humble colliers than in the theories of philosophers. I can only say that here my experience supports theory. I find that it takes, with the most economical form of kiln, one part of fuel to two parts of stone to act efficiently in ordinary weather, whereas in burning lime alone in the same kiln one part of fuel to six or seven of stone would be sufficient. *Richard Colles, Mill Mount, Kilkenny, Dec.* 6.

Heat Without Cost.—As Mr. Fish has been permitted to bring my name forward again on this subject, you will perhaps allow me a word in reply. Mr. Fish has stepped considerably out of his province to aid his friend Mr. Bennett. I take it, therefore, that the strictures of "Jonathan" have mightily disturbed the serenity of the "happy family." With regard to my late remarks, I would only state that they had reference, not to the merits of limekilns particularly, but to its advocates ; and to their irrepressible zeal in its behalf is due any injury it may have suffered from what has been said. What a terrible affliction "limekiln on the brain" must be ! I would not be the least surprised to hear of Mr. Fish himself some day suddenly disappearing up the limekiln chimney in the form of "carbonic acid gas," unless he goes off by spontaneous combustion. Like some others, Mr. Fish has not yet taken to the kiln on his own account, nor, so far as I am aware, has he succeeded in transplanting it to Suffolk, where he should be best known and his eloquence most appreciated. It cannot be denied, I think, that the wisest course now would be to save the "limekiln" from its *quasi* friends and supporters. Mr. Fish has discharged the duties of godfathership with a paternal solicitude beyond all praise, but if his charge is now to thrive, it is quite time it was weaned. *Jonathan.*

Rooks, Walnuts and Rookeries.—Your correspondent "Rook" seems rather puzzled with my letter of November 27, and seeks further information as to how the rooks here opened or broke the shells of the Walnuts. I can assure him that the rooks in this neighbourhood are well up in the theory and practice of breaking the shells of Walnuts, and do it in the most expeditious manner. They seize the Walnuts in their bills and carry them off to any place where they can get free liberty of action ; they then commence pecking them on the side with such a determined spirit that they quickly succeed in forcing a way through the hardest shells. I am quite satisfied there are few that would credit this unless they actually saw them. There are several varieties of Walnuts here, some having thicker shells than others, but the rooks did not make any difference in this respect, appearing to be just as well pleased with the one as the other. I can assure Mr. Record and your readers that these are facts. I quite agree with "Rook" that few people will believe, without strong evidence, that rooks can break Walnuts by sheer pressure of their bills "after the same fashion as a boy with a good set of teeth would crack a Filbert." If he will favour me with his address I have no doubt I shall be able to forward him a boxful of shells that the rooks have broken. Although the ground is covered with snow, and the leaves have been raked up, still I feel satisfied there are plenty of them lying about the grounds that may serve to convince him of the truth of these statements. Your correspondent, Mr. Keep, wishes to know how the rookery here was established, and, after careful inquiries, I am now in a position to give him the desired information. In the first place young rooks were procured, just before they were fully fledged, and fed by hand, which to a great extent domesticated the birds ; but after they got fully grown they gradually deserted the place, and took up their abode with other rooks not far distant. A second attempt was made in the same way, but in this case the precaution of pinioning a few of the birds was adopted to induce the others to remain ; but this having failed, a third attempt was made in the same way as the preceding, with the addition of a quantity of old Birch brooms, artificial nests, and bundles of sticks which were placed in the trees, in the hope that the rooks would take to build their nests in them ; but this had not the desired effect. Lastly, another batch of young rooks was procured and treated as previously described, but on this occasion three branches of trees containing new rooks' nests were cut from the trees of an established rookery, brought here and securely fastened in the tops of the trees on the site of the desired rookery, and by this means the present rookery was established. To some of your readers this latter idea may appear almost incredible, but the man that carried out the operation does not believe the rooks would ever have taken to the place had the nests not been procured. *James Ollerhead, The Gardens, Wimbledon House.* [We have heard of the same plan being successfully adopted in other places. EDS.]

—— It is hardly needful to add to the evidence already given on this point. Our Walnuts are within 500 yards of our rookery, and consequently we have had abundant opportunities of losing the former, which we do in the most wholesale manner, but never until they are fit to eat. Perhaps rooks are wiser in the east than elsewhere, but so well assured are we on this point, that for years we have followed the lead of the rooks in gathering, and have invariably found that their instinct told them the right moment of attack. This is an interesting fact. Another is almost equally so. The rooks seldom crack Walnuts on stones, &c., as stated by some of your correspondents. They have a much simpler way of opening them. There is a vulnerable part in Walnuts in the centre of the bottom part. The rooks hit that violently with their double spear-like bills, and the Walnut immediately falls back into two halves, as under the manipulation of a master. Adepts at eating Walnuts often open them in the same way with a very small knife, and will understand my meaning. In all my experience of Walnut stealing by rooks, and it has been great, I have never seen one take his nut to a stone or other breaker, as I have often seen a thrush do with a shell snail. The shell in the latter case is often smashed with a single tap, but a Walnut would take many to break its sides in ; ay, even though the leverage was a tough, strong, rook's neck and head, and the holdfast its hard horny beak. Besides, the thrust of the bill is a far easier method, as any one may try for himself, and Nature is never prodigal nor wasteful of force, even in such a small matter as the splitting or cracking of a nut by a hungry or greedy rook. *D. T. Fish.*

—— It may interest some of your readers to know that the above birds sometimes carry off the Kentish Cob Nuts from the plantations near here. The fact is vouched for by a grower. *T. Bunyard & Sons, Maidstone.*

Porter's Excelsior Potato.—I observe a communication at p. 688 from Mr. Farquhar, gardener, Fyvie, at which I am very much surprised. Let me state the following facts in answer to his assertions. My Potato was well known as "Excelsior" years before 1874, as hundreds—nay, thousands—who have seen it as such at competitions could bear witness. Mr. Farquhar must know this to be so, for he has been judging at shows where it was exhibited and named, and he has competed at others against it, and notably in July, 1872, at Aberdeen, where it was placed 1st, and Mr. Farquhar himself was 2d with what he called Henderson's Prolific. Both lots were examined by us after the judging, and he allowed that his was evidently a smaller variety, besides mine being much riper. Mr. Farquhar says my Potato is not the Excelsior. I tell him that it is my Excelsior, which I named, and was growing and competing with ere ever I had heard of another Excelsior, or of Henderson's Prolific. The first time I had to my knowledge seen or heard of the latter was at the Aberdeen show above referred to. In Messrs. B. Reid & Co.'s catalogue for 1874, now before me, Henderson's Prolific is not mentioned ; it seems strange that it should have got out of sight so speedily, when Mr. Farquhar says that in 1871 and following years he placed stock in their hands. It was 1874 before I offered Excelsior for sale, but a few had got abroad by pilfering at shows, or otherwise, and a friend or two had got some for competition. Mr. Farquhar talks of much puffing in regard to my Excelsior. Who has puffed? Has it not spoken for itself, and commanded a name by its success in competition wherever it has appeared? The Potato has spoken for itself, not I for it ; and it has been lauded in the highest terms, unsought by me, and has beaten long ago his Henderson's Prolific, as shown—a fact he cannot gainsay. *William Porter, Old Meldrum, Nov.* 30. [We have had to omit much that was too personal for publication. Mr. Porter must keep his temper. EDS.].

—— I find that it is necessary once more to allude to this Potato, as Mr. Porter's reply to my former note renders it unavoidable. In the first place, it is unfortunate that Mr. Porter should have given his Potato a name already held by two, if not three, other distinct kinds ; but this fact does not prevent my recognising his variety when I see it, and directly the consignment I have of it reached me from Scotland I was assured that it was identical with the sort he had exhibited at the Alexandra Palace. Then the price paid was comparatively low, and, having been also offered it at the same time at a cheap rate from another source, I concluded that there must be considerable quantities of it extant besides what was in Mr. Porter's hands. Still farther, I find Mr. McKinlay has received a consignment of exactly the same variety under the name of Johnson's Seedling from Hawick—a fact that strongly supports what Mr. Farquhar has written about it. But what is most to the point is the fact, of which I have proof positive in a trade-list before me, that last spring Mr. Porter sold stock of it through Messrs. Cardno & Darling, together with two other varieties, and this firm distributed it at a much cheaper rate than it is now being offered at in London. From seed sold through this firm has, I am informed, been raised the stock I now have. Whatever Mr. Porter may say in his own defence, he cannot justify endeavouring to lead the public to believe that, after having sent out a variety through the trade one year, he alone held the entire stock of it the next. *Alex. Dean*

Spiræa Lindleyana.—In the beautiful and well-designed garden at Highlands, St. Saviour's, Jersey, the lately acquired property of Charles Kipling, Esq., there are two large clumps of this beautiful plant, which are treated as herbaceous plants usually are, and cut down annually. The effect of them when in bloom is very striking, as every shoot produces a splendid wreath or plume of flowers. Not having seen or heard of it being treated in this way elsewhere, I thought it would be interesting to florists to know it. A large bed of it would be very effective. *C. B. S., Jersey.*

Pruning.—Now that we have arrived at the season when the pruning of our fruit trees is the main work in the garden, I wish to know if it is doing justice to under gardeners for the head gardener himself to do the whole of the pruning of the fruit trees under his care? Would it not be giving those that are under him a chance if he was to say, "Now, I want you to assist me in the pruning of these Peaches, &c." or whatever trees are cultivated, and at the same time give them every instruction how to use the knife? I am sorry to say that here, where several under-gardeners are employed, their time is fully occupied in the glass department; and not one is allowed to prune a tree. I am not aware if this is a general rule amongst head gardeners, but if such be the case, how are we to gain that knowledge in the art of pruning which is very essential to every gardener? *Revel.* [Could the men referred to be trusted with so delicate an operation? Peach trees are easily spoiled by unskilful pruners. If the young men are apprentices, the gardener should certainly teach them how to prune. EDS.]

Foreign Correspondence.

THE DISTRIBUTION OF SERPENTS.—Ireland is not the only island which does not take kindly to ophidian reptiles. An ardent French botanist, on starting for the tropics, had been begged to beware of venomous snakes. Herborising is a delightful pursuit, but sometimes, in hot countries, *latet anguis sub herbâ*. He writes, "We remained three days at Teneriffe. I did not buy any of its wines, for which I entertain only a moderate esteem, but I spent one day in botanising. The plants I brought back were but few (which is not surprising in the month of October), but I caught a sunstroke which sent me to bed, and whose effects I was obliged to remedy by a dose of ipéca next day. It is a warning not to be disdained. If I get such at Teneriffe on October 22, what will it be at Senegal? Sunstrokes are more to be guarded against than serpents, of which latter there is no reason to be afraid, except at Martinique, where they are both deadly and numerous. While your compatriots were temporary masters of Guadaloupe they thought they were playing us a capital trick by trying to acclimatise the serpents of Martinique. But they could not succeed in doing so. One asks what is the cause of the inability of serpents to live in Guadaloupe? The distance between these two pearls of the lesser Antilles is small; their geological formation is similar. A different fauna might explain the matter, but that difference does not exist." *D.*

Law Notes.

RESISTING AN ILLEGAL FINE.—At the Bloomsbury County Court, on the 1st inst., the case of Burns *v.* Stricland was heard. The plaintiff, who had been foreman to a florist and gardener carrying on business at Hampstead, sued his former employer to recover 30*s.* wages due at the time he left, and 30*s.* for one week's wages in lieu of notice, and stated that on October 25 last he went to his employment a little late, when his employer told him that he should deduct half-a-crown from his wages on the following Saturday, in order to teach him a lesson, and that, upon the plaintiff remonstrating with him, the defendant became very abusive, and ordered the plaintiff to leave the premises at once. Upon doing so the defendant offered him the wages then, which the plaintiff refused, preferring to bring the present action. In cross-examination the plaintiff denied ever being impertinent, or of having been in the habit of coming continually late, but was nearly half-an-hour late on the day in question. In answer to the learned Judge, the plaintiff stated that illness was the cause of his being late on the morning in question. This was the plaintiff's case. Mr. Ablett, for the defendant, urged that the plaintiff was habitually late, and on the day in question was very abusive—so much so that the defendant told the plaintiff that he should fine him in future for being late if it occurred again. The defendant being called corroborated the solicitor's remarks, and, in answer to the learned Judge said the plaintiff was not abusive before he was told that he should be fined. A witness was called who proved that the plaintiff was half-an-hour late on the day he was discharged. The defence being concluded, the learned Judge told the defendant that he had no right whatever to impose a fine upon the plaintiff, as no one but a magistrate had the power of doing so, and he (the learned Judge) was not surprised at the plaintiff's resistance; and as the defendant had not discharged the plaintiff for being late, but for refusing to be fined, and as the defendant had no right whatever to do so, judgment would be entered for the plaintiff for the full amount claimed, together with his and his solicitor's costs.

The Villa Garden.

THE GREENHOUSE.—Last week our remarks were directed to showing how best to exclude frost from unheated greenhouses, and the frost and biting northerly wind of the evening of Sunday the 5th inst. tested to the uttermost the capabilities of our "damp stove." The fact that the house is quite open beneath served to aggravate the evil, but the addition of a few newspapers laid over the plants greatly assisted to keep out the enemy. Not that frost is an enemy in a general way; rather it is a most beneficent agency; but where it storms ones greenhouse, and assails many pet tender plants, it then becomes a marauder, to be kept at bay and defeated. We found that a layer of newspapers laid over Pelargoniums, Fuchsias, and other half-hardy plants, and finally covered with soft sheets of brown paper, was a most effectual help. If laid on carefully they will not injure the young shoots, and they can be removed by day if necessary, though it is best to allow them to remain on while frost lasts. In cases of unusual severity, we should adopt the additional precaution of wrapping newspapers round the pots of some of the choicest things.

We will now ascend to a higher level of gardening acquirement, and treat of the greenhouse duly heated by a brick flue or hot water. Now, any one in possession of a house of this character will have no difficulty in keeping everything dry and comfortable when frosty winds play about his structure, and the falling snow darkens the air. When, during severe frost, it is necessary to increase the fire-heat, plants are apt to suffer from causes entirely opposite to those which peril the well-being of plants kept in pits and frames. Instead, then, of suffering from excess of moisture, an over-dry atmosphere has to be guarded against, especially if the house is heated by means of a brick flue. In constructing greenhouses considerations of economy—not always economy, however, in the long run—leads to the construction of a brick flue for heating purposes. When this is the case, and a dry heat is given forth, the best way to neutralise it is by placing a pan or two of water on the flue at the hottest parts, and these will give forth steam, and moisten the atmosphere of the house. Perhaps it is not going too far to state that many houses are kept far too dry during winter, and scrubby plants instead of healthy examples too frequently result. We are strongly in favour of an occasional light syringing, but it should be done in the mornings, and not left till late in the day. We are assuming that fire-heat is applied only when it is necessary, unless it is desired to get certain things, such as Hyacinths, Azaleas, Cinerarias, Lily of the Valley, &c., somewhat forward in flower, and then it will be necessary to apply some warmth every night, except the weather is very mild for the time of year.

How often is complaint made of Camellia buds dropping off, and this calamity frequently results from an arid atmosphere. The blossoms of Cinerarias, Ericas, and other flowers also crumple up, and are robbed of half of their beauty. We know one enthusiastic amateur gardener who frequently gives his greenhouse a good syringing during the winter when fire-heat is applied, but he thoroughly drenches the foliage of his plants, doing it between 9 and 10 o'clock in the morning, and then throwing open the windows and giving plenty of air for three or four hours. His plants, consisting of Camellias, Azaleas, and other things, are in vigorous condition. As a matter of course, all flowers are spared as much as possible, and it is only done at all during open drying weather.

Such things as Hyacinths, Cinerarias, Primulas, and a few other early-flowering plants will be coming on into flower, and they should occupy the warmest part of the house. As Primulas are apt to suffer from damp, unless there is a brisk fire-heat, the foliage should be kept dry. Damp will sometimes seize upon the leaves, travel down the stalks, and find its way to the hearts of the plants, doing irretrievable injury. Young plants of Cinerarias coming on for successional blooming will require a shift to keep them growing: rich light soil made up of good loam, some dung, sand, and plenty of leaf-mould, suits them well. When shifted they should be placed near the glass, but they need to be looked over occasionally, for if in a dry atmosphere green-fly is apt to infest them, and if they establish themselves the leaves become curled and sickly looking. There is nothing like an ordinary low frame, heated by hot water, to winter Cinerarias in. The plants should be raised up on pots, and kept near the glass, and the bed of the pit kept fairly moist; air should be plentifully given on all favourable occasions, and the plants under such circumstances make a vigorous growth.

Camellias that are being pushed on into flower as fast as it can be done in an ordinary greenhouse, may have the assistance of a little weak manure or guano-water, if pretty well established in their pots. Guano is an excellent stimulant, where carefully used; the danger lies in over-dosing the plants. Large flowering Pelargoniums require water but infrequently, as the aim of the cultivator should be to keep them just moist at the roots—sufficiently so to keep them in health. They grow all the winter, but at the dead season they move but slowly. If over-watered, the roots become injured, and the leaves turn yellow. Zonal Pelargoniums that are flowering need to have decaying leaves removed, and kept as clean as possible. They, too, should he kept just moist enough to maintain a healthy condition, and to assist in throwing up and maturing the flowers. Cuttings of Zonal Pelargoniums in store pots need to be kept as dry as possible consistent with keeping them alive. Among winter flowering plants that can be grown in an ordinary greenhouse is Abutilon Duc de Malakoff. We have a standard plant on a stem 5 feet in height, growing in a 16-inch pot, which has thrown out some branches that are now blooming freely at their tips. The plant is thoroughly pot-bound, and was top-dressed with some good manure during summer to assist the production of flowers at this stage.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DEC. 8, 1875.

MONTH AND DAY.	BAROMETER. Mean Reading Reduced to 32° Fahr.	BAROMETER. Departure from Average of 18 Years.	TEMPERATURE OF THE AIR. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	WIND. Average Direction.	RAINFALL.
Dec.	In.	In.	°	°	°	°	°	°			In.
2	29.97	−0.17	34.6	28.1	6.5	31.7	−10.1	29.4	91	N.	0.10
3	29.64	−0.11	33.4	27.2	6.2	30.8	−11.0	26.7	83	N.E.: N.	0.23
4	29.62	−0.13	31.4	24.3	7.1	28.4	−13.4	23.5	81	S.W.: S: SE: E: NE	0.12
5	29.81	+0.06	31.8	25.7	6.1	28.4	−13.3	23.0	79	NNW: N.	0.00
6	30.00	+0.23	33.1	23.4	9.7	29.4	−12.2	24.2	80	N.E.: N.N.E.	0.29
7	30.20	+0.43	34.3	26.6	8.7	30.8	−10.7	25.6	80	N.E.	0.00
8	30.22	+0.44	36.1	29.1	7.0	33.5	−7.9	28.1	80	NNE: N.	0.00
Mean	29.87	+0.11	33.5	26.3	7.3	30.4	−11.2	25.8	82	N.E.	sum 0.74

Dec. 2.—Overcast, cold day. Heavy fall of snow.
— 3.—Dull, cold day. Slight snow fell at noon.
— 4.—Dull, very cold, and heavy snow fell till 4 P.M. Fog in morning.
— 5.—A fine day, dull at times. Very cold.
— 6.—Dull, cold, and heavy snow fell till 3 P.M. Depth on ground 5 inches. Fine after 10 P.M.
— 7.—Overcast, cold day. Snow fell slightly at 9.30 P.M.
— 8.—Overcast, dull day. Slight snow at 8 A.M. and 10 A.M. A thaw.

—— During the week ending Saturday, Dec. 4, in the neighbourhood of London the reading of the barometer at the level of the sea increased from 30.08 inches at the beginning of the week to 30.14 inches by the morning of the 28th, decreased to 29.85 inches by the afternoon of November 30, increased to 29.89 inches by about mid-day on December 1, decreased to 29.73 inches by the afternoon of the 2d, and increased to 29.95 inches by the end of the week. The mean reading for the week was 29.90 inches, being 0.18 inch lower than that of the preceding week, and 0.03 inch below the average for the same week.

The highest temperatures of the air observed by day varied from 38° on November 29 to 31¼° on December 4; the mean value for the week was 34½°. The lowest temperatures of the air observed by night ranged between 24¼° on December 4 to 33¾° on November 28, the mean for the week being 28¼°. The mean daily range of temperature in the week was 6¼°, the greatest range in the day being 7¼° on November 29 and December 4, and the least, 2¾°, on November 28. The mean daily temperatures of the air were as follows:—November 28, 34°.7; 29th, 34°.2; 30th, 31°; December 1, 30°.2; 2d, 31°.7; 3d, 30°.8; 4th, 28°.4; and the departures in defect of their respective averages were—6°.9, 7°.5, 10°.7,

11°.5, 10°.1, 11°, and 13°.4. The mean temperature of the air for the week was 31°.6, being 10°.2 below the average of observations extending over sixty years. The week was bitterly cold. The highest reading of a thermometer with blackened bulb in vacuo placed in sun's rays, was 41½° on December 1. The lowest reading of a thermometer on grass, with its bulb exposed to the sky, was 20° on December 4; the mean for the several low readings was 25¾°.

The direction of the wind was N.E. and N., and its strength gentle. The weather during the week was very dull, exceedingly cold, and the sky overcast throughout.

Snow fell on November 30, December 1, 2, 3, and 4.

The amount of rain and melted snow measured during the week was 0.49 inch on four days.

In England the highest temperatures of the air observed day by day was 43° at Truro; at Wolverhampton the highest temperature in the week was 37°. The mean value from all stations was 38¾°. The lowest temperatures of the air observed night by night were 22° both at Cambridge and Norwich, at Hull and Leeds 31° was the lowest temperature in the week. The mean from all stations was 28°. The range of temperature in the week was the largest at Norwich, 16¾°, and smallest at Bradford, 7½°. The mean range from all stations was 10⅜°.

The mean of the seven high day temperatures was the greatest at Truro, 39½°, and the least at about London, 34½°; the general average value from all stations was 36¾°. The mean of the seven low night temperatures was the largest at Hull, 34°, and the smallest at about London, 28½°; the mean from all stations was 31¼°. The mean daily range of temperature in the week was the greatest at Truro, 8½°, and the least at Nottingham, Hull, and Bradford, all 4°. The mean temperature of the air for the week from all stations was 33½°, being 3½° lower than the value for the corresponding week in 1874. The highest was at Hull, 36°, and the lowest at about London and Cambridge, both 31¾°.

The amounts of rain or melted snow measured at the several stations during the week varied from 1¾ inch at Newcastle-on-Tyne to three hundredths of an inch at Truro. At Liverpool none was recorded; the average amount over the country was four-tenths of an inch.

The weather during the week was dull, exceedingly cold, and frequent snow fell in the south of England, but very little in Yorkshire.

At Cambridge the depth of snow on the 2d was 2 inches, on the 3d it was 6 inches, and on the 4th was 6¼ inches.

In Scotland the highest temperatures of the air ranged between 41½° at Edinburgh, and 39° both at Glasgow and Paisley; the mean value over the country was 40°. The lowest temperatures of the air varied from 29½° both at Greenock and Leith to 22¼° at Glasgow; the mean value from all stations was 26¾°. The mean range of temperature in the week was 13¼°. The mean temperature of the air for the week was 34½°, being 3¼° lower than the value for the corresponding week in 1874. The highest was at Leith, 35½°, and the lowest at Paisley, 32½°.

Rain or melted snow was measured at Glasgow, Aberdeen, and Leith to the amount of nine-tenths of an inch; at Dundee five-tenths of an inch was recorded, but at Greenock and Paisley none was recorded. The avarage amount over the country was five-tenths of an inch.

It will be seen that the cold was much less severely felt in Scotland than in England, it being on the whole week 3° of a warmer temperature.

At Dublin the highest temperature was 41½°, the lowest 23°, the mean 34¼°, and the amount of rain or melted snow six-tenths of an inch.

JAMES GLAISHER.

THE FARM.

SMITHFIELD CATTLE SHOW.—This year's show is a good average one, although there is nothing remarkable about it. It may be doubted whether two such excellent animals as the champion ox belonging to Mr. Sowerby, and the best heifer in the yard belonging to Mr. Willis, have ever before been excelled in any showyard. This has been entirely a Shorthorn show, the three best beasts being Shorthorns. Shorthorns and the cross-breds are this year very much above the average. Devons were very good in the young classes, others were only fair. Herefords were but a poor lot. The Sussex classes were good. Of Scotch beasts the Highlanders are both numerous and good, while the polled animals are good but not numerous. The Norfolk and Suffolk polled beasts are not at all likely to recommend the breed. The extra stock classes contain a number of remarkable beasts of all breeds.

The sheep classes are good, with an unusual show of Southdowns, of fair average quality; as much may be said of the other Down classes, Mr. Street's Oxford Downs being excellent. The Longwool breeds are fairly represented in all classes, but probably the most remarkable are Mr. Byron's Lincolns, Mrs. Langdon's Exmoors, and a pen of Cheviots sent by the Duke of Sutherland. Here, as in cattle, the cross-breeds have great merit, especially three pens sent from Norwich, belonging to Messrs. Overman, Mitchell & Co., Crawshay. The Prince of Wales was a large contributor, and succeeded in more than one class in displacing Lord Walsingham.

Pigs were fairly represented; the pens selected by the judges were mainly of the finer coated breeds, the encouragement of which in our wet climate, in preference to more hardy animals is, to say the least, a questionable policy.

There is a good show of implements, notwithstanding the rule—in some cases too rigidly enforced—that everything shown shall be connected with agriculture. Nearly all our best implement makers were to the fore, but there were not a large number of novelties.

The show of roots was excellent, and it is doubtful whether such a grand collection of roots of magnificent size and excellent quality has ever before been brought together. Messrs. Carter and Messrs. Sutton have their stands admirably arranged with selected roots, grown from seed supplied by their firms. The former announce that "97 tons of Mangels per acre" have been this year grown from seed supplied by them. On many of the smaller stands were shown roots of excellent quality, among which we must specially mention those shown by Messrs. Webb, of Wordsley, and Messrs. Harrison, of Leicester.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—Where a considerable quantity of hard-wooded subjects are grown it is well to begin early the general course required each year of replacing the sticks and ties necessary to support the plants. If the commencement of this work is deferred until late on in the winter, spring growth commences before it can be completed, the result of which is that quantities of the advancing flower-buds get injured in a way that prevents their opening, although this may not be apparent at the time. This is more particularly the case with such things as *Boronias*, *Leschenaultias*, *Eriostemons*, and similar small flowering plants. In carrying out the work the entire stock should be gone over, beginning at one end of each house and going regularly over the whole to give them a fresh finished appearance; all dead leaves should be removed, and the stumps of decayed sticks that have been inserted in the soil ought to be carefully drawn out, as, if these are allowed to remain, they ultimately become so rotten as to absorb water like a sponge, destroying the roots that come in contact with them. To those who have not had much experience in the growth of plants of this description precautions of this nature might at first sight not appear necessary, yet with delicate rooted subjects it is in matters of minute detail that success is arrived at. As I have urged before, not a vestige of these rotten sticks should be left: if broken off short a little below the surface, as they frequently are, I use a pair of ordinary pliers to extract them, being always careful to insert the new sticks in the holes that already exist. Many a fine specimen plant that dies a month or two after being re-tied owes its destruction to the mutilation of the roots through the careless insertion of the sticks, either by pushing them down into a fresh part of the ball, or by their being put in too deep. At this general tying it is necessary to consider in what way the plants are to be used: if intended for exhibition they will require more supports than if merely wanted for house decorative purposes. When plants have to be moved about they must in all cases have enough support to keep them in shape and to prevent the possibility of their being injured at the collar through rocking about—an occurrence that is liable to take place if an insufficiency of sticks is used; on the other hand, no more should ever be employed than necessary. If only wanted for conservatory decoration more sticks ought not to be used than requisite to keep the plant in the desired form, and in all cases in training the natural habit and form of each subject should be taken into account. If the leaves of the plants are at all affected with dust or dirt that has adhered to them—this is always more apparent when they are infested with scale—the shoots being liberated will afford an opportunity for a general cleaning by sponging, and a free use of the syringe with soapy water, using it sufficiently strong to clean the leaves but not so as to injure the flower-buds; at the same time any accumulation of moss growing on the surface of the ball should be cleared off, and the outside of such pots as require it scrubbed, so as to remove all green conferva from them, for appearance sake as well as for the health of the occupants. The woodwork of the houses should also be thoroughly scrubbed and the glass washed clean both inside and out, to admit all the light possible through the winter. Elevate the plants as near the roof as they can be got, giving the lightest and most favourable position to those that make any growth during the winter season.

All shrubs that are intended to be forced in pots or brought on gradually into flower early in the spring should at once be taken up and potted. *Rhododendrons* for this purpose ought to consist of kinds that have a natural early blooming habit, such as *Cunningham's White*, *caucasicum pictum*, with others of a like nature. *Deutzias*, *double Plums*, *Kalmias*, *Andromedas*, and *Ghent Azaleas*, that are required to be used in this way, should be placed in a house or pit, where the frost can be kept from them, as their roots should not be subjected to being frozen. In potting up hardy subjects of this description the two extremes ought to be avoided—of using either too large or too small pots: the former are unsightly in appearance, and the latter necessitate the roots being reduced to an extent that injures the plants and interferes with their flowering.

CONSERVATORY.—*Chrysanthemums*, that have been so useful in making a display here, will now begin to look shabby, except the latest blooming kinds, a considerable number of which should be grown in all establishments where a good supply of flowering plants is required. Some of the late sorts, if they have been placed in a house that was quite cool, with air on night and day, will bloom up to the end of the year. A note of these should be made, so as to prepare a sufficient quantity for next season. Provision ought to be made in the shape of flowering plants, to supply the place of the *Chrysanthemums*. Those who grow a good number of early flowering *Epacrises* will find them invaluable at this season, their free blooming habit and the length of time they remain in flower, coupled with their bearing cutting to any extent, render them second to no other plants for winter flowering. *T. Baines.*

ORCHIDS.—The present being the most inactive period in the growth of these plants, be careful not to use more fire-heat than is necessary to keep the temperature about 65° by day and 58° by night for the East India house; the Mexican house 58° by day, 50° by night; the cool house 50° by day and 45° by night, allowing a few degrees rise with sun-heat. Very little air is requisite now. Attention must be paid to the atmosphere; water should be poured over the benches and paths every morning. The sphagnum, and the roots which are growing outside of the pots and baskets, will require frequent dampings, especially such plants as *Aerides*, *Vandas*, *Saccolabiums*, and *Phalænopsis*. *Cattleyas* and *Lælias* are now rooting freely, nevertheless they require very little root water. The peat in which they are potted should be of a kind that will admit of the water passing freely off. Very different to the above is the treatment necessary for the *Odontoglossums*; these should never be allowed to become dry—they delight in a cool, damp, atmosphere; a light syringing overhead on fine mornings will be very beneficial to them: see that no drip gets into the young shoots. The glass inside the house should be wiped over with a sponge once a week, so that the plants get as much light as possible. As many of the summer flowering plants will be showing their flower-spikes, precaution must be taken to prevent cockroaches and wood-lice eating them: when the spikes are of sufficient length to admit of a small piece of wadding being placed around them this should be done, as it will prevent them being eaten; poison should also be kept about the house. Where it is necessary to retard *Dendrobiums* until May, they should be placed in a greenhouse temperature, and very little water (if any) will be required until they begin to grow; as soon as they show signs of growth they must be removed into a warm house, as any check will be followed by an abortive or stunted growth. All *Cypripediums* and *Cymbidiums* require a good supply of water at their roots. A good supply of peat and sphagnum must be got in as soon as this severe weather breaks up; use the sphagnum as fresh as possible, if spread out on a damp floor it may be kept in a growing state for several weeks. All rubbish must be carefully picked out. Very little work can now be done out-of-doors; the labourers' time can be employed in making baskets, so that when potting time comes there will be no waiting for a basket to be made. Now is a good season to make additions to the collection; if secured when at rest they will be ready to grow without interruption as soon as the season arrives. *G. Baker*, *Coombe Cottage.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—Excepting the almost constant work of sweeping, rolling, &c., the present season necessarily entails, but little remains to be done in this department, provided the work as

touched on in former Calendars has been brought up close. Where, however, the beds or borders are edged with *Box* gaps are sure to occur, and a reserve stock should always be kept on hand for the purpose of filling these up, as broken and imperfect edgings are always a great eyesore. In places where Box does well, it is as yet unsurpassed as an edging plant, but where the soil is too sandy, or lacking calcareous matter, it often turns to a rusty brown colour which greatly detracts from its appearance. Where this is found to be the case, and the edgings are sufficiently large to admit of relaying, they may be greatly improved in colour by working a good quantity of fine chalk into the soil. In many situations, such as the margins of shrubbery walks and herbaceous borders, there are many other plants besides Box that may be used with exceedingly good effect. First and foremost amongst these stand the *Gentians*, the beautiful cerulean blue of the flowers of which are unsurpassed. These are amongst the first harbingers of spring, and nothing can equal them for effect when grown thickly in long lines as an edging plant. If the soil forming the border where it is intended to grow them, is at all light some fresh stiff loam or clay should be worked in to the depth of a foot or so. If, in addition to this, some good large pebbles or flints are placed in at intervals of a few inches apart succees is all the more certain, as these keep the soil cool and moist, a condition essential to the successful cultivation of the *Gentiana*. *Veronica incana*, *Stachys lanata*, *Golden Thyme*, and *Thrift*, are all suitable edging plants for the above situations, and broad bands of either of them may be used with good effect. Excepting the *Sternbergia lutea*, a plant that appears to defy all weathers, there is little to attract notice in the herbaceous borders, and, were it not for the *Christmas Rose*, yet to come, there would be nothing to complete the hybernal link; flowers of these are greatly appreciated, and sure to be in request for cutting. Where handlights or *cloches* can possibly be spared the plants should be at once covered up, as the flowers come considerably larger and with much more purity of colour when protected in this way. There is always great risk in digging herbaceous borders, especially at this season, unless the positions of all plants and bulbs contained therein are clearly indicated by having their names on a good stout peg placed near them. In the case of bulbs and such things as are well known, the latter is generally considered sufficient, although it adds much to the interest of plants to have them properly named. The exceptionally bad weather we are now getting, and may continue to have for some time, will afford a good opportunity to carry out such work as this, therefore a close scrutiny of the labels should at once be made, and any that are becoming rotten or illegible be renewed. The borders should now be mulched over with a good dressing of short rotten manure, so as to enrich the soil and form a suitable protection against the severity of the weather. It will now be necessary to keep a sharp look-out against the depredations of rats and mice amongst bulbs, as, once they find these out, much mischief may be done in a short time unless they are trapped and destroyed. Ere winter sets in in real earnest, things of doubtful hardiness should be looked to and receive the necessary protection; a few fresh fallen leaves, with a handful of Fern and a branch or two of Laurel to keep them from blowing about, form the best of all protectors. Such things as *Bambusas*, *Chamærops Fortunei*, *New Zealand Flax*, *Pampas-grass*, and many others of a like character winter with the greatest safety protected in this way; others on walls, such as *Magnolias*, *Ceanothus*, &c., can best be protected by tacking a double mat up in front of them on the approach of severe weather. Beds of *Tea Roses* may be protected with leaves in the manner advised above, but a good mulching of dung will in most cases be found sufficient for perpetuals, as, with the roots well protected, the tops are invariably safe, and it is astonishing what an amount of cold most plants will bear if the frost is kept out of the ground. Borders of beds of *Belladonna Lilies* should be protected by having some half rotten leaves shook over the crowns, as when the clumps become strong the finest bulbs are forced to the surface, and, if not protected, are killed by the frost. Good drainage, a warm situation and security from frost, are the three essential points in their cultition, and the same applies to *Alströmerias*. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

VINES.—Forcing must begin in earnest this month by all who desire to cut ripe fruit before the end of May next. The house having been previously cleaned and otherwise put in working order, start with a night temperature of 50°, and if the weather is mild 55° will be none too much, but this should not be exceeded till the Vines begin to burst their buds. Syringe occasionally when the atmosphere feels harsh, though this will rarely be the case if, as advised in a former Calendar, a bed of leaves and stable litter has been placed on the floor of the house and a part of it stirred daily. There is no one practice connected with Vine culture, particularly for early forcing, that I consider of so much importance as this, viz., a supply of ammonia to the atmosphere. The outside border should also have the needful protection from cold rain and snow, and warmth supplied by means of litter and leaves, two-thirds of the latter to one of the former; the heat does not then become intense, and is much more lasting. Borders that were covered with straw, Fern, or litter in September, and that have been protected from wet, will be warm enough without adding stable-litter. Chambered borders (the most unnatural manner of heating ever invented) will require great care, both as to regulating the heat and watering the borders, as they dry so quickly under this system. Midseason houses should ere this be pruned and at rest; usually these are full of plants at this season, and the Vines but of secondary consideration; but this should never be—if first-class Grapes are desired, everything should be subservient to the Vine. Any houses from which the Grapes have been partially cut, and which it is desired to clear out entirely, for painting or other repairs, may be cut with a good piece of the wood attached, and inserted in bottles of water. Any dry room from which the frost can be excluded will do for them. Late kinds, such as Alicante and Lady Downe's, should not be cut till the beginning of the new year; there will then be no difficulty of keeping them in good condition till May, if required. There is no other kind of fruit with which I am acquainted that we expect so much from as the Grape Vine, and certainly there is none we treat so hardly; for, whilst all other kinds have their fruit gathered as soon as ripe, the Vine is expected to retain its fruit, if need be, till growth commences for another season's crop; and yet some will tell me that this causes no injury to the Vines. To my own satisfaction, I have proved this theory incorrect, and therefore advise, when practicable, that the fruit should be cut, at least, a reasonable time before the Vines start into growth. *W. Wildsmith, Heckfield.*

CUCUMBERS.—A heavy snow, cold and biting winds, sharp frosts, and, perhaps, worse than all, no sun, has been the condition of the weather in this locality for the past ten days, and seems likely to continue, thereby rendering the progress of Cucumbers at the best but very slow. It is only by constant attention and perseverance in such weather that a satisfactory result can be attained. A proper and even temperature may now be set down as an item of the very first importance towards success; 67° by night to 72° by day, without any sudden fluctuations, is the proper limits to observe, and if the bottom-heat can be maintained 5° higher than the maximum figures quoted, so much the better. Be moderate in the application of atmospheric moisture just now, and only when the air or external atmosphere is light need the evaporating troughs be charged. Take care the roots do not become dry where hot-water pipes are in close proximity, and this is specially to be observed just now, consequent on the extra firing; the water applied to the roots must be warm. A night covering of mats, or any other non-conducting material, might now be employed with advantage, but do not exclude one ray of daylight. Continue to remove old foliage and exhausted growths from the autumn fruiters, but do not stop the growing points over-much for the next two months. Avoid over-crowding and over-cropping, and give a liberal encouragement to the roots by way of fresh compost, as they protrude through, from time to time, and an occasional dose of weak liquid manure; they should also be maintained in a tolerably firm condition. Remove all tendrils and male blossoms from the winter fruiters, which are now advancing well up the trellises, and fertilise the female blossoms on those plants in bearing during a continuance of this weather. *Thomas Simpson, Chelmsford, Dec.* 7.

KITCHEN GARDEN.

The ordinary routine of operations in this department being interrupted by the presence of snow (which is 4 inches deep now) and frost combined, it becomes necessary to turn attention to those matters which can, even under such circumstances, be executed. Amongst these matters may be enumerated the preparation of Pea-sticks, stakes in suitable sizes and variety for all purposes, pegs for layering, &c., and twigs for laying in the summer growths of such wall trees as Peaches, Morello Cherries or others of similar habit. The clippings of Privet hedges will be found to be most suitable for this end. These should have the leaves stripped off them, and be tied in bundles to straighten, and be put where they will become somewhat hardened. All roots in storehouses should likewise have the requisite attention, and particularly those Potatos which are intended for planting in the ensuing season. As soon as space is at liberty which can be suitably applied to this purpose the sets should be placed in a single layer and the place be kept cool, "frost merely to be excluded," so as to avoid early growth in the sets. When circumstances are favourable proceed in emptying decomposed material from pits to where it is required, and let not that part to which the various accumulations from the garden or elsewhere are conveyed and concentrated be neglected. This matter should command attention more generally than it does, considering that it provides a valuable supply of rich fertilising matter at so trifling a cost. Where ordinary attention has been given to this subject in the way of turning over occasionally, and adding a little quicklime and salt, much valuable stuff will now be fit for application, and should be transferred to where it is to be applied, or be reserved for use where it is intended.

FORCING DEPARTMENT.—According to the demand advance successional crops of *Asparagus*, *Seakale*, and *Rhubarb*, and make preparations for advancing succeeding supplies. Sow *French Beans* at intervals in quantities, according to space and requirements. Where large supplies of these are required, a suitable structure should be devoted solely to them; where they can be sown or planted out under these conditions they will yield much more satisfactory results: the fronts of Pine beds are likewise suitable places for planting out single rows. I refer to beds in houses to which sunshine has free access; here, by introducing at the front of the bed a border of rich light soil about a foot wide and 10 inches deep, fine rows can be obtained, which will yield abundantly if they are properly watered, occasionally mixing with the water guano or other stimulating agent. Make up beds of leaves, or leaves and manure mixed, in pots or frames, for *Potatos*, *Carrots*, *and Radishes*; these and Carrots should be sown in alternate rows: use fine rich soil, and sow the seeds in shallow drills about 4 inches apart. As soon as the seeds vegetate, especially that of Radish, plenty of fresh air must be admitted. Provide by inserting sufficient sets of Potatos in leaf-mould in boxes or otherwise, to be placed in a temperate house preparatory to being planted out in the beds which are prepared to received them. *Rivers' Ashleaf Kidney* is an excellent variety for very early work. Water abundantly when required the beds of *Rhubarb* and *Seakale* which are in Mushroom-houses; see that *Asparagus* in bearing is liberally ventilated under favourable conditions. *Lettuce* in pots where heat is applied must also have regular attention in this way. During very severe weather, *Cauliflowers* will not suffer if the coverings are left on even for three or four days in cold pits. *George Thomas Miles, Wycombe Abbey.*

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

82. HARVEY'S WILTSHIRE DEFIANCE APPLE.—Can any one oblige us by stating where trees of the above may be purchased? *T. Bunyard & Sons, Maidstone.*

83. "FOLIA ORCHIDACEA." *Orchidophile* is desirous of obtaining Part I. of this publication, which he has not been able to obtain in the ordinary manner. Can any of our readers assist in the matter?

Answers to Correspondents.

COE'S GOLDEN DROP PLUM: *Simla.* According to the *Fruit Manual*, this variety was raised about the end of the last century by one Jervaise Coe, a market gardener at Bury St. Edmunds, in Suffolk; and, as he supposed, was produced from the stone of a Green Gage, impregnated by the white Magnum Bonum.

DAISY SAND: *Thomas Clark.* We presume you mean Watson's Lawn Sand, which may be obtained through your seedsman.

INSECTS: *I. S. H.* The insect which has made its appearance in your East Indian Orchid-house is the well-known Blatta americana, or cockroach, doubtless imported with your plants from the ships, in which it is very common. It must be hunted for and trapped in the same way as the common species so well known in kitchens, bakehouses, &c. *I. O. W.*

LILIUMS: *Lilium.* All quite hardy except Nos. 2 and 8, which may need a little protection, and are perhaps best grown in pots.

NAMES OF FRUITS: *Constant Reader, D. Apples:* 1, Duke of Bedford; 2, Blenheim Orange; 4, Waltham Abbey Seedling; 5, Golden Noble.—*J. M.* Your Apple is Seigoude Reinette.—*Hamptonian.* 1 and 3, quite rotten; 2, Scarlet Nonpareil.—*J. M., Down Street:* Your Pear is most likely Susette de Bavay.—*H. and S. Apple:* Reinette Baumann.—*Salway.* 41, Marie Louise; 42, Doyenné du Comice; 25, Grosse Calebasse; 28, Thompson's.—*G. B.* 1, Van Mons. Léon le Clerc; 2, Beurré de Capiaumont.—*T. B.* 3, Napoléon; 5, Glou Morçeau; 7, Vicar of Winkfield. *Apple:* 6, Blenheim Orange.

NAMES OF PLANTS.—*W. S.* Angræcum distichum, a native of Sierra Leone; the other plant is Lycopodium numularifolium.—*J. M. B.* 2, Thuja occi-

dentalis; 4, Cupressus Goveniana; 5, Cupressus torulosa.—*A. B. C.* Erica melanthera, var.—*F. Jones.* 1, a Selaginella, but not in a condition to name; 2, probably a Melaleuca, but we cannot name it without flowers; 3, specimen insufficient; 4, Peristrophe speciosa; 5, Xylophylla angustifolia; 6, Russelia juncea; 7, seems to be Acineta chrysantha, but we have no specimens, and it certainly is not the commoner A. Barteri.—*W. D.* Lavandula Stœchas, or French Lavender.

NOTICE TO LEAVE: *W. S. S.* If a gardener or bailiff is paid weekly, and there is no agreement to the contrary, the master can discharge them at a week's notice, though this is very seldom done, a months' notice being usually given.

ROFFEA, ROIFFEA, OR RAPHIA: *J. M.* This article, which is sold for plant tying, is the produce of the Rofia Palm, Sagus Ruffia. See p. 678 of our issue for November 27.

SUN-BURNING: *M. J. B.* No.

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time, to inform him of the fact.

*** **Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible.** ***Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editors.***

CATALOGUES RECEIVED.—William Smith & Sons (35, Market Street, Aberdeen), Catalogue of Forest Trees, Conifers, Shrubs, Fruit Trees, Roses, &c.—Boyer & Sons (Boulevard Saint-Antoine, Nimes, France), Catalogue of Seeds, &c.—Louis Van Houtte (Royal Nurseries, Ghent, Belgium), Catalogue of Ornamental Trees and Shrubs, Conifers, Roses, Fruit Trees, &c.—Robert Cragg (Car Colstan, near Bingham, Nottinghamshire), Descriptive Catalogue of Roses, Pansies, Spring and Summer Bedding Plants, &c.—R. B. Matthews (65 and 67, Victoria Street, Belfast), Descriptive Priced Catalogue of General Nursery Stock.—Martin Grashoff (Quedlinburg, Germany, Prussia) Extract of Wholesale Trade Catalogue of Agricultural, Garden and Flower Seeds, &c.—Richard Dean (Ealing, London, W.), Catalogue of New and Choice Potatos.

COMMUNICATIONS RECEIVED.—Hamptonian.—Capt. J. T.—Clark Brothers & Co.—J. W.—R. B.—P. H. G.—G. E.—G. Taylor (thanks).—E. L.—J. C. L.—G. W. (next week).—T. S. J.—G. A. S.—S. W.—J. W.—A. M.—M. J. B.—F. B.—K. K.—R. C.

*** IMPORTANT NOTICE.—*The* AGRICULTURAL GAZETTE *is now* PUBLISHED *on* MONDAYS, *in time for the Evening Mails, containing a Full Report of the London Markets, and of all other Agricultural Intelligence up to the hour of going to press.*

Markets.

COVENT GARDEN, *December 9.*

The cold weather still checks business, and all classes of goods hang upon the market. Among foreign goods, large quantities of St. Michael Pines have come to hand in good condition, and can be procured at low prices. While the supply of Pears from France has been considerably shortened, we are still receiving large quantities from the Channel Islands. No alteration in Kent Cobs. *Jas. Webber, Wholesale Apple Market.*

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per doz.	42 0	60 0	Heaths, in var., doz.	12 0	30 0
Begonias, per doz.	6 0	12 0	Hyacinths, Rom., do.	12 0	30 0
Bouvardias, do.	12 0	18 0	Mignonette, do.	6 0	9 0
Chrysanthemum, do.	6 0	12 0	Myrtles do.	3 0	9 0
Cyclamen, do.	12 0	24 0	Pelargoniums, scarlet, per doz.	6 0	9 0
Cyperus, do.	6 0	12 0	Poinsettia, per doz.	12 0	18 0
Dracæna terminalis	30 0	60 0	Primula sinensis, do.	4 0	9 0
— viridis, per doz.	12 0	24 0	Solanums, do.	6 0	24 0
Epiphyllums, do.	18 0	42 0	Tulips, per doz.	9 0	18 0
Euphorbia jacquiniifolia, per doz.	9 0	18 0	Veronica, do.	4 0	12 0
Ficus elastica	1 6	7 6			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, 12 sprays	1 6	4 0	Narcissus, per dozen	3 0	6 0
Camellias	6 0	12 0	Pelargoniums, 12 spr.	1 6	3 0
Carnations, 12 blooms	2 0	4 0	— Zonal, do.	1 0	1 6
Chrysanthem., 12 bl.	1 0	4 0	Poinsettia, per doz.	4 0	12 0
— 12 bunches	6 0	18 0	Primula, dbl., p. bun.	1 0	1 6
Cyclamen, 12 blooms	0 3	0 6	Roman Hyacinths, 12 sprays	3 0	6 0
Epiphyllum, p. doz.	1 0	3 0	Roses, indoor, p. doz.	2 0	6 0
Eucharis, per doz.	6 0	12 0	Spiræa, 12 sprays	1 0	3 0
Euphorbia, 12 spr.	4 0	9 0	Stephanotis, 12 sprays	6 0	12 0
Gardenia, per doz.	6 0	9 0	Tuberoses, per doz.	3 0	6 0
Heliotropes, 12 spr.	0 6	1 0	Violets, 12 bunches	3 0	6 0
Mignonette, 12 bun.	6 0	9 0			

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 6	Oranges, p. 100	6 0	12 0
Cobbs and Filbts., lb.	0 6	0 9	Pears, per doz.	1 0	4 0
Grapes, per lb.	1 6	6 0	Pine-apples, p. lb.	2 0	5 0
Lemons, per 100	6 0	10 0	Walnuts, p. bush.	8 0	12 0
Melons, each	2 0	4 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0	..	Lettuces, per score	2 0	..
— Jerusalem, p. lb.	0 3	..	Mint, per bundle	0 4	..
Asparagus, per bund.	30 0	40 0	Mushrooms, per pott.	1 0	2 0
Beans, French, p. 100	2 0	3 0	Onions, young, bun.	0 4	0 6
Beet, per doz.	1 0	2 0	Parsley, per bunch	0 4	..
Brussels Sprouts, lb.	0 4	..	Potatos (new), baskt.	1 0	..
Cabbages, per doz.	1 0	2 0	— Sweet, per lb.	0 6	..
Carrots, per bunch	0 6	..	Radishes, per bunch.	0 2	0 4
Cauliflowers, p. doz.	2 0	4 0	— Spanish, doz.	1 0	..
Celery, per bundle	1 6	2 0	— French	0 6	..
Cucumbers, each	1 0	1 6	Rhubarb, per bundle	2 0	..
Endive, per doz.	1 0	2 0	Salsafy, per bundle	0 9	..
— Batavian, p. doz.	2 0	3 0	Seakale, per punnet	2 0	3 0
Herbs, per bunch	0 2	0 4	Shallots, per lb.	0 3	..
Horse Radish, p. bun.	3 0	5 0	Tomatos, per doz.	1 0	2 0
Leeks, per bunch	0 2	0 4	Turnips, per bundle.	0 4	..

Potatos—Rocks, £5; Regents, £6 to £7; Kidneys, £7 to £8 per ton.

SEEDS.

LONDON: *Dec.* 9.—Our seed markets are being well attended this week, owing to the presence in London of a large number of agriculturists who have come up to the cattle show. Great activity continues to characterise the trade, and for all descriptions of Clover seeds prices are tending upwards. Cable advices describe the New York market as excited, the supplies being scanty, and values in consequence on the advance. Higher quotations for red seed are also reported both from France and Germany. A good business is passing in Alsike and white Clovers, and, as fine samples are scarce, rates are stiffening. Trefoil is held for more money; of good new bright seed there is very little offering. French Italian is in steady request, at the late advance. With regard to spring Tares holders are raising their prices, under the impression that still higher rates must be reached in the spring. In Mustard and Rape seed there is no change. Linseed is 1*s.* per quarter dearer. The cold weather, as might be expected, has increased the demand for blue boiling Peas. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

Businesss at Mark Lane on Monday was generally firm. In Wheat there was a tendency to harden values, but millers, knowing the heavy stocks in granary, did not respond, and the efforts to establish an advance were not successful. Grinding Barley was held for more money, whilst malting produce was scarcely saleable at some reduction. Malt was without appreciable change. Oats were 3*d.* per quarter higher on the week, Maize was slightly dearer; late rates prevailed both for Beans and Peas; and in flour very few transactions (all at last Monday's prices) were reported.—On Wednesday the market was again very quiet, and the quotations for Wheat were inclined rather to soften with the weather. Malting Barley was lower when forced for sale, and grinding qualities were no higher. Malt remained dull. Oats realised about the same as on Monday. Maize was firm, and rates were supported both for Beans and Peas. Flour was almost neglected.—Average prices of corn for the week ending Dec. 4:—Wheat, 46*s.* 7*d.*; Barley, 36*s.* 1*d.*; Oats, 25*s.* 1*d.* For the corresponding week last year:—Wheat, 44*s.* 8*d.*; Barley, 43*s.* 8*d.*; Oats, 28*s.* 7*d.*

CATTLE.

The severe weather interfered with the getting forward of beasts for Monday's market at Copenhagen Fields, but the attendance of buyers was very limited. There was a large supply of sheep, and choice calves were in demand at fair rates. Quotations:—Beasts, 4*s.* 6*d.* to 5*s.* 6*d.*, and 5*s.* 10*d.* to 6*s.* 4*d.*; calves, 4*s.* 8*d.* to 6*s.* 8*d.*; sheep, 5*s.* 8*d.* to 6*s.* 4*d.*, and 6*s.* 6*d.* to 7*s.*; pigs, 4*s.* 6*d.* to 5*s.* 10*d.*—The market was scantily supplied on Wednesday, and the general trade was dull, but everything of really good quality brought quite late rates. Sheep, though not numerous, sold badly and at reduced rates in all cases; calves supported Monday's rates.

HAY.

From Whitechapel we learn that, owing to the bad condition of the roads, there was a very small quantity of fodder brought to market, and all descriptions were held for extreme prices. Prime Clover, 130*s.* to 160*s.*; inferior ditto, 90*s.* to 100*s.*; prime meadow hay, 118*s.* to 147*s.*; inferior ditto, 80*s.* to 90*s.*; and straw, 42*s.* to 54*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 138*s.* to 147*s.*; inferior, 100*s.* to 115*s.*; superior Clover, 150*s.* to 160*s.*; inferior, 110*s.* to 126*s.*; and straw, 50*s.* to 57*s.* per load.

POTATOS.

At the Borough and Spitalfields markets sound Potatos change hands steadily, but inferior kinds are slow of sale. Quotations:—York Regents, 160*s.* to 180*s.*; other Regents, 140*s.* to 160*s.*; rocks, 90*s.* to 100*s.*; Dutch rocks, 90*s.* to 130*s.*; French round, 80*s.* to 90*s.*; Belgian kidneys, 100*s.* to 120*s.* per ton.—The imports of foreign Potatos into London last week included 122 tons and 17,800 bags from Antwerp; 1410 bags, 4 hampers, and 5 bushels from Rotterdam; 640 tons and 2750 sacks from Dunkirk; 1228 sacks from Brussels, 100 bags from Ghent, 414 bags from Hamburg, 1 bag from Ostend, and 195 bags from St. Nazaire.

COALS.

The business done at market on Monday was very small, at previous prices. On Wednesday the market was in an unsettled state, and no transactions took place in house coals; but Hartleys were 6*d.* per ton lower. Bebside West Hartley, 19*s.* 9*d.*; Hastings Hartley, 19*s.* 9*d.*

The AGRICULTURAL GAZETTE *for* MONDAY NEXT, *Dec.* 13, *will contain a full and Illustrated Report of the Smithfield Club Show.*

The best MONDAY Agricultural Journal.
The only Illustrated Agricultural Journal.

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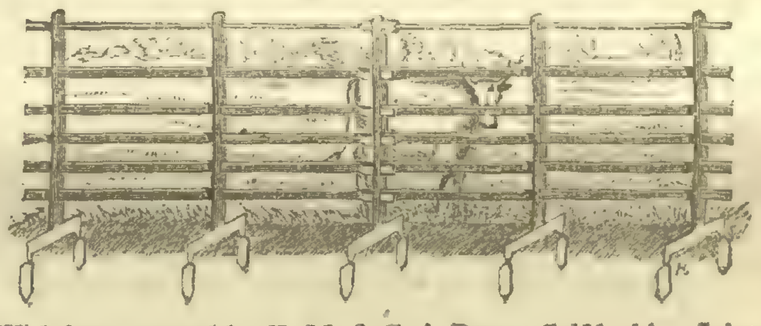

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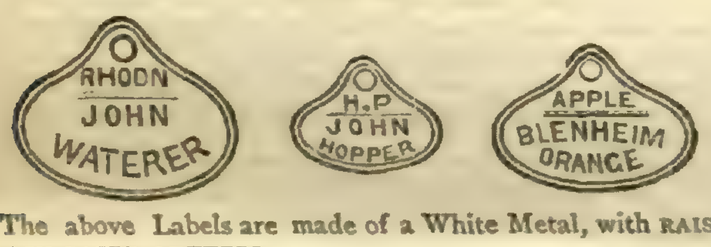

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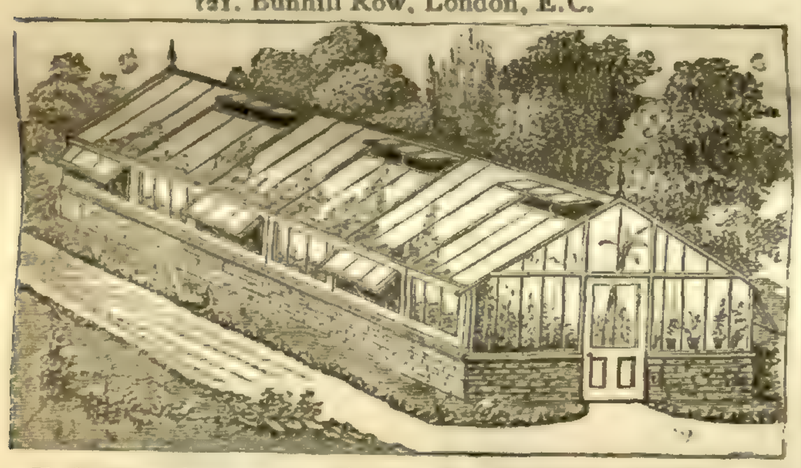

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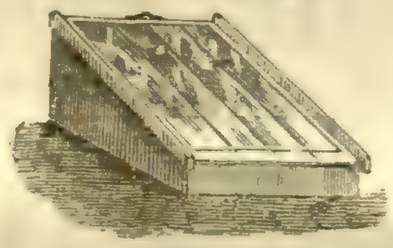

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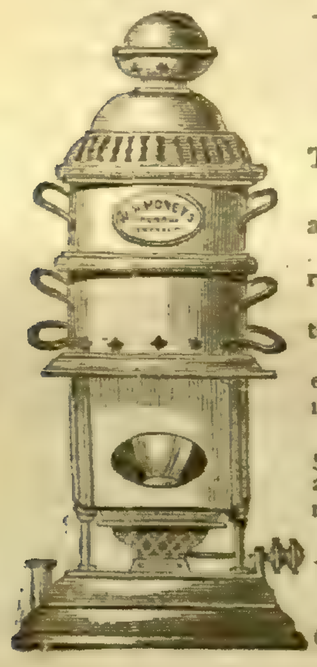

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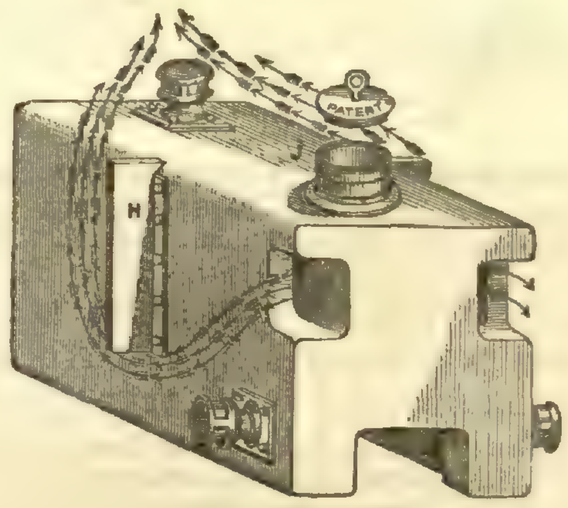

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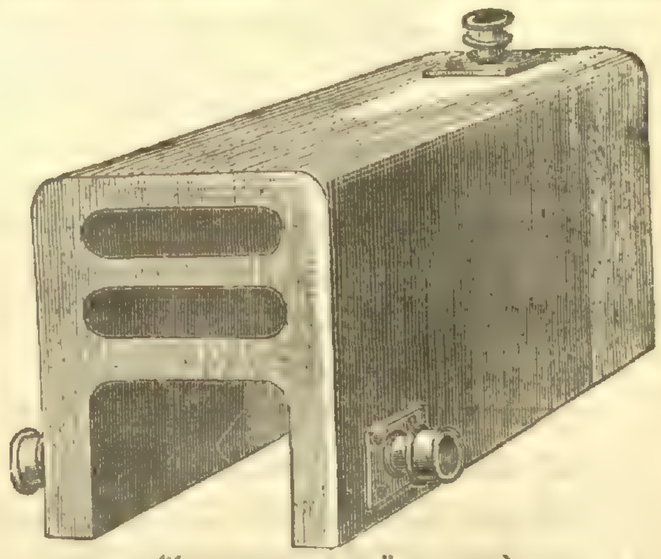

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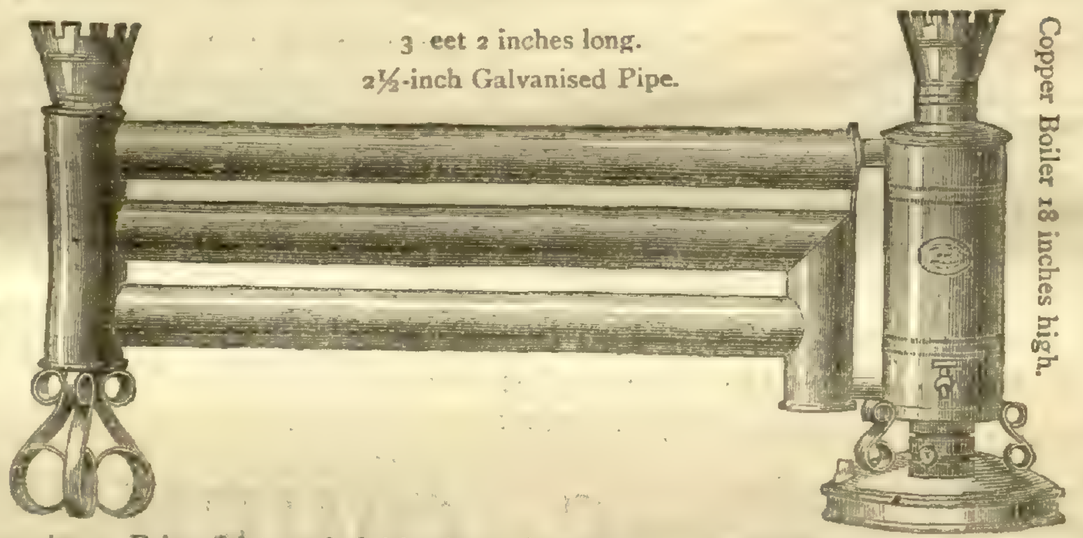

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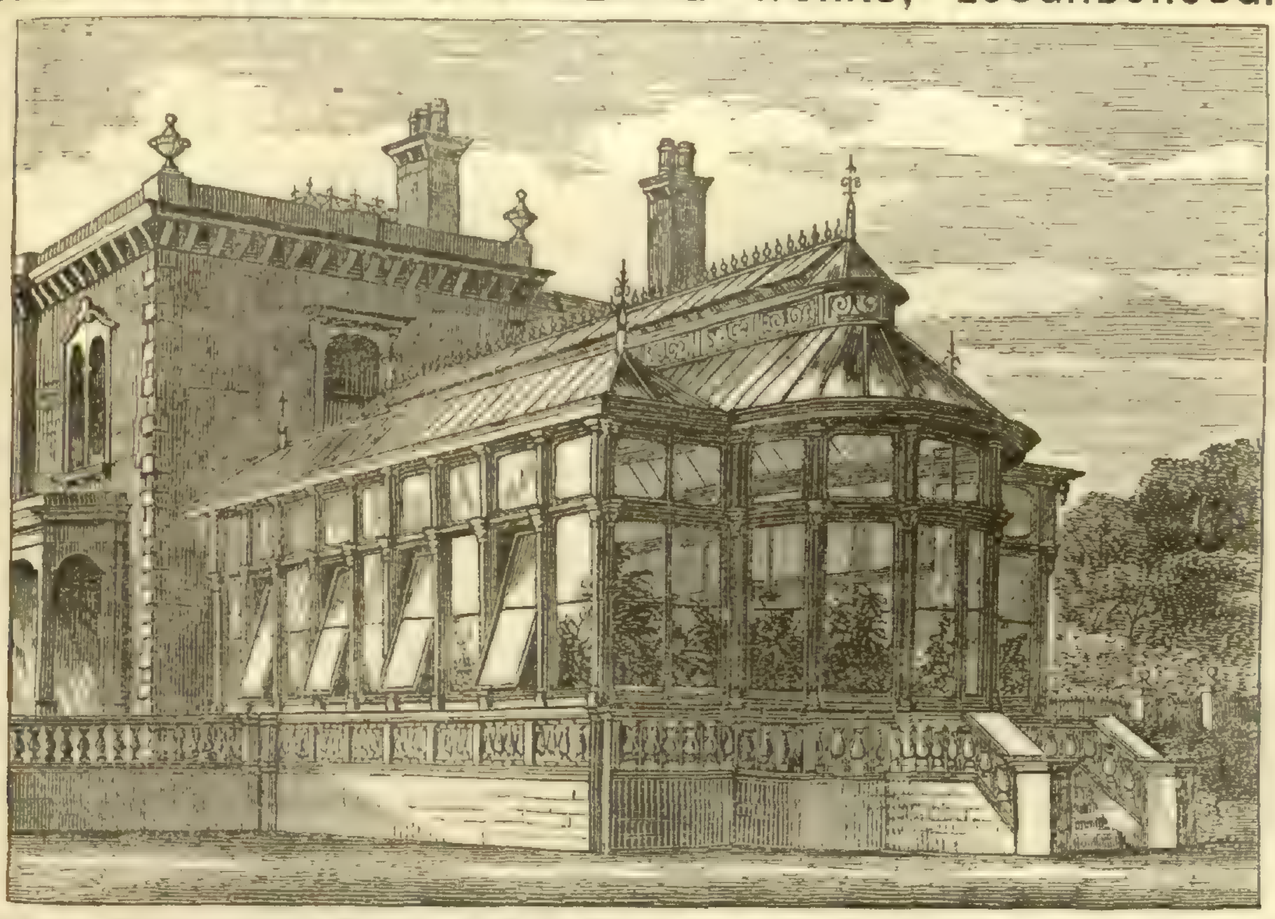

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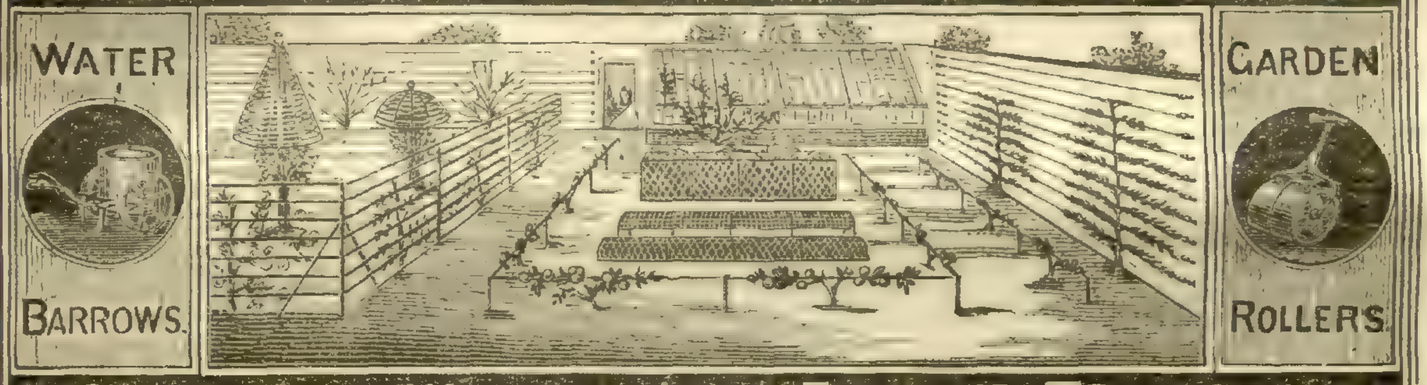

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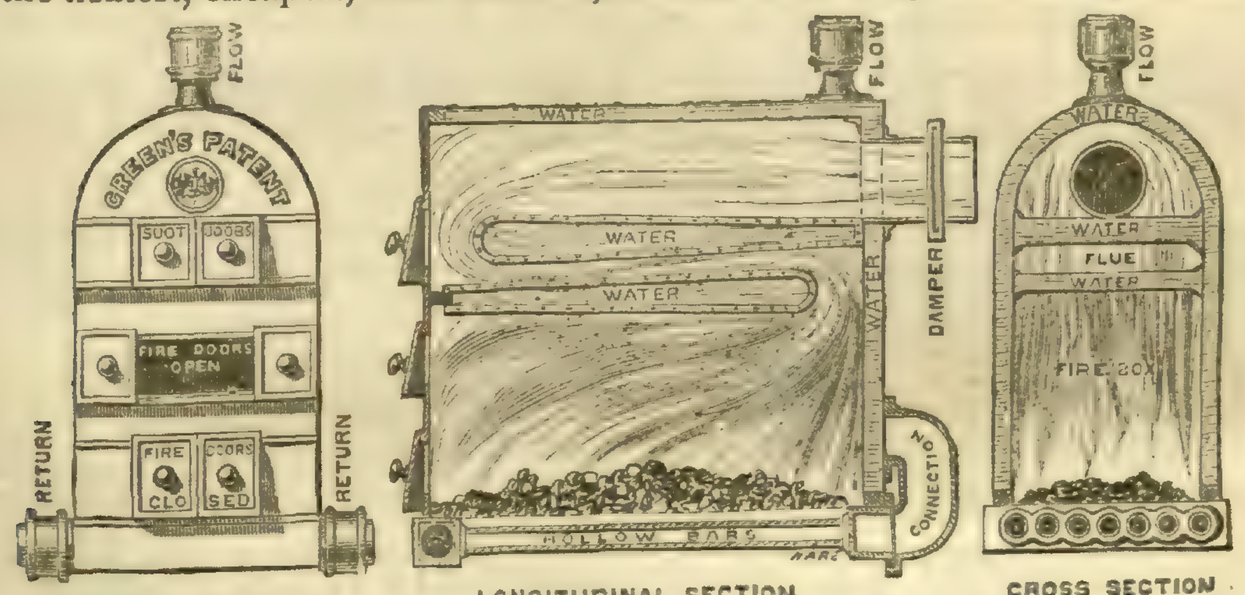

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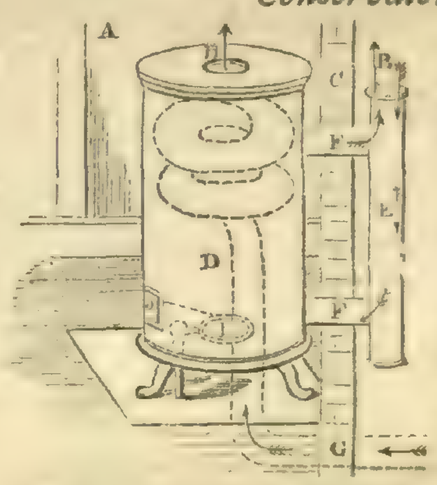

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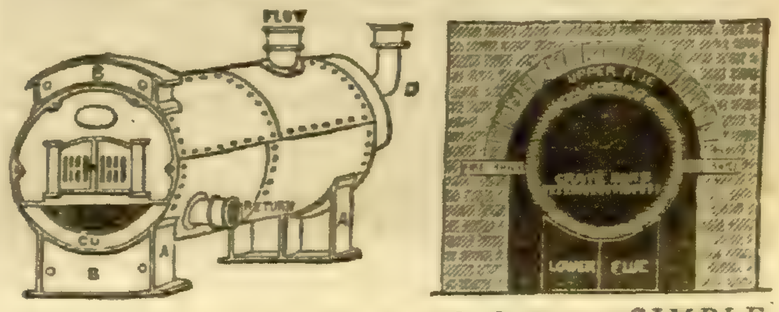

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A short-strawed, early white wrinkled marrow, of the same height and as early as "Ringleader," described by the Royal Horticultural Society as having very full pods, produced abundantly, and containing from eight to nine very large Peas of very fine quality, and as being an exceedingly fine and early prolific white wrinkled variety. First-class Certificate.

Price :

5s. per sealed quarter-pint packet.

STANDARD : from a Photograph.

STANDARD.

Unquestionably the most useful maincrop blue wrinkled Pea yet raised, and will take the same place as a prolific market Pea of high quality amongst blue wrinkled marrows as "Fillbasket" has in round Peas. Described by the Royal Horticultural Society as having long curved pods containing from nine to eleven Peas of large size and excellent quality in each ; and as being a very handsome and prolific Pea.

Mr. Laxton, in a letter to us says, "I cannot find a fault with this Pea," and Mr. Gilbert, of Burghley, says of it, "It is certainly the best Pea I know.' Height 3 feet.

Price :

5s. per sealed quarter-pint packet.

THE FOLLOWING NOVELTIES OF 1875 CAN ALSO BE SUPPLIED.

SUPPLANTER.

A first-rate Exhibition Pea of fine quality—the earliest of the "Veitch's Perfection" type. Height, 3 feet. Described by the Royal Horticultural Society as being "a large, handsome, and very prolific Pea ; producing very large pods in pairs ; plant very robust and vigorous." Received a First-class Certificate.

Price, 5s. per sealed half-pint packet.

UNIQUE.

A very handsome and prolific dwarf early Pea with long deep green coloured pods, coming into use at the same time, and of the same height as "Little Gem." First-class Certificate Royal Horticultural Society.

Price, 5s. per sealed half-pint packet.

DR. HOGG.

An early "Ne Plus Ultra," coming in one week after Dillestone's. Height, 3 feet. Described by the Royal Horticultural Society as "a very handsome Pea. The earliest green wrinkled marrow, very sweet and of excellent quality, pods being very well filled and of a beautiful deep green colour like the Ne Plus Ultra." Awarded a First-class Certificate.

Price, 5s. per sealed half-pint packet.

CONNOISSEUR.

A most distinct and delicious late Pea, raised from "Ne Plus Ultra." Height, 6 feet.

Price 5s. per sealed half-pint packet.

For further particulars of these Peas see "Hogg's Gardener's Year Books for 1873 and 1874."

For other varieties of Mr. Laxton's Peas previously sent out see our General List.

☞ £20 will be offered in Prizes for Mr. Laxton's Peas in 1876, viz. :—£10 in Four Prizes at the Royal Horticultural Society's Show, in July next, for any six varieties introduced by us, to include the "Shah" and "Standard," fifty pods of each ; and £10 to repeat the Prizes at the Society's Provincial Exhibition.

HURST & SON, 6, LEADENHALL STREET, LONDON, E.C.

Editorial Communications should be addressed to "The Editor ;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London. W.C.
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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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☞ *NOTICE TO ADVERTISERS.—The* "GARDENERS' CHRONICLE" *for Dec.* 25 *will be Published on Thursday next at* 2 P.M.

ADVERTISEMENTS *for that Number must therefore reach the Office not later than* WEDNESDAY MORNING *the 22d inst.*

Notice to Advertisers.

THE AGRICULTURAL GAZETTE for MONDAY, December 27, will be Published at 2 P.M. on FRIDAY, the 24th inst.

ADVERTISEMENTS for that Number must therefore reach the Office not later than THURSDAY MORNING, the 23d inst.

THE ROYAL AQUARIUM SUMMER and WINTER GARDEN SOCIETY propose holding a series of GRAND FLOWER and FRUIT SHOWS at Westminster on the dates fixed below.

1876.	Amount of Prizes.
APRIL 12 and 13.—Forced Rhododendrons, Azaleas, Lilies, &c.	£250 0 0
MAY 10 and 11.—Roses in Pots, Greenhouse Azaleas, Palms and other suitable Plants for Table Decoration	350 0 0
MAY 30 and 31.—Grand Stove and Greenhouse Plant Show, Fruit, &c.	1100 0 0
JULY 5 and 6.—Grand Rose Show, Dinner Table Decorations, &c.	350 0 0
OCTOBER 4 and 5.—Great Fruit and Chrysanthemum Show	450 0 0
	£2500 0 0

The Prizes on all occasions will be paid on the first day of the Show. Schedules will be ready on January 1, 1876.

By Order, W. W. ROBERTSON, Managing Director.

Winter Gardens, Southport, Season 1876.

GRAND HORTICULTURAL EXHIBITION to be held on JULY 5, 6, 7, and 8. Prizes to the value of about £400 will be given.

Schedules will be shortly issued.—By order,

E. MARTIN, Secretary.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.

The Ottershaw Nursery, Chertsey.

Special Culture of Fruit Trees and Roses.

THE DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS (by THOMAS RIVERS) is now ready; also CATALOGUE of Select ROSES. Post free on application.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

ROSE SHOWS, 1875.—50 First Prizes, 25 Guinea Silver Challenge Cup, and other Premier Prizes. See Cranston & Mayos' DESCRIPTIVE ROSE CATALOGUE for 1875. Address,

CRANSTON'S Nurseries, King's Acre, Hereford.

Fruits.—Roses.

A. M. C. JONGKINDT CONINCK'S Wholesale TRADE LIST of FRUITS and ROSES is now ready, free on application.

Large quantity of home-grown, very sound bulbs of LILIUM AURATUM.

Tottenham Nursuries, Dedemsvaart, near Zwolle, Netherlands.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.

EWING AND CO., The Royal Norfolk Nurseries, Norwich.

The Oxford Roses, on Cultivated Seedling Briar.

GEORGE PRINCE'S Priced and Descriptive CATALOGUE now ready. All Roses are grown exclusively on the above stock at this establishment.

14, Market Street, Oxford.

Johnstone's St. Martin's Rhubarb.

EARLIEST and BEST in CULTIVATION for Open Ground, has a splendid colour and excellent for Forcing. Strong roots, 9s. per dozen. Trade price on application.

W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

The Best Celery is

LEICESTER RED—1s. per packet.

The best SAVOY is KING KOFFEE, 1s. per packet; with many other choice stocks of Seeds. TRADE PRICED LIST on application.

HARRISON AND SONS, Seed Growers, Leicester.

Mangel and Swede.

JOHN SHARPE can furnish, on application, his quotations for the choicest Stocks of the above, selected and grown by himself.

Bardney Manor, Lincoln.

SEAKALE, ASPARAGUS, and RHUBARB—Extra strong, for immediate Forcing and Planting. Prices upon application.

JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

GRAPE VINES.—Strong and extra strong, thoroughly ripened without bottom-heat, for immediate Fruiting and for Planting: the leading varieties.

CATALOGUE and Prices on application.

JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

GOLDEN QUEEN GRAPES.—Good Canes of this, the finest of all late keeping yellow Grapes, 21s. each, in 10-inch pots.

I. R. PEARSON, Chilwell Nurseries, Notts.

Vines, Vines, Vines.

B. S. WILLIAMS begs to announce that his stock of VINES is now in fine condition, and ready for sending out. It comprises all the leading kinds, strong Canes of Pearson's Golden Queen.

For prices and description see BULB CATALOGUE.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

New Cucumber.

COOLING'S KING of the CUCUMBERS, a cross between Long Gun and Telegraph, combining the best qualities of both varieties. Fruit 18 to 24 inches; colour deep glossy green, very smooth and handsome; flesh, crisp and solid, very free bearer. The best Cucumber ever sent out. Price, 2s. 6d. per packet. Trade terms on application.

Mile Ash Nurseries, Derby.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

Splendid New Apple.

LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, 3s. 6d. each, 21s. for seven; 2-yr. plants, 5s. to 7s. 6d. each.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c. Free by post for one stamp.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

To the Trade.

Home-grown GARDEN and AGRICULTURAL SEEDS.

H. AND F. SHARPE'S Wholesale Special Priced LIST of the above Seeds of 1875 growth is now ready; it comprises all the best sorts in cultivation. The quality is very fine, and the prices will compare favourably with those of other growers.

Seed Growing Establishment, Wisbech.

WANTED, 20,000 MANETTI STOCKS. Send sample and Price to

EDWIN HILLIER, Nurseryman, Winchester.

WANTED, about 200,000 Transplanted SCOTCH FIR, 10 to 14 inches, well rooted. Prices, &c., to

JOSEPH TREMBLE AND SONS, Seed Merchants, &c., Penrith.

WANTED, 600 MAIDEN KESWICK CODLIN APPLES. Quote price per 100 and quantity to

RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

Planting Season.

SEEDLING and TRANSPLANTED FOREST TREES, &c.

List of Prices may be had on application to

W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

SPANISH CHESTNUTS, a large quantity, 3 feet; ASH, SPRUCE, BIRCH, and ALDER, stout, well-grown, and transplanted, to be Sold.

G. CHORLEY, Midhurst, Sussex.

Green Screens, for Shutting Out Unsightly Objects.

LOMBARDY POPLARS, fine large, 20 to 30 feet high, 3s. to 5s. each. Delivered on Rail.

T. JACKSON AND SON, Nurseries, Kingston, Surrey.

For Sale, to Clear the Ground.

PORTUGAL LAURELS, a large quantity, very good, bushy, 2 feet, 25s. per 100.

ENGLISH YEWS, good bushy, 1½ foot, 21s. per 100.

WILLIAM BUNTING, Nurseryman, Colchester.

MAGNIFICENT NEW HARDY EVERGREEN FLOWERING SHRUB, &c.—For particulars see our advertisement in *Gardeners' Chronicle* of Nov. 19 and 26. See also Catalogue, free on application.

The NEW PLANT and BULB COMPANY, Lion Walk, Colchester.

CHRISTMAS TREES.—Fine colour, and well grown, 2 to 6 feet high. Price low.

H. JACKSON, Nursery, Kidderminster.

EPIPHYLLUMS.—For Sale, 1000, grafted on the Pereskia Stock. Twelve of the best varieties for 18s., cheaper by the 100. Pereskia Stocks 25s. per 100.

GEORGE COOPER, Rosehill Nursery, Derby.

Phalænopsis.

HUGH LOW AND CO. have to offer, by the Dozen or Hundred, strong established Plants of PHALÆNOPSIS AMABILIS, GRANDIFLORA, LUDDEMANNIANA and SCHILLERIANA. Prices on application.

Clapton Nursery, London, E.

Cœlogyne cristata.

R. S. YATES has pleasure in announcing that his CŒLOGYNES are, as usual, very fine. They are just bursting into bloom. R. S. Y. has ten or twelve Plants with nearly 100 spikes, and 500 or 600 bulbs on each pot, a portion of which he offers at 25 guineas each for cash only. He has a large Stock of Plants from 3 guineas each.—Sale, Dec. 6, 1875.

WENZEL BROTHERS, SEED GROWERS, Quedlinburg, Prussia.—SEED LIST of VEGETABLE, AGRICULTURAL and FLOWER SEEDS, is now Published, and may be had Post Free on application.

GIANT LILY of the VALLEY.—Extra strong blooming roots, 2s. per dozen, 12s. 6d. per 100, package free.

E. COOLING, Mile Ash Nurseries, Derby.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.

Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Important to the Trade.

LILIUM AURATUM. Bulbs are now arriving from Japan in fine condition, and being Sold Weekly at very low prices, at

STEVENS' ROOMS, 38, King Street, Covent Garden, London, W.C. Catalogues on application.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.

Highgate Nurseries, London, N.

Fruits for Forcing.

MESSRS. RIVERS AND SON beg to offer fine Trees in pots, well set with Fruit Buds and ready for Forcing, of PEACHES, NECTARINES, FIGS, and GRAPES, of approved kinds only. Carriage paid to London.

The Nurseries, Sawbridgeworth, Herts.

CARTER'S PROLIFIC RASPBERRY CANES (true), 15,000 for Sale, at 25s. per 1000.

JAMES BURKIN, Cudham, near Chislehurst, Kent.

FASTOLF RASPBERRY CANES, 15,000, strong, 4s. per 100; BLACK CURRANT TREES, 10,000, 4-yr. old, 8s. per 100; RED CURRANT TREES, Ruby Castle, 8000, 4-yr. old, 5s. per 100. Apply to

W. SELBY, Jun., Oldbury, Ightham, Kent.

RASPS.—20,000 FASTOLF, fine strong Canes, 4 feet high. Cheap to Trade, or in quantity.

EWING AND COMPANY, Norwich.

HUGH LOW AND CO. have to offer to the Trade, Dwarf Maiden PEACHES, NECTARINES, and MOORPARK APRICOTS; also Dwarf-trained TREES. Prices on application.

Clapton Nursery, London, E.

SALES BY AUCTION.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, and WEDNESDAY, December 20 and 22, at half-past 12 o'Clock precisely, several Importations of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIUMS, IRIS, and other Bulbs from Holland.

On view the morning of Sale, and Catalogues had.

Rare Lilies and Bulbs.—Sale No. 4604.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 23, at half-past 12 o'Clock precisely, rare LILIES and BULBS, various hardy and half-hardy tuberous-rooted flowers, and among them the following, with descriptive notes :—

Spigelia splendens.
Gastronema sanguineum flammea.
Amaryllis Pardina.
" purpurea.
" rubescens.
Lilium tenuifolium.
" Humboldtii of several splendid varieties selected from nearly 2000 flowered bulbs.
Nerine in 13 varieties.
Lilium pulchellum.
Cyclamen, hardy.
Gladiolus dracocephala.
Iris Kæmpferi varieties.
Lilium Maximowiczii.
" species nova from California.
" aureum rubro vittatum.
Iris iberica.
Agapanthus minor Mooreanus.
Begonia, various, &c.

Those which are hardy for the Flower Garden are distinguished separately in the Catalogue. Also an importation of 5000 splendid Bulbs of Lilium auratum just arrived from Japan in very fine condition, and an importation of Cypripedium spectabile.

On view the morning of Sale, and Catalogues had.

TO BE SOLD, on moderate terms, a SMALL NURSERY, in a good position, near Town—Lease, Glass, and all included. Low ground-rent.
H. P., 30, Southville, Wandsworth Road, S.W.

SEAKALE and ASPARAGUS, extra strong, for Forcing ; very fine. Price on application.
FRANCIS & ARTHUR DICKSON & SONS, "Upton" Nurseries, Chester.

Roses.

CHARLES TURNER can still supply strong Plants of all the leading varieties, of different heights and in pots, including the fine new kinds, Miss Hassard, Rev. J. B. M. Camm, John Stuart Mill, and Royal Standard. FRUIT TREES are also very fine this season.

A DESCRIPTIVE CATALOGUE of the above may be had on application.

The Royal Nurseries, Slough.

Dwarf and Standard Roses, &c.

ROSES, splendid Dwarf, as fine as can be bought, 6*s.* and 9*s.* per dozen, 50*s.* per 100 ; Standards, 12*s.* and 15*s.* per dozen, 100*s.* per 100, all good leading varieties. GOOSEBERRIES, Lancashire Show, 3*s.* and 4*s.* per dozen, 20*s.* per 100. CURRANTS, Red, White, or Black, 3*s.* per dozen, 18*s.* per 100. Trade Price on application.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

WM. POTTEN can still supply FRUIT TREES and ROSES, as advertised in the *Gardeners' Chronicle*, Nov. 6. W. P.'s LIST will be sent to all applicants.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

To the Trade.—Seed Potatos.

H. AND F. SHARPE are prepared to make Special Offers of SEED POTATOS grown on their own Farms from the finest selected stocks. Their List this season comprises all the English and American varieties worthy of cultivation. The prices will be found very moderate.
Seed-growing Establishment, Wisbech.

To Noblemen, Gentlemen, and Others who are REPLANTING this AUTUMN.

R. NEAL begs respectfully to call the attention of the above to his large and varied stock of Hardy SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS, CLIMBING PLANTS, &c., which are now in fine condition for removal. An early inspection invited.

CATALOGUES may be had on application.
The Nurseries, Wandsworth Common, S.W.

Gilbert's New Melon—A. F. Barron.

W. AND J. BROWN are favoured by Mr. R. Gilbert, Burghley Gardens, with sending out the above New Melon, being assured that it is in advance of any preceding it. Received First-class Certificate at the Stamford Horticultural Show : see *Gardeners' Chronicle*, November 20. Price per packet, 3*s.* 6*d.* ; trade terms on application.
Nurseries, Stamford and Oakham.

Evergreen Hedges.—Box, Green Hollies, and LIGUSTRUM OVALIFOLIUM.

R. NEAL, having a very large Stock of the above, can offer the same by the 100 or 1000 at a very low rate.

Also 10,000 ACER CAMPESTRIS, from 5 to 8 feet in height, clean-grown stuff.

Price on application.
The Nurseries, Wandsworth Common, S.W.

To the Trade.

JOHN LAING'S special offer of NEW, CHOICE and RARE SEEDS, CALADIUMS, ROSES, PALMS, FERNS, and FLORISTS' FLOWERS has been forwarded to his Customers ; any friends overlooked will have one sent free by post on application.

Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

EAST LOTHIAN STOCK SEED (Genuine), in three distinct Colours, saved by Mr. Campbell, late Gardener at Traprain, the original Raiser of this celebrated Stock, in packets 1*s.*, 2*s.* 6*d.*, and 5*s.* PANSY, from choice named flowers, in packets, 2*s.* 6*d.* and 5*s.* BALSAM, CALCEOLARIA, COCKSCOMB, POLYANTHUS, AURICULA, in packets 1*s.* to 2*s.* 6*d.* each, free by post. A Special Offer to the Trade.
ORMISTON AND RENWICK, Seed Merchants, Melrose, N.B.

Lilies by the 100 or 1000.

For Planting in Borders, Shrubberies, among Rhododendrons, Massing in Beds, or Grouping among Shrubs.

MR. WILLIAM BULL, being an annual importer from their native habitats of immense numbers, can offer Choice and New LILIES, also the well-known ordinary showy sorts, at very low prices when taken in quantity.

Special quotations on application.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Lilium auratum (Imported).

THE NEW PLANT and BULB COMPANY beg to announce the arrival of their first consignment of the above, in magnificent condition, at very low prices. Lion Walk, Colchester.

Lilium auratum (Home-grown).

THE NEW PLANT and BULB COMPANY have still on hand splendid bulbs, at very low prices. Lion Walk, Colchester.

Lilies, all Known Kinds (Home-grown).

THE NEW PLANT and BULB COMPANY invite intending purchasers to send for one of their CATALOGUES, which, in addition to Lilies, contains a selection of the best Hardy Flowering and other Plants in cultivation, all remarkably good, and such as will give a fine effect next season. The Trade liberally dealt with.

Lion Walk, Colchester.

STANDARD CHERRIES.—Special offer of the above, very fine Specimens of the following kinds :—

Bigarreau Early Black
" Large Black
" Monstreuse de Mezel
" Napoleon
" Reverchon
" White
" Early Rivers
Elton
Empress Eugenie
Governor Wood
May Duke
Morello
Turkey Black Heart.

Also strong LIMES, 7 to 8 feet.—Carriage paid to London.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Surplus Nursery Stock.

JOHN GRIER, of The Nurseries, Ambleside, Windermere, begs to intimate to the Trade, and Others engaged in Planting, that he will be very glad to quote Prices of the following, which he can supply in Quantity :—

PORTUGAL LAUREL, 2 to 3, 3 to 4, and 4 to 5 feet.
CUPRESSUS LAWSONIANA, 2 to 3, 3 to 4, and 4 to 5 feet.
COMMON YEW, 2, and 2 to 3½ feet.
THUJA GIGANTEA (or LOBBII), 4 to 5 and 5 to 6 feet.
PINUS AUSTRIACA, 18 to 24, and 24 to 30 inches.
RETINOSPORA PISIFERA, 3 to 4, and 4 to 5 feet.
THUJOPSIS BOREALIS, 3 to 4 and 4 to 5 feet. [12 ft.
ARAUCARIA IMBRICATA, a few fine specimens, from 5 to
All have been transplanted at proper intervals, and will consequently move with safety.

The Nurseries, Ambleside.

LILIUM AURATUM.—Plump and sound English-grown bulbs at 30*s.*, 42*s.* and 60*s.* per dozen. Imported bulbs from Japan have now arrived, in first-rate condition, price 18*s.*, 24*s.* and 30*s.* per dozen.

As Mr. WILLIAM BULL annually imports many thousands of Lilies direct from their native habitats in various parts of the world, he can supply all the choicest sorts at very moderate prices. Good and varied selections can be made by Mr. W. B. at 18*s.*, 30*s.* and 42*s.* per dozen.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

New Roses.

WM. PAUL AND SON beg to offer the following NEW ROSES :—

STAR of WALTHAM, 7*s.* 6*d.* to 10*s.* 6*d.* each.
QUEEN of WALTHAM, 5*s.* to 7*s.* 6*d.* each.

These have been acknowledged by many of our first Rose amateurs, who had seen them blooming in the Nurseries here, to be two of the best novelties of the season.

Coloured Plates, free by post, 1*s.* each.

250,000 ROSES, new and old, now on Sale, of superior qualities, at very reasonable prices. Priced Descriptive CATALOGUE free by post.

PAUL'S Nurseries, Waltham Cross, Herts.

New Broccoli.

CHRISTIE'S SELF PROTECTING LATE WHITE.—The finest late Broccoli in cultivation.

Mr. NISBET, *Gardener to* Sir Thomas Whichcote, Bart., *Oswarby Park, says :*—"Having seen Mr. Christie's Broccoli growing for the last three seasons I have no hesitation in recommending it as being the finest of all Broccolis I have yet seen, and for hardiness of constitution I know of no Broccoli to compare with it."

The above has been selected from numerous testimonials received in favour of this very valuable Broccoli for late use.

Per packet, 1*s.* 6*d.*

A limited quantity to offer to the Trade. Price on application.
EDMUND PHILIP DIXON, Seed Merchant and Nurseryman, Hull.

Cranston's Nurseries.—Established 1785.

THE FOLLOWING CATALOGUES are now Published :—

Descriptive CATALOGUE of ROSES, 1875—1876.
Descriptive CATALOGUE of FRUIT TREES.
Descriptive CATALOGUE of CONIFER TREES and SHRUBS.
Descriptive CATALOGUE of BULBS.
Descriptive CATALOGUE of GREENHOUSE and HERBACEOUS PLANTS.
Descriptive CATALOGUE of SEEDS. Address,
CRANSTON AND MAYOS, King's Acre, near Hereford.

Darlingtonia, Sarracenia, Dionæa.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the above interesting Pitcher and Carnivorous Plants, of which a large consignment has been received in perfect condition.

SARRACENIA FLAVA, strong imported plants, 60*s.* per doz.
" PURPUREA, established plants, 30*s.* per dozen.
DARLINGTONIA CALIFORNICA, the handsomest and rarest of Pitcher Plants, strong, 90*s.* per dozen.
DIONÆA MUSCIPULA, nicely growing plants, 36*s.* per doz.
Also, nice young plants of DORYANTHES PALMERI, at 24*s.* per dozen.

Single Plants at a proportionate increased charge.

Chrysanthemums.

H. CANNELL has the largest and most complete collection in Europe, both as stock plants, in 4-inch pots, and rooted little plants. Free by post, see CATALOGUE, sent free for two stamps. Every variety is bloomed yearly, and therefore all are warranted true to name. One hundred first-class varieties, H. C.'s selection, package free, for £1.

CANNELL'S Seventeen Acres of Flowers, Swanley, Kent.

Calochortus, Cyclobothra, New Lilies, &c.

THOMAS S. WARE having received, in excellent condition, a large consignment of the above, including CALOCHORTUS ROEZLII, which is a magnificent blue, offers during this month

7 dry bulbs, in 7 named sorts, for 8*s.* 6*d.*
14 dry bulbs, in 7 named sorts, for 15*s.*
21 dry bulbs, in 7 named sorts, for 20*s.*

For Descriptions and other particulars see CIRCULAR just published, free on application, containing also a selection of Lilies, &c.

Hale Farm Nurseries, Tottenham, London.

TO THE TRADE.

APRICOTS, Standards, trained, 1-yr. and 2-yr., 50*s.* to 80*s.* per dozen.
GOOSEBERRIES, good sorts, our selection, 90*s.* per 1000, 10*s.* 6*d.* per 100.
GOOSEBERRIES, Lancashire Prize sorts, 16*s.* per 100.
CURRANTS, Black, of sorts, fine trees, 90*s.* per 1000, 10*s.* 6*d.* per 100.
MAHALEB STOCKS, strong, 50*s.* per 1000, 6*s.* per 100.
PEAR STOCKS, 2-yr. seedling, 1-yr. transplanted, 35*s.* per 1000.
ROSES, Standards, Half-Standards, and Dwarfs.

For prices see Wholesale LIST, sent on application. A detailed List of varieties cultivated can also be supplied ; likewise of Fruit Trees, and Ornamental Trees and Shrubs, including choice Coniferæ.

JAMES BACKHOUSE AND SON, The Nurseries, York.

NEW AMARANTHUS.
PRINCESS OF WALES.

New tricolor-leaved variety of the Salicifolius section, raised by us ; 3 feet high, pyramidal ; centre of leaf carmine, and olive-green tips, remainder of leaf orange-yellow veined with pink ; splendid for Conservatory or Table Decoration. It has been recommended by all the leading Horticultural Journals in England. Coloured Plate will appear in the *Floral World* for February, 1876. Per packet, 2*s.* 6*d.*

W. HENDER & SON'S strain of PETUNIA is the finest ever sent out. Coloured Plate will appear in *Florist and Pomologist* for January, 1876.

"Your Petunias are the finest strain I ever saw. If their merits were fully known you would be sure of a good sale for your seed."—J. Paterson, gardener to Her Majesty the Queen, Balmoral, October, 1875.

"In every way the finest we have seen."—*Gardeners' Chronicle*, September 11, 1875.

"The finest strain of Petunias I ever saw."—J. Keynes, Salisbury.

And recommended by all the leading Horticultural Papers.

Double, per packet, 3*s.* 6*d.* ; single, 2*s.* 6*d.*

AMARANTHUS HENDERI, seed saved by ourselves and sent out in sealed packets only.

Usual allowance to the Trade. All the above are sent out in packets sealed with the raisers' name, "Hender & Son."

W. HENDER AND SON, Bedford Nursery, Plymouth.

AVENUE TREES.

	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 "
MAPLES, Norway, 12 to 16 feet high	5 to 8 "
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 "
" Scarlet, 10 to 14 feet high	8 to 10 "
" Double, 10 to 14 feet high	8 to 10 "
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 "
ELMS, 15 to 18 feet	7 to 9 "

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots. They are unquestionably the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.

Knap Hill Nursery, Woking, Surrey.

EXTRA STOCK FOR SALE, Cheap.

APPLE STOCKS, 1-yr. and 2-yr. 1-yr.
PEAR STOCKS, 2-yr. 2-yr.
RASPBERRY CANES, Fastolf.
" " Yellow Antwerp.
CURRANTS, Black Naples, strong.
" Red Grape, strong.
" Cherry, strong.
YEWS, Common, 1 to 2 feet.
IVIES, Irish, strong, from ground, and 1-yr.
JASMINE, White and nudiflorum.
FORSYTHIA FORTUNEI.
VIRGINIAN CREEPERS, strong.
HOTEIA JAPONICA, strong.
DIELYTRA SPECTABIL S, extra fine.
HAZEL, extra stout, 2½ to 3 feet.
LIMES, strong, for quartering, and fine specimens.

R. H. POYNTER, Nursery, Taunton.

To the Trade.

GRANT AND COMPANY, NURSERYMEN, Portadown, Ireland, offer the following goods in large or small quantities. Prices on application.

OAK, 1-yr. seedling, English, very stout.
MANETTI, 1-yr., dressed.
SAMBUCUS RACEMOSA—Scarlet Elder.
PRIVET, 1-yr., 1-yr., strong.
WILLOWS, sorts, 1-yr. and 2-yr.
THORN QUICKS, 3-yr. and 2-yr., 1-yr.
RHUBARB, Victoria, strong.
STRAWBERRIES, transplanted runners, finest sorts.
ROSES, dwarf, choicest varieties.
BELLIS PERENNIS AUCUBÆFOLIA, per 100 or
POPLAR, Black Italian, 2 to 4 ft. [1000.
PRIMROSES, double white and lilac.
GOLDEN THYME. COMMON THYME.
SILVER POPLAR, true American, from 1½ to 2½ feet, and from 4 feet to 6 feet.
COTONEASTER SIMMONSII, 2 to 3 ft., fine.
BOX EDGING, true Dutch, very nice.

THE OXFORD ROSES.

GEORGE PRINCE,

14, MARKET STREET, OXFORD,

Has much pleasure in offering the following selection of 26 varieties of Dwarf Roses in excellent plants on

THE CULTIVATED SEEDLING BRIAR,

for 25s., packing included.

Annie Wood,
Baron Hausmann,
Baron Bonstetten,
Clémence Raoux,
Comtesse d'Oxford,
Devienne Lamy,
Dr. André,
Duchess of Edinburgh,
Duke of Edinburgh,
Duke of Wellington,
Etienne Levet,
Exposition de Brie,
François Michelon,
Louis Van Houtte,
Mad. George Schwartz,
Mad. Hippolyte Jamain,
Mad. Lacharme,
Mad. la B. de Rothschild,
Mdlle. Eugénie Verdier,
Marie Baumann,
Mons. Boncenne,
Mons. Noman,
Mons. Paul Néron,
Prince Camille de Rohan,
Reine Blanche,
Maréchal Niel.

NOW READY,

NURSERY CATALOGUES FOR 1875-76.

WILL BE SENT POST FREE UPON APPLICATION.

THE LAWSON SEED AND NURSERY COMPANY (LIMITED),

EDINBURGH,

AND

54, BISHOPSGATE STREET WITHIN, LONDON, E.C.

BUSINESS ESTABLISHED, 1770.

LILIUM AURATUM,

The Golden-rayed Lily of Japan.

B. S. WILLIAMS having received a large importation of the above beautiful Lily, can now offer splendid flowering bulbs at the following low prices, viz. :—18*s.*, 24*s.* and 30*s.* per dozen; also a few extra-sized bulbs, at 3*s.* 6*d.* and 5*s.* each.

Early Orders are respectfully solicited.

B. S. WILLIAMS,

VICTORIA AND PARADISE NURSERIES,

UPPER HOLLOWAY, LONDON, N.

E. G. HENDERSON & SON

RESPECTFULLY OFFER THE FOLLOWING:—

NEW DOUBLE-FLOWERED CHINESE PRIMROSES.—Twenty most beautiful named varieties, with full descriptions and prices, given in the Autumn Catalogue; 5000 plants now ready for winter and spring bloom. The double-flowered Fern-leaved varieties are very elegant. The Collection now offered includes carmine, magenta, white, blush, striped lilac, rose, and spotted flowers. Twelve varieties at 25*s.*, 30*s.*, or 42*s.* per dozen.

NEW DOUBLE CINERARIAS.—Emperor William, Crown Prince of Prussia, King Alphonso, Prince Imperial, Princess of Wales, and Prince of Wales. These splendid double-flowered varieties are now ready, in good plants, for sale. English-saved seed from similar flowers of E. G. Henderson & Son's plants, first-class quality, 3*s.* 6*d.* and 5*s.* per packet; second-class quality, but all from double flowers, 2*s.* 6*d.* and 3*s.* 6*d.* per packet.

TREE CARNATIONS.—The finest named Collection in Europe; 5000 plants now ready for sale, at 12*s.*, 18*s.*, 30*s.*, and 42*s.* per dozen, according to size of plants.

NEW PEAR, LUCY GRIEVE.—Raised by Mr. Peter Grieve, Culford Hall Gardens, Bury St. Edmunds. Received a First-class Certificate from the Royal Horticultural Society as one of the highest class dessert fruits. It is fully described in Dr. Hogg's "New Fruit Manual," also in the "Gardeners' Year Book," and in our own List. Vigorous Pyramidal Tree, 21*s.*; strong Maidens, 10*s.* 6*d.*

*E. G. HENDERSON & SON also offer a few hundreds of fine vigorous GRAPE VINES, for Planting, comprising the following kinds, at 3*s.* 6*d.* and 5*s.* each:—*

MUSCAT OF ALEXANDRIA, MUSCAT HAMBURGH, BLACK HAMBURGH, GOLDEN CHAMPION, ROYAL MUSCADINE, BLACK ALICANTE, WEST'S ST. PETER, MRS PINCE, LADY DOWNE'S, TREBBIANA.

A full Collection of fruiting-sized Vines, as given in the Autumn Catalogue, at 10*s.* 6*d.* each.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

WELLINGTONIA GIGANTEA

AUREA VARIEGATA.

	Feet.	Inches.
Height	24	6
Circumference of Branches	32	6
„ of Trunk	3	4
Season's Shoot	1	6

Originated at the Lough Nurseries, Cork.

They have been Planted by the following Royal and Noble Hands:—

His Royal Highness the Prince of Wales, at Sandringham.
Her Royal Highness the Princess of Wales, at Blenheim (to mark her visit).
His Royal Highness the Duke of Edinburgh, at the Vice-Regal Lodge.
His Excellency the Lord Lieutenant, at Althorpe.
His Grace the Duke of Devonshire, at The Castle, Lismore.
His Grace the Duke of Leeds, at Gog-Magog, Cambridge
Her Grace the Duchess of Manchester, Belfast Botanic Gardens.
His Grace the Duke of Manchester, at Tangragee and Kimbolton Castle.
His Grace the Duke of Marlborough, at Blenheim.
His Grace the Duke of Wellington, at Strathfieldsaye and Apsley House.
Most Noble the Marquis of Waterford, at Curraghmore.
Right Hon. the Earl of Abergavenny, at Eridge Castle, Tunbridge Wells.
Right Hon. the Earl of Annesly, at Castlewellan, County Down.
Right Hon. the Earl of Aylesford, at Packington Hall, Warwick.
Right Hon. the Earl of Bective, at Underly Hall, Westmorland.
Right Hon. the Earl of Cork, at Marston Hall, Frome.
Right Hon. the Earl of Clancarty, at Garbally, Ballinasloe.
Right Hon. the Earl of Devon, at Powderham Castle, Exeter.
Right Hon. the Earl of Ducie, at Sarsden House, Chipping-Norton.
Right Hon. the Earl of Dunraven, at Adare Manor, County Limerick.
Right Hon. the Earl of Harrowby, at Sandon Hall, Staffordshire.
Right Hon. the Earl of Powis, at Walcot Park, Dumbartonshire.
Right Hon. the Earl of Sefton, at Croxteth Hall, Liverpool.
Right Hon. the Earl of St. Germans, at St. Germans, Cornwall.
Right Hon. the Earl of Warwick, at The Castle, Warwick.
Right Hon. the Earl of Wicklow, at Shelton Abbey, Arklow.
Right Hon. the Countess of Kingston, at The Castle, Michelstown.
Right Hon. Lord Berwick, at Attingham Hall, Shrewsbury.
Right Hon. Lord Doneraile, at The Court, Doneraile.
Right Hon. Lord Otho Fitzgerald, at Oakley Park, Windsor.
Right Hon. Lord Hawkshaw, at Hollycombe, Hants.
Right Hon. Lord Huntingfield, at Heveningham, Suffolk.
Right Hon. Lord Kenlis, at Virginia Lodge, County Cavan.
Right Hon. Lord Poltimore, at Poltimore Park, Exeter.
Right Hon. Lord Powerscourt, at Powerscourt, County Dublin.
Right Hon. Lord Skelmersdale, at Lathom House, Ormskirk, Lancashire.
Right Hon. Lord Wrottesley, at The Hall, Staffordshire.
Right Hon. Lady Langdale, at Eyewood, Herefordshire.
Right Hon. Lady Russell, at Chequer's Court, Herts.
Right Hon. Lady Pollen, at Redenham Hall, Andover.
Right Hon. Lady Rolle, at Bicton, Exeter.
Right Hon. Lady Tennisson, Carrick-on-Shannon, County Longford.
Sir Thomas Acland, Bart., at Killerton, Exeter.
Sir Henry Becher, Bart., at Ballygibben, Mallow.
Sir James Colquhoun, Bart., at Rosshhu, Dumbartonshire.
Sir C. Mills, Bart., at Hallingdon Court, Uxbridge.
Sir D. Norreys, Bart., at The Castle, Mallow.
Sir Richard Wallace, Bart., at Sudbourn Hall, Suffolk.

And by the leading Nobility and Gentry in the Kingdom.

The last-named had 40 splendid Trees for Avenue planting.

PRICES.

*1st Size—	Grand Specimens	5	feet	£5	5	0
2d „	Splendid Plants	4	„	3	3	0
3d „	Very fine	3	„	2	2	0
5th „	Stout and good	2	„	1	1	0
6th „	Nice little Plants	1	„	0	10	6

* From the first set of plants, and same as those at Sandringham, Blenheim, Althorpe, and had by the Nobility chiefly.

All removed Spring 1875.

RICHARD HARTLAND,

LOUGH NURSERIES, CORK.

FIRST PRIZE ROSES,

FROM

CRANSTON'S NURSERIES, HEREFORD.

Try our One Guinea, Two Guinea, and Three Guinea Collections.

ONE GUINEA COLLECTION contains
Thirty Selected First-class Show Roses.

TWO GUINEA COLLECTION contains
Sixty Selected, Distinct, and all First-class Show Roses.

THREE GUINEA COLLECTION contains
One Hundred of the Finest Roses, New or Old, in cultivation, Selected from upwards of 600 Varieties.

Either of the above Collections will be carefully packed and forwarded, on receipt of Cheque or Post Office Order payable to

CRANSTON and MAYOS,
HEREFORD.

HOLLIES.

Twenty Thousand of the Finest Varieties of
GREEN AND VARIEGATED HOLLIES,
4, 5, 6, 7, 8, and 10 feet.

The Plants are all handsomely Grown and properly Rooted.

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

TO THE TRADE.

CRANSTON AND MAYOS beg to offer very fine—

Dwarf-trained PEARS.
Dwarf-trained APPLES.
Dwarf-trained PLUMS.
Dwarf-trained CHERRIES.
Dwarf-trained PEACHES.
Dwarf-trained NECTARINES.
Pyramid APPLES.
Pyramid PEARS.
Pyramid PLUMS.
Pyramid CHERRIES.

The Largest Stock of DWARF ROSES in the Trade.

PRICED LISTS ON APPLICATION.

THE NURSERIES, HEREFORD.

IMPORTANT NOTICE.—TO THE TRADE.

CHARLES SHARPE & CO.,

SEED GROWERS & MERCHANTS, SLEAFORD,

BEG TO INTIMATE THAT THEIR

SPECIAL PRINTED LIST OF HOME-GROWN SEEDS

FOR THE WHOLESALE TRADE

Is now in the Press, and will be forwarded in a few days, post free, to any address.

AGRICULTURAL SEEDS,
From carefully-selected stocks; seed harvested in fine condition, and samples of the finest quality.

KITCHEN-GARDEN SEEDS.
Peas and Beans have been well secured, and, by careful hand-picking, the samples are made equal or superior to any sent out in the Trade. Brassicas, Lettuce, Radish, &c., are the purest selection of their respective kinds.

SEED POTATOS.
CHARLES SHARPE AND CO., from their position in the midst of a great Potato-growing district, are in a position to offer Seed Potatos at very advantageous quotations.
The new American Varieties can also be offered, fresh imported Seed, per Barrel or Ton, on the best terms.

SHARPE'S
IMPROVED LARGE SWEDE
(Purple Top, Extra Select Stock.)

HEAVIEST CROPPER IN CULTIVATION.
BULBS UNEQUALLED FOR QUALITY.

We have great confidence in offering our IMPROVED LARGE SWEDE. The constant selection of roots to plant out for producing stock seed has had our unremitting attention for years, and living as we do in the centre of the finest Turnip-growing district in the country, the kindness of our numerous friends and customers gives us the power of almost unlimited selection in our choice of bulbs, and enables us to send out this, OUR OWN VARIETY of Swede, in a state of the highest perfection, as well in respect of weight and quality of bulbs as in purity and permanence of type; and it may be confidently offered as the best variety of Swede grown for cultivation upon Turnip soils.

1s. per pound. Cheaper by the bushel.
Carriage free. Trade price on application.

CHARLES SHARPE & CO.,
Seed Farmers,
SLEAFORD, LINCOLNSHIRE.

NOTICE.

WANTED FOR THE OPENING OF THE ROYAL AQUARIUM SUMMER AND WINTER GARDEN,

A large quantity of Plants in Flower, such as

AZALEAS, CALLAS, CINERARIAS, CYCLAMEN, HYACINTHS, &c.

LIBERAL PRICES WILL BE GIVEN FOR BRIGHT AND GOOD PLANTS.

THE ABOVE ARE WANTED ON THE 29TH OF THIS MONTH.

Send Prices, Quantities, and all Particulars to

JOHN WILLS,
ROYAL EXOTIC NURSERY, ONSLOW CRESCENT, SOUTH KENSINGTON, S.W.

WORCESTER PEARMAIN APPLE.

Awarded a First-class Certificate by the Royal Horticultural Society, October 6, 1875.

Fruit 2¾ inches wide, and same in height, conical; skin smooth, brilliant red, with minute fawn-coloured dots; flesh very tender, crisp, juicy, and sweet, with a very pleasant flavour, perhaps the most valuable of all for market. The tree is as productive as Lord Suffield Apple, and one of the handsomest fruits in cultivation. Ripe end of August, and will keep till Christmas.

Maiden Trees, 10s. 6d. each; Pyramid or Trained Trees, 21s. each. Coloured Plates, 6d. each.

RED HAWTHORNDEN APPLE.—Dr. Hogg describes this as large, oblate, and angular; skin smooth, greenish yellow, with a red blush next the sun; flesh white, tender and juicy, with a sprightly and agreeable acidity. A very early and valuable culinary Apple; ripe August and September. Maiden trees, *7s. 6d.* each; Pyramid or trained trees, *10s. 6d.*

YORKSHIRE BEAUTY APPLE.—Dr. Hogg, in his *Manual*, says this fruit is 3½ inches wide and 3 inches high, roundish, flattened, and angular; skin bright yellow, with a bright red blush on the sunny side; flesh tender and juicy, with an agreeable acidity. A first-rate culinary Apple for August and September, the great size and excellent quality ought to commend it as a good orchard fruit for the market. Maiden trees, *5s.* each; Pyramid or trained trees, *7s. 6d.*

NEW GOLDEN LABURNUM.—Unquestionably the finest hardy golden-leaved tree known, of immense value for park and garden scenery; it will take a foremost position among pictorial and garden trees; the foliage is a brighter golden-yellow than the flower of the ordinary Laburnum. First-class Certificate awarded by the Royal Horticultural Society, August 4, 1875. Price *10s. 6d.* each; Standard and extra strong trees, *21s.* Coloured plates, *6d.* each.

OTHERA JAPONICA.—A new and beautiful evergreen shrub. One of the most distinguished Japanese travellers says this is perhaps the prettiest evergreen they have in Japan; it grows about 20 feet high, has dark green leaves and a profusion of bright red fruit; it is very effective and perfectly hardy. Price *10s. 6d.* each; extra strong, *21s.*

CLIMBING ROSE, COUNTESS of OXFORD.—The old variety in all respects, except in being a free climber. *7s. 6d.* each.

FIFTY ACRES OF FRUIT TREES.

Standard and Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, very fine trees for walls.

Standard, Pyramid, Dwarf, Bush, and Cordon APPLES, PEARS, PLUMS, and CHERRIES.

ORCHARD HOUSE TREES, Established in Pots, for Immediate Fruiting.

PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, APPLES, FIGS, ORANGES, and MULBERRIES.

VINES, Planting Canes, 3*s.* 6*d.* to 5*s.* each; Extra Strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* each.

All the above of superior quality, perfect in form, roots, and health, and true to name.
See Descriptive Price List.

TWELVE ACRES OF ROSES,

Standards and Dwarfs, all the popular sorts; 80,000 choicest Tea-scented and Noisette Roses, in pots. Extra strong Hybrid Perpetual Roses, in pots for immediate forcing. Climbing Roses in great variety. *See Descriptive Price List.*

FOR SHRUBBERIES.

	Per 100.
LAUREL, Colchic, the best hardy variety	3 to 4 feet, 35*s.*
„ Portugal, very fine	1½ to 2 feet, 35*s.*
„ Portugal, very fine	2 to 2½ feet, 50*s.*
„ Caucasian, very fine	2 to 3 feet, 50*s.*
„ Round-leaved, extra fine	2 to 3 feet, 70*s.*
„ Six distinct and beautiful vars.	2 to 3 feet, 50*s.*
COTONEASTER SIMONSII, fine	3 to 4 feet, 35*s.*
PYRUS JAPONICA	2 to 3 feet, 50*s.*
EUONYMUS RADICANS VARIEGATA	1 foot, 40*s.*

	Per doz.
JUNIPER, Chinese	4 to 5 feet, 36*s.*
„ Chinese	5 to 6 feet, 42*s.*
OAK, Austrian Evergreen	2½ to 3 feet, 30*s.*
„ Austrian Evergreen	3 to 4 feet, 42*s.*
„ Ford's Evergreen	3 to 4 feet, 36*s.*

	Per 100.
IVY, strong, for climbing	3 to 4 feet, 40*s.*
VIRGINIAN CREEPER	3 to 4 feet, 40*s.*

	Per 100.
CISTUS LAURIFOLIA, in pots	1½ to 2 feet, 50*s.*
ARBUTUS (Strawberry tree)	1½ to 2 feet, 60*s.*
„ (Strawberry tree)	2 to 2½ feet, 75*s.*
CEPHALOTAXUS DRUPACEA	1½ foot, 60*s.*
TREE IVIES, full of flower	1 to 1½ foot, 75*s.*
LAURUSTINUS	1 to 1½ foot, 40*s.*
BROOMS, White and Yellow	2 to 3 feet, 30*s.*
YEW, English, bushy	1½ to 2 feet, 40*s.*
„ English, bushy	2 to 2½ feet, 60*s.*
„ English, bushy	2½ to 3 feet, 80*s.*
„ Golden, bushy	1 to 1½ foot, 90*s.*

	Per doz.
CRYPTOMERIA ELEGANS	2 to 2½ feet, 21*s.*
PICEA PINSAPO	2 to 2½ feet, 36*s.*
„ PINSAPO	2½ to 3 feet, 42*s.*
YUCCA GLORIOSA PENDULA	12 to 15 in., 12*s.*
„ GLORIOSA PENDULA	15 to 18 in., 18*s.*

	Per 100.
ROSES, Climbing, in variety	3 to 4 feet, 40*s.*
HONEYSUCKLES, in variety	3 to 4 feet, 40*s.*

JUNIPERUS CHINENSIS.—One of the hardiest and most ornamental Shrubs in cultivation, and especially valuable to the landscape gardener. In spring it is quite golden with its numerous flowers, which, when shaken with the wind, give off a cloud of yellow dust; and if the plant be kept closely pruned, the young growth becomes so luxuriant and leafy that it gives an entirely different, but equally pleasing effect in its silvery tinge and rigid outline. When left to its own growth it forms a noble green pillar, highly suitable to stand in pairs by a garden walk. Eight to 9 feet, 10*s.* each; £4 4*s.* per dozen.

PICEA PINSAPO.—A very handsome, densely branched tree. The branches are very thickly placed in whorls and spread horizontally, thus giving a singularly beautiful appearance. It is one of the most distinct and desirable trees for ornamental planting, especially for a lawn. Its perfect symmetry of form is so striking that it should have a place in every collection. Eight to 10 feet, 25*s.* each; £12 per dozen.

ABIES DOUGLASII.—This, the most noble of Evergreen Firs, is of rapid growth, hardy, produces valuable Timber, close, heavy, and free from knots, of the colour of Yew wood. It is a native of California, where it grows upwards of 300 feet high, with a trunk 10 feet through. The flagstaff at Kew is of this tree, and was, when growing, 309 feet high. There is at Dropmore (Bucks) a specimen measuring at the present time 100 feet high, and 90 feet through the branches, with a trunk 9 feet in circumference at 4 feet above the base. It was raised from seed sown by Mr. Frost, the present gardener, in 1828, and is now a model of beauty. 12 to 15 feet, 12*s. 6d.* each, £5 per doz.

THE SILVER CEDAR of MOUNT ATLAS.—Now is the time to plant this eminently beautiful tree, unsurpassed for majestic grace and picturesque grandeur even by the Cedar of Lebanon, which it much resembles; and many consider it a variety, but its leaf is more silvery, it grows twice as fast, and its timber is very valuable. Noble trees, 10 to 12 feet, 25*s.* each, £12 per dozen.

DECIDUOUS FLOWERING SHRUBS in 50 beautiful varieties, 30*s.* per 100.
AVENUE AND ORNAMENTAL TREES, many thousands in great variety. See Priced Lists.

STANDARD ORNAMENTAL TREES.

If less than Six of any kind are Ordered an increased Price will be charged.

	Per doz.—*s.*	*d.*
ACACIA, Decaisneana, pink	24	0
„ Bessoniana, crispa, hispida (Rose Acacia), monophylla, sophoræfolia, viscosa, weeping white	21	0
AILANTUS, glandulosa	18	0
„ glandulosa, extra strong	36	0
ALDER, cordata, incana, macrophylla, and quercifolia	12	0
ALMOND, fruit bearing	21	0
ASH, common, 10 to 12 feet, 60*s.* per 100	9	0
„ aucubæfolia, cucullatus, flowering	18	0
„ juglandifolia, monophylla, orange-barked	18	0
„ salicifolia, small twigged, spectabilis	18	0
„ Waterer's variegated	18	0
„ weeping, and gold-barked weeping	42	0
BEECH, purple-leaved, 8 to 10 feet	42	0
„ purple-leaved, 10 to 12 feet	60	0
„ crested-leaved, Chestnut-leaved, Fern-leaved	42	0
„ Oak-leaved, variegated	42	0
BIRCH, Fern-leaved, silver, weeping, 8 to 10 feet 300*s.* per 100	42	0
„ silver, weeping, 9 to 12 feet 90*s.* „	12	0
„ silver, weeping, 14 to 16 feet 125*s.* „	18	0
BIRD CHERRY, Virginian	12	0
BROOM, golden, yellow Spanish, white Portuguese	18	0
BROUSSONETTIA, papyrifera	48	0
CATALPA, syringæfolia, and Kæmpferi	42	0
CHERRY, double-blossomed	24	0
„ Mahaleb variegata	21	0
„ hortensis rosea, pendula, and latifolia pendula	30	0
CHESTNUT, Spanish	18	0
„ American, Fern-leaved and variegated	30	0
COLUTEA, red and yellow	12	0
CORNUS, mas variegata	21	0
COTONEASTER, Simonsii	21	0
CYTISUS, austriacus, elongatus, elongatus purpureus	24	0
„ nigricans, purpureus major, sessilifolius	24	0
„ stricta and Weldonii	24	0
ELM, Camperdown, weeping	42	0
„ campestris aurea variegata, Kaki (fine), montana pendula	36	0
„ elegantissima pendula 150*s.* per 100	24	0
„ English, 10 to 12 feet 100*s.* „	15	0
„ English, 14 to 16 feet 150*s.* „	21	0
„ Chichester, 10 to 12 feet 100*s.* „	15	0
„ Chichester, 14 to 16 feet 150*s.* „	21	0
„ Berardii, betulæfolia, emarginata, filicifolia	21	0
„ myrtifolia, monumentalis, purpurea	21	0
„ pyramidalis, Dampieri, plumosa, silver var.	21	0
„ suberosa microphylla, suberosa pendula	21	0
„ viminalis pendula, viminalis fol. variegatis, Webbiana, Wheatleyi	21	0
GENISTA, anxantica, præcox, and purgans	30	0
GUELDER ROSE	21	0
HORNBEAM, cut-leaved and weeping	24	0
HORSE CHESTNUT, scarlet, 7 to 8 feet	24	0
„ „ scarlet, 10 to 12 feet	36	0
„ „ scarlet, extra strong stems	60	0
„ „ white, 9 to 10 feet	18	0
„ „ discolor, double white, double red	30	0
„ „ macrostachya, Memmingerii, ohioensis, rubicunda nana, variegated and yellow	30	0
JUDAS TREE, purple and white	42	0
KOLREUTERIA, paniculata, 5 to 6 feet	30	0
LABURNUM, Alkengerii, English, Scotch, purple, quercifolia	18	0
„ weeping	30	0
LARCH FIR, 8 to 10 feet	9	0
„ „ 10 to 12 feet	12	0
„ weeping (true)	42	0
„ microcarpa and japonica	18	0
LILAC, Charles X., Persian red and white, Siberian and white	30	0
LIME, red twigged, 9 to 10 feet 140*s.* per 100	18	0
„ red twigged, 10 to 11 feet 175*s.* „	24	0
„ red twigged, 11 to 12 feet 200*s.* „	30	0
„ red twigged, 12 to 14 feet 250*s.* „	36	0
„ red twigged, extra strong stems 42*s.* to	60	0
„ weeping	42	0
„ latifolia alba, Beaumontea (weeping)	30	0
„ dasystyla, yellow-twigged, Fern-leaved and vitifolia	30	0
MAGNOLIA, acuminata, 5 to 6 feet	42	0
MAPLE, campestre punctata	42	0
„ colchicum rubrum	30	0
„ negundo, 5 to 6 feet 40*s.* per 100	6	0
„ „ 8 to 10 feet 60*s.* „	10	0
„ „ variegata, 5 to 6 feet stems 125*s.* „	18	0
„ „ „ 7 to 8 feet stems 175*s.* „	24	0
„ campestre, laciniatum, pennsylvanicum rubrum	18	0
„ rubrum, striatum, tataricum rubrum, virginicum rubrum	18	0
MOUNTAIN ASH, 9 to 10 feet 70*s.* per 100	10	0
„ „ large-berried and yellow-berried	18	0
„ „ weeping and variegated weeping	36	0
OAK, scarlet	30	0
„ Turkey	24	0
„ weeping	42	0
PEACH, double-blossomed	30	0
PEAR, weeping	30	0
POPLAR, grandidentata pendula	30	0
„ Black Italian, Lombardy, Ontario, and silver-leaved 84*s.* per 100	12	0
„ „ „ „ „ extra strong 100*s.* „	18	0
PRIVET, golden variegated weeping, longifolium and weeping	30	0
PYRUS, Aria (White Beam), hybrida, tomentosa pendula	18	0
„ Malus floribunda, spectabilis	18	0
„ albo-plena, imperialis, Kaido, Riversii	18	0
„ spectabilis, Tenorei, carnea nervosa, Fontainebleau	18	0
SIBERIAN CRAB, scarlet and yellow-fruited	18	0
SNOWY MESPILUS, botryapium, florida, grandiflora, ovalis	18	0
SUMACH, typhina (Stag's-horn)	18	0
SYCAMORE, 10 to 12 feet 75*s.* per 100	12	0
„ extra strong 18*s.* to	30	0
„ purple-leaved and variegated	24	0
THORN, Paul's double crimson, double pink, 150*s.* p. 100	21	0
„ double white, single scarlet, and in great variety to name	21	0
TULIP TREES	42	0
WILLOW, caprea tricolor, Kilmarnock, weeping	30	0
„ Wolseyana, weeping	30	0
„ American weeping, Babylonian weeping	24	0
„ Solomon weeping, and Vitellini	24	0
„ extra strong, weeping 30*s.* to	60	0

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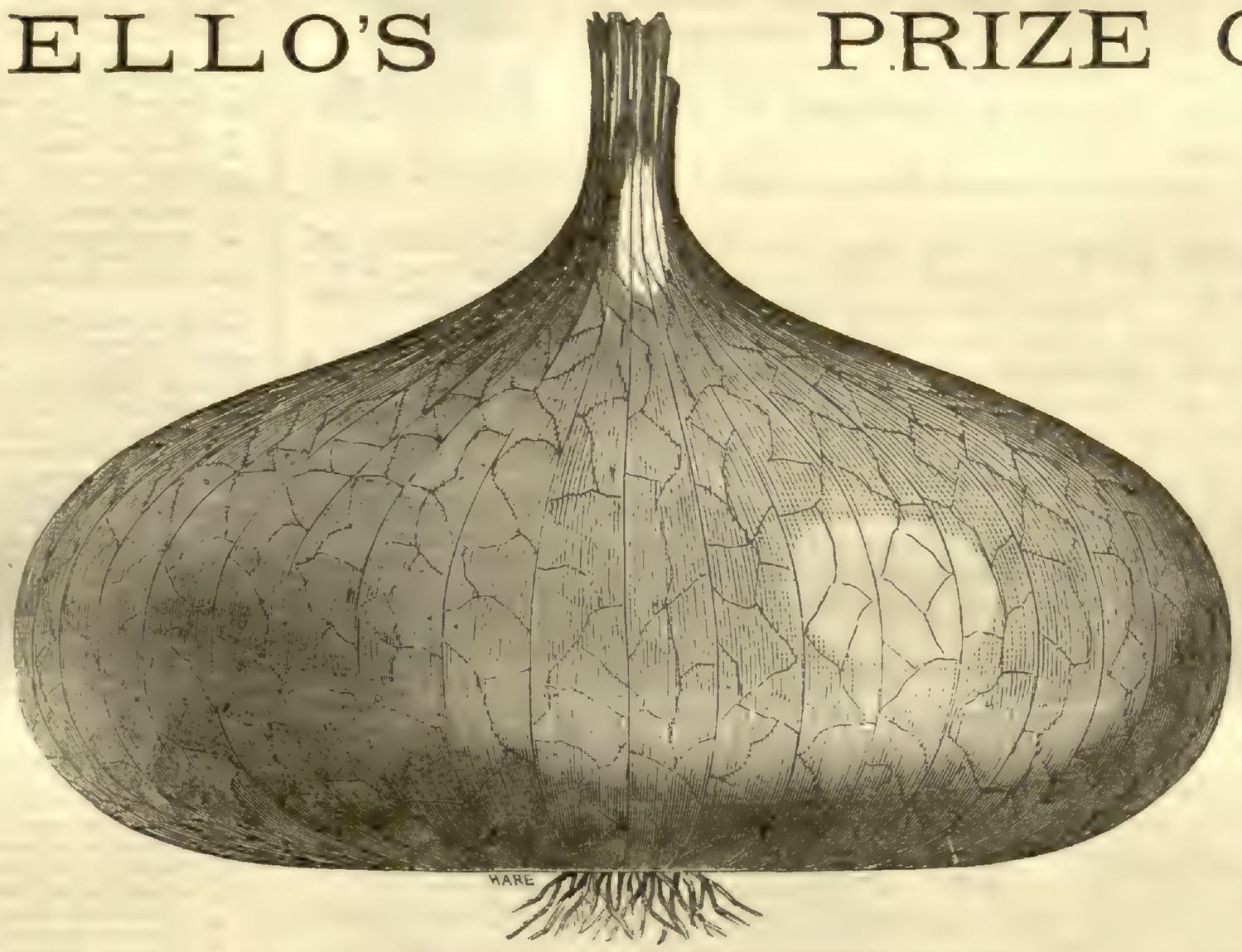

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NEW "CRIMSON KING" VIRGINIAN STOCK.

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A great improvement on the old White Carrot, growing eight to ten inches out of the ground, with bright green top, clean, straight, and handsome. It yields an immense weight per acre; some specimens have weighed 5¾ lb. this season.

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The handsomest and best of all the varieties of Green-top Swede, having a very small top and fine root; flesh bright yellow, with thin smooth rind; very solid and nutritious. Is perfectly hardy, growing well out of the ground. All that can be desired for quantity and quality.

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SNOWFLAKE or SNOWBALL.—A grand Aster; flowers large and full. Colour pure snow-white. Awarded a Certificate of Merit at the Alexandra Palace, August 24, 1875.

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PRINCE OF NOVELTIES.—This splendid novelty is strikingly distinct, the outer ring of the flowers is of a bright crimson-lake, the inner ring splashed irregularly with rose; centre pure white. Awarded a Certificate of Merit at the Alexandra Palace, August 24, 1875.

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(Awarded a First-class Certificate by the Royal Horticultural Society, October 7, 1874.)

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A distinct and excellent variety, indispensable as an Early Cabbage. The hearts are extremely firm, weighing from 4 to 6 lb., the flavour particularly mild and melting.

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A distinct sort, intermediate between the Cos and Cabbage kinds, with delicate and crisp light-green leaves edged with violet. *Price, per packet, 1s. and 1s. 6d.*

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A fine green wrinkled Marrow of exquisite flavour, with many pods containing ten Peas in a pod. Height is 4 feet.

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SATURDAY, DECEMBER 18, 1875.

CHRISTMAS FLOWERS.

IF there is one time more than another when flowers are invaluable it is surely at the Christmas season, which is now close upon us. This is partly perhaps because they are so scarce—for rarity has always been a qualification for popular esteem—but it is also because flowers seem almost inseparable from a festive gathering of any kind, and such gatherings are more frequent at Christmastide than at any other season of the year. Of late, too, with the advance and improvement of taste which the æsthetic school in the Established Church has done so much to introduce, flowers have assumed a prominence and an importance in ecclesiastical decoration which would astonish those once important functionaries, the parish clerk and the beadle, to whom the "sticking"—as we heard church decoration termed only a year or so since—was at one time entrusted. Strange tales are current of the mysterious disguises assumed by some among the clergy as appropriate to an early morning visit to Covent Garden Market at this season; and these amiable ecclesiastics cherish the belief that their disguise is so complete as to "take in" the *habitués* of the place. Strong feeling are sometimes aroused by, and strong views are connected with, church decoration of the modern school; and our columns are no place for their ventilation or discussion, but we may be allowed to refer to it as one of the many cheerful accompaniments of the "blessed birthday," which seems to be more generally and more heartily commemorated in England than in any other country.

CAMELLIAS.—And what are the flowers which are most in demand at this season of the year—or rather, which are mostly at hand to meet the demand which exists for flowers of any kind? First of all, perhaps, come Camellias—

> "Faultily faultless, icily regular, splendidly meek,
> Dead perfection, no more—"

at least so they seem to us, admirable and handsome though they be. Probably but few of those who miscall these flowers—and no plant is more frequently misnamed by "the general," who are divided in opinion as to whether "Camilla" or "Cameelia" is the orthodox mode of pronunciation—are aware that their name commemorates a Jesuit, one Father Camellus or Kamel, who travelled in the Philippine Islands in the seventeenth century, and whose accurate drawings and notes are preserved in the British Museum. *Apropos* of Camellias, a story occurs to us which we heard from the person most concerned in it—and as Christmas time is proverbially the reason for story telling, we may as well give it. It was after the sacking of the Summer Palace at Pekin that our friend, who was then in active service in the British Army, and who, as befitted one in authority, had selected for himself a convenient residence in that city, observed in a garden not far distant from his own two splendid bushes of Camellias in full flower, one white, the other red. How it happened, who shall say?—yet somehow or other these two bushes one night disappeared from their place, and almost simultaneously two very similar ones made their appearance in the garden of the English officer! The owner, on becoming aware of his loss, waxed wroth, and betook himself straightway to the officer and opened his grief." "Well," said that functionary, "the case is certainly a hard one. Let us see. I have two trees something like those you describe in my garden; come and see if they are equal to those you have lost." So they went to inspect the Camellias, which the Chinaman unhesitatingly declared to be—his own? Oh dear, no; nothing of the kind, but by no means equal to those of which he had been deprived; and which, strange to say, he was never able to recover, or even to trace.

HEATHS, &C.—Various Heaths are prominent among our Christmas flowers, and so are Cyclamens, surely among the very prettiest of plants and in no form more so than in the old-fashioned white flowers with the red-purple crown at the base of each corolla. Chrysanthemums, too, in pots, have been kept back by the skilful gardener, and now come out in full freshness. Then we have early Tulips, not always very happy-looking, however, but often flowering before the blossoms have fully emerged from their enfolding leaves, and having a general air of having got up too soon.

POINSETTIA.—Passing by these old friends, not without a word of hearty welcome be it well understood, we come to another plant which has been of late years an almost indispensable adjunct of Christmas decorations, be they of church or hall—the brilliant Poinsettia pulcherrima, the bright scarlet bracts of which give the head of blossoms a flower-like appearance, and serve admirably to lighten up the somewhat sombre masses of evergreen. Not only in England is this beautiful plant regarded as a Christmas flower; in the North of Mexico, where it finds a place in almost every garden, it is called *Nochebuena* from its blossoming about the time of the Christmas festival, for which *noche buena*, "the good night," is the Spanish name. In the South of Spain it is a very popular flower, and there too, it is connected with a Church festival, being known as *Flor de pasqua* or Easter-flower. Its name commemorates a French traveller, M. Poinsette, by whom the plant was introduced to cultivation. He brought specimens to Charleston from Mexico in 1828, whence they were taken to Philadelphia; and specimens sent from the latter place to Edinburgh flowered in 1835, since which date it has become increasingly popular and plentiful in our stoves. There is a variety with white bracts, and a so-called "double-flowered" variety has just made its appearance among us, and which will, we believe, shortly be illustrated in these columns. With us in England the plants of the Poinsettia attain comparatively but small size; but in India, on the Neilgherry Hills, where it is grown in gardens, it attains the size of a large bush.

EVERLASTING FLOWERS, &C.—Not only fresh flowers, however, are in demand at this season of the year, but those useful substitutes for growing plants which are generally known by the name of "everlasting" come into especial prominence. In the Paris markets the chief demand for them has been at the beginning of last month, the *mois des morts*—a name which, apart from its religious associations, always seems peculiarly appropriate to November. The yellow chaplets and wreaths, with their simple, but often very touching inscriptions in black letters, are seen in Père la Chaise during that month in greater quantity than at any other season of the year; but among ourselves the approaching Christmas festival gives an opportunity for and an impetus to their sale, of which seedsmen and florists are not slow to avail themselves.

The word "everlasting" is properly confined to the Compositæ belonging to the genera Helichrysum and Helipterum, and others allied to them; but in trade language it is extended so as to include other plants, such as the Leucodendron argenteum, the Witteboom, or Silver

Tree of the colonists, the beautiful silver flower-heads of which are sometimes advertised as "silver capes."

The plant from which the small "everlasting flowers," which are those most generally employed in decoration both here and abroad, are derived, is Helichrysum orientale, which is naturally of a pale yellow colour, and owes the various hues in which it appears in our shops to artificial preparation. This species is extensively cultivated for ornamental purposes in Lower Provence and other parts of the South of France. It is calculated that an acre of ground will produce about 16,000 tufts of the plants, and these yield annually two or three tons weight of everlastings. The blossoms are gathered at the proper season—some time in June—by women and children, who make them up into small bunches, which are placed in the sun to dry. They are sold either by weight or at so much—from 1½*d.* to 3*d.*, according to size—per bundle, the price in the former case being from 12*s.* to 16*s.* per hundredweight. A plantation will remain in good condition for eight or ten years, the larger tufts being divided for purposes of propagation. This species was cultivated by Parkinson in 1629, but everlastings were imported into this country at an earlier date, as Gerarde speaks of having seen flowers of it, or some closely allied plant, which had been sent from Italy to one Master Wade, "one of the clerks of His Majesty's Counsell."

The larger yellow everlastings are mainly yielded by Helichrysum imbricatum, an Australian species; the white ones are produced by another Australian plant, H. macranthum. South Africa is, however, the head-quarters of plants of this genus, and some very handsome forms are found among the nearly two hundred species which are represented in the flora of that region. Of the nearly allied genus Helipterum, the handsomest species is probably H. eximium, which is a small shrub with soft woolly leaves, and large tufts of handsome ruby-coloured blossoms. This species is collected by the Kaffirs and brought into Cape Town, where it is much and deservedly esteemed for use in winter nosegays.

The small white everlasting which is common in old-fashioned cottage gardens, and has established itself in some parts of England, is a North American plant, Gnaphalium margaritaceum, or Antennaria margaritacea. It grows very abundantly in many parts of North America. Kalm (the Swedish naturalist, from whom Kalmia takes its name), who travelled in that country in 1748, was much struck by the "astonishing quantity" of it which grew about Philadelphia, and speaks of its use in room decoration by "English ladies," who are, he says, "in general much inclined to have fine flowers in or upon the chimneys." They "gather great quantities of this life-everlasting [so he calls the plant], and pluck them with the stalks; they put them into pots as an ornament in the rooms during the winter." It is a pretty plant enough, but increases very rapidly by offsets, and hence requires keeping in due bounds.

Many other dried everlastings might be included in this notice, did space permit, as well as certain other plants, such as Gomphrena globosa, Gypsophila elegans, and some species of Statice, which are sometimes used in winter room decoration. *B. M.*

New Garden Plants.

CYPRIPEDIUM EURYANDRUM, *n. hyb.**

This is an offspring of the pollen parent, C. Stonei, and of the C. barbatum, Lindl. The brown flower-stalk is rather tall and two-flowered in the specimen at hand. The sepals come near those of C. Stonei, yet the upper one is blunter. The petals are ligulate, rather broad, much longer than those of C. barbatum, much shorter than those of C. Stonei, let us say twice as long as the upper sepal, whitish, with many great purplish dark spots. The lip comes near that of C. barbatum, but it is larger. It is a pity that the graceful, quite unique lip of C. Stonei, really comparable to an elegant receptaculum of an elegant lady's podium, did not reappear. The staminode is very broad, nearly square, with blunt angles, heart-shaped at base, bilobed. It is covered with glandular hairs. The leaf, rather short and in the way of C. barbatum, to judge from what I have at hand, is slightly tessellate. Of course the plant was raised by Mr. Seden in the Royal Exotic Nursery of Messrs. Veitch & Sons. It is an interesting accession, since it touches rather near the giants of Cypripediums, C. Stonei and Lowei, though it has tessellate leaves. *H. G. Rchb. f.*

DENDROBIUM FLORIBUNDUM, *n. sp.**

This is an interesting introduction, coming rather near D. calophyllum, which I only once obtained from my invaluable correspondent, Mr. J. Day. It belongs to the Dendrobia with a manifest bulb, only leafy at the point, the Dendrocoryne. The pseudobulbs are rather thick, very symmetrically fusiform. They get 9 inches high, yet are capable of flowering when but 3 to 4 inches high. The leaves are oblong, acute, and unequally bilobed, 2 inches long by 1¾ wide. The inflorescences appear to be rather numerous, usually lateral, as many as six-flowered. The flowers are equal to those of a middle-sized D. crumenatum. They are yellowish green, with a dark purplish brown line, of nice shape, and with a similar brown line outside the mentum. It is a native of the New Hebrides, and was recently sent me by Mr. W. Bull. I have obtained a fresh raceme of flowers. All other remarks are taken from a very nice and accurate sketch prepared by Mr. Shuttleworth, Mr. Bull's Orchid grower and traveller. *H. G. Rchb. f.*

ARISTOTELIA MACQUI.

EXCLUDING the Limes, there are few hardy Tiliaceæ in cultivation. A noteworthy representative of this family is the evergreen Aristotelia Macqui, a native of Chili. Although introduced nearly 150 years ago, it is still rare in gardens, possibly because its flowers possess few attractions. It is quite hardy in the South, at least, and it is far more ornamental the year through than many more generally grown shrubs. In our gardens it is a shrub 4 to 6 feet in height, with sub-opposite ovate-lanceolate acuminate serrate leaves, 3 or 4 inches long, and borne on proportionately long slender petioles. The leaves are thin in texture, and quite smooth on both surfaces. There is a very free-growing variety in which the leaves are prettily variegated with yellow. In its native country Aristotelia Macqui must attain a considerable size, as the wood is used for making musical instruments. The tough fibre of the bark furnishes the strings for these instruments; and the small purple berries are reported to be edible, and employed in the manufacture of a kind of wine, highly esteemed as a remedy in cases of fever. Our illustration (fig. 157) was prepared from a spray kindly sent by Mr. Mills, gardener, Enys, Penrhyn, Cornwall. It is sometimes cut down to the ground, even against a wall, in the climate of London.

FAIRY RINGS.

As large fairy rings seem to have been lately cropping out, and as I have made observations respecting these curious appearances for the last thirty years or more, perhaps I may be permitted to give my own ideas upon the subject. I do not believe that the chemical constitution of the soil has any influence on their appearance, as I have observed them on hill and meadow, within woods and groves, on the most barren heaths, in rocky places, on boggy ground, and on the margin of the sea. Though commonly called rings, yet completely perfect circles are rare, the great majority being incomplete and often only semicircles—mere arcs or sinuous lines. A distinction must also be made between rings occupied by Agarics, and grass rings without any Agarics in them; the former increase in size as long as the mycelia of the Agarics maintain existence, but the latter make no increase, and in time become imperceptible. Even the Agaric rings seldom continue many years in meadows or pastures that are mown, for after a longer or shorter time they bulge out at the circumference, become irregular, and the mycelium dies or becomes unproductive. This I have noted many times, both in the vernal Agaricus (Tricholema) gambosus, and in the autumnal Lepista personata, rings of which, most conspicuous one year, have been vainly sought for afterwards. A ring lasting for many years will generally be on waste undisturbed land, and on the Wiltshire Downs, near Stonehenge, I have observed rings of enormous dimensions, nearly 100 feet in diameter. Such rings must be of great age, though I cannot speak particularly to them, but an old naturalist friend has assured me that he had known one continuous for sixty years, and still in existence. Mr. Berkeley, I see, speaks to his knowledge of a ring for the space of forty years, but these are exceptional cases.

I do not mean now to go into any theory as to the formation of these rings in pastures, though it must be observed that in their occupation by fungi they are mostly sudden in their appearance, springing up where never observed before; which is the only justification of the old rustic idea that fairies caused them by dancing in the moonlight. Whatever influence produces the ring, the Agarics, no doubt, spring up there in the night, as Shakspeare long ago remarked. There are some minute mycological productions that have a tendency to grow in a circular manner, and at the last Hereford Fungus Show Dr. Chapman produced some Apples with very perfect rings of minute Fungi upon them, which he humorously exhibited as "fairy rings," and for their size they might well be so denominated. But Agarics in general do not grow in a circular fashion, unless some process has formed an arc or circular line which offers them a fitting locality for their nourishment. The only Agaric that I have observed to spread in a circular way in the Marasmius Oreades, which does occasionally appear to extend in this way when in a half circle, by the mycelia advancing from either end of the primary patch, though in a broad irregular manner. But the idea, though often stated by authors, that a ring is produced from a single Agaric scattering its sporules around in a centrifugal manner, is quite eroneous.

After much examination season after season I am satisfied that no one *modus operandi* will account for all fairy rings, whether occupied by Agarics or not; and though, with regard to incomplete rings, there may be obvious circumstances to a careful observer suggestive of their origination, yet some remarkably perfect circles that I have met with, conspicuously verdant in the pasture, and without Agarics in them, seemed very perplexing to account for them satisfactorily. It was these bright green rings that poets (and, I suppose, the common people, too) ascribed to fairy action, as Shakspeare intimates—

> "And nightly, meadow fairies, look you, sing
> Like to the garter's compass in a ring;
> The expression that it bears green let it be,
> More fertile-fresh than all the field to see."

Even Tennyson in our own time mentions—

> "Fairies that will flit
> To make the greensward fresh;"

though whatever Agarics might accomplish dancing even of the lightest feet might have been thought to have discoloured the grass. No doubt Mr. Berkeley's explanation, that Agarics in a ring becoming dead and rotting manure the spot where they have grown, is correct, and the mycelia spreading outward from the decayed circle may not be productive the following year; but it is not uncommon to see a circle of brown withered grass without a very green band in contact with it, as if the fairies had danced till they had killed all the grass beneath their feet and left the place totally bare! In such a case, perhaps, a very hot summer may have killed the mycelia of the Agarics, and such a ring would remain without increase in size.

Usually, however, the border line of the decayed Agarics is taken up by some tall grass, quite different to that of the pasture within and without the ring, and thus, as I have seen, a band of Brome-grass with its grey panicle conspicuous from afar rising much higher than the lesser Ray-grasses, and others forming the mass of the meadow. I once saw in a field near Stratford-on-Avon, which Shakspeare must himself have trodden in his lifetime, a striking exemplification of what he says as to the rings of sour grass "whereof the ewe not bites." Several rings of the St. George's Agaric were in this pasture, and also a flock of sheep. The sheep had bitten the grass pretty close all over the pasture, excepting the circumference of these fairy rings, which being occupied by the tall, coarse Brachypodium pinnatum they had left untouched.

The subject as to the origin and growth of fairy rings is by no means exhausted, and observers may yet throw light upon it if they will carefully examine every

* *Cypripedium euryandrum*, n. hyb.—C. Stonei × barbatum. Coriifolia tessellata, foliis ligulatis apice inæqualiter acutis; pedunculo glandipili bifloro (semper?); bracteis subtriangulis carinatis acutis ovariis pedicellatis brevioribus; sepalo impari transverse elliptico acuto; sepalo inferiori triangulo; tepalis ligulatis acutis sepalo dorsali duplo longioribus, limbo verrucosis ac ciliatis; labello ostio medio retuso, staminodio transverso utrinque cordato glandipili.

* *Dendrobium floribundum*, n. sp.—(Dendrocoryne.) Pseudobulbis crasso fusiformibus diphyllis seu triphyllis; foliis oblongis acutis inæqualiter bilobis; inflorescentiis lateralibus racemosis; racemis pauci; floris laxis; mento conico obtuso amplo; sepalo impari oblongo acuto; tepalis rhombeo lanceis obtusangulis acutis; sepalis lateralis multo majoribus; longe productis; labello producto trifido angustiusculo; laciniis lateralibus oblongis obtuse angulatis extrorsis; lacinia antica cuneato dilatata biloba; lateribus crispula; carinis geminis lamellæformibus a basi labelli in basin laciniæ anticæ; columna brevi apice tridentata, basi inornata.—Flores viridiflavi. Labellum atropurpureum.—Ex insulis Novarum Hebridarum imp. et mercator Londinensis Bull.

ring they meet with, and all circumstances apparent about it.

Great circles are sometimes met with in woods marked by the fungi on their outlines, but generally they appear where cattle have been depastured, and these may not improbably take up the sporules of Agarics when eating grass, which accordingly find in the dropped ordure a fitting nidus for rapid growth where that is deposited. The excretal deposits of cattle are often made in waving lines or semicircles, I have indeed noticed them nearly circular, and these manured lines assume a brighter green than the rest of the pasture, while various Agarics get into them, especially Marasmius Oreades. This is one way in which rings in pastures are formed, but it will not account for all, and some, as I have shown in the *Transactions* of the Woodhope Naturalists' Club, are certainly due to the operations of the mole in turning up the soil near the surface at certain times; for large arcs and wavy lines upturned by this animal I have afterwards found occupied by A. (Clytocybe) geotrupus. The observation of White, of Selborne, is to the same effect. A long list might be made of the various fungi that appear in rings—mostly as I believe formed of them—including even Puffballs and Hydnum repandum, showing that any erosion, scarifying, deposition, or turning up of the ground calls up fungoid life in the line of disturbance. One of the most curious rings I ever saw was occupied by Lactarius piperatus, on the edge of a wood, and this large Agaric, with its concave pileus half-filled with nectareous dew, seemed to suggest an array of cups and liquor prepared for the delectation of dryads or fairies!

It must be observed, however, that some seasons are more productive of rings than others, meteorological influences no doubt taking effect; and while many old rings disappear altogether, new ones arise in unexpected places. *Edwin Lees, F.L.S., Green Hill Summit, Worcester, Dec.* 8.

[The reader interested in this matter should peruse Dr. Gilbert's paper in the *Journal of the Linnean Society*, October 11, 1875, already referred to. Eds.]

ALPHONSE MAS.

We take the following details concerning the career of this distinguished French pomologist from the *Cultivateur de la Région Lyonnaise*:—

Alphonse Mas, president of the Pomological Society of France, died at Bourg on November 15, aged fifty-nine years. M. Mas, although somewhat cold in demeanour, possessed an excellent heart. He was of an affectionate disposition and a valued friend. A man of firm, well-founded convictions, his life was irreproachable, and devoted to work and to science. M. Mas was descended from an old and much-respected family belonging to Lyons, and in his youth he devoted himself to the study of plants. A skilful botanist, he visited the Alps, Pyrenees, and South of France, collecting large quantities of plants characteristic of the flora of the Mediterranean region, and of Eastern France.

These botanical exercises, and a life passed out-of-doors chiefly, gave M. Mas a liking for agricultural pursuits, to which he intended to devote himself when his marriage with Mdlle. Sirant decided him to remain at Bourg. There he occupied himself with the cultivation of trees, and in a few years had collected together an immense quantity of fruit trees in a garden, admired by the traveller arriving at Macon, and situated between the railway station and the barracks. This collection of fruit trees is considered by competent judges one of the finest in Europe.

M. Mas, assisted by *savants*, Belgian, German, English, Italian, and American, distinguished by their knowledge of fruit trees, studied and described most of the fruits growing in temperate climates and the New World. The result of these investigations is to be found in the *Verger*, a magnificent work, adorned with coloured plates representing the principal varieties of Apples and stone fruit. This work was to have been supplemented by another, *Pomologie Générale*, in which it was proposed to give illustrations of new and little known fruits. Two volumes only have appeared; and death has unfortunately prevented the completion of a useful book, which it is hoped, however, that some friends of M. Mas will complete.

M. Mas was not only learned in pomology and an indefatigable inquirer, but he was also a practical man, a raiser of good kinds of fruit; he was also an experimenter as to the best means of growing them. Under his able presidency the Horticultural Society of Ain became one of the best managed, most flourishing, and most useful societies in France. This Society possesses a beautiful garden of its own, which has become a sort of supplementary one to that possessed by M. Mas, late President. In it a very large collection of fruit trees is grown, old and new, and a vast collection of vegetables. Each member of the Society has a right to seeds and fruits, which are equally divided by a committee appointed for the purpose. M. Mas was some years since elected President of the Pomological Society of France. A better choice could not have been made, for, in spite of feeble health, M. Mas ably fulfilled all the duties of his position. He was present at all the meetings, and his presence gave a fresh impulse to the labours of the Society, and to the committees established for the purposes of inquiry. In September last, in spite of ill health, M. Mas presided at the Pomological Congress held at Ghent. Many proofs of sympathy and esteem were then tendered to our much-loved coadjutor by the burgomaster of Ghent and the Belgian horticulturists—a last and well-earned homage rendered to a man who has devoted his life to the progress of pomological science. Returning to Bourg, M. Mas took to his bed, and only left it for the grave, to the regret of all who had the happiness of knowing him, and of profiting by his knowledge and his valuable precepts.

Fig. 157.—Aristotelia macqui.

OBSERVATIONS AND EXPERIMENTS ON ERGOT.

BY A. STEPHEN WILSON, OF NORTH KINMUNDY.*

THE present paper does not propose any microscopic examination of ergot, or of the structure of the fungus growing from it. Indeed the drawings and descriptions of Tulasne (*Annales des Sciences Naturelles*, 1853) leave little regarding structure to be added. The fault of Tulasne's drawings is, that they are too fine. He has made a neater job of the Claviceps than Nature has done. For example, his vertical section of the hymenium shows a symmetrical arrangement of conceptacles all round; but as these conceptacles are scattered irregularly over the head, no section can cut them all through the centres at equal distances apart.

What is here intended is simply to set down such facts in the life-history of ergot as seem to hold true in the locality in which they were observed.

In those parts of Aberdeen and Kincardine shires here referred to, about twenty of the grasses are usually ergotised. In what way ergot has come to be specially associated with Rye, I do not know; at the present time, in the places named, ergot is nearly as rare upon Rye as upon Barley. Year after year, I have searched fields of Rye, without finding more than a very few spurs; some fields yielding none. The first ergot found by me on Rye was on a plant of twenty-four stems in the garden, at a great distance from any point which had ever been known to bear Rye; the strong probability thus being that it was produced from the Claviceps of some of the common grasses.

But if in remote times, or in other localities, or other countries, ergot is or was much more prevalent on Rye than in the places named, certain conditions must be different. Are these conditions botanical, agricultural, or meteoric? In June last the Canterbury Agricultural Association, of New Zealand, offered a prize of 20 guineas "for the best essay on the recent appearance of ergot in Rye and other grasses, and on the best mode of preventing and curing the disease." Probably the ergot has been carried with grass or Rye seed to New Zealand, and has there found conditions favourable to its growth and multiplication. What these may be will be considered below.

GRASSES MOST SUBJECT TO ERGOT.

The grasses which are most liable to ergot are the Floating Meadow-grass (Glyceria fluitans, R. Br.), the common Rye-grass (Lolium perenne, L.), the Cat's-tail-grass (Phleum pratense, L.), Soft-grass (Holcus mollis, L.), Vernal-grass (Anthoxanthum odoratum, L.), and some others. Glyceria fluitans grows mostly in the sides of ditches, or in wet patches of untilled meadow ground. In places of this sort I have found it covered with ergot. But the notion, sometimes expressed, that ergot is caused by damp, is seen to have no foundation by finding Glyceria fluitans in recently cut ditches, to which ergot has not yet been conveyed, wholly free from ergot. Places which are affected in one season are more affected the following season than other spots in the same district. I have seen this grass thickly ergotised at one end of a ditch, and wholly free at the other, not a hundred yards apart.

The common Rye-grass (Lolium perenne) is ergotised in all situations—in waste corners of fields, on public roads, and on dry or damp arable land. I have found it in great abundance on the green sides of roads. In such situations it appears that the florets of this grass are much exposed to the floating spores. The Rye-grass of the hay crops is never affected in the least, simply because it is past flowering before the Claviceps is ripe.

I have found the Cat's-tail-grass (Phleum pratense) much ergotised along the margin of the River Don. In cases where the spikes have been bent down to near the ground ergotising is most severe, showing apparently that the spores are most numerous in the lowest stratum of the air; indeed, it is a fact in all cases that the nearer the spike or panicle is to the surface of the ground, the more it is ergotised. This may be part of the explanation of the greater prevalence of ergot on the short-strawed Continental Rye.

The Vernal-grass (Anthoxanthum odoratum) is most ergotised in shady places, in woods, or on the north border of woods.

The Mat-grass (Nardus stricta) is ergotised in woods, and also on open healthy moors, where no shadow falls upon it.

The Soft-grasses (Holcus mollis and lanatus) are ergotised everywhere, but to the greatest extent amongst rank grass in places somewhat shady.

The Reed Canary-grass (Phalaris arundinacea, L.) I have found ergotised only by the edge of the Don.

Wheat and Barley are very rarely ergotised, and on none of the cultivated Oats (Avena sativa, L.), or the wild Oats (A. fatua, L.), or the bristle-pointed Oats (A. strigosa, Schr.), or the Fly Oat (A. sterilis, L.), have I ever seen a single case of ergot. The Dog's-tail-grass (Cynosurus cristatus, L.) has never afforded a case of ergot in the localities observed, though it abounds and is mixed up with grasses much ergotised. Various species of Bromus are also proof against the ergot spore. Mr. Carruthers mentions (*Journal of the Royal Agricultural Society of England*, vol. x., part ii., 1874) amongst the grasses most subject to ergot, Bromus secalinus, L.; B. mollis, L.; B. pratensis, Ehr., but without stating the locality where those grasses are affected. This is a point which deserves to be looked into, since, if a grass—whether Bromus, Dog's-tail, or cereal Rye—is ergotised in one country, and not in another, some important fact will come out in the explanation.

RELATION TO SEASON.

The time of the year at which the grasses begin to be ergotised depends on the time at which the Claviceps is ripe. On May 25, 1874, I found a great many spurs of Glyceria fluitans in the sides of a half-dry ditch, below decaying grass. At that time scarcely any of them had begun to produce the fungus; but, laid on a damp cloth, between two plates, they nearly all in a few days began to show signs of growth, and in a fortnight were covered with beautiful specimens. On June 9 I examined the same ditch, and nearly all the ergots I found had fungi upon them in an early stage of growth; the weather having been very dry, and apparently supplying too little moisture for vigorous growing. A few ergots of Holcus mollis found at another place at the same time had also the young fungi beginning to make progress. By June 27, 1874, the fungi in the ditch had made considerable advance. Some of them were nearly ripe, with stems of half an inch in length, but most were not nearly so far advanced. A month later, on July 25, they had attained their final size, some being upwards of an inch in length. The grass beside them was in flower, with some of the florets ergotised. On June 24, 1875, the fungus in the same ditch was more than an inch in length, but although the grass was then in flower none of the florets seemed to be yet attacked.

It would, therefore, appear that in the north-east of Scotland ergotising begins after the middle of June. The latest case of ergot in an early stage which I have noticed, was the middle of September. But the fact that the artificial application of moisture brought the Claviceps to maturity, shows that when the early part of the summer is damp and warm, ergotising may take place sooner than when it is dry.

It is almost invariably the case that ergotised spikes or panicles have flowered late. None of the spikes of the Vernal-grass which come up early are ergotised, no spores are floating abroad when they are flowering. As already noticed, the hay crops are past flowering before the sporing season has begun; but the spikes of Lolium perenne which come up late, and stand solitary or in little groups in field or road, are sure to fall victims.

To what cause the greater prevalence of ergot on cereal Rye in some parts of the Continent is attributable is a question quite within reach of observation. Tulasne observes that in 1852 it was easy to collect at Beaumont-sur-Oise and in the vicinity of Paris and Versailles, abundance of ergotised grasses, the ergots of each of them in all states of development in the middle of summer; which would seem to show that, in France, the time at which the Claviceps ripens holds a different relation to the season from that which it holds in Scotland. In Scotland no ergot is to be found on the grasses so early as the middle of summer. The greater prevalence of ergot on Rye in France is probably to be thus explained—by the earlier maturity of the Claviceps; it must there be ripe while the Rye is blossoming, which is only the case to a small extent in Scotland. If the Rye in Scotland opened for fertilisation a fortnight later than it usually does, or if the ergot fungus was ripe a fortnight earlier, more ergot would grow upon Scots Rye. It is not certain that in the old husbandry of this country the cereals fertilised at a later period than they do at present. In Tusser's time Rye began to be sown in September, but it was also sown in several of the following months, while Barley was sown as late as May; but autumn and spring-sown Rye flower about the same time, unless where the spring sowing has been late. But it is certain that in the old husbandry the quantity of grasses which infested the corn lands was much greater than it is now. Under June Tusser advises:—

> "Now down with the grass upon headlands about,
> That groweth in shadow so rank and so stout;
> But grass upon headlands of Barley and Pease,
> When harvest is ended, so mow if ye please."

And when all the appliances of modern tillage have not been able to extirpate Couch-grass (Triticum repens) and Oat-grass (Arrhenatherum avenaceum), we may be sure that these and other grasses laid claim to a large proportion of the old corn lands. The Oat-grass is one of those most subject to ergot. The large area of uncultivated borders and waste pasture land in early times also afforded greater facilities for the undisturbed growth of the Claviceps, while the want of drainage afforded that half-dry, half-damp bed most favourable to the growth of this fungus.

Now one question here is, which circumstance is it which is favourable to the recent growth of ergot in New Zealand, and which is it that favours its growth on the Continent?

One point seems certain, and affords a starting ground for inquiry—wherever ergot is prevalent on any grass, there that grass fertilises simultaneously with the dissemination of the spores of the ergot fungus. If a climate somewhat warmer than that of Scotland brings the sporing of the ergot fungus and the flowering of cereal Rye into necessary contemporaniety, there is probably no cure in that place for ergot upon the Rye. Since, if in Scotland, where cultivation has drained the land and laid hold of the waste places, there is still a great deal of ergot on the forage grasses and patches of wild grasses sufficient for nurseries; much more are there nurseries and damp, uncultivated grass lands in countries of a less advanced agriculture. The ploughing down of grass lands every few years in the course of rotation buries a great deal of ergot, which is thus entirely destroyed. Where land is permanently in pasture, and the grasses of a kind which throw up seed-bearing spikes, the ergot has full opportunity of multiplying.

We thus get some glimpse of the reason why the disease called ergotism was more prevalent in former states of agriculture than in the present state.

In Mr. Carruthers' paper referred to, allusion is made to the differences of opinion which exist in regard to the kind of season most productive of ergot. "Edward Carroll, observing in Ireland, says ergot is more frequent in dry than in wet seasons;" on which Mr. Carruthers observes, that this reversing of English and Continental experience is probably due to the normally moist atmosphere of Ireland. I have found ergot more prevalent in Aberdeenshire in a dry season than in the following wet season. The times are noted above at which the fungus is usually ripe. A certain amount of moisture is required while the fungus is growing, in order to bring it to maturity at a certain date. If this moisture is defective, the date of maturity will be retarded; but now when the fungus is ripe, and the mouths of the conceptacles have risen above the general surface, the question whether wet or dry weather is favourable to further processes depends altogether on the character of the spores, and the agencies by which they are scattered.

The hymenium of a Claviceps from the ergot of Glyceria fluitans, of one-twentieth of an inch in diameter, contains about 3000 conceptacles, or bladder-form sacs of needle-shaped spores. Before the fungus is ripe the surface of the head is smooth, but as it ripens each conceptacle rises in a projection above the surface a height equal to the breadth of that part of it which appears as a brown papilla. This breadth is about .0018 of an inch, while the distance between the papillæ is about .003 of an inch. The spores of this fungus seem in general to consist of but one long cell, though sometimes they are septate. Sometimes they are .0075 of an inch in length, but for the most part only about .0046 of an inch. The length is about eighty times the diameter.

MODE OF DISSEMINATION.

Some of the modes of the dissemination of spores are noticed in Cooke and Berkeley's recent work on fungi (ch. vi.). The mode peculiar to the present spore, and perhaps to others of the same character, seems to differ a little from any of these.

It might be inferred that a spore which comes in contact with a grass floret, raised from 1 foot to 5 feet above the ground, cannot be conveyed by water or rain. But a direct observation is generally better than an inference.

I placed a large number of ergots, with many ripe fungi growing upon them, in a clear bottle, on a piece of wet cloth, and held them up in the bright sunshine. Very soon a conceptacle here and there began to deliver a shower of arrows right out into the air. Placing a black background to the bottle, the flights of bright needles could easily be seen with the naked eye, coursing through the bottle like shoals of minnows in a clear pool; now to the right, now to the left, then upwards or downwards, as if under the influence of forces different from any air eddies which might be supposed to be moving in the corked bottle. It is most probable, however, that currents of vapour were being raised from the wet cloth, and giving the variety of motions. When the heads became dry the discharge of spores ceased. With an eye-glass they could be more closely watched. Some darted, or were shot out with great rapidity; but after a time, on a papilla here and there, the spores merely wriggled out and fell over on the surface. The process went on for hours, and, from the large number of ergots enclosed, was ready to show itself again for several days.

* Read at the December meeting of the Botanical Society of Edinburgh.

What the cause of projection may be is conjectural. The conceptacles and the papillæ seem to be filled with a brown jelly. Now, the rising of these papillæ from a previously flat surface shows that a growth is going on, and a consequent pressure increasing in intensity. So that when the ripe heads are exposed to a certain heat, the tension is brought to a crisis, and the spores are projected by elastic pressure. Necessarily when this pressure begins to abate by the relief consequent on a continuous discharge, the spores are not acted upon by so great a force as at first, and this seems to explain why the last spores, instead of being shot into the air, are merely pushed slowly to the surface and fall over. Indeed, it is almost certain that a good many spores are never ejected at all, but perish with the decaying fungus.

There is a certain analogy between the discharge of these spores and the discharge of the pollen in grasses. In both cases the first discharge appears to result from an internal pressure producing sudden rupture.

(*To be continued.*)

REPORT ON OPEN AIR VEGETATION FOR NOVEMBER, 1875.

BY JAMES MCNAB.*

NOVEMBER, from beginning to end, has been remarkable for wind, rain, frost, and snow; the excess of the two latter has been exceptional in Edinburgh during the month of November for many years. On seventeen mornings the thermometer was at or below the freezing point, the lowest markings being on the 9th, 10th, 11th, 12th, 13th, and 27th, indicating 26°, 19°, 18°, 27°, 22°, and 27°, while the highest morning temperatures were on the 4th, 5th, 6th, 17th, 18th, and 19th, indicating 47°, 45°, 44°, 42°, 42°, and 43°. The united temperatures below 32° during the month amounted to 80°, being 18° more than had been registered here during any of the November months previous to this for the last thirteen years. The highest number of degrees was during November 1864, when 62° of frost was recorded. The lowest was during 1872, when 17° only was registered.

The following table gives the result of the November frosts for the last thirteen years :—

November, 1863 ..	.. 35°	November, 1870 ..	.. 53°
,, 1864 ..	.. 62°	,, 1871 ..	.. 39°
,, 1865 ..	.. 43°	,, 1872 ..	.. 17°
,, 1866 ..	.. 33°	,, 1873 ..	.. 35°
,, 1867 ..	.. 40°	,, 1874 ..	.. 18°
,, 1868 ..	.. 42°	,, 1875 ..	.. 80°
,, 1869 ..	.. 58°		

With few exceptions, most of the leaves remaining on the deciduous trees at the end of October had fallen off during the past month. On November 30 leaves of a yellow and green colour were still on the Quince (Mespilus germanica), the Taxodium distichum was also covered with leaves of a rusty-brown colour, Quercus fastigiata with light brown leaves, Quercus pannonica had leaves only on the points of the shoots, all pendent, but of a yellowish brown hue; Sorbus vestita had scarcely a leaf off, although all were partially decayed. This is a pyramidal-growing tree, and presents a curious appearance at this late season, being covered with thick leathery foliage of a light ash colour. Unripened leaves were still to be seen on the Liquidambar, Rhamnus catharticus, R. Frangula, and Wistaria sinensis, all of a greenish tinge.

Of flowering shrubs, the Ivy, Cydonia japonica, Arbutus Unedo, Laurustinus, Escallonia macrantha, and Jasminum nudiflorum, were the chief ones in bloom on November 30.

Among the most prominent of the fruit-bearing trees and shrubs were the Cotoneaster microphylla, Snowberry, Pyracantha, Thorns, Yew and Holly. The berries of the latter are fast disappearing, the amount of frost experienced during the month seems to have matured them, and thus rendered them more palatable as the food of birds than they generally are at this season of the year. The fruit of the Thorn and Yew is also disappearing from the same cause.

On the rock garden flowers were only to be seen on twenty species of plants, the most conspicuous being the Helleborus niger grandiflora, one of the most interesting hardy herbaceous plants cultivated for blooming at this season of the year. This large variety came from the gardens in Aberdeenshire, where it has been long grown; it comes much earlier into flower than the commou Christmas Rose (Helleborus niger), besides the blooms are much larger and remain long in a flowering condition. This variety bears several flowers on one stalk, which are generally about 10 inches in length; the leaves are more persistent than the ordinary H. niger, longer, and of a coriaceous texture. Besides the Hellebore, we had also in flower on November 30, Aster Reevesii, Lithospermum fruticosum, Veronica rupestris, Gentiana acaulis, Primula vulgaris rubra, Calluna vulgaris Alportii, C. v. Serlei, Erica hibernica autumnalis, E. Watsoni, E. ciliaris, E. Maweana, E. vagans grandiflora, and the Sternbergia (Amaryllis) lutea. This latter plant has long been cultivated in the Edinburgh garden, but flowers very rarely seen, evidently from the roots not being sufficiently ripened during the summer months for this end. When the rock garden was being constructed a few of the higher compartments facing the south and surrounded on three sides with high stones were left vacant as unsuitable for the ordinary alpine plants, which are apt to get burnt up from exposure to the sun. In these compartments the roots of the Sternbergia were planted two years ago, and the plants are now vigorous and flowering freely. This is a choice herbaceous plant for late autumn cultivation, particularly in the southern districts, where it flowers profusely. Owing to the difficulty of getting this Yellow Autumn Crocus, as it is called, to flower here, it has become nearly extinct in this part of Scotland.

* Read at the December meeting at the Botanical Society of Edinburgh.

MESSRS. SUTTON & SONS' NURSERIES, READING.

IT may not be generally known that the great Reading seed firm, amidst the multifarious duties connected with one of the largest seed establishments in the world, still find time to go largely into the nursery trade also, and this too, for a provincial town, on comparatively a large scale. A recent visit, made especially to see their strain of Primulas, enables me to give the following particulars of their nursery generally. The glass department consists of about a dozen span-roofed houses, 40 feet by 15 feet, and forming as compact a block of houses as any in the country. The internal arrangements comprise a path down the centre of each house, and level staging on each side. There are two or three houses with stages in tier form. Every inch of space is filled, and the utmost neatness and order is apparent on all sides. The wonder is how such can be the case, especially as the stock is so constantly changing; nevertheless, such is the fact, and is doubtless due to the untiring energy and enthusiasm of Mr. J. Martin, the nursery foreman.

Primulas are grown by the thousand, both for sale and seeding. In one house alone there are upwards of 700 plants, in splendid bloom; and the stock is so true that one is unable to detect the least variation in any of the flowers. One side of the house is red, the other side white, both kinds being extra large fimbriated flowers, one selected at random measuring 2 inches across. None of the plants in this house are for sale, all being reserved for seed to supply the Messrs. Suttons' customers. In like manner, and for the same purpose, herbaceous Calceolarias, Cinerarias, and Cyclamens are largely grown. The stock of the former is simply marvellous, both as to extent and the robust vigour of the plants. I had the pleasure of seeing them in flower in May last, and the sight has not yet faded from my memory.

I was particularly struck with the large quantity of Calla æthiopica, every plant of which was either in flower or throwing up flower-spikes. There being such a demand for this in the town, for decorative purposes, led Mr. Martin to make it a speciality of culture, and the success he has attained is most decided. Offsets are taken from the old stock in April, and planted out in the ordinary nursery soils, in which they grow freely. They are lifted in August, and potted according to their size in 32 and 48-sized pots, and placed in cold frames, and as the flower-stems appear are moved into the houses. Ferns, Crotons, Dracænas, and the like, are grown in quantity, and of Amaryllis, Achimenes, Gesneras, Gloxinias, Tropæolums, and Liliums, the stock is legion, so many being required, as, being so easily packed when in a dormant state, they are constantly ordered to be sent with seeds.

There is a large store-room for bulbs, which is quite a study of what neatness and method can accomplish; it is fitted up with shelves and separate trays for each variety of bulb, all of which are turned out of pots and preserved in Cocoa-nut fibre and peat: they are thus ready for any order at a moment's notice.

There are pits and frames in quantity, many of them full of the usual kinds of bedding plants, and others appropriated to testing the growth and quality of seeds, as all seeds supplied to the firm, not having been grown under their direct supervision, are thoroughly tested before being put into commerce. The same order and neatness seen in the houses also obtains in the outdoor department, and the nursery is well stocked with an excellent collection of fruit trees —trained Peaches, Pears, and Plums being particularly noticeable. There are Roses in great variety and large numbers, deciduous trees and shrubs, and a very good collection of Conifers.

The foregoing notes may be the means of removing misapprehension on the part of some, who have previously given the Messrs. Sutton credit for growing and dealing in seeds only. *W. Wildsmith, Heckfield.*

REPORT ON ONIONS GROWN AT CHISWICK,

FOR TRIAL BY THE FRUIT AND VEGETABLE COMMITTEE OF THE ROYAL HORTICULTURAL SOCIETY, 1875.

THE seed for this trial was furnished by the following gentlemen—viz., Messrs. Barr & Sugden; Messrs. Carter & Co.; Messrs. Cutbush & Son; Messrs. Benary, Erfurt; Messrs. Nutting & Son; Messrs. Sutton & Sons; Messrs. Veitch & Sons; Messrs. Vilmorin & Co., Paris; Messrs. Harrison & Sons; Messrs. Stuart & Mein; Messrs. Piccirillo; Messrs. Hovey & Co., Boston, U.S.A.; Mr. Dancer, Mr. J. Perry, Mr. A. Parsons, Mr. R. Dean.

The seed was sown on March 16 in well pulverised moderately rich soil, which had the previous season been well manured for Celery. The season was on the whole favourable for the growth of Onions, so that the trial was so far of a very satisfactory character. Altogether 155 samples were sown, representing ninety-eight different names, of which number twenty are here described as quite distinct.

The report only extends to those varieties which have been proved to be well adapted for spring sowing and early autumn or winter use, the remainder of the Tripoli and Silver-skinned sections being again submitted for trial as autumn-sown Onions.

1. *White Spanish* [synonyms, Banbury (Perry), Banbury Improved, Nuneham Park, Improved Nuneham Park, Reading, Improved Reading, Nazeby Mammoth (Carter & Co.), Oxonian Prize (Nutting & Son), Cutbush's A1 (Cutbush & Sons), Portugal, Cantello's Prize (Waite, Burnell & Co.)].—This variety is the one most generally cultivated. The plant is of free growth, the neck of medium size; ripens off early and well. The bulbs are large, a fair-sized specimen measuring about 12 inches in circumference, and from 2 to 2½ inches in thickness. The shape is flattened, the base broad, flat, frequently a little hollowed and uneven, somewhat globular towards the stalk in the best forms. Skin pale straw, falling off readily and exposing the pale greenish yellow outer flesh. The flesh itself is firm and solid, almost white, and of excellent quality. This variety keeps generally in good condition up to the month of March. The Banbury and Nuneham Park types were the most approved.

2. *Large Straw-coloured* (Vilmorin) [syn., Yellow Flat (Hovey & Co.)].—This is only to be distinguished from the White Spanish by the darker colouring of the outer skins.

Yellow Lescure (Vilmorin); Yellow Cambrai (Vilmorin).—These were considered very spurious stocks of the Large Straw-coloured.

3. *White Globe.*—Plant of free growth, forming in general a small neck; ripens off early and well. The bulbs are of medium size, from 9 to 10 inches in circumference, and about 2¾ inches in depth. The shape is somewhat globular or obovate, with a finely rounded high crown. The skin is pale straw like the White Spanish, and it is, indeed, similar to that variety in every other respect but its more globular form. It is an excellent keeping sort and much esteemed.

White Intermediate, Oscar (Cutbush & Sons).—These are mixed and indifferent stocks of White Globe and White Spanish.

4. *Trebons* (Vilmorin & Co., Stuart & Mein).—Plant of free growth but somewhat tender, succeeding best in a warm season. Neck somewhat coarse. The bulbs are of very large size—about 13 inches in circumference, and from 3 to 3½ inches in depth. The shape is obovate, the base somewhat broad and flat, whilst the top tapers more to the stalk or neck. The skin is pale straw, and peels off readily like that of the White Spanish. The flesh is pale and rather soft and flabby, but of mild and excellent quality. This is a very large and handsome Onion for early autumn use. It does not keep well, and generally begins to shoot before Christmas. It bears a close resemblance to the imported Spanish Onions.

5. Yellow Danvers (Hovey & Co., Vilmorin & Co., Carter & Co.), [syn., Danvers' Yellow].—This is a very fine and distinct Onion. The plant is of free growth, the top slender, of a rather pale green colour, and with a very fine slender neck, so that it ripens off well. The bulbs are of a medium but very even and regular size, from 10 to 11 inches in circumference, and about 2½ inches in depth. The shape is roundish globular, very regular, with a small base and a small neck. The skin is of a dark straw colour, the outer coat peeling off freely but not exposing the flesh, the inner coating remaining firm, giving the Onion a very neat, clean appearance. The flesh is very firm and solid throughout, and of fine quality. A splendid keeping variety.

New German (Veitch & Sons).—This bears a close

resemblance to Yellow Danvers, but scarcely appears to keep so well.

6. *Brown Globe* [syn., James' Keeping].—This is of the same character as the White Globe, but having darker or reddish brown skins; some are pale-fleshed throughout; others, these being the darker skinned, have a slight shading of red as an outside coating of the various layers as in the red varieties. It is an excellent keeping variety and much esteemed. The James' Keeping of some is more flattened near the crown, forming a sort of shoulder to the stalk, and of others again it is similar to the Pear-shaped.

Magnum Bonum (A. Parsons) is a very fine selection of the Brown Globe.

Brown Intermediate; Bedfordshire Champion.—These are mixed stocks of Brown and White Globe.

7. *Pear-shaped* [syn., Pyriforme].—This is allied to the Globe section, and may be described as an elongated form of that variety. The plant is of free growth, the great majority producing a very thick neck with very little bulb, so that they do not ripen off well. The true form is like that of a long Pear, tapering mostly towards the stalk, from 7 to 8 inches in circumference, and from 4 or 5 inches in depth or height. The skin is of a dark reddish brown, and falls off readily. The flesh is moderately firm and solid, but it is not a very good keeping sort, and its shape does not recommend it. A good selection of this is sometimes sent out as James' Keeping.

8. *Deptford* [syn., Brown Spanish, Improved Brown Spanish, Strasburg, Strasburg Dutch, Pale Red Niorte, Light Red Strasburg].—Plant of free growth, and very hardy, forming a small neck, and ripening early. The bulbs are of medium size, flattened or oblate, of pretty even and regular form. The skin is of a dark reddish brown colour. The flesh firm, solid, tinged with red. An excellent keeping variety.

9. French Strasburg [syn., Pale Red St. Brieux].—This is distinct from the Deptford or English Strasburg. The bulbs are smaller, of very uneven shape, and frequently split open into several crowns. They are of a dull reddish colour. Altogether a very inferior variety of the Deptford class.

10. Deep Blood Red.—Plant of free and hardy growth. Bulbs of medium or rather small size, flattened or oblate, and generally of very even and regular form. The outer skin is of a dull red colour; the inner coating of a deep glossy red. The flesh itself is pure white, it being only the outside coating of the various layers that are coloured, and these become paler towards the centre. It is very firm and solid throughout. This is the strongest-flavoured Onion, and the latest keeper. On these accounts it is a valued variety.

Blood Red.—This is simply a paler-skinned variety of the preceding, and the most common.

11. *Wethersfield Red* (Hovey & Co., Carter & Co., Benary & Son), [syn., Bright Red Mezières (Vilmorin)].—Plant of free and robust growth. The neck small, ripens off freely. Bulbs large, flattened or oblate, very even and regularly formed, about 12 inches in circumference and 2 inches in depth. The outer skin is of a light dull red colour, and peels off freely, the inner coating being light purplish, shading greatly from the crown to the base, where it is very pale. The flesh is pure white, the outer surface of the coating only being coloured. It is very firm, solid, and of mild and excellent quality, and keeps well. A remarkably fine and handsome Onion, from America. The finest type of Red Onion.

12. *Early Red* (Hovey & Co.).—This is a rather early red variety. The bulbs are of medium size, flat, of a very dull red colour. The flesh is firm and solid, and of good quality. It shows a tendency to the production of several crowns, which burst and spoil the bulbs, and prevent them keeping.

13. *Two-bladed*.—This name is given to denote its peculiarity of only producing two blades or leaves. These form small bulbs very early in the season, and soon ripen off. A great majority, however, grow into larger bulbs, and these have the ordinary number of leaves. The true two-leaved type has small roundish bulbs about an inch in diameter. The skin is of a dull-yellowish brown colour; the flesh greenish white and frequently a little coloured. They are very firm and solid, and keep well. The small size makes it useful for pickling purposes.

14. *Teneriffe* (Benary & Son).—This greatly resembled in appearance the smaller types of the Two-bladed.

15. *Silver-skin* (Nutting & Son), [syns., Silver-skin Pickling (Veitch), Early White Silver-skinned (Benary & Son), White Round Early Hard Dutch (Vilmorin & Co.)].—The bulbs are of medium size, roundish oblate; a great many are apt to split open. The outer skin is pure white or silvery, peeling off freely and exposing the next coating, which is white with green veins. The flesh is pure white, exceedingly firm and solid. Keeps remarkably well, and is useful to those who prefer very white Onions. This is quite distinct from the Paris Silver-skin, which does not keep well.

16. *Queen* [syns., New Queen, Piccirillo's New Queen].—This is a very small and very early variety of the Silver-skinned section. It forms bulbs almost as quickly as a Radish, and has rarely more than two or three leaves. They were fully grown last season by June 1, about fifteen days earlier than the White Italian Tripoli, which variety in the late trial it most nearly resembled. Many large and later growing examples were observed in each sample, which, if the seed was not mixed, implies a tendency to deterioration. In this, as in other respects, it exactly resembles the Nocera as introduced from Italy about thirty years ago, and the Florence White of earlier date.

N.B.—All the section of Silver-skinned Onions, including the Queen (Waite), Italian Tripoli, Marzajola, Nocera, Paris Silver-skin, Early White Naples, and White Lisbon, also the Giant Tripoli section, including the Giant Rocca, Red Sallow, Madeira, &c., which are found valueless as spring-sown varieties, will form the subject of a separate report when their respective merits have been tested as autumn or winter-sown Onions.

17. *Potato Onion* [syn., Underground Onion].—This is not propagated by seeds. The small bulbs are planted in the ground like Shallots, and around these a number of new bulbs are produced. These bulbs are of average size, of somewhat irregular shape. The skin is reddish brown, hanging very loosely. The flesh is tolerably firm and solid, and of fair quality. It does not keep well, but is useful for procuring an early supply of Onions.

18. *Egyptian* [syns., Egyptian Bulbiferous, Tree Onion, Garden Rocambole].—This variety when planted throws up a stem on which, instead of flowers, small bulbs are produced of about the size of small marbles, which are very excellent for pickling. It is propagated by planting these bulbils (the largest of which will bear bulbs the same season), or by the bulbs which are formed in the ground, and which have not formed stems.

19. *American Perennial Tree, or Top Onion* (Carter & Co.).—This produces small bulbils in the same manner as the Egyptian Bulbiferous, but of a much smaller and inferior character. No bulbs are formed in the ground. The plant is perennial; the roots are long and fibrous.

20. *Welsh*.—Of this there are two varieties, the red and the green. The plant is an herbaceous perennial, and forms no bulbs; the roots are long and fibrous. The green tops or leaves only are used. It may be propagated by seed or by division of the roots. *A. F. Barron*.

NEW FLOWERS CERTIFICATED

BY THE ROYAL HORTICULTURAL SOCIETY'S FLORAL COMMITTEE AT THE CHISWICK TRIALS, 1875.

*** *F.C., First-class Certificate; S.C., Second-class Certificate.*

Fuchsia albo-coccinea	Cannell: Henderson, July 16—S.C.
,, Alexandrina	Veitch, July 16—F.C.
,, Annie	Henderson: Veitch, July 16—F.C.
,, Brilliantissima	Cannell: Downie & Co.: Henderson, July 16—F.C.
,, Champion of the World	F. & A. Smith, July 16—F.C.
,, Empress of Germany	Henderson: Knight, July 16—F.C.
,, First of the Day	July 16—F.C.
,, Hugh Mollon	Taylor, July 16—F.C.
,, Inimitable	July 16—F.C.
,, Josephine	Henderson: Knight: Veitch, July 16—F.C.
,, Marginata	Henderson, July 16—F.C.
,, Mr. Lyndoe	Henderson, July 16—F.C.
,, Mrs. E. Bennett	Henderson, July 16—F.C.
,, Prince Leopold	Veitch, July 16—F.C.
,, Schiller	Taylor, July 16—F.C.
,, Sunray	G. Smith, July 16—F.C.
,, Triumphant	Veitch, July 16—F.C.
,, Water Nymph	Henderson: Knight, July 16—F.C.
,, Wave of Life	Henderson: Veitch, July 16—F.C.
Pelargonium Caxton	Pearson, Aug. 27—F.C.
,, Colonel Wright	Pearson, Aug. 27—F.C.
,, General Outram	Pearson, Aug. 27—F.C.
,, Golden Harry Hieover	Henderson, Aug 27—F.C.
,, Harry King	Henderson, Aug. 27—F.C.
,, Lady Emily	Pearson, Aug. 27—F.C.
,, Lucy	Pearson, Aug. 27—F.C.
,, Mark Twain	Miles, Aug. 27—F.C.
,, Mrs. Augusta Miles	Pearson, Aug. 27—F.C.
,, Mrs. Holden	Pearson, Aug. 27—F.C.
,, Mrs. J. George	W. Paul, Aug. 27—F.C.
,, Rev. C. P. Peach	Downie & Co., Aug. 27—F.C.
,, Rosa Little	Little, Aug. 27—F.C.
,, Tyersal Rival	Downie & Co., Aug. 27—F.C.
,, W. E. Gumbleton	Downie & Co., Aug. 27—F.C.
Viola Alpha	Dickson & Co., June 9—F.C.
,, Bedfont Yellow	Dean, June 9—F.C.
,, Blue Perfection	Westland, June 9—F.C.
,, Dickson's Snowflake	Dickson & Co., June 9—S.C.
,, Dr. Stuart	Dr. Stuart, June 9—F.C.
,, Lilacina	Dean, June 9—F.C.
,, Lothair	Dean, June 9—F.C.
,, Magpie	Dean, June 9—F.C.
,, Novelty	Cocker, June 9—F.C.
,, Peach Blossom	Dickson & Co., July 16—F.C.
,, Princess of Teck	Dean, July 16—F.C.
,, Queen of Lilacs	Dickson & Co., June 9—F.C.
,, Royal Blue	Dean, July 16—F.C.
,, Sovereign	Dickson & Co., June 9—F.C.
,, White Swan	Dean, June 9—F.C.
,, Williams	Dr. Stuart, July 16—F.C.

NEW PLANTS CERTIFICATED

BY THE FLORAL COMMITTEE AT THE ROYAL HORTICULTURAL SOCIETY'S MEETINGS, 1875.

*** *F.C., First-class Certificate; S.C., Second-class Certificate; B.C., Botanical Commendation.*

Abutilon Darwinii	Veitch, Feb. 17—F.C.
Adiantum concinnum Flemingii	Fleming, July 21—F.C.
,, Hendersoni	Veitch, June 16—F.C.
,, Lüddemannianum	Veitch, Aug. 18—F.C.
,, princeps	Veitch, Aug. 4—F.C.
Agave Victoriæ Reginæ	Croucher, Oct. 6—F.C.
Aloe Greenii	Green, July 21—F.C.
Alsophila australis Williamsii	Williams, Aug. 4—F.C.
,, philippinensis	Veitch, Aug. 4—F.C.
Anthurium violaceum var.	Veitch, April 7—B.C.
Artocarpus Cannoni	Bull, Aug. 18—S.C.
,, laciniatus metallicus	Veitch, Aug. 18—S.C.
Asplenium ferulaceum	Veitch, Aug. 4—F.C.
Azalea Flambeau	Williams, May 12—S.C.
Begonia Coltonii	Lee, July 7—F.C.
,, Emperor	Veitch, June 16—F.C.
,, Froebelii	Froebel, Aug. 4—F.C.
,, metallica	Croucher, Sept. 1—F.C.
,, Rodwelii	Lee, July 7—F.C.
Bertolonia Van Houttei	Van Houtte, May 12—F.C.
Brahea filamentosa	Veitch, Oct. 6—F.C.
Carnation (tree) Mrs. Fowler	Turner, Nov. 10—S.C.
,, ,, Sir Garnet Wolseley	Turner, Nov. 10—F.C.
Cattleya sp. Minas	Denning, Nov. 10—F.C.
Cibotium Menziesii	Bull, Aug. 4—F.C.
Clarkia elegans (double) Purple King	Hardy, July 7—F.C.
,, ,, ,, Salmon Queen	Hardy, July 7—F.C.
Clematis Fairy Queen	Cripps, July 7—F.C.
,, Grand Duchess	Cripps, June 16—F.C.
,, Lady Alice Nevill	Cripps, June 2—S.C.
,, Lord Nevill	Cripps, June 2—F.C.
Crinum brachynema	Bull, April 7—F.C.
Crotalaria Cunninghamii	Veitch, Aug. 18—B.C.
Croton Disraeli	Veitch, April 7—F.C.
Cytisus Laburnum aureus	R. Smith, Aug. 4—F. C.
Dahlia Charles Leicester	Keynes, Sept. 1—F.C.
,, Dr. Livingstone	Rawlings, Sept. 1—S.C.
,, John Bennett	Rawlings, Sept. 1—F.C.
,, John Downie	Keynes, Sept. 1—F.C.
,, J. C. Quennell	Rawlings, Sept. 1—F.C.
,, Lord of the Isles	Keynes, Sept. 1—F.C.
,, Maggie Fairbairn	Keynes, Sept. 1—F.C.
,, Yellow Globe	Turner, Sept. 1—S.C.
,, (pompon) Dove	Turner, Oct. 6—F.C.
,, (bouquet) Triumph	Turner, Sept. 1—F.C.
Daisy (double) White Globe	Dean, April 21—F.C.
Dracæna candida	Bull, April 7—F.C.
,, elegantissima	Veitch, Aug. 4—F.C.
,, hybrida	Veitch, April 21—F.C.
,, insignis	Bull, April 7—F.C.
,, rex	Bull, Aug. 4—F.C.
,, Taylori	Veitch, Aug. 4—F.C.
,, triumphans	Bull, July 21—F.C.
Drosera spathulata	Veitch, April 7—F.C.
Drosophyllum lusitanicum	Veitch, April 7—B.C.
Echeveria pachyphytoides	Croucher, Nov. 10—F.C.
,, rotundifolia	Dean, Nov. 10—F.C.
Fourcroya variegata	Croucher, Sept. 1—F.C.
Geonoma gracilis	Williams, April 7—F.C.
Gynerium argenteum pumilum	Noble, Oct. 6—F.C.
Hollyhock Beauty of Walden	Chater, Aug. 4—S.C.
,, Ianthe	Chater, Aug. 4—S.C.
,, La Grande	Chater, Aug. 4—F.C.
Hyacinth Etna	Veitch, April 7—F.C.
Juniperus virginiana elegans	Lee, July 21—F.C.
Kentia Moorei	Bull, July 21—F.C.
Lilium Hansoni	Wilson, June 2—S.C.
Lomaria dobroydensis	Bull, July 21—F.C.
Marcgraavia paradoxa	Bull, July 21—B.C.
Martinezia erosa	Williams, April 7—F.C.
,, nobilis	Bull, July 21—F.C.
Masdevallia Davisii	Veitch, Aug. 18—F.C.
,, elephanticeps	Shields, July 21—B.C.
,, melanopus	Green, March 3—B.C.
,, Normanii	Shields, July 21—B.C.
Nepenthes intermedia	Veitch, Jan. 20—F.C.
Odontoglossum Warscewiczii	Veitch, Feb. 17—S.C.
Oncidium curtum	Bull, June 2—F.C.
Pelargonium (decorative) Prince of Wales	Bull, June 2—S.C.
,, (double zonal) Talabot	Wm. Paul, July 21—S.C.
,, Wilfrid	Laxton, June 16—F.C.
,, (semi-double zonal) Wonderful	G. Smith, July 21—F.C.
Pellæa Bridgesii	Henderson, July 21—S.C.
Pescatorea Dayana splendens	Bull, Sept. 1—S.C.
Platycerium Wallichii	Williams, July 21—F.C.
,, Willinckii	Veitch, Aug. 4—F.C.
Polystichum angulare grandidens pumilum	Ivery, July 21—F.C.
,, lepidocaulon	Williams, June 2—F.C.
Rhododendron (jasminiflorum) Duchess of Teck	Veitch, Aug. 4—S.C.
,, ,, Prince Leopold	Veitch, Aug. 4—F.C.
Rose (H.P.) Capt. Christy	Bennett, April 21—F.C.
,, ,, Duke of Connaught	Paul & Son, Aug. 4—S.C.
,, ,, Hippolyte Jamain	Bennett, March 17—F.C.
,, ,, Rev. J. B. M. Camm	Turner, Sept. 1—F.C.
,, ,, Star of Waltham	W. Paul, May 12—F.C.
Saxifraga cæsia major	Green, Aug. 4—B.C.
Senecio macroglossa	Green, May 12—B.C.
Streptocarpus Greenii	Green, Aug. 4—F.C.
Verbena George Brunning	Eckford, Aug. 13—F.C.
,, Lady Ann Speirs	Eckford, Sept. 1—F.C.
,, The King	Eckford, Aug. 18—F.C.
Woodwardia radicans cristata	Williams, Aug. 4—F.C.

NEW FRUITS, ETC.,

CERTIFICATED BY THE FRUIT COMMITTEE AT THE ROYAL HORTICULTURAL SOCIETY'S MEETINGS, 1875.

*** *F.C., First-class Certificate.*

Apple, St. Edmund's Pippin	Harvey, Oct. 6—F.C.
,, Redleaf Russet	Cox, Jan. 20—F.C.
,, Worcester Pearmain	Smith, Oct. 6—F.C.
Apricot, Frogmore Early	Jones, July 21—F.C.
Garden Frame	Voice, Sept. 1—F.C.
Gooseberry, Early Orleans	Royal Hort. Soc., July 7—F.C.
Pear, Beurré de Jonghe	Rev. G. Kemp, Feb. 17—F.C.
,, Délices Everard de Tournai	Rev. G. Kemp, Feb. 17—F.C.
Strawberry, Waltham Seedling	W. Paul, July 7—F.C.

DIOSPYROS KAKI.

THE accompanying figure (fig. 158) was made from fresh specimens grown in the Isle of Wight, in the gardens of Sir William Hutt, K.C.B. The plant was imported a few years ago from Japan, where, as well as in China, these trees have been long cultivated, and many varieties are known. In China the trees, according to the French traveller, Father David, have the size of the larger of our Apple trees, but the shape is more rounded and more elegant. In the month of October they are in all their splendour, laden with a multitude of fruits of the size and colour of Oranges. They vary much in form and flavour, and the best kinds are propagated only by grafting. The flesh is juicy, containing several oblong seeds, which are placed around the central axis, and the taste is like that of Apricots, but often with some trace of astringency.

The variety here illustrated is called costata, in consequence of the depressed lines or ribs that mark the surface of the fruit from the apex down towards the enlarged persistent four-lobed calyx at the base.

There can be no doubt but that this is a valuable addition to the dessert fruits that can be produced in this country, and, since the tree thrives well and ripens its fruit in the climate of Paris, it is quite desirable to try what can be done with it in our own country, especially as the thinness of its delicate skin renders it difficult to import the ripe fruits in a perfectly satisfactory condition.

Even as an ornamental tree, with its large glossy leaves, independent of the fruit, we shall be glad to welcome amongst us this domesticated species of the Ebony genus. *W. P. H.* [The fruit was very juicy, with a taste like Apricots—not in the least dry. The touch of a steel knife speedily changes the flesh from Apricot colour to black. EDS.]

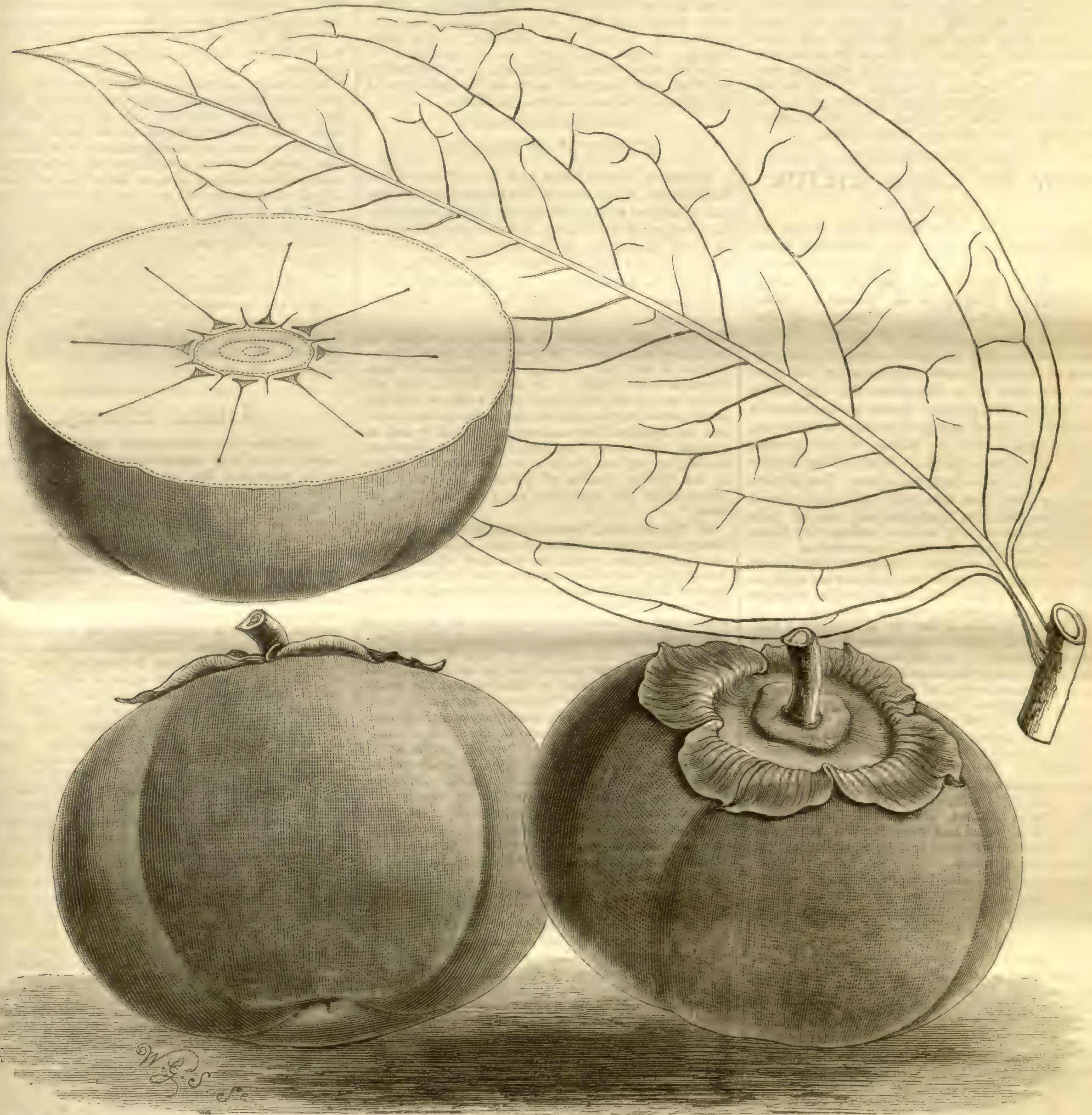


FIG. 158.—FRUIT OF DIOSPYROS KAKI, VAR. COSTATA, GROWN IN THE ISLE OF WIGHT.

ORCHIDS OF PANAMA.

THE *Panama Star*, received by the last mail, calls attention to the opening there is for a more extensive trade in Orchid bulbs from the Isthmus as follows:—The Panama ladies in general are fond of flowers, and there are few balconies without some flowering plants—the Flor de Verano, a small but fragrant species of Passion-flower, Pelargoniums, the Blue Pea-flowers, one of the Aroideæ called Corazon de Jesus, and a few others that are general favourites. But the floral luxuries that accompany wealth in other countries, such as England and France, may be said to be the savage plants of the mountainous regions of the most distant parts of the world, brought home to the conservatory and hothouse to be educated and taught to behave themselves as civilised flowers. The tribes of plants to which the system is mostly applied are the Orchids. What an Orchid is every one knows who has seen the Espíritu Santo plant of Panama, though if it were pointed out to him under its baptismal name of Peristeria elata, he might be apt to say he never heard either of person or plant with such a name.

Anyhow, these are plants of *lujo* in Europe, and the Isthmus of Panama might with profit export boxes of Orchid bulbs for the London market. It is necessary that the collector should know a little more of botany and gardening than what would be required for the collector of Caucho or Ivory Nuts; but, this condition being fulfilled, we don't know but that the trade in Orchids, Palms, Dracænas, and Cypripediums might be set on foot.

These Orchids or wild flowers, so much appreciated in the gardens of royalty and rich people abroad, abound in species of great beauty and rarity in the

Cordilleras of the Isthmus, especially of that part of the chain from Veraguas to Golfo Dulce, and in the primæval forest that clothes the sides of the Volcan of Chiriqui, as well as on the rocks that border the Chiriqui Viejo, which runs through the Potrero del Volcan.

A more convincing proof is given of the money value of those plants by the following extract from the *Gardeners' Chronicle* of London, Oct. 9, by the account it gives of a sale of them. The botanical names may look like a string of barbarous technicalities, but the prices in English shillings are plain enough.

The species named Cattleya Dowiana refers to a beautiful species with magnificent flowers which grows in Costa Rica, and being first introduced into notice by Captain Dow, of the Pacific Mail Steamship Company, is named after him. A few of the bulbs sold for about £20. The Cattleyas, all of which are very much prized in England, abound in Chiriqui as well as the Odontoglossums and Cypripediums; one plant of the former brought 22 guineas. The total amount realised by the sale was over 10,000 dollars.

HOW TO GROW LILIUM AURATUM.

SOME time since, when noticing the garden and pleasure-grounds at Duneevan, the residence of James McIntosh, Esq., which are charmingly situated on the slopes of Oatlands Park, near Weybridge, in Surrey, overlooking the windings of the Thames as it takes its tortuous course from Chertsey to Walton, we mentioned the splendid examples of Lilium auratum there to be met with, and which exceeded in the perfection of their development everything we had elsewhere met with. The illustration (fig. 159) which we give at p. 781, prepared from a photograph with which Mr. McIntosh was good enough to favour us, will give some idea of the manner of their growth, and will show how exceedingly beautiful they become when thus planted in congenial homes. Not only are the plants conspicuous from their stately and massive proportions, but the profusion and size of their blossoms are astonishing, and the perfume they throw over the whole garden is almost overpowering.

The garden, as we have already mentioned, is on sloping ground, and the descent is somewhat rapid, so that from the upper level, on which the mansion stands, an uninterrupted view is obtained of the country beyond, while at the edge of the slope a considerable part of the picturesque home pleasure ground is brought into view. Mr. McIntosh is fond of choice trees, and can show the second best—that is, the next best to the parent—plant of the beautiful Knap Hill Cypress, Cupressus Lawsoniana erecta viridis, now some 15 feet high and 4 feet in diameter. There is a Wellingtonia 40 feet high, and an Abies Albertiana 28 feet high, both exceedingly well grown and beautiful specimens. These amongst comparative juveniles deserve especial note. But the garden also contains some grand monuments of the past, in an aged but noble Cedar of Lebanon, in a towering Larch 80 feet high, and in a gnarled and venerable Oak, a remnant of the Oatlands Park of other days, which has a stem 23 feet in circumference.

The sloping glade of well-kept turf which forms the main portion of this pleasant garden is richly furnished with clumps of Rhododendrons, which thrive amazingly, and for which, like the Lilies, the venerable owner seems to have an especial affection. At intervals around these clumps, in all parts of the garden, are patches of Lilium auratum, which were planted as single bulbs some five years ago, and these now throw up three, four, or more stems, attaining from 6 feet to 10 feet in height, each stem with a circumference of 3 inches to 4 inches, and supporting heads of magnificent flowers, which in many cases individually measure a foot and upwards when fairly expanded. One plant during the past season attained 11 feet in height, not drawn up, but sturdy and thickly set with leaves, looking more like some stout Osier rod than a Lily stem. This particular plant produced two stems and about two dozen flowers; others have this number or more upon a single stem, and in one patch we counted no fewer than 120 blossoms. The size of the heads of flowers on some of the most vigorous stems was from 2 feet 6 inches to 3 feet wide, by an equal depth, and these, it may be well imagined, when seen in their perfection were truly magnificent. Our figure shows some of the best placed patches, but not the individually finest stems.

Mr. McIntosh grows this regal Lily by hundreds, and those bulbs which have had time to form fine patches like those depicted, may be counted by scores. They are all similarly treated, and when the later additions have had time to increase in strength this will indeed be a paradise of Lilies.

The Lilies being associated with Rhododendrons are of course planted in peat, the natural soil, moreover, being sandy, with an admixture of peat, and the subsoil a cool, moist sand; while, from the inclination of the surface, there is little or no risk of injury from stagnant moisture. The conditions, therefore, just meet the wants of the Lilies, of which, indeed, their luxuriant growth bears witness. Like the Rhododendrons, these plants are freely watered during dry summer weather. The range of the blooming period is something remarkable, and must be inherent, seeing that the bulbs are planted out, and all receive similar treatment. When we saw them in the early part of August, which appeared to be about the height of the blooming season with the majority of the plants, some were already quite gone past, and others had scarcely reached the stage of half-grown buds, while some of those then in bloom were nearly bloomed out, others were in their full glory, and others again just commencing to expand. The blooming season must therefore extend from July far into the autumn. It may be added that the situation is remarkably sheltered, and hence well suited for the endurance of the splendid heads of blossom. *T. Moore.*

Florists' Flowers.

DRESSING CARNATIONS AND PICOTEES.—When in the North, at the close of last month, my attention was called to a correspondence which had appeared in the *Journal of Horticulture*, following the July show at South Kensington, on the subject of "dressing" Carnations and Picotees; and I was urged to give expression to the surprise (it was put to me in a much more emphatic form) the remarks of "D., of Deal," had excited.

I have since obtained the numbers in which the correspondence is to be found—of which, from circumstances I need not detail, I had previously been ignorant—and though I am most desirous that my return to my old and much-loved vocation, and the small part I may be able to take in floriculture, shall not be signalised by controversy, I feel bound to express, not merely the surprise of my Northern friends, but my own profound astonishment and regret at the strange jumble of paradox and fallacious assumptions and assertions set forth by "D., of Deal."

If "D., of Deal," were a young and inexperienced florist, this might be allowed to pass, in the confidence that his crudities would be corrected with a fuller knowledge; but as he proclaims that he has been a grower, on and off, for more than thirty years, and for the larger part of that time has been a very frequent contributor to floricultural literature, we are cut off from hope on that score, and I feel constrained, therefore, for myself, and on behalf of many friends in the North, to warn your readers that his assumptions and assertions as to the effect of dressing, and the possibilities of the art of the "dresser," are utterly without foundation in fact. It is not true, and never was, that "now a pod may be burst to the bottom, petals may be 'anyhow and nohow,' but the magic art of the dresser transforms it. Let John Ball take such a flower, and have it for about two minutes, and you would never know the flower to be the same." Neither could John Ball, nor, what is far more, John Ball's master—the master of most of us in floricultural art—perform such a marvel, nor could the utmost art of the dresser make that good which in itself is radically bad.

Coming from one who should be an authority, it is not edifying to be told, as "D., of Deal," tells us he answered to one who decried the merits of the present flowers—that "they are not only as good, but a great deal better" than the other, and then in a paragraph immediately following, to find him asserting "the rules for exhibiting have been greatly relaxed since those days, and I do not see how they could be enforced with these larger and fuller flowers. In those days, although they were exhibited on cards, yet the judges used to lift up the flowers, and if when they came out of the cards the pods were slit or the petals hung about, the blooms were disqualified; but now a pod may be burst to the bottom, petals may be 'anyhow or nohow,' but the magic art of the dresser transforms it."

My only remark on this paradoxical assertion, must be to assure your readers that "D., of Deal," is utterly mistaken. The flowers of the present day are not larger or fuller than those of thirty years since. The aim of the seedling raiser has ever been to increase the size in breadth and length and substance of petal, and not the number of petals—and there has been continuous progress in this direction; and as for any relaxation in the rules for determining the merit of single flowers, or flowers in collections, that has no existence save in the over-warm imagination of "D., of Deal." On the contrary, as the flowers have advanced nearer to the ideal type of perfection a greater stringency has been, and necessarily, set up, simply because no one acquainted with, and accustomed to, a higher standard of excellence, can be contented with an inferior.

"D., of Deal," retires from the controversy not very logically for his side of the question—but then had he been logical he would have written, on such a subject, not at all—by assuring us that one who cannot dress his flowers (Carnations and Picotees) "would have no more chance" against one who could do and dress them well, "than would a country dressmaker, beside M. Worth or Augustus Ahlborn, even though they had the same person to dress, and the same materials to work with." Well, we grant what "D." says, but we decline to submit ourselves to the ignorant taste and ability of the country dressmaker, and prefer the adornment of Messrs. Ahlborn and Worth, even though they have the "same materials" only "to work with." And I assume if "D., of Deal," were called to Court, or even to receive a visit from my lord, his bishop, he would choose rather to follow the direction of a Bond Street artist in the matter of dress, than the ignorant dictum of a country bumpkin.

It is more curious than singular, but it is a fact, that the practice of dressing the Carnation and Picotee has never been impugned, save by those who have been either entirely ignorant of the flowers and the practice, or most imperfectly acquainted with it, and who have, therefore, always started from premises without foundation in fact, or from facts so misconceived and misconstrued as to lead to inevitable error.

If "D., of Deal," really desires to see the question treated in all its broadness, I refer him to the *Florist, Fruitist, and Garden Miscellany* for 1853, where, at p. 30, he will find a paper by the late Rev. George Jeans; and after a study of that paper I shall expect very different utterances from him.

As to the questions of fact and practice thirty years since and now, I suppose "D., of Deal," will allow I can speak with as much weight as himself. *E. S. Dodwell*, 11, *Chatham Terrace, Larkhall Rise, Clapham, Dec.* 10.

Natural History.

TOMTITS.—The circumstance mentioned by Mr. Lane is one of very unusual occurrence, and not easily to be accounted for, as the Titmice (Paridæ) are sedentary birds, and do not travel far except their daily rounds in the woods and trees in search of insects, and they generally return to the same roosting place, therefore it is not likely they were congregated for the purpose of migration, although it is possible they were driven by the snowstorm which he mentions, and so might receive additions to their numbers as they reached fresh localities—an occasional occurrence with some of our birds which do not migrate except in excessively severe weather. But here a question arises. Were the birds pursuing such a direction as would take them out of reach of the storm? also, were they seen again in such large numbers? Again, were the birds really all titmice? if so, of what particular species was the flock composed, or were there several species in the flock? The titmice, of which there are eight British species, generally associate in small flocks or families, comprising the parents and the young birds of the last season, which keep together until the following spring, when they disperse for the purpose of breeding. The long-tailed titmouse (Parus caudatus) may be seen during the autumn and winter months in flocks of twelve to sixteen, and fly from tree to tree in search of insects, and are kept together by their continual chirping. Last year I saw a flock of about thirty individuals of this species, which I should think was two families accidentally united into one flock. The great tit (P. major), coal tit (P. ater), and the blue-headed species (P. cœruleus) are often seen in smaller companies, sometimes only three or four together, but occasionally in larger flocks. A correspondent of the *Gardeners' Chronicle*, January 4, 1845, mentions a flock of the great titmouse of twenty or thirty individuals on a piece of grass-plot infested with insect larvæ. The remaining four species are much rarer than the foregoing. If any other reader of these pages noticed anything like Mr. Lane (as indeed I have not), and would give us his experience, also if Mr. Lane would kindly reply to my questions so as to clear up a question relating to this interesting branch of natural history, I shall esteem it a favour. *R. A. Rolfe, Stuffyn Wood.*

Notices of Books.

Milk in Health and Disease. By A. Hutchison Smee. Newman, Devonshire Street, E.C.

At a time when magistrates are puzzled to define what proportion of water in milk constitutes an adulteration, when analysts give the most varied opinions, and when others are alleged to be in the employ of dairymen, so as to reduce the specific gravity to the lowest legal point—at such a time Mr. Hutchison Smee has done good service in publishing the above-cited *brochure*. In it are recorded the results of his observations and experiments on the quantity and quality of milk derived from his own and from other

herds. These experiments were extended over a whole year. It is not possible for us here to enter into details, but we may quote the summary which Mr. Smee gives, as it comprises several points of great interest :—

"1. Milk from individual cows is liable to considerable variation.

"2. It is possible for good average milk to be watered to a limited extent without detection.

"3. That the casein under certain circumstances undergoes modification, both physical and physiological.

"4. That the food of milch cows affects the quality of the milk.

"5. That milk can be the vehicle of contagion.

"α. By direct communication of the contagion, either by the water used for purposes of adulteration, or by the vessels in which it is stored being cleaned with impure water.

"β. By the absorption of the contagion by the exposure of milk to deleterious gases.

"γ. That in extreme instances power to communicate disease is produced in the milk itself, probably from an altered secretion of diseased animals.

"δ. That the methods now employed by public analysts are not sufficiently delicate to detect the minute physiological changes which may at times take place in so complex a fluid as milk."

This latter statement is one which will probably commend itself to those who have watched the procedures under the Adulteration Act, and who have come to the conclusion that much more searching and delicate investigation is necessary, alike in the interest of the public and of the dairymen, than is usually bestowed by the analyst. One point mentioned by Mr. Smee is likely to give rise to a good deal of discussion, and the matter is so important that it demands the fullest and most unprejudiced investigation. Mr. Smee found, he tells us, that "the milk derived from the cow fed on sewage-grass went putrid and stank after thirty-six hours. The butter from sewage-grass-fed milk became rapidly rancid, compared with milk from cows fed on ordinary meadow grass." Again "cows fed on the sewage-grass invariably lost condition." This is a statement that must be carefully verified by other observers. We may also call attention to the enormous difference recorded in the constitution of ordinary meadow-grass and of sewage-grass. Mr. Smee's calculations are as follows :—

	Meadow Grass.	Sewage.
Nitrogen as ammoniacal salt ..	2.8	8.4
Nitrogen as organic matter	0.7	1.4
Nitrogen as albuminoid	5.6	12.6
	9.1	22.4

Thus showing considerably more than double the quantity of nitrogenous matter in the milk derived from cows fed on sewage-grass. Mr. Smee does not tell us in what condition the pasture was, or what would be the effect on the milk if cows were allowed to feed in such a pasture, shortly after it had received a top-dressing of ordinary farmyard manure. Taken as it stands, Mr. Smee's table would rather tell in favour of the employment of sewage-derived milk, though from the context it is plain that he looks upon it as the possible source of much sickness and disease. It is quite clear that upon such matters as these our present knowledge is of the vaguest and most inexact character, and every honest attempt to add to our stock of trustworthy information should be thankfully welcomed.

Nebraska; its Advantages, Resources, and Drawbacks. By E. A. Curley. Sampson Low & Co.

One of the first things that struck us on opening this handsome volume was the alliterative preface. Prefaces, as a rule, are little read; hence, perhaps, the desire of the author to attract attention by "apt alliteration's artful aid." Be this as it may, in a preface of some twenty lines we have allusions to the "time of trashy travels, consisting of the tittle-tattle of the train, the table, and the tap;" to the "period of pamphlets on the pretensions of Paraguay, the productions of Patagonia, the potable refuse of Pachino, and the ponderous ores of Panicocoli;" to this "age of artful avarice and adroit accumulation; this era of eager enterprise and electric energy;" and to the "full measure of manifold merits from its own magnificent means." If any such desire as we have above alluded to really actuated the author, we can assure him that no such inducement was required. Mere casual inspection shows that we have to deal with a work of substantial merit—an impression that a more careful perusal amply confirms.

The book is as full of facts and figures as a blue-book, but for all that it is pleasant reading, and this arises from the circumstance that the author has not been content to take his figures from official sources, but has controlled and verified them by his own observations. Two extracts will suffice to show the author's style and method of treatment, and that relating to the locusts will afford one illustration of the "drawbacks" mentioned in the author's preface.

"I had seen the grasshoppers very thick in some places before reaching Grand Island, and I had found some fields of Maize nearly destroyed by them. But it was in Howard County that I was first brought face to face with this scourge in all its terrible reality. While I was at St. Paul's, a glance towards the sun would show them in clouds like the Milky Way on a very bright starlight night. As I left they commenced to alight in considerable numbers. Before I had got halfway to Dannebrog, 11 miles distant, I saw fields of Indian Corn perfectly alive with them. The male flowers at the top of the plants, the rich green foliage, even the stalks, were so covered with them as to be weighed down from their usual graceful form.

"The colour of the fields was completely changed; there were literally hundreds, perhaps thousands, of bushels of the all-devouring insects per acre, and all of the leaves in the field would not more than suffice for a single meal. A little further I saw bare stalks, the foliage being already devoured, and the grasshoppers either gone or on the point of departure; but the strangest sight of all was in the village of Dannebrog. Heretofore we had found the pests mostly confined to the succulent fields of Maize, but now they were everywhere; they impeded the progress of the horses, and they covered everything, green or dry. As we alighted at the hotel it seemed impossible for a kitten to put its foot down on the dusty road without stepping upon them. One's footprints were as transient as if made in water, the insects were displaced for a single second, and in the next they or their fellows were there as before."

The following remarks have reference to some of the wild fruits of Nebraska, in describing which the author has had the assistance of Professor Aughem :—

"There are three type species of Plums in the State namely, Prunus americana, P. chicasa, and P. pumila. Of these there is an almost endless number of varieties. In a Plum thicket in Dakota County, covering only a few acres, I counted, while in fruit, nineteen varieties of Prunus americana and P. chicasa, varying in size from a fourth to 1¼ inch in diameter, and in colour from almost white and salmon, to many shades of yellow, tinged with green and red, and from a light, dark, and scarlet red, to purple tinged with different shades of yellow. Such instances are frequent over most portions of the State, the Plums being common in almost every county, especially along the watercourses, and bordering the belts of timber. These Plum groves in spring time present a vast sea of flowers, whose fragrance is wafted for miles, and whose beauty attracts every eye. The varieties of Prunus americana have oval or obovate leaves (broader at the tip than where the stem is attached), with saw-toothed or doubly saw-toothed edges and very full of veins. The fruit is globular or oval, and ranges from half an inch to 1¼ inch in diameter, the latter being an exceptionally large size. The colour is all shades of yellow, with some red and crimson. Its juice is pleasant, but its skin is tough and acerb, and its stone is sharp-edged or margined. The shrub varies in height from 6 to 25 feet. The fruit ripens in August and the first half of September. These are the prevailing characters, but they vary greatly, some of the varieties producing fruit which is a great improvement in size and taste on the type species, while others again have deteriorated. Still more subject to change is the Prunus chicasa, which grows from 4 to 12 feet in height, sometimes thorny, and always with long, narrow, almost lance-shaped, acute leaves, whose edges are set with very fine teeth. The fruit is globular, of all shades of red, and from half an inch to an inch or more in diameter, of pleasant, some varieties of delicious, flavour, thin-skinned, and containing an almost round and entirely marginless stone." "The dwarf or sand-hill Cherry, so famous on our western plains, is really botanically a dwarf Plum, Prunus pumila, and therefore we speak of it last. The stem is smooth, depressed, trailing or semi-erect, from 8 to 24 inches high. The leaves are obovate lanceolate, tapering to the base, sometimes a little toothed towards the apex, and pale underneath; the flowers numerous, two to four in a cluster. The fruit varies greatly, but is generally about half an inch long and three-eighths broad, ovoid, dark purple, brown-purple, brown, reddish, or nearly black, generally sweet, sometimes delicious and occasionally almost insipid. It is enormously productive. In one of the plates is represented a specimen of this fruit, natural size, taken from a shrub 13 inches high from the root, and found south of Lowell. The shrub has a spreading habit, forming dense masses, sometimes covering from 30 to 60 square feet of ground, but usually the tufts are not more than from 15 to 25 feet in area. It suckers abundantly from the roots, and propagates in this way as well as by seeds. It is found over the greater part of the western half of the State, and while it is not excluded from the richest soil if dry, it seems to be partial to sandy localities rich in alkaline earths. As this Plum is nearly related to some of our cultivated varieties of Cherries, and the stamens and pistils of the flowers are large in both, it will require no great skill to produce a cross between them; and as Fuller has remarked (*Small Fruit Culturist*), a cross between the dwarf Plum and a Bigarreau or Morella variety, retaining the dwarf habit, vigour, and productiveness of the former, with the flavour of the latter, would be an acquisition of incalculable value, and would completely revolutionise Cherry culture. However this may be, the best varieties of the dwarf Cherry are valuable, as they come from the hand of Nature. Many an explorer and traveller in the unsettled regions has been refreshed by them, and the day is not distant when this fruit will, as it deserves to, have a place in the gardens of all people."

We have quoted thus much, as no doubt some of the varieties mentioned would be very serviceable here as stocks. In addition, the author makes mention of Strawberries, Raspberries, Blackberries, Juneberries (Amelanchier canadensis), the fruit of which is described as delicious, and as being mixed with pemmican or preserved meats, to which it imparts a fine flavour. Wild Currants and Gooseberries, luxuriant Grapes, Mulberries, Buffalo-berries (Shepherdia argentea), Elderberries, Papaw (Asimina triloba), and Walnuts—all come in for notice, and testify to the nature of the climate and the fertility of the soil. We have quoted at such length that we have no space left for further comment than this—that every one wishing to know how the great American nation is progressing, and what opportunities it offers to suitable settlers, should peruse this valuable record of travel and observation.

— The first number of the *London and Provincial Illustrated Newspaper* is before us, and from the excellence of the cuts, and the general tone of the whole, we venture to predict a well-earned success for this new aspirant for public favour.

Law Notes.

Action against the Great Northern Railway Company for Loss of Market.—*Davis* v. *The Company*.—This action was brought in the Bloomsbury County Court on the 10th inst. The plaintiff, a salesman in St. Albans Market, sued the defendants, to recover £2 12*s.* 6*d.* for non-delivery of goods within reasonable time, whereby the sale had been lost.

The plaintiff's son said that on April 9 last he bought four boxes of Apples in Pudding Lane, and delivered them at the booking office opposite the Monument, consigned to G. Davis, St. Albans. He told the porters this, but the goods never reached their destination, being sent by mistake to High Street, Barnet, where he carried on the business of a buyer. His wife received them when he was out, and signed the delivery note. He told the porter they were wrongly delivered, and forwarded them to St. Albans. The Apples were much damaged, and running out of the boxes. In cross-examination the witness said he bought the Apples of Messrs. King & Nutt in Pudding Lane by sample, and did not see the contents of the boxes, as only one box was opened: there were four of them in all. He did not send a box of Onions to St. Albans at the same time. He saw Mr. Knowles at the booking office. The Apples arrived the following day at Barnet, and he complained the following Monday. The Company refused to forward them to St. Albans without a consignment note.

George Davis, the plaintiff (who conducted his own case), said he was a salesman residing in Finsbury Park, but had stands in St. Albans Market every Saturday. He did not receive the Apples till the Monday following, when they were too late, and he lost the sale of them. They were addressed by a printed label. Cross-examined, the witness said that his son nailed on the addresses; he had no Onions consigned from London, as they are bought cheaper in the country. He last saw the Apples in the Company's possession.—Robert Davis, another son of the plaintiff, said that he assisted his father, and remembered that the Apples came too late for the market, and sent them back as the market was lost.

The learned Judge having asked what proof there was of the state of the Apples, the plaintiff said that they cost half a guinea a case, and he only claimed 10*s.* for loss of market. They ought to have been delivered on the 10th, and only reached him on the 15th, and he would not give 1*s.* a case for foreign Apples at that time of the year, as they would go wrong in a day. He bought them under a sound mark, and saw they were sound when he bought them.

This being the plaintiff's case, Mr. Harmsworth urged on the part of the Company that there were no specific directions given, and that as the son had kept the goods and not forwarded them at once to St. Albans, the Company did not consider themselves liable for the loss of market, as the service was a good and a prompt one, and no addresses were affixed by defendants to the goods.

Owen A. Knowles, clerk in charge of the receiving house at Fish Street Hill, said he remembered April 9, when the younger Davis said the goods were to go down the line to Barnet and St. Albans—four boxes of Apples to Barnet and one box of Onions, and two boxes of Onions to St. Albans.

The learned Judge, addressing the plaintiff, said that he must decide against him. It was a case of oath against oath, and as to the labels, he could not believe that there were any legible ones affixed to the consignment; and as there was considerable discrepancy as to the Onions being received, he should give judgment in favour of the defendants, and allow them the costs of counsel, attorney, and witnesses.

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 18, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Dec. 20—Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY, Dec. 21 { Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY, Dec. 22 { Sale of Hardy Plants and Bulbs, at Stevens' Rooms.
THURSDAY, Dec. 23—Sale of Lilium auratum, at Stevens' Rooms.
FRIDAY, Dec. 24 { Sale of Scientific Instruments, &c., at Stevens' Rooms.

THE subject of INSECT DAMAGE is certainly occupying more of the public mind in this country now than it has perhaps ever done before. We cannot open a horticultural or agricultural periodical without stumbling upon some allusion to it, and there is scarcely a meeting of the Royal Horticultural Society's Scientific Committee at which a large portion of its time is not taken up in answering inquiries and discussing questions relating to it that have been submitted to it from without. It is on this account that we give prominence to a paper read by Mr. ANDREW MURRAY at the last meeting of that body, and kindly placed at our disposal by the author.

"The Committee," remarked Mr. MURRAY, "is generally able to give tolerably satisfactory information as to the name and nature of the destroyer, and perhaps as to the best means of dealing with it individually, but in encountering insect pests individual efforts can be of little avail. The numbers of the enemy are so excessive, and their spread so wide, that it is only by combined effort and a judicious plan of campaign well carried out over a considerable space, that really effective results can be looked for. Of what avail is it to me that I spend weary and laborious days in removing flies that cluster thick around my plants, if my neighbour keeps a nursery of them in his ill-cleaned fields and weedy hedges that supplies constant relays to replace those that I sweep away? It is in America, where the mischief done by insects is so much greater than in this country, that the necessity for this combined action has first been recognised. Dr. LECONTE, in a presidential address read before the American Association for the Advancement of Science, in August last, has placed this forcibly before the American public. In speaking of the ravages of the Colorado beetle, which have reached such a stage as to have become of national importance, he lays down a programme for dealing with insect enemies which would seem very worthy of adoption by ourselves, and which if adopted, would, while putting us in a position better able to combat our own natural enemies, be capable of easy extension to meet the attacks of the Colorado beetle, were that scourge to make its dreaded descent upon our shores. Dr. LECONTE'S plan is more extensive than is called for in this country, but the principle applies to both alike. The first step is to obtain accurate information regarding the nature and amount of mischief, the circumstances under which the insect enemies most flourish, and the remedies that have been found successful and unsuccessful. This information being procured should be tabulated as far as possible, reduced to compact form and widely published, and, lastly, 'it must be impressed upon the public mind that individual attempts for the suppression of these attacks are frequently futile. Only combined and consentaneous action over large tracts of country will be effective.'

For the carrying out of his views, he proposes the appointment of a paid Commission, with ramifications all over the country—a course, which, as it is extensive, must likewise be costly. No such scheme could be thought of for this country; not that it would be unprofitable but that it would be impracticable; but it does not follow that we ought to sit with our hands folded, and make no effort to carry out a portion of the programme with such means as are within our reach.

In this country we do not look for Government help for everything we want done; it is by private effort and public combination that even works peculiarly proper to be undertaken by Government have been carried out. It was by a private individual—Sir JOHN SINCLAIR—that the statistical account of Scotland was completed. It was by a private Society—the Highland Society—that the Agricultural Returns of Scotland were obtained, and we would suggest that by similar machinery the entomological returns that we want may be obtained likewise. We have three great societies which, by combined action, could easily carry out the task. There is the Royal Agricultural Society of England, the Highland Society, and our own Society. If these societies combined to issue circulars requesting information from each of their Fellows, a body of important and reliable data could no doubt be obtained; and if these societies undertook that task we do not think it would be too much to ask the Science and Art Department of Government to take the trouble and be at the expense of getting the returns when made properly tabulated. That department has already shown its appreciation of the importance of the subject by continuing and extending the collection of economic entomology first organised by this Society, and now deposited in the Bethnal Green Museum, and therefore has preferential claims over any other to being invited to assist in this work. It is obvious, however, that returns for a single year would be of little value, a cycle of five or six years at the least would be necessary, to avoid error from exceptional years.

As to the returns to be sought for, we think one of the first items should be a statement of the amount of damage sustained by the individual reporting during the year to which his report extends. We believe that no one has any idea of the quantity of food destroyed by insects and the amount of pecuniary loss caused by them in any year in these dominions; and that if the amount were brought before the public in actual figures, a great step would be taken towards obtaining that co-operation, without which, as Dr. LECONTE says, it is impossible to expect to contend against them with success. The amount of such injury done in America is of course no criterion of what may be done here, but still it may be useful in suggesting to our minds a truer view of the magnitude and importance of the subject with which we are dealing. From the last report of the State Entomologist of Missouri it appears that he had attempted, by obtaining returns like those we recommend, to ascertain the pecuniary loss and damage to that State occasioned by two only (of course the most formidable) of the insects in that State, the Chinch bug, and the Rocky Mountain locust; and he gives the result for the year 1874 at 19,000,000 of dollars for the one—that is, £4,000,000, and 50,000,000 of dollars (£10,000,000) for the other. There the destruction of the crops over large tracts of country was total, and nothing of that sort need be feared here; but who can doubt that if the loss sustained in Britain from the ravages of wireworm, surface grub, Turnip fly, Onion fly, Cabbage fly, Carrot rust, Wheat fly, granary beetle, and a host of other insect enemies were all added up, it would form a very respectable deduction from the annual produce of these islands?

With the view of remedy, the next item to be sought for is the agricultural condition of each district reported on—whether there are many hedges, whether the ground is well cleaned, what are the chief crops, and other points which extend beyond the range of a man's own possession, and concern rather the district of which it is a part.

The returns should also include any steps taken to conquer or prevent the spread of the insects, information whether the injury done has been total or partial, whether it is a new disease or an old-established sore, and whether (as has often been the case when the mischief has been done) there has been time to diminish or repair the loss by taking another crop. Two or three schedules should be sent to each person, with an invitation to apply for more if needed, for each return should be confined to one insect. We have not thought it necessary to suggest or anticipate any particular form for such returns, for our suggestion to the Committee is to recommend the subject to the consideration of the Council, with the view to their inviting the co operation of the bodies that have been above referred to. If they do not approve or act upon the Committee's suggestion, it would be labour thrown away to prepare a schedule in advance if they do, the societies who may agree to co-operate with them will of course wish to be consulted in its preparation. It is perhaps premature to say anything as to the mode in which the co-operation should be carried out, but probably a small sub-committee, composed of one or two members from each society, would be the most effectual way of bringing it into practical working."

These remarks are by no means intended to check individual exertions, which in many cases, however, require more combined action to make them generally useful. A good example is afforded by the history of the Vine murrain, which was first studied, and at the suggestion of a friend the proper remedy applied at Margate by Mr. TUCKER, whose name the early stage of the fungus to which the disease is due still bears. Mr. TUCKER, unfortunately, though undoubtedly the first to apply sulphur successfully, was obliged to rest contented with the bare honour, another having stepped in and obtained the solid remuneration. It was, however, the ventilation of Mr. TUCKER'S plan by the French Government which brought about general alleviation of the disease, and which is now, under proper management, easily remedied. The Hop mildew, in like manner, was studied, and the proper remedy suggested, by private individuals, Dr. PLOMLEY being the first to take it in hand simultaneously with Mr. BERKELEY. The same also may be said of the new Vine disease caused by the Phylloxera, which, with its usual care for all similar questions, as for example in the case of the Pyralis of the Vine, has received the necessary support for combined action from the French Government.

A VERY interesting discussion took place at the recent Pomological Congress at Ghent as to the best mode of pruning and TRAINING FRUIT TREES. The discussion was opened by M. VAN HULLE, who strenuously recommended the abolition of pyramidal trees from small gardens, on the ground that the results obtained were not commensurate with the labour and attention required. He recommended in preference the double or "contre-espalier"—a method not much known or practised in the country, but which, as they expose

twice the fruit-bearing surface that other modes of training do, might with great profit be more freely adopted. The vertical cordon also came in for M. Van Hulle's special commendation. M. Corteaud spoke in favour of the column—a form obviously suitable for small gardens, from the relatively small space occupied. One of the speakers very pertinently put the question which we have often asked, but to which we have never had a satisfactory reply—Of what practical use are these refinements of cultivation so far as increased production and enhanced quality are concerned? Can any one show that the actual market value of the produce is increased in proportion to the trouble and time taken up. Of course, we are speaking not of the amateur to whom cost is of no particular moment, and who prefers a shapely symmetrical tree to look at, but of the fruit producer on the large scale, who has to look to his balance-sheet at the end of the year to see whether the game is worth the candle. Will any one tell us that cordon culture is advisable under such circumstances? We fancy not, and in so far we are in accord with M. Pigeaux, subject to the practical remarks of M. Burvenich, who showed under what circumstances a certain amount of pruning and training were requisite, and what were the best forms to adopt under certain circumstances. M. Baltet considered that the form to be adopted depended on the particular kind of tree. Thus, the Apricot was best (in France) as a standard, which should be pollarded every three or four years like a Willow. This tree should never be left to itself. It is very productive when grown espalier-wise, but symmetry should never be insisted on. Cherries should be grown as standards, since they are not improved by pruning. The Peach does admirably in France trained as a candelabrum of four branches, the central stem being suppressed. He added that the Peach should always be pruned immediately after gathering the fruit.

As to Pears, M. Baltet spoke much less favourably of the "contre-espaliers" than M. Van Hulle, and preferred the "palmette-Verriere," or for small places the three-branched candelabrum. The Apple required little or no pruning beyond removal of interlacing branches. The bush form on Doucin stock was also highly to be recommended. Plum trees require no pruning.

In closing the discussion, the President, the lamented M. Mas, gave a short summing up of the remarks of previous speakers, and added a most pertinent observation of his own, to the effect that not only the particular kind of tree, Pear, Peach, &c., should be taken into con-

Fig. 159.—Lilium auratum at Duneevan, Oatlands Park, the residence of James M'Intosh, Esq. (see page 778.)

sideration, but also the particular variety. Great differences of habit exist in different varieties, and our practice should be regulated accordingly.

Before leaving this subject, we may point to it as an illustration of one of the things that might be done in connection with our horticultural societies, and especially in case of that which, by virtue of past services, if not of present repute, takes the leading place among the horticultural societies of the kingdom. True, the Press does a great deal in the way of diffusing information, by affording the means of discussing particular topics, but how much more effective would be the spoken word and the living example in the shape of the practitioner, and, where practicable, the subject operated on or under discussion.

—— WE have received from Messrs. HAAGE & SCHMIDT, seedsmen, of Erfurt, samples of flowers of a new type of double Zinnia called × ZINNIA DARWINII, and which not only show considerable variety of colour, but represent also four diverse types differing, it would seem, in habit and stature. Z. Darwinii major is described as of compact branched habit, with large globular flower-heads. These flower-heads reached us in a somewhat shrivelled state, but they were densely double, and measured fully 2 inches across and about 1½ inch in depth. The leaves (those only just beneath the flowers being seen) were sessile, triangular-ovate with an acute point, and three-nerved. The colours of the flowers included scarlet, orange-scarlet, orange-yellow, rosy purple, sulphur, and white. Z. Darwinii vittata had striped flowers, including such combinations as white with purple flakes, purple with white flakes, yellow with crimson flakes, sulphur with purple flakes, &c. Others labelled Z. Darwinii were described as being of dwarf compact-growing habit and extremely free-flowering; the flower-heads were conical and imbricately double, and differed from the others in being smaller, about 1½ inch across and 1¼ inch deep, very full double, with a high centre; the colours were considerably varied, and included white, sulphur, yellow, orange, and two or three shades between purple and crimson. Z. Darwinii pyramidalis vittata is taller in habit, growing like an inverted pyramid, and the forms sent were mostly pale-coloured, more or less flaked. This new form of Zinnia is, we learn, a hybrid raised between *Z. Haageana (mexicanum)* and *Z. elegans*, and is said to be very constant. It is abundantly distinct in character from the beautiful double forms of Zinnia elegans now becoming popular, and, so far as can be judged from cut flowers, appears to be quite an acquisition for the flower garden. With the Zinnias came two forms of garden Beet with coloured foliage, not of any special merit. The best had the leaves smooth and of a glossy somewhat liver-coloured red; the other had the leaves rough and of a dull purplish hue.

—— The ROYAL AQUARIUM AND SUMMER AND WINTER GARDEN SOCIETY, Westminster, propose holding a series of grand flower and fruit shows on the following dates:—April 12 and 13, forced Rhododendrons, Azaleas, Lilies, &c.; May 10 and 11, Roses in pots, greenhouse Azaleas, Palms, and other suitable plants for table decoration; May 30 and 31, stove and greenhouse plants, fruit, &c.; July 5 and 6, Roses, dinner-table decorations, &c.; October 4 and 5, fruit and Chrysanthemums. The total amount offered in prizes at the five exhibitions is £2500.

—— On and after January 1 next, when France enters into the POSTAL UNION, letters to that country will be charged 2½*d.* per half-ounce; post cards, 1¼*d.* each; newspapers, 1*d.* per 4 ounces; printed papers, legal and commercial documents, and patterns of merchandise, 1*d.* per 2 ounces; registration fee, 4*d.* Unpaid letters from France will be charged 5*d.* per half-ounce on delivery.

—— A REUTER'S telegram from Madrid states that the PHYLLOXERA has made its appearance in the vineyards of Tarragona, and also in different parts of Portugal. The Spanish Agricultural Council was to meet on Saturday last to consider the best means of arresting the progress of this scourge.

—— With reference to the removal of the BOTANIC GARDEN, OXFORD, to which we alluded at p. 652, the Professor of Botany has requested members of Convocation to suspend their judgment until he shall have issued a report on the subject. Feeling that in such a matter the opinion of the Professor is of the first importance, from his necessary familiarity with the facts of the case, and the requirements of botanical science and of botanical teaching, we defer further comment until that report is before us.

—— The English exhibitors at the recent COLOGNE EXHIBITION have received the awards made to them, some of which, as the services of porcelain awarded to Messrs. VEITCH and Mr. B. S. WILLIAMS, are of great beauty and large value. Messrs. CARTER & CO., of Holborn, received a medal and handsome diploma for the grass seeds supplied by them.

—— Dr. ASA GRAY writes to us that the PASSION-FLOWER mentioned in DARWIN'S *Climbing Plants*, as P. acerifolia, is really P. sycyoides, the former name having been attached to the plant by an oversight. Dr. GRAY writes that he has several times seen a tendril of this plant on descending from a vertical to a horizontal position make a sweep of 120° in half that number of seconds.

—— Messrs. VEITCH & Sons have now bloomed the double Poinsettia—POINSETTIA PULCHERRIMA PLENISSIMA it might be called—and thus proved it to be, what indeed the dried specimens had already given us occasion to believe, a very grand plant, infinitely superior to the ordinary kind in one or two striking particulars, one of which is that, instead of the usual single tier of bracts, the axis of the inflorescence is branched repeatedly, and all the ramifications bear their quota of coloured bracts, fresh branches proceeding from their axils. This branching goes on till, in some cases, the heads have been seen to acquire a depth of 15 inches. We shall in due time submit to our readers a figure of this superb acquisition.

—— In a paper lately read before the Society of Arts, Mr. ALFRED SMEE called attention to the danger incurred in eating Water-cresses or salad plants manured with sewage, and, as that sewage may contain the germs of the typhoid fever poison, the caution is not unnecessary. Mr. SMEE goes so far as to say that no vegetable used in a cooked state, even, should be manured with sewage for a period of two months before consumption. The paper elicited the following pertinent remarks from Mr. W. HOPE:—

"I write to say that I am prepared fully to endorse everything that you [Dr. LETHEBY, the Chairman] or Mr. SMEE can possibly say against improperly laid-out or badly-managed sewage farms, and, as you know, I have often done so before.

"Yet it remains a fact, both from a chemical and a practical point of view, that sewage has never been entirely purified on a large scale, except by properly conducted irrigation—that is, by making the sewage pass downwards through the soil, intermittently and in small quantities at a time, proportioned to the season of the year and to the power of the particular crops and soil.

"Nothing can well be worse than the typical sewage swamp which I have heard you so often and so powerfully condemn.

"All land irrigated with sewage ought to be drained.

"The surface ought only to be moistened, and, above all, not by flooding the whole of a large field sideways out of one big channel, but little by little out of a great number of subsidiary channels.

"No sewage ought to be applied to grass for some fourteen days before it is cut.

"No animals ought to be pastured on land that is constantly or very frequently irrigated.

"No sewage ought to be applied to root crops for some weeks before they are harvested.

"If these rules are followed no danger of any sort can or does arise. I do not see why a certain number of rules of this kind should not be drawn up, and magistrates empowered to fine those breaking them."

The question whether the period of fourteen days is sufficient for the decomposition by the plant of the noxious elements is one which deserves thorough examination. From the filthy flavour of some Strawberries we once tasted, we strongly suspect the irrigation had been applied up to the time of picking.

—— M. JEAN SISLEY is responsible for the following statement in *Le Cultivateur de la Région Lyonnaise*. He tells us that an English plant collector (not named) in the island of St. Catherine, Brazil, after having gathered all the Orchids that he could transmit to his employers (names not mentioned), destroyed the rest and threw them into the sea. M. GLAZIOU, the director of the Botanic Garden at Rio Janeiro, it is stated, can confirm this story. M. SISLEY makes this story the basis of an argument that botanical collectors, otherwise than those sent out for purely mercantile objects, should be sent out. Other reasons that he gives are that the mercantile collector rarely gives correct indications as to the localities and conditions under which the plants grow. He might have added that they rarely take the trouble to dry good specimens for purposes of determination and authentication of specimens. Still we owe so very much to the enterprise of the merchant, and the zeal of the collector, that we should be sorry to join in an indiscriminate condemnation of a class of men whose occupation is about as fatal as any that a man can adopt, and who, in spite of the known perils of the journey, have, and do enrich our stores with so many valuable and interesting plants. At the same time M. SISLEY'S arguments should be taken to heart by those who think that a Horticultural Society should no longer send out collectors, but leave that business to the nurserymen alone.

—— Among the Orchids in flower at Kew we find the following:—Saccolabium calceolare, very pretty, with dense spikes of yellow flowers, their lips touched with crimson; Calanthe Turneri, with other varieties of vestita; C. Veitchii; Dendrobium tetragonum, among the cream of the curious; Epidendrum variegatum, striking from the marks of dark chocolate; Oncidium crispum, and the finer form known as majus; O. abortivum, a remarkable and attractive species; O. cucullatum, O. triquetrum, and O. cheirophorum. Of Odontoglossums, the most important is a white form of O. Roezlii; there are only a few inconspicuous yellow lines at the base of the lip to prevent its being a pure self: others are O. bictoniense, O. Uroskinneri, and O. cordatum; Sophronitis militaris, fine forms of Lycaste Skinneri, Zygopetalum Mackayi, Cypripedium Sedeni, C. Roezlii, in flower for nearly two years past; C. longifolium, C. venustum, C. concolor, C. insigne, and the finer form, C. Maulei. Phalænopsids are always represented: there are now P. grandiflora and P. Lowii.

—— A curious discussion arose lately in the Queensland Assembly, as we learn from the Rockhampton *Capricornian*, with reference to the "BURR AND SCOTCH THISTLE BILL." One gentleman declared the Scotch Thistle did not exist in the colony; another said that in the neighbouring colony of Victoria the Thistle was highly esteemed as food for stock. The members then seem to have had some difficulty in defining what they were talking about, which is not remarkable, seeing that it is quite a matter of opinion, even in Scotland, as to what plant is to be considered *the* Scotch Thistle *par excellence*. Recourse being had to the library for botanical information, it appeared there were twenty varieties of Thistle, only one or two of which seemed noxious; and it seemed that even these last were esteemed for their esculent qualities by that noble animal the ass. The botanical names of the Victorian Act were then suggested for adoption, but honourable members were not prepared to accept the dictum of the Victorian Parliament on a matter of such importance. It was then all but arranged to leave the name of the Thistle out of the Bill for the present, with the view of inserting it by recommitting the Bill; but Mr. WALSH protested against proceeding when the committee did not know what plants they were really legislating against. However, Mr. GROOM persevered with his Bill, and ultimately the House decided to eliminate the words "Scotch Thistle," Mr. GROOM stating his instructions to be not to proceed with the Bill unless it were made to apply to that plant. The question, however, had to be postponed; and let us hope in the interval that the services of the colonial botanist will be made available for the benefit of the bewildered legislators.

—— There is perhaps no more effective ornament in our stoves than well-grown POINSETTIAS, but unfortunately, like so many other plants, they are occasionally the subject of disease. We have now before us specimens out of a very large batch similarly affected, in which the upper leaves, instead of being of a beautiful clear scarlet, are mottled all over with pinkish spots, and more or less shrivelled, suggesting at first sight the attacks of thrips. There is not, however, a trace of that mischievous insect, and though we have found one or two cocci, they are in such small quantities as to make it quite certain that they have nothing to do with the peculiar condition of the plants. Here and there the milk has exuded, and in the dried globules we find a number of radiating crystals and cellular bodies full of granules which seem to have been expelled with the milk, after the fashion of those which are common in several sorts of gum, as, for example, in Gum Tragacanth. In the milk itself we find a trace of such bodies, and also of elongated crystals, quite different from the former, which probably have the nature of aleurone. On examining the stem, we find that in places the true cuticle shells off, and that the underside of its fragments is covered with moniliform threads, which are clearly the mycelium of some fungus. It is probable that the cuticle was thrown off in consequence of their presence, and if so it is easy to suppose that the disease has some connection with the Fungus, though we have not found anything of the same nature in the leaves themselves. It has been suggested that the disease is due to atmospheric poisoning, but without knowing the whole history of the condition of the house, or of any chemicals that may have been used, it is impossible to form any opinion on the subject. The crystals, however, which are different from anything we have seen before in plants, seem to be due to something contained in the milk, and not to any extraneous matter. *M. J. B.* [We have since learned

that some new pipes in the hot-water tanks of the affected pit had been painted with lamp-black and oil; and it is believed that, though apparently dry, when heat came to be applied some poisonous exhalations were given off, just as the bracts were forming. EDS.]

—— Whatever good service SMALL BIRDS may render, gardeners find that the sparrows and the bullfinches especially INJURE FRUIT-BUDS to a serious extent, sometimes even to the destruction of the crop. Their extermination is not easy, and often not possible. Strings and yarns stretched amongst the branches of a tree are only an imperfect preservative, and are difficult to remove when the blossoming is over and the fruit is set. A recent horticultural bulletin announced that the way to keep birds from fruit trees was to place saucers full of water close to the trees. "The birds," said the author of this discovery, "break open the blossom-buds to quench their thirst." M. LEVESQUE, Professor of Arboriculture to the Horticultural Society of Cherbourg, ventures to question the efficacy of the invention. Some fifteen years ago he planted a considerable number of Pear trees on his father's property, several leagues from Cherbourg. In certain years these trees blossom and fruit in the most satisfactory manner; in other years the bullfinches commit such ravages that not one single tree has a bloom to show. This was the case in 1875. On going to prune the trees in February last he found them in a pitiable state. A party of bullfinches had paid them a visit, and had amused themselves all day long by devouring fruit-buds; and, nevertheless, the garden was skirted, throughout its whole length, by a rivulet which supplied enough water to quench the thirst of all the birds in the whole Department. Returning to Cherbourg about February 20, he found, isolated in a small pleasure garden, a Pear tree, the Chatelherault, part of whose flower-buds had disappeared under the beaks of sparrows, with which the neighbourhood abounds. And yet only a few yards from the Pear tree in question there is an artificial basin of water, in which the said sparrows come to bathe and drink. It is not, therefore, because they are thirsty that the birds eat the flower-buds. Not knowing how to prevent the complete destruction of the remaining buds, M. LEVESQUE conceived the idea of protecting them by means of some poisonous substance which would do them no injury. He selected minium (red deutoxide of lead), and stirred up a little of it with water, so as to form a thick paint; then, with a paint-brush, he daubed with it all the buds that remained intact. It was a complete success. The sparrows, flitting about amongst the branches of the Pear tree, peered at the pretty red buds, but did not dare to touch them. Gradually the buds swelled, the florescence was effected under the most favourable conditions, and with a halfpennyworth of red lead and a quarter of an hour's trouble he saved a hundred fine fruit. The experiment seemed to him the more conclusive because a standard Pear tree of the same variety, whose branches almost touched the one so operated on, did not open a single blossom, although it had been covered at the outset with an innumerable quantity of flower-buds.

Home Correspondence.

Horticulture and South Kensington.—As one of those horticultural Fellows to whom you allude in your able article in last week's issue as being "conspicuous by their absence, or, at all events, by their silence," I trust you will permit me to make a few remarks on that meeting in order to state why silence seemed to me, and probably to other practical horticulturists who might have been present, politic. As you observe the question at issue had more concern for the local than for the horticultural Fellows, and on looking round the room I must say I was surprised to see so few representatives of horticulture present. Consequently had I attempted to advocate the cause of that not unimportant department of the Society I might have found myself possibly without support, or at least in a very depressing minority. Now, according to what fell from some speakers (who, judging from the approbation given by the meeting, evidently expressed the feeling of the local fellows), the residents of South Kensington are able and determined to keep the present garden for their own use and benefit, making the horticultural element a secondary consideration, or, I may say, having no consideration for it at all. Shall horticulturists remain passive, and see a society which was at one time both honourable and useful degenerate into an aristocratic Cremorne, and not raise their voices against so gross and unjustifiable a perversion of its duties and its title? I say emphatically no. Let horticulturists bestir themselves, and by strenuous and united efforts endeavour to obtain a divorce from this unfortunate South Kensington alliance, and start afresh upon such a basis as will secure to them the confidence and support of the country at large, and thus regain that *prestige* which the Horticultural Society once enjoyed both at home and abroad. Lord Aberdare stated, as you report, "that the Society had to face year by year a decreasing revenue, and a general loss of confidence." In fact, by the President's admission, the Society is virtually at a dead lock, and this ignominious result contrasts painfully with the progress made by certain kindred societies, and with the influential positions they now occupy. Let us take for example the Royal Agricultural Society of England: that the exhibitions of this Society have steadily increased in magnitude and importance is notorious, and at the annual meeting of the Society, held on December 9, it was stated that their funded property amounted to upwards of £18,000, and a most encouraging account was given of the Society's prospects, and an excellent programme put forth for its future operations. Or take the Smithfield Club Cattle Show: this, from the humblest beginning at the Dolphin Yard, Smithfield, in 1799, when the admission money for the three days amounted only to £40 3*s*., has developed into national importance, and can count its visitors by the hundred thousand. Now it would be absurd to suppose that horticulture is on a lower level than agriculture, and it is humiliating to think that the magnificent prospects and opportunities of the Horticultural Society should have been frittered away, and the science itself almost brought into contempt, by ignorance on the part of those who were once entrusted with its management of the most ordinary principles of business. *G.*

The Climate and Geological Formation of North Devon.—Would any of your correspondents (locally acquainted) obligingly favour a stranger with information as to the climate and geological formation of the district of North Devon, say, betwixt Okehampton and Bude, particularly in the neighbourhood of Holsworthy? Is it adapted to fruit culture (Apples, Pears, &c.), and what is the agricultural rotation of crops most successfully followed? *An Old Subscriber.*

The Seedling Briar.—I should be glad to hear from some of your friends who grow the seedling Briar for Rose stocks their approved method of cultivating the same; also whether it is their plan to bud or graft the stock, and how far from the ground do they advise working it? *W. S. Ellis.*

Scutellaria Mociniana.—This, I consider, is one of the finest of autumn and winter flowering plants we possess; but, either because it is getting old, or is so easily cultivated, it is not grown half so much as it deserves. When the plants have done flowering, pick off the dead flowers, and they will throw out any quantity of cuttings, which, if inserted in January or February in a mixture of loam, leaf-mould, and sand, will root freely. Pot them off as soon as they are sufficiently rooted, and grow them on in any ordinary stove or Cucumber-house, and they will make nice flowering plants by autumn—a time when their gay colour is very acceptable. I have always found them to do best in a Cucumber-house, as they delight in plenty of moisture during their season of growth. Pinching must be strictly adhered to at the commencement to form nice bush plants, or they soon draw up and become unsightly—a fault that I have heard several times they are liable to, but one which can easily be avoided with proper attention. *T. W.*

The Mistleto in Perthshire.—I observe in the *Gardeners' Chronicle* of the 4th inst. that "J. G.," Murray's Royal Institution, Perth, claims the honour of having introduced the Mistleto into Perthshire, and states that the plant, if such it may be called, is not found farther north, so far as he is aware. I may inform "J. G." that the Mistleto is found in abundance in the extensive nurseries of Mr. Robert Morrison, Elgin, and in still greater abundance in the gardens of Gordon Castle, in charge of your esteemed contributor Mr. Webster, who, I believe, was the first to introduce it into Morayshire many years ago. The Mistleto fruits largely in both places every year. *A. M., Elgin, Dec.* 8.

—— I observe in last week's impression of the *Gardeners' Chronicle*, p. 722, "J. G.'s" article relating to his successful management in getting some plants of the Mistleto to grow at his residence in the neighbourhood of Perth, and his assumption that Perthshire was its most northern limits. It may, perhaps, surprise "J. G." when I state that for a number of years we have had it growing here, which is at least 100 miles further north. Furthermore it has reproduced itself from ripened seed, gathered from plants growing in the gardens of Gordon Castle. Having shown some of my friends around me how to manage the seed, I find it is now growing in the gardens of three of the tenant-farmers on this estate, one of them having several well established plants in different stages of growth. The oldest plant here was probably the first that ever grew north of the Grampians. I had the curiosity to have it measured to-day by passing a tape-line through its centre. Its dimensions were from tip to tip of its branches 5 feet 3 inches. Although this was the first established plant, it has never produced above two or three fruit in one year. Mr. Morrison, of the Elgin Nurseries, fruited it one year in advance of me, but his was an imported plant, growing upon a young Mountain Ash. *J. Webster, Gordon Castle.*

Large Holly.—I should like to know if any one can tell me of a larger Holly than the one growing here, the dimensions of which are:—Circumference at the base, 12 feet; at 4 feet 9 inches from the base, 9 feet 3 inches; at 7 feet 4 inches it is 11 feet 8 inches; at 14 feet from the ground it is 45 feet through; and its height is 50 feet. We have also a fine Magnolia tripetala; it is 53 feet high, and at 3 feet from the ground it is 3 feet 11 inches in circumference. *F. Barrowcliff, gr. to G. E. Jarvis, Esq., Doddington Hall, near Lincoln, Dec.* 8.

Laxton's Peas.—Mr. Laxton, the scientific and painstaking raiser of new Peas, has been singularly fortunate in the work to which he has so assiduously devoted himself, and deserves the acknowledgment of thanks from every grower, as well as the more public recognition of his labours from the Royal Horticultural Society, whose privilege it is, or should be, to reward horticultural merit. I confess that a few years ago I thought our collection of Peas sufficiently extensive, and although the very early kinds were hardly equal in quality to the summer Peas, while others were, perhaps, a little too large, and some not quite so prolific as they might be, yet altogether we had some good Peas to be thankful for; but Mr. Laxton has taught us how much every good Pea could be improved, how precocity and fine flavour could be allied, how large pods and abundant production could be accomplished, how delicacy of flavour could be added without the coarse, thick skin, and a small medium-sized Pea endowed with the character of the Marrowfat. I have thought myself fortunate in possessing a Pea so prolific and excellent amongst early Peas as Laxton's Advancer; and in another like Prolific, which is really wonderful in its productive character, and is as remarkable for quality; while the large and well-filled pods of Quality went to prove that unthought-of excellences had been developed in Peas; but in common with other growers of Peas I have increased reason for satisfaction in the possession of further improvements in Peas, originated by Mr. Laxton. I had an opportunity of growing Unique, Dr. Hogg, Supplanter, and Connoisseur last year, and they all proved distinct and highly meritorious Peas. The first-named, Unique, is exceptionally early, very dwarf, and produces large and well-filled pods, and Mr. Laxton has given us in this Pea what was especially wanted—precocity combined with high quality and productiveness. In Dr. Hogg we also have an early prolific Pea of rather low habit of growth, sweet, green, and of excellent quality. Supplanter has a stiff strong haulm, produces broad fine pods, and comes in a fortnight later than the foregoing. Connoisseur is a tall, free growing, late Pea, of excellent quality. Without disputing the merits of many old favourites, I may still venture to say that every kind and quality and degree of excellence of Peas is to be found in the selection named above and raised by Mr. Laxton. *William Ingram, Belvoir.*

Rooks, Walnuts, and Rookeries.—In the *Gardeners' Chronicle* during the last few weeks have appeared many letters on the subject of rooks and Walnuts. To-day, December 4, one of your correspondents doubts the fact of rooks being able to force open Walnuts, and another wants to know how he is to get a rookery. To the latter I may say, Treat all birds with consideration and kindness, never shoot them, never frighten them—feed them. Birds like animals never show ingratitude if kindly treated. My garden is not large, it is nearly surrounded by Elm trees; for many years I have every morning fed the birds of my garden on the terrace directly in front of my breakfast-room window. A few years since during a severe winter I fed them on a larger scale, in the adjoining field; some rooks partook of the food: in the spring two rooks came and built in the Elm trees, each year there has been an increase of nests—this year I had thirty; the rooks have become so tame that they come every morning for bread, and feed not 6 feet from my window. I have, therefore, every opportunity of watching their curious habits and ways, and I know many individually. One rook has only one leg, but he does quite as well as if he had two, others are much crippled in their toes as if injured by gins and shots; some are bow-legged and walk with a kind of waddle, some have their legs bent all on one side and walk in a crab-like fashion, and some are splendid birds, perfect in every part, their strut "approaching to sublimity." Fortunately for the rooks I have a Walnut tree on the lawn fronting my window; this year it has been loaded with Walnuts, and I am pleased to say the rooks have had a nice feed on them; still they have left plenty for my family. In many parts of the garden shells of

Walnuts are found left by the rooks; of their method of proceeding with reference to the nuts there is no doubt—I have seen it: the walnut on the turf is held by their claws, and then their great beak is driven into it, their head and beak moving like the working of a strong pointed hammer. I have seen the same process in reference to hard crusts of bread—the same hammer working. I now give my birds soft bread; the rooks appreciate this, and I have seen them take five great lumps of bread at once between their beaks and fly away with it. I may mention that the rooks as a body desert me during some portion of the summer, leaving four rooks—which always remain, I presume, to keep guard and prevent intruders. Previous to the rooks becoming so tame as they now are they used to sit in the Walnut tree watching the feeding of the small birds; immediately that a sparrow obtained a lump of bread and flew away with it the rooks darted upon the sparrow, made him drop it, and directly seized on the bread, and sometimes a fight between the rooks ensued. I may mention that the shells of my Walnuts are thin; I can easily crack them with my fingers. And now a few words about birds generally. I know some persons with gardens have an objection to birds, and imagine that fruits and vegetables cannot be preserved from them; to all such persons I would say, Adopt my plan—feed them. It may cost you the not alarming sum of 1*d.* daily, in very severe weather 2*d.* per day; but this is an extreme expenditure, and you will have the joy of hearing and seeing some of the Great Author of Nature's most graceful and most beautiful creations, for a garden without birds is like a house without an inhabitant; and you can also enjoy yours flowers and your fruit and your vegetables. I may at a future time give you a description of the birds that visit me, for although close to the city and the railway station they are very numerous and not common—at least if you think it may be a source of interest to any of your many readers. *K. K., Taddyforde, Exeter.* [Please carry out your intentions. EDS.]

—— Allow me to thank Mr. Ollerhead for the information as to how the rooks broke open the Walnuts. I am quite prepared to take his word for it, without the evidence of the box of shells he so kindly offers to send me. It is interesting to note, however, that the method of breaking open the Walnuts, as well as the stage of ripeness at which they are attacked, varies considerably in different parts of the country. One correspondent mentions the case of an old rook partially tamed who broke the nuts by striking them against a stone. The Essex rook, according to the evidence of Mr. Earley, takes his nut down on to the land, breaks it "in twain," and takes the kernel out, "the operation being done both *slovenly and inconsiderately.*" The Kentish rook, as observed by Mr. Record, takes the nuts "before the shell becomes hardened by ripeness," not having the power to break open the shell after the nut is fully ripe. The Wimbledon rook, as becomes a metropolitan bird, "is well up in the theory and practice of breaking the shells of Walnuts, and does it in the most expeditious manner." After getting the Nut to a place where he can get "free liberty of action," "he pecks the Nut on the side with such a determined spirit that he quickly succeeds in forcing a way through the hardest shell." The Suffolk rook seems to be the most knowing bird of all the rook fraternity; he is "well up" in a different theory to his Wimbledon brother, viz., the economy of force. After stealing his Nut he coolly turns it up, "hits it violently" in the vulnerable part with his "double spear-like bill, and the Walnut immediately falls back in two halves as under the manipulation of a master"—the rest of course is easy. To my thinking, the method observed by Mr. Fish seems fully to account for the opening of hard Nuts, and I should not be surprised if the Suffolk tactics are sometimes adopted in other places besides Suffolk. However that may be, it shows the necessity of very close observation in order to satisfactorily account for such a small matter as how the rook opens a hard Walnut. *Rook.* [We think enough has now been said of this subject. EDS.]

Oncidium bifrons, &c.—I am very glad that my notes on Oncidium bifrons have called forth from Professor Reichenbach a full clearing-up of its synonymy; but as he has thrown down such a host of references before me, which would make it appear that I have been very careless in overlooking them, perhaps he will pardon me if I explain why they were overlooked. No less than nine references are given (including my own notice), but for all that the name O. bifrons occurs but twice previous to my own note—once in the original description, and once where it is reduced to a synonym of O. Warscewiczii, but the name is not indexed; all the other references refer to O. Warscewiczii alone. And now to show why O. Warscewiczii was overlooked: the Kew plant, when brought in to name, was seen to belong to the section Tetrapetala micropetala, and on searching under that section in Lindley's *Herbarium* a specimen and figure of O. bifrons was found, with which it exactly agreed. Now O. Warscewiczii is placed in the section Tetrapetala macropetala both in Lindley's *Folia* and in Walper's *Annalen;* and having found a species agreeing with the plant, it is desired to name in its proper section, there are few that would look in a section to which the plant did not belong with the expectation of finding the same species under another name, and thus it was that O. Warscewiczii was overlooked. Mr. Bull may rest assured that I did not intend to impeach his statement that "Steudnera discolor was imported from India," although my note unfortunately puts it in that light. What I meant to imply was that the plant is probably not a native of India. *N. E. Brown.*

Eupatorium Weinmannianum.—Any one having to keep up a supply of flowers during the winter should not fail to procure the above and work up a good stock of it. The strongest recommendation I can give it is to say that it is much superior in every way to E. riparium, a plant that has for the last few years been very extensively grown in most gardens for winter blooming. When better known, odoratum is very likely to replace the other variety, as it comes much earlier into bloom, has larger flowers of greater purity, and has the additional recommendation of being powerfully scented. The foliage, too, although not so ample, is of a more pleasing character, being of a rich shining green, and without that weedy appearance that detracts so much from riparium. To get the latter in bloom even by Christmas it is necessary to subject it to some amount of forcing, whereas odoratum comes in naturally about that time, and by placing it in very slight heat it may be induced to bloom by the end of October. By bringing on a few at a time, a supply may therefore be kept up during the entire winter, and few plants will afford a better return for the small amount of trouble necessary to grow it to perfection. Sweet-scented flowers are highly prized at any time, and specially so in the winter, when there is so little in the flower way, excepting such as require strong heat, and are, therefore, not so lasting or useful in a cut state. The Eupatoriums are very easy to cultivate, and by starting with their propagation early in the year good-sized, serviceable plants may be grown by the following autumn. As soon as the cuttings have formed sufficient root, they should be potted in light rich soil, and be placed on shelves in moist heat where they can be kept close for a few days. By the end of May, if well established, they should be plunged in a bed of leaves in a cold pit or frame, where by shutting up early of an afternoon after a good syringing they will make a rapid growth. Most of the free-growing, winter-blooming plants succeed far better treated in this way than when grown on shelves in the dry air of a house. *J. Sheppard.*

Limekiln Heating.—The controversy on this system of heating, for and against, is now waxing rather hot; and the hearing of Mr. Fish himself, through an attack of "limekiln on the brain," suddenly disappearing up the limekiln chimney in the form of "carbonic acid gas," it seems, would not surprise your correspondent "Jonathan" (p. 754). We know that fishes are often fried, but to be done so on the top of a limekiln is a new process in cookery, and not to be found in the works of Soyer or Ude. When cremation, however, comes into vogue the promoters of limekiln heating may make a claim for it as being the best system for reducing dead human bodies into ashes, where this residuum will be of more use to the soil or in making mortar than in placing it in urns. Limekiln heating, however, will not progress any faster from being unduly puffed up, but will surely make its way if its merits are found to be only half as great as some correspondents say they are. There is no doubt but that in some localities it will reduce the coal bill where there is a good paying demand for the lime made, and where it is fit for the soil or for building purposes. When this limekiln controversy sobers down, perhaps Richard Colles' (p. 754) estimate of the capabilities of the system will be found as near the truth as any opinion yet promulgated. *Argus.*

—— With reference to Mr. Colles' letter on the above subject in your issue of Saturday last, I beg to state that he has not our system in operation, but something of his own which is very different. Perhaps Mr. Colles' fruitless attempts to get compensation from us for the alleged priority of his invention may account for his letter. *J. Cowan, The Vineyard, Garston.*

Re-naming Potatos.—Seeing that there are more of your correspondents (p. 752) writing under this head, I shall also choose that as the subject of my text for the present. I shall take the Oat as an illustration of what I mean. Some thirty years ago the minister of this parish introduced from the South of Scotland a new variety of Oat, which was found very suitable for this locality. It soon found its way through most of the parish as the Minister's Corn, and is a favourite still. Now suppose any one of our farmers, by suitable soil and careful attention, carried one or two local prizes, and he then gave it a new name—Purlie, for example, and sold it at four or five times its proper value, what would his neighbouring farmers think, after trial and paying a high price for Purlie, if they had only the Minister's Oat after all? Such, then, is the conduct of those who give new names at random to known and established sorts of Potatos. A practical gardener near me, to whom I gave Henderson's, and who also bought Porter's Excelsior from Cardno & Darling, declared to me on several occasions that he could find no difference. I have only to repeat that what I have stated respecting the history of this Potato was the plain fact, as I have no end to serve in holding up one variety more than another. I only wish to aid in preventing a confusion of names to the same sort, and if the truth has to be told, as some will yet learn, the Potato under discussion is only of second-rate quality for table use, which may account for its omission from Messrs. Reid's catalogue for 1874, as those in their establishment know my mind upon the *aliases* pretty freely. Mr Porter seems to think that the distinctness of sorts was established when his came in first in July, 1872, while I was second. Turning up my memorandum of that date I find I exhibited about twenty different articles at the said show, so that these other articles all required a due share of attention, while Mr. Porter, as his own master, confines his attention to Potatos almost exclusively; but if he will turn to class B. of the Alexandra Palace competition, Sept. 29 and 30, 1875, he will find equally as good a comparison: while I stood 3d, Mr. Porter came in 9th. I have placed in the hands of a firm, eminent for Potato growing in England, tubers of the proper Excelsior and of Henderson's Prolific. They will be compared with Porter's Excelsior, and I expect the firm in question will give your readers the true verdict after comparison next year. *R. Farquhar, Gr., Fyvie Castle, Dec.* 13.

Madresfield Court Grape.—I am not of the same opinion as your correspondent Mr. Battram (see p. 752), respecting the keeping qualities of this Grape, and if the Grapes are what he states them to be—in good condition—his case is an exceptional one. How have they kept in past years? Perhaps the said Grapes looked better than they tasted. Mr. Battram does not say if the roots of his Vines are plant inside or out, or both. I have a few bunches of the above Grape still hanging, but they are far from being in good condition. Let Mr. Battram range his Madresfields with a good sample of Lady Downe's or Black Alicante, then he will see a wide difference in favour of the latter. The above Grape I must admit has few equals as a mid-season one—with me it does well; but for late work I have tried it both ways, planted inside and out, but it has always more or less proved a failure. *E. Gilman, Wootton Gardens, Dec.* 13.

Orchids.—The following are in flower here under the care of my gardener, Mr. Beattie:—

Colax jugosus
Helcia sanguinolenta
Phalænopsis amabilis
,, grandiflora aurea
Vanda tricolor superba
Angræcum pugioniforme
,, species (very curious)
Odontoglossum cumulatum
,, ,, majus
,, Rossi majus
,, Alexandræ
,, Pescatorea
,, bictoniense
,, pulchellum majus
,, Uroskinneri
Epidendron ciliare
Burlingtonia coccinea
Brassavola lineata
Calanthe Veitchii
,, vestita lutea
,, ,, rubra
,, masuca
Cattleya bulbosa
Cœlogyne species (new)
Cymbidium Mastersii
,, sinense
Cypripedium barbatum nigrum
,, niveum
Cypripedium venustum
,, villosum
,, insigne
Dendrobium formosum giganteum
Dendrochilum glumaceum
Stenia fimbriata
Lycaste Skinneri
,, leuco-flavescens
Maxillaria grandiflora
Miltonia candida
Oncidium aurosum
,, lanceanum
,, tigrinum
,, Insleayi leopardinum
,, crocidipterum
,, papilio majus
,, pulveratum
,, flexuosum
,, crispum
,, suave
,, ornithorynchum
Pleione maculata
,, lagenaria
Saccolabium violaceum
Sophronitis grandiflora
Trichopilia tortilis
Zygopetalum Mackayii

E. W. Cox, Moat Mount, Highwood, Mill Hill, N.W.

Seakale Culture.—Seakale, well-grown, well-cooked, and properly served up, with its ivory-like appearance and oyster-like flavour, is a dish fit for both gods and men. For main and late crops, select a warm and dry soil for the former, and a cold, stiff soil for the latter. Make the ground as rich as good farmyard manure, salt, and soot will make it. Plant strong sets singly, 2 feet apart—a square plot of ground is the most convenient. Presuming that they have grown well, and completed their year's growth, clear all rotten leaves away from the crowns, and get as many flower-pots—8 inch—as there are plants. Fill each pot with sawdust (Elm is the best), turn a pot over each plant, and then cover pots and all lightly with dry litter to prevent the pots being split up with frost, and when all danger of frost is past clear the litter off, exposing the pots to the sun, and place a piece of slate over the hole of each inverted pot. It

will readily be seen when the Kale has worked through the sawdust to the top of the pot and consequently fit to cut by the pot being lifted a trifle off the ground, which, when taken up, will disclose an article as clean and bright as polished ivory, most succulent and delicious, even more delicious, I think, than those prince of spring vegetables—Asparagus and Marrowfats. When all is cut pack the pots and sawdust away for another season, and, when the plants have again well broken and sufficiently long to distinguish the strongest, rub off all but two, and succeeding years to four, keeping them well together, enabling an 8 or 10-inch pot at most to well cover each stool. With such practice first-class Seakale might be as plentiful in season—and that a long one—as Daisies in spring, Blackberries in autumn, or sparrows all the year round. *Thomas Gell, St. Lawrence, Isle of Wight.*

Horseradish.—There is in most garden establishments a great demand for good Horseradish, and especially at the present season. The plant is in many gardens placed in some obscure corner where few things could exist, and the produce from such situations is generally very inferior. If the following simple method is adopted fine straight clean sticks can be produced in ten months that will measure from 5 to 8 inches in circumference. Any time in February take small straight pieces of the root, the size of the little finger, or a little less, and from 8 to 14 inches in length. Take off all the side roots and buds that may be seen, and then in an open situation prepare a piece of ground by well manuring and deep digging; plant the roots in rows 3 feet apart, and from 12 to 18 inches in the row. They must be planted in a nearly horizontal position, and about 2 inches beneath the surface. Keep the ground at all times free from weeds, and by the end of October sticks such as above mentioned will be the result, in half the time that it would take by the old method of planting cuttings of the roots from 18 to 20 inches deep. The roots, being placed so near the surface of the ground, enjoy the full influence of the sun-heat, and hence the rapid growth. *Henry Ellis, The Hollies, Timperley.*

Anthracite Coal.—Can any of your correspondents give me any information as to the action of anthracite coal on boilers? I have lately commenced to use it, and find it a strong heat-producing and smokeless coal, but have been told it acts injuriously on the boiler, owing, it is said, to the great percentage of sulphur which the coal contains. I should be very grateful to hear the experience of any one who may have used it for any length of time. *T. S.*

The Early Ulm Savoy and its Synonyms.—We observe in your editorial note in p. 721, reference to King Koffee Savoy and Tom Thumb being identical: being anxious that the public should be correctly informed on the subject, we ask you to place before your numerous readers a proper description of the two kinds above named. The former is a dwarf compact growing variety of a bright glossy green colour, with very fine crimpled foliage; the latter is a dwarf flat-headed variety, of a bluish green tint, with very coarse crimples, and when grown side by side the great difference is apparent. Without speaking of the merits of either, we ask you in common justice to both to publish this correction, which no doubt will be endorsed by many who have grown the sorts named. *Harrison & Sons, Leicester.* [We leave Messrs. Harrison to prove the difference (if any exists) between the varieties of Savoys named. No two separate savings of seed of any of the Brassica tribe prove exactly alike, and this is about the difference between the stocks or so called varieties of dwarf Savoys. We repeat, they are all selections of the old and truly excellent Dwarf Ulm, and no improvement thereon. The Early Vienna may also be included in the list of synonyms. EDS.]

Pruning.—I note the reply to my inquiries on pruning fruit trees. You wish to know if the men referred to are to be trusted with such work. I beg to say that all the young men here are not apprentices, but those that have been employed in gardening upwards of ten years, so I leave it for you to judge whether they should be trusted or not to assist in the pruning. *Revel.*

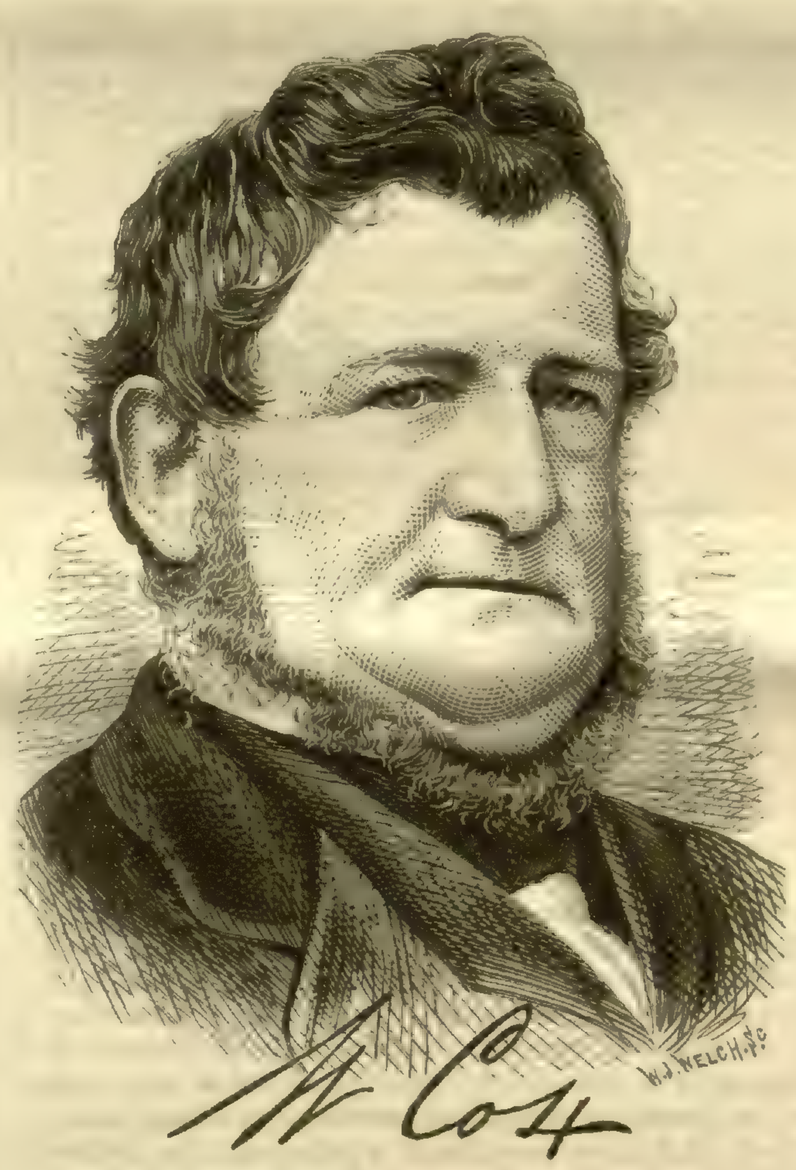
—— We, like "Revel" (see p. 755), should be most happy to learn how to prune, but although we are apprentices we are constantly employed at other work, while the head gardener does the pruning himself. We know very well that an unskilful pruner would soon spoil a tree, but if head gardeners would take the trouble to show their apprentices how to prune, we think most young gardeners would reciprocate their kindness, by adhering as closely as possible to the rules laid down for them. However, we think the plan would be worthy of a trial, and we feel sure if gardeners would study the interest of young men under their care they would not lose by it in the end. *Lovers of Gardening.* [It is clearly the duty of the gardener to instruct his pupils in the art of pruning. EDS.]

BRITISH GARDENERS.—XXXII.

WILLIAM COX.

Mr. Cox, who is known in the horticultural world as the raiser of the well-abused Madresfield Court Grape—a Grape which only needs to be thoroughly known to be better appreciated—has the reputation of being one of our best practical gardeners, and an inspection of the gardens under his charge fully bear out this reputation, not in one, but at all points. He was born, so we learn, in the year 1822, at Ludlow, in Shropshire, his father being then, and for many subsequent years, in business there as a gardener and seedsman.

"At an early age," he writes, "I had to take an active part in the work, and learnt much of the routine of vegetable and hardy fruit culture, in which my father was then considered a proficient. Living within a few miles of the late Thomas Andrew Knight, Esq., with whom he was on terms of intimacy, I had occasionally the pleasure of going with him to see that gentleman's garden, and of hearing Mr. Knight describe the horticultural experiments in which he was then actively engaged, and which were given to the world in the *Transactions of the Horticultural Society of London* of that time. I may date my aspirations to become a gardener from this early period.



"In my nineteenth year I left home, and, after spending a few months in the nurseries at Worcester, was engaged as journeyman by the then gardener at Madresfield, Mr. Norman McKinlay, a good practical gardener of his day. After remaining two years in this capacity I took the foreman's place, which I also held for two years. At the expiration of that time Mr. McKinlay's successor left, after a short stay of only a few weeks, and the situation being offered to me, I accepted it. Since that time I have had the honour of serving four noblemen of the same family, from whom I have invariably received every consideration compatible with my position.

"On the accession of the present Earl Beauchamp it was decided to commence extensive alterations in the garden department. The kitchen garden, being very old, badly situated, and unequal to the probable requirements of a large establishment, a favourable site was selected, and the works for a new garden commenced in June, 1866. These were sufficiently advanced to admit of all the fruit houses, as also the walls, being planted early in the following spring. The soil, being a strong retentive loam on a dry subsoil, fruit trees of all kinds do admirably, and at the present time are probably as near perfection as possible.

"During the last eight years the grounds have been entirely remodelled and extended. New flower gardens and extensive plantations of ornamental shrubs, avenues, &c., have been formed, the whole of which it has devolved upon me to design and carry out. This, though a somewhat arduous and prolonged task, has been rendered so much the more pleasant by the confidence reposed in me by my noble employer, to whom I am deeply indebted, not only for the liberal encouragement I have always received, but also for many valuable suggestions in carrying out the works while in progress.

"The gardens and grounds here, having received a very favourable notice from the Editors of the *Gardeners' Chronicle* and others during the last few years, I have only to add that in the construction of the kitchen garden my principal object was to simplify all the arrangements so as to economise labour. With this view the ground enclosed was but of moderate extent, but with high-class cultivation and a constant succession of crops the result has been an ample supply to meet all requirements."

The descriptive notice of Madresfield Court Gardens to which Mr. Cox refers in the passage above quoted, will be found at p. 754 of our volume for 1872. We may quote one sentence as a concluding remark. The writer observes:—"I left Madresfield with the impression that gardening in those of its branches there practised, was carried on in a thoroughly satisfactory manner. There was a general excellence in all departments."

The recently published edition of *Paxton's Cottagers' Calendar* was thoroughly revised and brought up to date by Mr. Cox, who was requested to undertake that work not only on account of his trustworthiness and skill as a gardener, but from the special interest he has taken in the formation and superintendence of Cottage Garden Societies and the like.

POTATOS FROM ONE POUND OF SEED.

IN the spring of the present year appeared the announcement that 1018 lb. of Potatos had been grown from 1 lb. of seed in America. This statement was so much at variance with all our preconceived notions of Potato culture that it called forth expressions of unbelief from some of our noted growers, who considered it nothing more than an attempt of the American seedsmen to increase the sale of their new varieties by reporting such wonderful results. But after the astonishing quantities that have been grown in England from the same weight of seed, even the most doubting must now believe that the American statement was not altogether a fabrication. Although not well spoken of by any, the Hooper Potato Competition has certainly done good in some ways, for it has shown us how rapidly it is possible for holders of valuable varieties to increase their stocks. To raisers of seedlings it is also of considerable importance, for it will enable them to place their productions in the market in less than half the usual time, if the system I adopted is found to answer as well with English as it has done with American varieties, and I can see no reason why it should not. Our thanks are therefore due to Messrs. Hooper for the liberal prizes they offered; and, although those prizes have not been awarded for what they were offered, still the good the competition has done ought not in justice to that firm to be overlooked.

The way in which I grew the great quantity of Eureka Potatos from 1 lb. of seed may well be termed a makeshift way, for the kitchen garden here being a small one for the requirements of the house, I had not a plot of ground of sufficient size that I could devote entirely to the growth of them. I therefore determined that they should in no way interfere with the arrangements I had made for the cropping of the ground, and by growing two crops at once, if my experiment with the Potatos failed, I should have no great loss to lament. I had a piece of ground, 84 feet by 32, that had previously been occupied with Cauliflowers, and on which I intended to grow Celery, and it occurred to me that Celery and Potatos would grow together.

On this ground I put about six cartloads of charcoal dust, lime rubbish, and old mortar, and a liberal dressing of manure from hotbeds. The ground was then dug in the usual way, care being taken to make it as fine as possible. When the surface was sufficiently dry, trenches were marked out for Celery, 15 inches wide, the spaces between being 33 inches. The spaces between the trenches were then treated to a slight dressing from an old Mushroom bed, and dug again, so as to thoroughly incorporate the manure with the soil. The trenches were then taken out in the usual way, and when completed the tops of the ridges were exactly 2 feet wide. There were eight trenches and seven ridges, and on six of these ridges I planted the pound of Eureka Potatos, that produced 1082½ lb. The remaining ridge was planted with a portion of the pound of Snowflake. The remainder of Snowflake was planted on an old vinery border, which, being very rich,

received no extra preparation. Both varieties were planted on April 13. And now for the preparation of the sets. I purchased 2 lb. of each variety from Messrs. Hooper in March, and on receiving them they were placed in seed drawers, with the base of each tuber uppermost; my notion for so doing was to encourage the eyes at that end to start at the same time as those at the other, or what I may term the growing end. This they will not do if laid on their side, or with the growing end upwards. They were slightly syringed with warm water daily, and soon began to grow. When sufficiently forward I examined all the tubers, and carefully removed with the point of a knife the centre bud from each eye. This shoot was of no use for planting; my object in removing it was to induce more than one to grow from each eye. This answered very well, for when I cut the Potatos into sets, I was able with great care, to cut three, four, and in some cases even five sets from one eye. As I had 2 lb. of each variety I examined them, to see from which tubers I could obtain the greatest number of sets, and then inviting a number of persons (almost a score) to see them cut and weighed, and to count them at the same time, for I have been particularly careful that there should not be even a semblance of unfair dealing. The number of sets obtained in this way was—from 1 lb. of Snowflake 169, from the same quantity of Eureka 252. This may be considered sharp work, but it was in no way an infringement of Messrs. Hooper's conditions, one of them being "the Potatos may be cut into sets." Of course the sets were ridiculously small, many of them not being so large as horse Beans. On the following day the Potato sets were planted 2 feet asunder down the centre of the ridges, and counted again at the time of planting. In about a fortnight Snowflake began to show itself aboveground, followed in a few days by Eureka, but they were so remarkably weak at first that I was ashamed to show them to any one. Early in May I gave each plant a light dressing of guano, stirring the soil about them, and giving a good watering at the same time. This was repeated twice, at intervals of about ten days, while the weather remained hot and dry. They were earthed up twice, the last time leaving the ridge as sharp at the top as is done with Celery. So surprisingly did the haulms extend that by the middle of July they met across the Celery trenches--a distance of 4 feet, and I saw that, if left alone, the Celery (which had been planted in June) would soon be killed altogether by its stronger neighbour. The Celery being a more important crop to me than the Potatos, I was compelled to keep the latter within bounds by driving stakes on each side of the rows, and passing cords from one stake to another. By so doing I managed to limit the Potatos to a yard in width.

The severe thunderstorms and heavy rains to which we were subjected during the greater part of July and August made sad havoc among the earlier Potatos in many districts, and, fearing that these would become badly affected, I had them lifted some time before they were fully ripe. Snowflake, being the earlier variety of the two, was lifted on August 13, exactly four months from the date of planting, the produce being 638 lb. from 161 roots, the remainder of the sets having failed to grow. From 235 sets of Eureka were obtained 1082½ lb., lifted on August 20. The lifting and weighing of both varieties were done in the presence of a number of tenants on my employer's estate, who, being themselves great Potato growers, had taken great interest in this experiment. At the time of lifting there were not many indications of disease in the tubers, but in less than a month the greater part had become affected, the largest of them suffering the most. Out of 300 tubers of Eureka, which weighed 369 lb., only about 60 lb. remained sound. From some of the outside roots of Eureka the produce was between 7 lb. and 8 lb., while the average of the 235 was only a little over 4½ lb. By this I imagine that, had I given them more space, I should have had even greater results, and I consider it quite possible with greater choice of seed and more space to grow 1300 lb. of Potatos from 1 lb. of Eureka.

Of the good or bad qualities of Potatos grown in this way I cannot speak, my aim simply being quantity. I may add that the Celery was a little drawn in the summer, but soon recovered after the removal of the Potatos.

Your correspondent "A." will see from the above that the sets from which I grew 1082 lb. of Eureka were cut from 1 lb. of Potatos, and not from several pounds of tubers.

My reason for saying they were "cut, weighed, and counted" was this: not wishing to injure any of the shoots with which the Potatos were thickly studded by weighing them first, I cut them into sets, putting them into the sieve as I did so, not wasting or omitting to weigh any part of the tubers. As I have before stated, the cutting of the Potatos into sets was done in the presence of a number of persons, although I was not compelled by any of Messrs. Hooper's conditions to have any witnesses to that operation. I rather admire "A.'s" refined expression, when he says that this competition "may result in something to brag about, but nothing better;" at the same time I can assure "A." that when I wrote I had not the remotest idea of "bragging," I was simply stating a fact. Had my experiment resulted in a produce of only 20 lb., and I reported that, would "A." call that "bragging"? I think it is quite possible to convince "A." that this competition may be of more consequence than he imagines. We will suppose a case of this sort: "A." and "B." are desirous of raising improved varieties of Potatos; both begin the same year, and from their seedlings each selects one of great promise, and which ultimately proves to be decided improvements on existing kinds. From the seedling plant each obtains 1 lb. of tubers. "A." is contented to plant his Potatos as his grandfather did before him, and is quite contented with an increase of 20 lb. "B.," having heard of what has been done in this competition, and knowing that what has been once done can be done again, endeavours to equal the productions of some of the competitors, and obtains from his 1 lb. of seed 500 lb. The following year "A." plants his 20 lb. as before, increases his stock to 400 lb.; "B.," continuing his plan, obtains the enormous weight of 250,000 lb., and is, therefore, in a position to dispose of his novelty. "A." (who I fancy must be an ardent admirer of the hare and tortoise fable), would probably by this time begin to think that the competition had resulted in something better than "bragging," and that slow and steady does not always win the race. I consider "A." very ungenerous, when he insinuates that Messrs. Hooper were actuated by purely selfish motives in the giving of their prizes. Does "A." know that Messrs. Hooper were not the only importers of these Potatos, and that there were no conditions compelling competitors to purchase their seed from that firm? In some instances where seedsmen offer prizes, exhibitors are obliged to procure the novelties introduced by those seedsmen, but it was not so in this case. That Messrs. Hooper would, in consequence of their prizes, have an increased demand for these Potatos, there can be no doubt, but I cannot think that the demand would be sufficient to compensate them for the annoyance and expense to which they would expose themselves. *F. Ford, Capesthorne, Chelford, Crewe.*

Reports of Societies.

Linnean: *Dec.* 2.—Dr. Allmann, F.R.S., President, in the chair. Mr. J. G. Baker exhibited specimens of Pyrus cordata, and of P. communis, var. Briggsii, lately commented on in this journal. The same gentleman commented on some Ferns collected in the *Challenger* Expedition, which, however, presented no special interest. He then contributed a final memoir on the Liliaceæ, comprising the Anthericeæ. This was an elaborate monograph, descriptive of the various genera and species, together with incidental remarks on the morphology and geographical distribution of the plants in question. The whole series of papers compose a piece of solid botanical work of the most satisfactory character. Their utility is incontestable, as for the first time we have now a satisfactory monograph of a very large order, drawn up from actual examination of specimens. Dr. C. B. Clarke contributed a paper on the Botany of Sikkim, and another on a new genus of Cucurbitaceæ.

The Villa Garden.

BOX EDGING TO WALKS.—As this useful plant i much employed for forming edgings to walks, it is certain that circumstances will arise when it is necessary to lift and replant the same. In the case of new residences tiles are much used for edgings to walks; but somehow they appear out of place on a hot day, for gravel and edging tiles in combination are far less pleasant to look upon than gravel and green Box. In the case of asphalte, and other walks of a similar character, tiles become almost a necessity; but as long as yellow gravel is used to construct garden paths, Box appears the most fitting thing to have next it, especially if the gravel be of a good colour. Sometimes the plants of Box grow out of all proportion, and then it is necessary to lift and replant them. Sometimes gaps occur in the miniature hedges, and replanting becomes a necessity in this case also. The first thing to be done is to take up the Box, and at this time of year this work should be proceeded with, and in fact at any time up to the end of March. But it is always well to get through with such jobs before the more active work of the garden comes on, and to enable the paths to become settled in the place where they were broken up.

The Box lifted, it should then be pulled to pieces for replanting. If the plants have been allowed to become tall and lanky (as is very often the case where unskilful gardening is carried on), it will be a little difficult to get nice stuff to replant. The plants should be pulled into small portions, almost as small as the pieces can well be made, provided they have some roots adhering to them. If the roots are long they may be shortened back without any injury to the plants resulting. A good length of plant is that which measures 6 inches or so, as this will allow of 4 inches of root and stalk being below the soil, and 2 inches of the leaves and branches above; and if that size can be secured a nice uniform edging is obtained at once. The plants being thus provided by division, they should be laid by, and the roots covered with some damp material till they can be replanted.

Next in order comes the preparation of the ground for planting. Box will grow in almost any soil, being in this respect rather accommodating; but a nice yellow loam suits it well. The soil should first be dug a spit or two deep, breaking it well to pieces as the work proceeds, and then it should be trodden down thoroughly, to have a firm bottom. To have straight, even lines of Box, the ground in which it is to be planted should be made as perfectly level as possible. The next step is to take a garden line, and by stretching it as tight as possible mark out the line where the Box is to be planted. This needs some care, so as to have the lines of plants on either side of the walk equidistant their whole length. Then by means of a smooth, bright, clean spade, the soil should be evenly chopped or cut away close to the line. As this may be attended with some danger to the line on the part of the inexperienced, it would be well to press the line down into the soil the whole length it is stretched, and by this means there will be a straight mark by which to guide the spade in the process of chopping down the soil. In making the cut or chop, it should be done cleanly and quickly, cutting the trench 6 inches or so in depth, nearly, but not quite, perpendicular, and exactly along the mark left by the garden line. The soil should be brought out by the action of the spade a little way on to the walk, so as to form the trench in which to plant.

Next comes the matter of planting the Box. The plants should first be scattered along the length of trench to be planted, so as to be handy as the work proceeds. The planter should get on his knees, taking care to have a mat or something of the kind between his knees and the soil, and then, taking a plant or sprig in his right hand, one at a time, lay the same against the wall or back of the trench, so that the top of the plant may be 2 or 3 inches at most above the surface, and so on, laying the plants close to, but not on each other, at the same time rigidly keeping them in their places with the back of the planter's left hand pressed against them. When he has thus laid as many plants as he can conveniently keep in their place, he should, by using the right hand, and without moving the left hand, lay some soil against the roots to keep the plants in their places. He should do this till he has a considerable length thus laid. Then, by means of the spade, the soil should be put back into the trench, not quite filling it up, and then it should be pressed gently but firmly with the foot against the Box, making not so much a downward tread as a side pressure against the stems and roots of the newly planted plants. The remainder of the soil may then be filled up to a level with that against which the plants have been laid, and the whole firmly trodden down.

The soil which has been thrown on to the path in the act of making the trench should be scrupulously cleaned away, and if it is necessary to renovate the paths with some new gravel, immediately after replanting would be a good time to do so. The surface of the paths should be slightly loosened, and the fresh gravel laid on it, and when dry the roller passed well over it.

There are several things used as edgings to paths which can be selected from by those who do not care for Box. In the moist districts of Yorkshire we have seen the beautiful blue Gentiana acaulis, but it would be of no value in the dry South. The common Thrift makes a nice edging, being of a close dense growth, always nice, and flowering freely; but I hear some persons are apt to consider there is a want of fitness in things when the edging to a bed or border flowers also. The common purple Aubrietia, Arabis albida, and other such things have been tried, but for general purposes Box is to be preferred. We have heard of Thuja aurea being planted for edgings in a small seedling state, and it is said to grow well, and stand clipping remarkably well also. But it would prove a little expensive at the outset, and beyond the means of the great body of Villa gardeners, who have to practise economy in their gardens.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

PLANT STOVE.—Most of those who grow stove plants advocate the practice of plunging the pots in some fermenting material, such as tan or leaves; where hot-water pipes exist to furnish bottom-heat, sawdust or cocoa-nut fibre is generally used above them as a medium wherein to plunge the pots, and the impresssion is almost general that such plants as require heat to grow them will do better by being so plunged, but such is really not the case. For many years I have ceased to plunge at all, even such heat-loving subjects as *Dipladenias* and *Ixoras*, than which no plants in existence will bear or require more warmth to grow them up to the highest standard of cultivation they are capable of. Neither is there anything gained on the score of having stove plants in flower early in the season by plunging, provided the means exist for keeping up the temperature of the house sufficiently high. In most cases where there are hot-water pipes under the bed used for bottom-heat, they would be much better employed in an exposed position so as to increase the heat of the house. In the cultivation of stove plants very little of the cold external air should be given from the time they are started into growth, when the temperature of the house is raised by the middle of January, as, even if it is admitted through openings in the side walls opposite the pipes, it is very different to the humid atmosphere of the house. To compensate for this comparative absence of external air until the season is sufficiently far advanced for its being warmed by the increased power of the sun, the plants should be elevated so that their tops will all but touch the glass, which cannot be where plunging is resorted to. The result is that the growth made is always more or less drawn up weakly, and the plants so much more tender when grown in bottom-heat, so that whatever purpose they are required for—either exhibition, conservatory decoration during the summer, or the production of flowers for cutting—half their use is never brought out; but although it is neither necessary nor advisable to use bottom-heat for this class of plants, yet a good bed of tan some 4 feet in thickness is of the greatest possible service in the stove. The genial condition of the atmosphere which it produces has the best effect upon the occupants, and it causes a considerable saving in fuel, as a bed such as the above will maintain a heat of 90° for eight or ten weeks, which materially assists the heating power, especially on cold nights. To render assistance in this way no time should be lost in getting it in. The system of sifting the old tan and retaining the coarsest portion that did not pass through the sieve, and mixing it with new, cannot in most places be carried out now, as the bark of the present day is usually ground so fine as to become completely decomposed in the course of a year, and where all new is used it is preferable in keeping up heat longer. Where tan is difficult to be had nothing else is so good a substitute as clean Oak leaves, with plenty in reserve to add as the heat subsides. Another very great advantage gained by dispensing with plunging is, the worms do not get into the pots, as is unavoidable when the plants are plunged; but to keep these objectionable intruders out completely the plants should be stood on inverted pots put on the tan, a proceeding also necessary to get them up to the light in the way advised; so placed it is also much easier to tell when water is required. Advantage should be taken of the rearrangement necessary consequent upon getting in the fermenting material, to give the glass a good washing; by this means the most will be made of the little light we are favoured with during the ensuing two months. All plants that shed a good portion of their leaves in the winter, principally through the effects of the drying process at the roots, should for some weeks now only receive as much water as will keep the green leaves which are upon them from shrivelling, but it is well not to give it until they flag slightly. By this means all growth is suspended, which is essential to their flowering early after they have been cut back some time hence. *Clerodendrons Balfourianum* and *Thompsoni* should be allowed to flag freely before any water is given them, and then only a very little ought to be applied, otherwise they will not shed their leaves. The plants should not be kept in a temperature of more than 55°, for they have a disposition to continue growing, which seriously interferes with their blooming satisfactorily, but they should not be in a lower temperature than this, or, even if quite dry at the root, they are liable to go off. Many specimens of these *Clerodendrons* are thus lost. *C. Balfourianum* is one of the most useful subjects in cultivation for conservatory decoration, as it will flower as freely when the wood has been well matured in a 6-inch pot as it will when it has attained a large size. It should be grown in quantity, as by the use of successional plants it can be had in bloom from early in the spring until autumn. A few *Genistas* should now be placed in heat to get them into flower; these are also indispensable for conservatory decoration, especially when not grown too large: their easy culture, free flowering disposition and adaptability for cutting through the early months of the year commend them for being grown in quantity. *T. Baines.*

HARDY FRUIT GARDEN.

With a favourable change after the late frost and snowstorms, the more genial weather at the present time will admit of the various operations of the season being followed up. Provided nailing, tying, &c., of the trees on the walls has been pushed forward, bush fruits should next receive attention. If birds are not too numerous to endanger the destruction of the buds in severe weather, these are better pruned now. Gooseberries and Currants especially are too often neglected at this season, and with an increase of work at a later period the attention requisite for the production of good fruit is omitted, from the pressure of other matters considered of more importance. In pruning it should be borne in mind that the Gooseberry bears principally on the young wood of the present year's growth, and on spurs where the young wood has been shortened in. The tree should, therefore, have the young wood moderately thinned, and the longer and stronger shoots shortened so as to form a symmetrical bush; the more pendulous growing sorts should be encouraged upwards by keeping a clear stem and shortening the points of the lower shoots so as to keep the fruit, when in bearing, clear of the ground. Black Currants also bear on the young wood, but, being erect in growth, simply require thinning, and the upper shoots shortened where required. The red and white varieties bear better spurred into the main branches; these should not be more numerous than requisite to form a well-shaped bush, keeping the middle open, so as to admit air and light to the fruit. After pruning and clearing the ground, a good dressing of manure should be given over the whofe surface, and lightly forked in except in the case of young trees, which will admit of cropping between, when the ground may be worked deeper; but established trees in full bearing are better forked as lightly over as possible, so as to avoid destroying the surface-roots. Where this is done annually, the roots are driven downwards, and the result is a superabundance of half-ripened strong shoots, producing little or no fruit. Autumn fruiting Raspberries may now be cut down close to the ground, previously taking up any straggling canes for planting, and mulching the stools with some half-decomposed manure. Avoid disturbing the surface soil more than is necessary to destroy weeds. This well grown is a most useful addition to late culinary fruits. The great mistake in its cultivation is the attempt to take a summer crop, and afterwards expect a second late in autumn; for this reason the canes should be cut close so as to direct the energies of the plant to produce vigorous growth for the autumn crop, which is borne on the young growth of the current season. *W. Cox.*

FRUIT HOUSES.

FIGS.—To have ripe Figs early in May, the forcing of them in pots may now be commenced, and where a slight bottom-heat can be applied to the roots, so as to produce a regular but not too rapid growth, the success in having a good crop of fruit will be all the greater. This bottom-heat should not exceed 65°, and the night temperature of the house be from 50° to 55° at the commencement of the forcing, and in the day-time with sun-heat from 60° to 65°. If the balls of earth in the pots are dry they should be well saturated before the pots are plunged in the tan or tree leaves composing the fermenting materials in the house or pit. The trees may be syringed once or twice a day, according to the weather, and exposed to all the light and sunshine possible at this dull period of the year. The Fig-house where the trees are planted out in the borders and intended to be forced next month must now be attended to in dressing and tying the wood to the trellises. This house must be kept well ventilated in favourable weather and until forcing commences, and where there is a later house the trees may be now pruned, and the shoots regulated and dressed over with the mixture for preventing red-spider in the forcing time. *William Tillery.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DEC. 15, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Dec.	In.	In.	°	°	°	°	°	°			In.
9	30.20	+0.43	37.3	30.7	6.6	34.4	−6.8	30.7	85	NNW: N.: N.N.E.	0.00
10	30.08	+0.30	39.4	27.9	11.5	34.4	−6.6	31.7	89	WNW: W.	0.00
11	29.93	+0.15	43.3	34.1	9.2	39.4	−1.4	37.1	92	WNW: N.W.	0.07
12	29.94	+0.15	44.0	37.2	6.8	41.3	+0.6	37.2	86	WNW	0.00
13	30.03	+0.23	45.4	30.2	15.2	37.6	−3.0	33.8	86	S.W.: W.	0.00
14	29.96	+0.16	39.2	27.8	11.4	34.0	−6.7	31.2	89	S.: S.E.	0.00
15	29.99	+0.18	38.3	32.4	5.9	35.6	−5.1	33.1	91	S.: S.S.E.	0.00
Mean	30.02	+0.23	41.0	31.5	9.5	36.7	−4.1	33.5	88	variable	sum 0.07

Dec. 9.—Overcast, dull day. Cold.
— 10.—Dull day, fine at intervals in morning. Fog in early morning.
— 11.—Dull day. Slight rain occasionally.
— 12.—Fine, but dull and cloudy throughout. Mild.
— 13.—A fine cloudy day.
— 14.—A fine day. Cloudy. Hoar-frost in morning. Temperature of vegetation, 25°.
— 15.—Overcast, dull, and cold throughout.

—— During the week ending Saturday, Dec. 11, in the vicinity of London, the reading of the barometer at the level of the sea increased from 29.95 inches at the beginning of the week to 30.42 inches by about noon on the 8th, decreased to 30.11 inches by the afternoon of the 11th, and was 30.12 inches at the end of the week. The mean reading for the week was 30.25 inches, being 0.35 inch above that of the preceding week, and 0.29 inch above the average.

The highest temperatures of the air at the height of 4 feet above the ground ranged between 43¼° on the 11th and 31¾° on the 5th; the mean for the week was 36½°. The lowest temperatures of the air varied from 23¼° on the 6th to 34° on the 11th, the mean value for the week being 28¼°. The mean daily range of temperature in the week was 8¼°, the greatest range in the day being 11½° on the 10th, and the least, 6°, on the 5th. The mean daily temperatures of the air were as follows:—5th, 28°.4; 6th, 29°.4; 7th, 30°.8; 8th, 33°.5; 9th, 34°.4; 10th, 34°.4; 11th, 39°.4; and the departures in defect of their respective averages were: —13°.3, 12°.2, 10°.7, 7°.9, 6°.8, 6°.6, 1°.4. The mean temperature of the air for the week was 32°.9, being 8°.4 below the average of observations extending over a period of sixty years.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the rays of the sun, was 56° on the 5th. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 19¾° on the 6th and 20° on the 7th. The mean for the several low readings was 26°.

The direction of the wind was N.E., N., and N.W., and gentle in motion. The weather during the week was very dull, cold, and the sky generally overcast.

Snow fell on the 6th, 7th, and 8th. On the 6th it was no less than 5 inches in depth.

The amount of rain and melted snow measured during the week was 0.36 inch.

In England the highest temperatures of the air observed day by day at the height of 4 feet above the ground was 47° at Truro; at Norwich the highest temperature in the week was 41°; the mean value from all stations was 44¼°. The lowest temperatures of the air observed night by night were 21° at Truro, 21¾° at Bristol, and 22¾° at Wolverhampton. At Hull 30° was the lowest temperature in the week; the general average from all stations was 25¼°. The range of temperature in the week was the largest at Truro, 26°, and the smallest at Norwich, 12°; the mean range from all stations was 19°. The mean of the seven high day temperatures was the greatest at Truro, 40¾°, and the least at about London, Norwich, and Bradford, all 36½°; the mean from all stations was 38°. The mean of the seven low night temperatures was the largest at Liverpool, 34°, and the smallest at Truro, 27°; the general average value from all stations was 30½°. The mean daily range of temperature in the week was the greatest at Truro, 13¾°, and the least at Liverpool, 4½°; the mean daily range from all stations was 7½°.

The mean temperature of the air for the week from all stations was 34°, being 3½° lower than the value for

the corresponding week in 1874. The highest occurred at Liverpool, viz., 36¼°; and the lowest at Wolverhampton, viz., 32½°. The amounts of rain and melted snow measured at the several stations during the week varied from rather more than 1 inch at Norwich, to six-hundreths of an inch at Truro; the average amount over the country was three-tenths of an inch.

The weather during the week was very dull, cold, and the sky generally overcast.

Snow fell generally over the country on the 6th inst. At about London the depth on the ground on the 6th inst. was 5 inches.

In Scotland the highest temperatures of the air ranged between 48° at Greenock and 45¼° at Aberdeen. The general average value over the country was 46½°. The lowest temperatures of the air varied between 28° at Leith and 16° at Paisley, the general average being 23½°. The mean range of temperature in the week was 23°. The mean temperature of the air for the week from the several stations was 34½°, being half a degree lower than the value for the corresponding week in 1874. The highest was 36¼°, at Aberdeen, the lowest, 32°, at Paisley. The amounts of rain and melted snow measured during the week varied from seven-tenths of an inch at Glasgow to six-hundredths of an inch at Greenock. At Paisley none was recorded. The average amount over the country was three-tenths of an inch.

At Dublin the highest temperature was 40½°, the lowest 15½°, the mean 31½°, and the amount of rain and melted snow was 0.46 inch.

JAMES GLAISHER.

Enquiries.

He that questioneth much shall learn much.—BACON.

84. RINGA RINGA.—Having some seeds given to me by a gentleman who received them from New Zealand last spring, I sowed them, and have now a fine stock. This is a Lily which he calls Ringa Ringa; can any of your readers give its name? *M. K.*

85. STARTING PLANTS FOR EXHIBITION.—Would any of your correspondents kindly give me the following information? At what time should I start such plants as the following, so as to be at their best for exhibition purposes by the second week in July:—Allamanda Hendersoni, Stephanotis, Plumbago capensis, Bougainvilleas (all now at rest), Clerodendron Balfourianum (now in active growth, and C. fallax. A few hints as to their management will also oblige. *Beginner.*

86. TOWN TREES.—Can any of your readers give the names of any towns or cities in Great Britain where trees have been, or are being planted along the lines of streets, width of such streets, distance at which the trees stand apart, and kinds of trees found most suitable for the purpose? *Town Trees.* [London, Stamford, Folkestone, Dublin. EDS.]

Answers to Correspondents.

ADIANTUM FARLEYENSE: *J. J. G.* Dryness at the root is no doubt the cause of the fronds withering. A slightly rougher compost and more water should meet the difficulty.

BEECH TREES: *William Eggleton.* The bark of the specimen No. 1 is covered with the white excrescence of a coccus, Adelges fagi; while on the inner side of No. 2 there appears to be quite a distinct thing—the mycelium of some fungus. There is no practical remedy for the Adelges when it gets on large trees, but the change of seasons sometimes brings relief in reducing the pest.

BOOKS: *R. Salt.* Thomson *On the Pine-apple*, published by Messrs. Blackwood, is preferable to the one you inquire about, which we believe is out of print.

CARNATION: *T. Wilkinson.* Pretty, but too small and too much fringed at the edge.

CYCLAMENS: *W. B. S.* From the colour having run so much in the flowers we should judge that the frame in which you have grown the plants was too cold and too damp. The change to a cool greenhouse, where there is no damp, ought to bring them round, without repotting.

HEATING: *Georgos.* We should think "The True Friend Stove," figured at p. 591, would be found of great service in your case.

NAMES OF FRUITS: *J. W. Apples:* 2, Thompson's Seedling; 4, Dutch Mignonne probably; 5, Nelson's Codlin; 6, smashed; others not known.—*Clark Brothers. Apple:* Cox's Pomona.—*Captain J. Tibbets.* 1, Winter Hawthornden; 4, Hunt's new green Newtown Pippin. The others we do not recognise.—*W. Farr. Pears:* 1 and 2, probably Passe Colmar, but they are such exceedingly miserable specimens that it is next to impossible to tell; 20, Beurré de Capiaumont; 8, 26, quite rotten. *Apples:* 11, Adams' Pearmain; 10, probably King of the Pippins; 12, Blenheim Orange; 15, Waltham Abbey Seedling.—*Sans Souci.* 1, Brabant Bellefleur; 4, Mannington's Pearmain. The others we do not recognise.—*Alpha.* 3, Duchesse d'Angoulême; 4, Easter Beurré; 6, Beurré Rance; 2 and 5, quite rotten.—*R. Cowan.* 1, Easter Beurré; 2, like Chaumontel; 3, King of the Pippins; 4, Yorkshire Greening; 5, Scarlet Nonpareil. These sorts are easily recognised; otherwise, from the truly wretched examples you have sent, it would have been quite impossible.—*John Clarkson. Apple:* A, like Waltham Abbey Seedling; B, Grange's Pearmain; C, Brabant Bellefleur; D, Alfriston. The Pear sent is true Glou Morçeau, but an unusually highly coloured specimen. It is generally quite pale. You surely cannot expect us to remember your specimen now which we examined more than a month ago. We have examined and named hundreds of fruits since then, and forgotten all about them.

NAMES OF PLANTS: *R. Cowan.* 1, specimen not good enough to name from; 2, Æschynanthus maculatus.—*C. E. S.* 3, Begonia nitida; 4, B. Ingramii; 5, B. Saundersii; 6, B. incarnata.—*E. R. L.* 1, apparently a form of Adiantum Capillus-Veneris, but not characteristic; 2, Pteris tremula; 3, Asplenium, insufficient; 4, Blechnum occidentale minor; 5, Platyloma rotundifolium; 6, insufficient.—*J. Cocker & Sons.* Your plant seems to be an abnormal form of Asplenium contiguum, what is its origin and habit?

PINE STOVE: *Oxonian.* You want at least double the amount of piping to keep up the atmospheric heat properly; and even if it were tripled the apparatus would be worked more economically.

PORTUGAL: *Vitis.* We have not heard of any such prohibition, but we should not be surprised if you found a difficulty in doing as you propose.

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time, to inform him of the fact.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

ERRATUM.—At p. 751, col. *c*, for "Ugenia," read "Eugenia."

CATALOGUES RECEIVED.—Wenzel Brothers (Quedlinburg, Prussia), Trade Catalogue of Garden, Agricultural, and Flower Seeds.

COMMUNICATIONS RECEIVED.—J. C. P.—W. P. H.—B. H. P.—M. Crèpin—P. W.—W. F.—J. C.—G. D. (we have received a great number of letters on the same subject, but cannot find room for them).—A. W. B.—C. B. S. (many thanks).—R. H.—J. N. H.—R. D.—M. S.

*** IMPORTANT NOTICE.—*The* AGRICULTURAL GAZETTE *is now* PUBLISHED *on* MONDAYS, *in time for the Evening Mails, containing a Full Report of the London Markets, and of all other Agricultural Intelligence up to the hour of going to press.*

Markets.

COVENT GARDEN, *December* 16.

The market is now getting cleared of rough stuff, and prices of best goods are inclined to mend, but business is far from being in a healthy state. The supply of hothouse fruit exceeds the demand, especially Pines, another heavy consignment of St. Michaels fruit having arrived during the week. Kent Cobs remain the same. *Jas. Webber, Wholesale Apple Market.*

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per doz.	42 0	60 0	Heaths, in var., doz.	12 0	30 0
Begonias, per doz.	6 0	12 0	Hyacinths, Rom., do.	12 0	30 0
Bouvardias, do.	12 0	18 0	Mignonette, do.	6 0	9 0
Chrysanthemum, do.	6 0	12 0	Myrtles do.	3 0	9 0
Cyclamen, do.	12 0	24 0	Pelargoniums, scarlet, per doz.	6 0	9 0
Cyperus, do.	6 0	12 0	Poinsettia, per doz.	12 0	18 0
Dracæna terminalis	30 0	60 0	Primula sinensis, do.	6 0	12 0
— viridis, per doz.	12 0	24 0	Solanums, do.	6 0	24 0
Epiphyllums, do.	18 0	42 0	Tulips, per doz.	9 0	18 0
Euphorbia jacquinifolia, per doz.	9 0	18 0	Veronica, do.	4 0	12 0
Ficus elastica	1 6	7 6			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, 12 sprays	2 0	4 0	Narcissus, per dozen	3 0	6 0
Camellias	6 0	18 0	Pelargoniums, 12 spr.	1 6	3 0
Carnations, 12 blooms	2 0	4 0	— Zonal, do.	1 0	2 0
Chrysanthem., 12 bl.	3 0	6 0	Poinsettia, per doz.	4 0	12 0
— 12 bunches	9 0	18 0	Primula, dbl., p. bun.	1 0	1 6
Cyclamen, 12 blooms	0 3	0 6	Roman Hyacinths, 12 sprays	3 0	6 0
Epiphyllum, p. doz.	1 0	3 0	Roses, indoor, p. doz.	2 0	6 0
Eucharis, per doz.	6 0	18 0	Spiræa, 12 sprays	1 0	3 0
Euphorbia, 12 spr.	4 0	9 0	Stephanotis, 12 sprays	6 0	12 0
Gardenia, per doz.	6 0	12 0	Tuberoses, per doz.	3 0	6 0
Heliotropes, 12 spr.	0 6	1 0	Violets, 12 bunches	3 0	6 0
Mignonette, 12 bun.	6 0	9 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4 0		Lettuces, per score	2 0	
— Jerusalem, p. lb.	0 3		Mint, per bundle	0 4	
Asparagus, per bund.	30 0	40 0	Mushrooms, per pott.	1 0	2 0
Beans, French, p. 100	2 0	3 0	Onions, young, bun.	0 4	0 6
Beet, per doz.	1 0	2 0	Parsley, per bunch	0 4	
Brussels Sprouts, lb.	0 4		Potatos (new), baskt.	1 0	
Cabbages, per doz.	1 0	2 0	— Sweet, per lb.	0 6	
Carrots, per bunch	0 6		Radishes, per bunch.	0 2	0 4
Cauliflowers, p. doz.	2 0	4 0	— Spanish, doz.	1 0	
Celery, per bundle	1 6	2 0	— French	0 6	
Cucumbers, each	2 0	6 0	Rhubarb, per bundle	2 0	
Endive, per doz.	1 0	2 0	Salsafy, per bundle	0 9	
— Batavian, p. doz.	2 0	3 0	Seakale, per punnet	2 0	3 0
Herbs, per bunch	0 2	0 4	Shallots, per lb.	0 3	
Horse Radish, p. bun.	3 0	5 0	Tomatos, per doz.	1 0	2 0
Leeks, per bunch	0 2	0 4	Turnips, per bundle.	0 4	

Potatos—Rocks, £5; Regents, £7 to £8; Kidneys, £7 to £8 per ton.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	2 6	Oranges, p. 100	6 0	12 0
Cobbs and Filbts., lb.	0 6	0 9	Pears, per doz.	1 0	4 0
Grapes, per lb.	1 6	6 0	Pine-apples, p. lb.	2 0	5 0
Lemons, per 100	6 0	10 0	Walnuts, p. bush.	8 0	12 0
Melons, each	2 0	4 0			

SEEDS.

LONDON: *Dec.* 15.—For the time of year our markets are now well attended, and there is a large amount of business doing, especially in Clovers. Values continue to advance; all descriptions of red seed being 1*s.* to 2*s.* per cwt. dearer on the week. Bordeaux samples are now making fully £10 above their opening quotations. In American seed the business transpiring is *nil*: the prices asked from New York being above the views of the English trade. It does not seem likely, moreover, that we shall this season get any great supply from Germany. Under these circumstances, and in the almost complete absence of home-grown parcels, it is anticipated that considerably higher rates must shortly be reached. Trefoils are quiet but firm. For Alsike and white Clover there is a good demand at full prices. Foreign Italian is in good request at last week's currencies. In both Mustard and Rape seed the transactions are limited. Linseed keeps steady. For foreign spring Tares there is a strong speculative inquiry: and as the stocks in London are very light, with scarcely any offers coming to hand from Konigsberg, holders here are demanding 2*s.* to 3*s.* per quarter more money. In Canary seed the tendency is upwards. Haricot Beans and blue boiling Peas find buyers on former terms. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday trade was somewhat depressed, owing to the heavy supplies off the coast. To effect sales of Wheat factors had to submit to some reduction. Malting Barley fell from 1*s.* to 2*s.* per quarter, and the prices for grinding were barely maintained. Malt was nominally the same in value. Oats were quite 6*d.* per quarter cheaper than on Monday last. Maize was not quotably lower. Beans were inactive, Peas were cheaper to sell, and for flour prices favoured buyers in all instances.—Trade remained dull on Wednesday. Holders of Wheat were not, however, anxious sellers, and any concession on their part was only slight. In malting Barley there was not much disposition to purchase. Grinding was nominally unchanged, and the small business in Oats was at about Monday's quotations. Beans were rather flat, but Peas continue steady; and in flour of the better kinds no alteration was noted.

CATTLE.

Monday was the annual "Great Market" at Copenhagen Fields. The supply of beasts was much larger than the average of late years, and every breed was well represented. There were such splendid specimens of Scots, Devons, Herefords, and Shorthorns, that it was difficult to say which bore away the palm. The first-named, however, seemed to be the favourite. Taken as a whole the quality of the supply was superior to that of last year, but the trade was not so active, nor were the prices so good. In the sheep market there was but little noticeable as of a "prize" character, the number was smaller than on the corresponding day of last year, and prices were higher, though trade was dull. Choice calves were scarce and dear. Quotations: Beasts, 4*s.* 6*d.* to 5*s.* 6*d.*, and 6*s.* to 6*s.* 6*d.*; calves, 4*s.* 8*d.* to 6*s.* 8*d.*; sheep, 5*s.* 8*d.* to 6*s.* 4*d.*, and 6*s.* 8*d.* to 7*s.* 4*d.*; pigs, 4*s.* 4*d.* to 5*s.* 8*d.*—At Thursday's market there was not so large a supply of beasts as had been expected. Trade was sluggish, and but few sales were effected, prices showing no quotable change. Sheep met a more ready sale, and prime qualities realised rather enhanced rates. Prime calves were in some request, and brought full value, but coarse descriptions met little or no inquiry. Pigs met a dull sale.

HAY.

The Whitechapel report is to the effect that the best descriptions of fodder experience a ready sale, and realise full prices; but inferior sorts, of which there is a large supply, remain dull. Prime Clover, 125*s.* to 155*s.*; inferior, 85*s.* to 98*s.*; prime meadow hay, 118*s.* to 140*s.*; inferior, 75*s.* to 95*s.*; and straw, 35*s.* to 50*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 135*s.* to 147*s.*; inferior, 100*s.* to 115*s.*; superior Clover, 150*s.* to 160*s.*; inferior, 112*s.* to 130*s.*; and straw, 48*s.* to 54*s.* per load.

POTATOS.

At the Borough and Spitalfields markets supplies have only slightly increased, but prices are firm, and a steady demand prevails. Quotations:—York Regents, 160*s.* to 180*s.*; other English Regents, 140*s.* to 160*s.*; rocks, 90*s.* to 100*s.*; Dutch rocks, 90*s.* to 100*s.*; French rounds, 90*s.* to 100*s.*; Belgian kidneys, 110*s.* to 120*s.* per ton.—The arrivals of foreign Potatos into London last week comprised 574 tons and 760 sacks from Dunkirk, 10,284 bags from Antwerp, 4503 bags from Harlingen, 130 tons from Rotterdam, 73 bags from Hamburg, and 56 sacks from Boulogne.

COALS.

The business done at market on Monday was reported "steady" at last prices, and on Wednesday prices were stated as follows:—Hastings Hartley, 19*s.* 9*d.*; Walls Ends—Harton, 22*s.* 9*d.*; Elliot, 23*s.* 3*d.*; Lambton, 24*s.* 6*d.*; Newbottle, 21*s.* 6*d.*; Tunstall, 22*s.* 9*d.*; Kelloe, 23*s.*; East Hartlepool, 24*s.* 9*d.*; Original Hartlepool, 25*s.*; Tees, 24*s.* 9*d.*

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100,000 ,, ,, 2½ to 3 feet, 14*s.* per 1000.
25,000 PINUS AUSTRIACA. 2 to 2½ feet, 30*s.* per 1000.
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3 feet high, 2½ feet in circumference, 30*s.* per doz.
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This fine new Pea is of branching habit, about 3 feet high, very prolific and bearing large curved pods, containing seven to eleven Peas, which are of excellent flavour; useful for second and general crop, also for late sowing, as it is never affected by mildew. A fine exhibition and market Pea.

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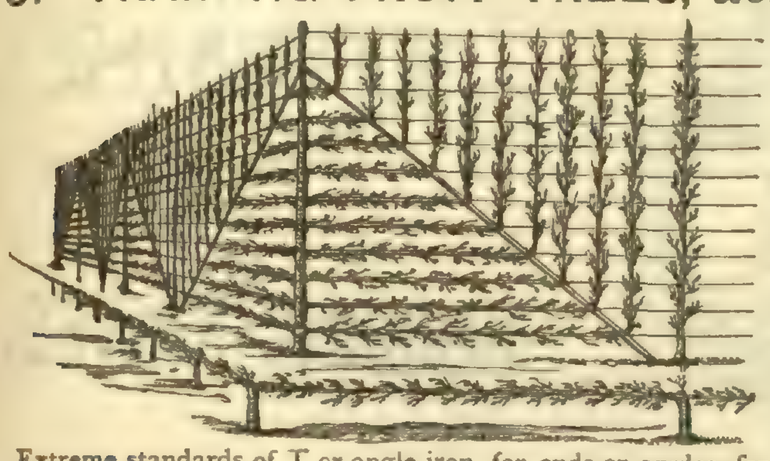

Extreme standards of T or angle iron, for ends or angles, for straining the wires from, self based; also stays for these standards, at prices as under:—

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5 ft. high....	6s. 0d. ..	8s. 6d.	8 ft. high....	9s. 0d.	12s. 0d.
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THE MEDAL FOR MERIT
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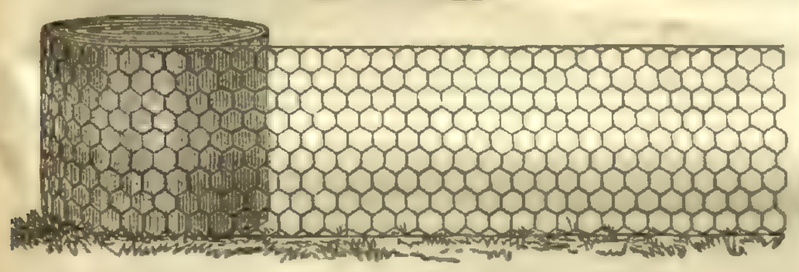
Was awarded to Messrs. J. B. Brown & Co., for "excellence and perfection in material and workmanship, large extent of production, and cheapness of produce."



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2 in.	Dogs or Poultry .	19	3¾d.	18	4½d.	17	5¾d.
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For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.

For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.

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BOOKS of DESIGNS, 5s. each.

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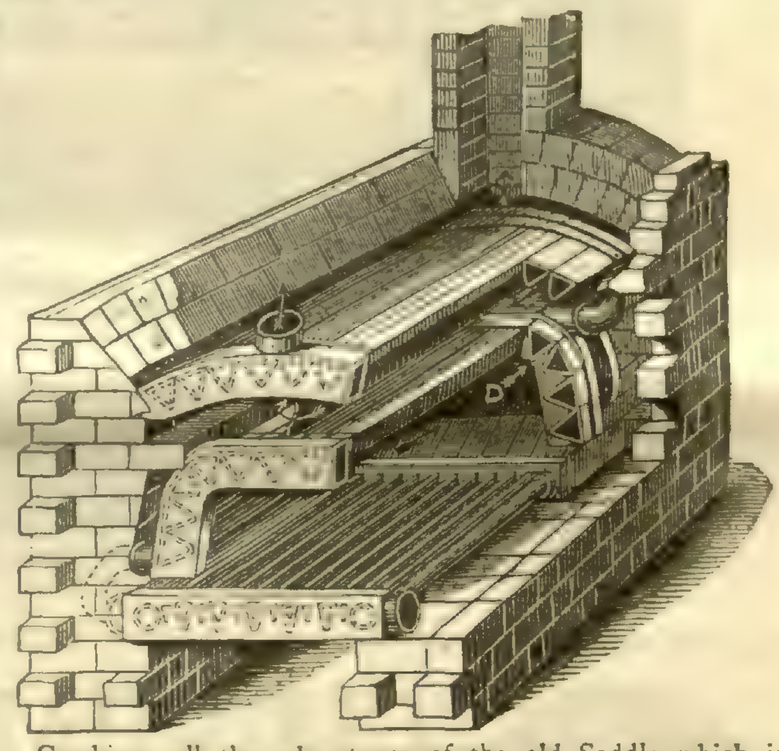

Combines all the advantages of the old Saddle, which is acknowledged to be the most economical, with the Tubular, the most powerful form of boiler. By the use of triangular tubes a larger amount of heating surface is exposed to the direct action of the fire than in any other form of boiler. The water-bridge (D) also receives the most intense heat. The boiler is made of cast-iron, which is admitted to be the best material as regards durability, strength, &c. In consequence of the above advantages we are enabed to supply boilers with a large amount of heating-power at very moderate rates. The power of this boiler can at any future time be increased by adding another row of tubes. Illustrated List free on application to
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THE
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IS AN ESPECIAL BOON TO AMATEURS
FOR
Small Houses, Conservatories, &c.,
As it perfectly defies frost and gives a surrounding heat that cannot be attained by any other System,

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ESTABLISHED 1856.
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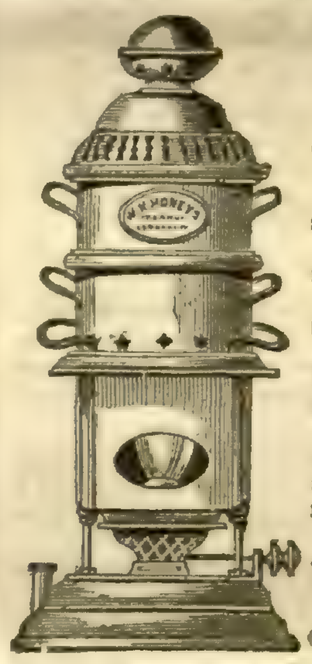

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To Burn Kerosene or any Mineral Oil.

They will burn for twenty-four hours at a cost of one penny for three hours.
They require no attention beyond replenishing the Oil.
Suitable for Greenhouses, Conservatories, Halls, Bed-rooms, &c.
They will not injure the most tender Exotics, nor are they in any way injurious to the health.
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BARNARD, BISHOP & BARNARDS
will be happy, upon application, to furnish estimates for Heating Churches, Conservatories, Greenhouses, Forcing Pits, &c.
NORFOLK IRONWORKS, NORWICH.

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PORTABLE HOT-WATER CIRCULATING BOILER,
THE BEST AND CHEAPEST EVER OFFERED TO THE PUBLIC.
To Burn Petroleum Oil, or, when required, may be Heated by Gas.

Made in several sizes—
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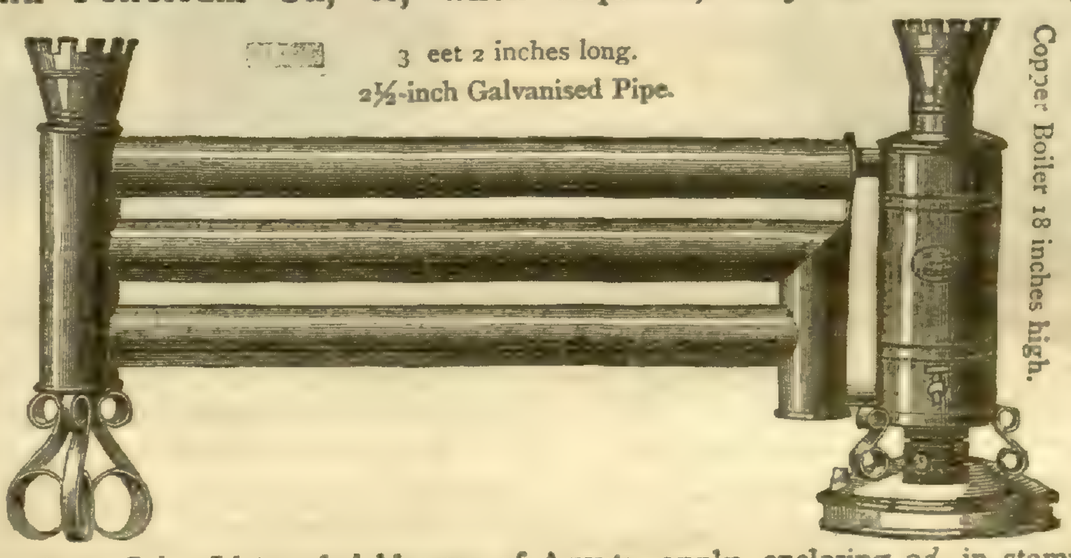
Suitable for Warming Small Entrance Halls, Conservatories, Bed Rooms, Offices, Saddle Rooms, Ship's Cabins, &c.



There is no smell, smoke, dust or danger in using this Apparatus. It will burn for THIRTY HOURS without attention, at a cost of less than ONE FARTHING per hour.

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Inventors, Patentees, and Manufacturers of the "Perfect Cooking Stove."
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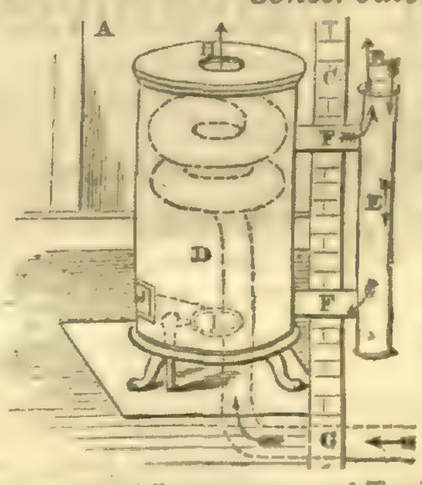
FOR
Warming and Ventilating Small Conservatories.



The only Gas Stove in which the product of combustion is entirely excluded from the Conservatory.
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Made in Copper, £5.
Height, 28 inches; diameter, 14 inches.
It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).
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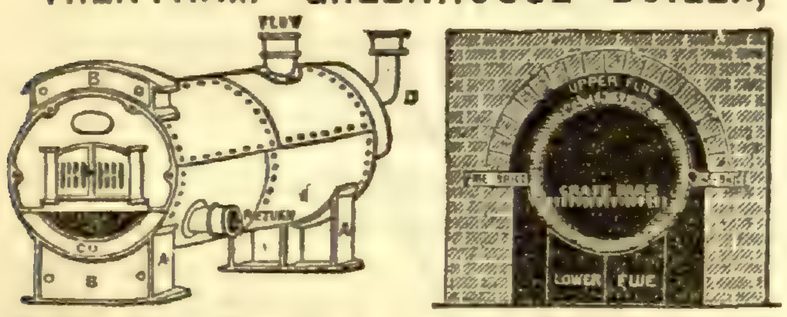
TRENTHAM GREENHOUSE BOILER,



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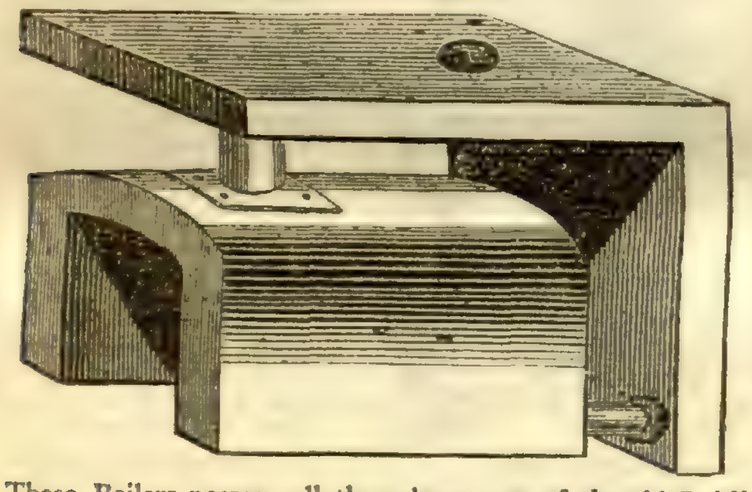
☞ Our Boilers are the ONLY ones made with the sanction and under the inspection of the inventor, Mr. Stevens—all others being base imitations.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought iron are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.
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20 ,,	18 ,,	24 ,,	400	8 0 0
20 ,,	18 ,,	30 ,,	500	9 0 0
24 ,,	24 ,,	24 ,,	700	12 0 0
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24 ,,	24 ,,	36 ,,	1,000	16 0 0
24 ,,	24 ,,	48 ,,	1,400	20 0 0
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Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries. Balham Hill, S.W., May* 29, 1873.

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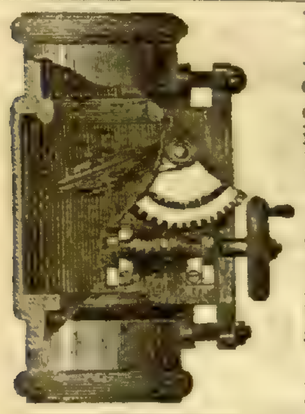

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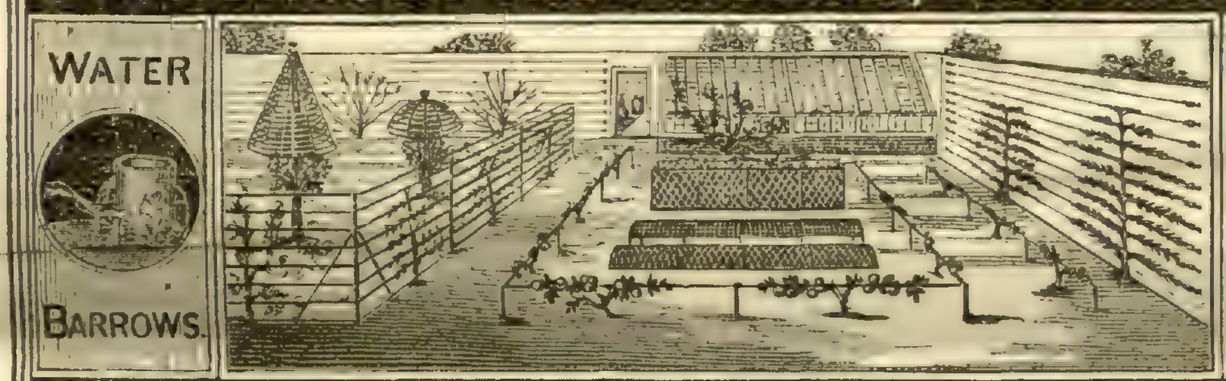

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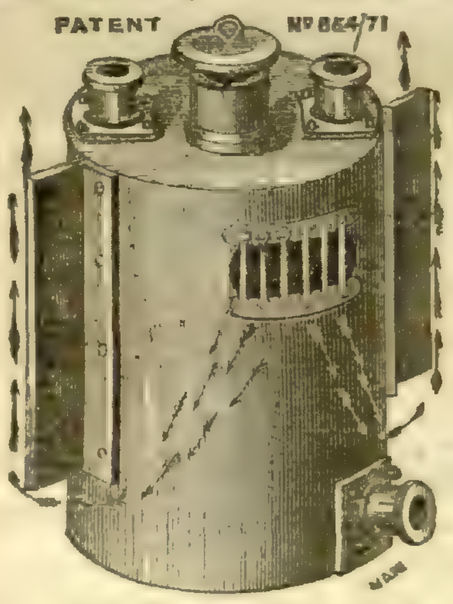
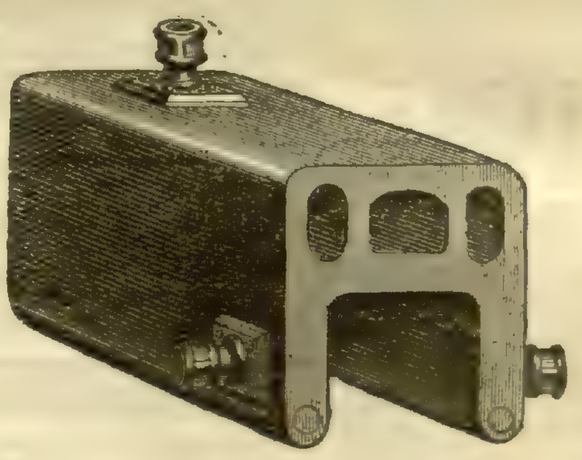


("EXCELSIOR" BOILER.)



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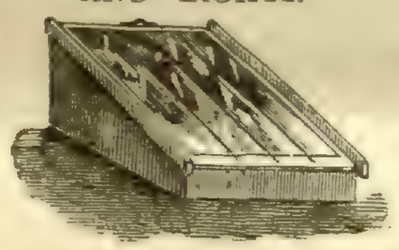

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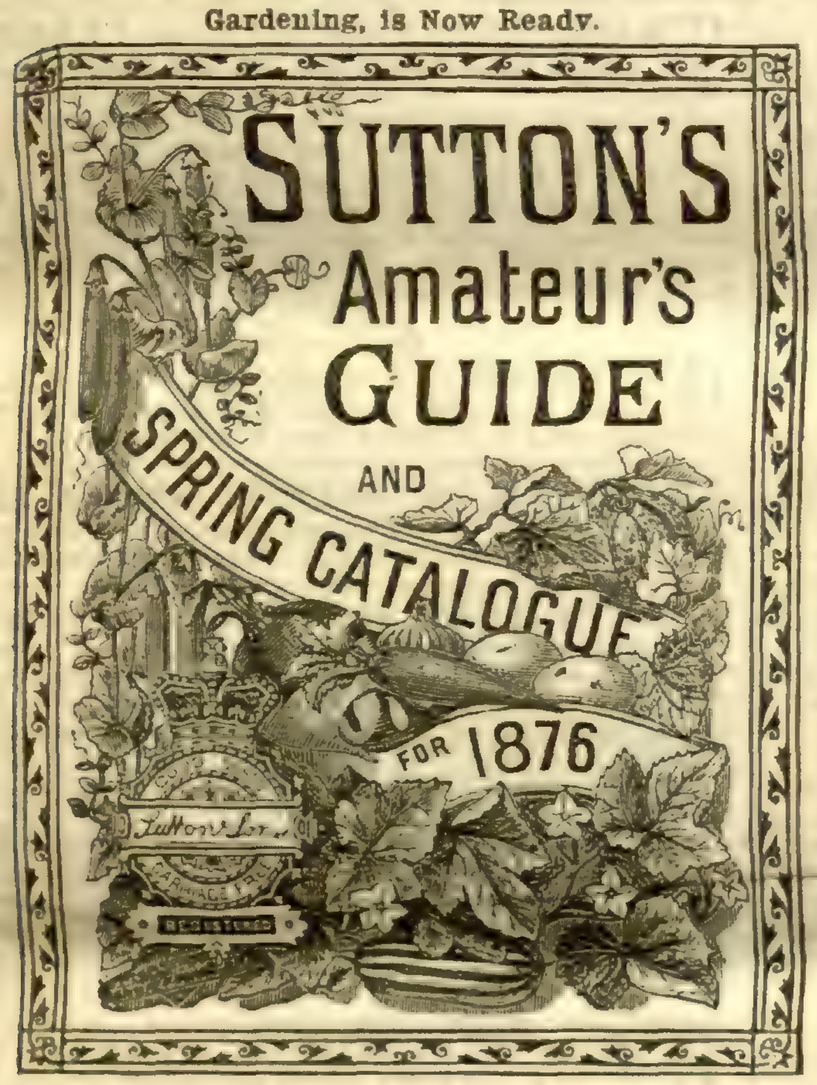

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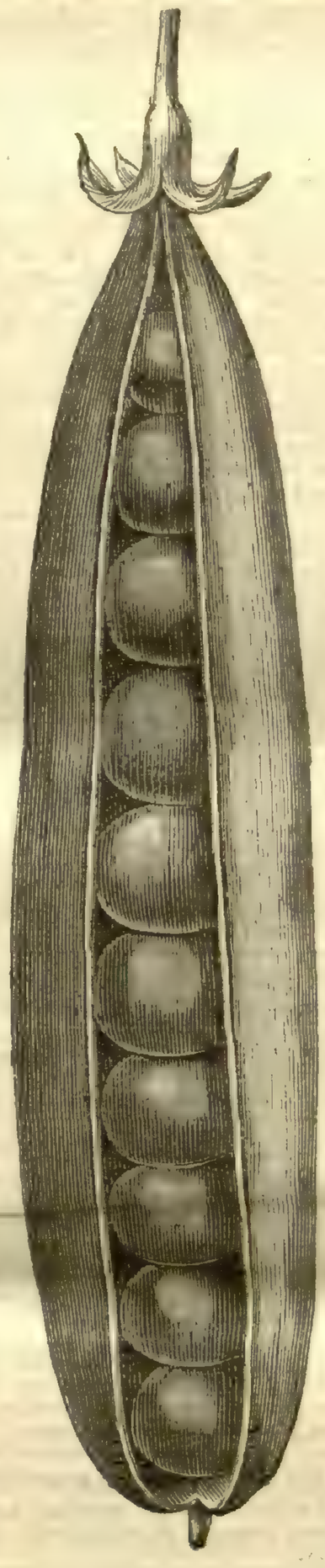

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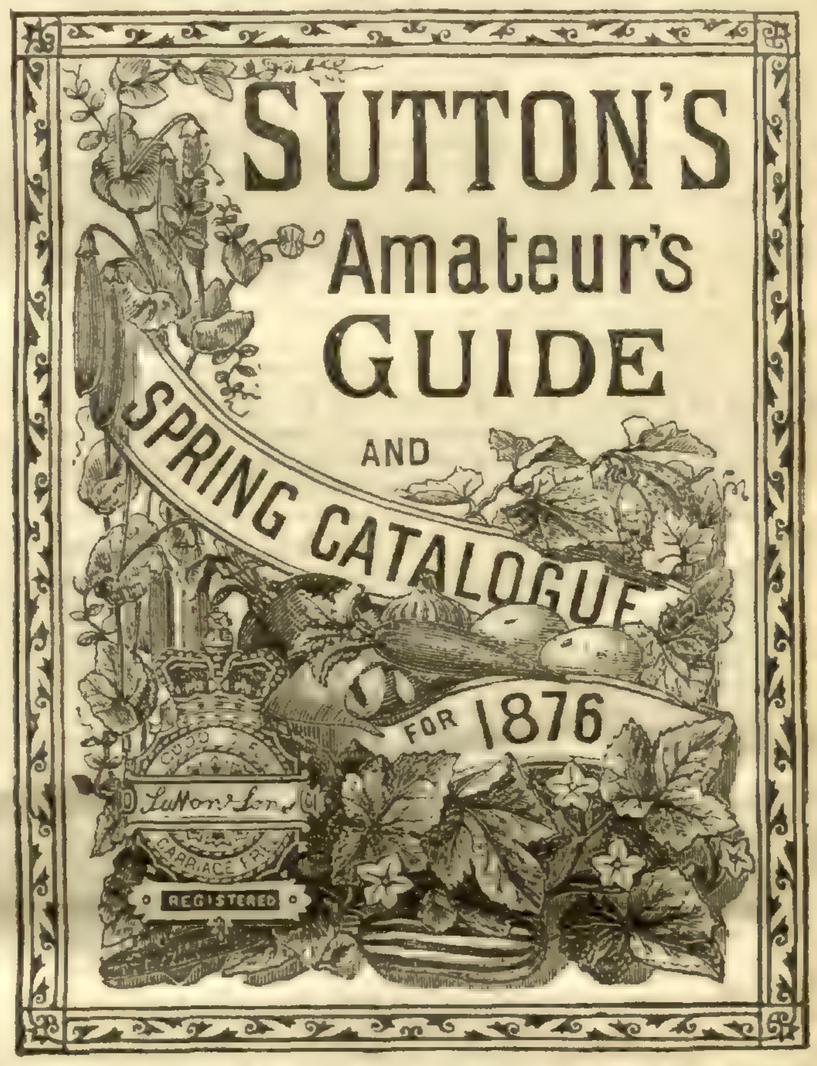

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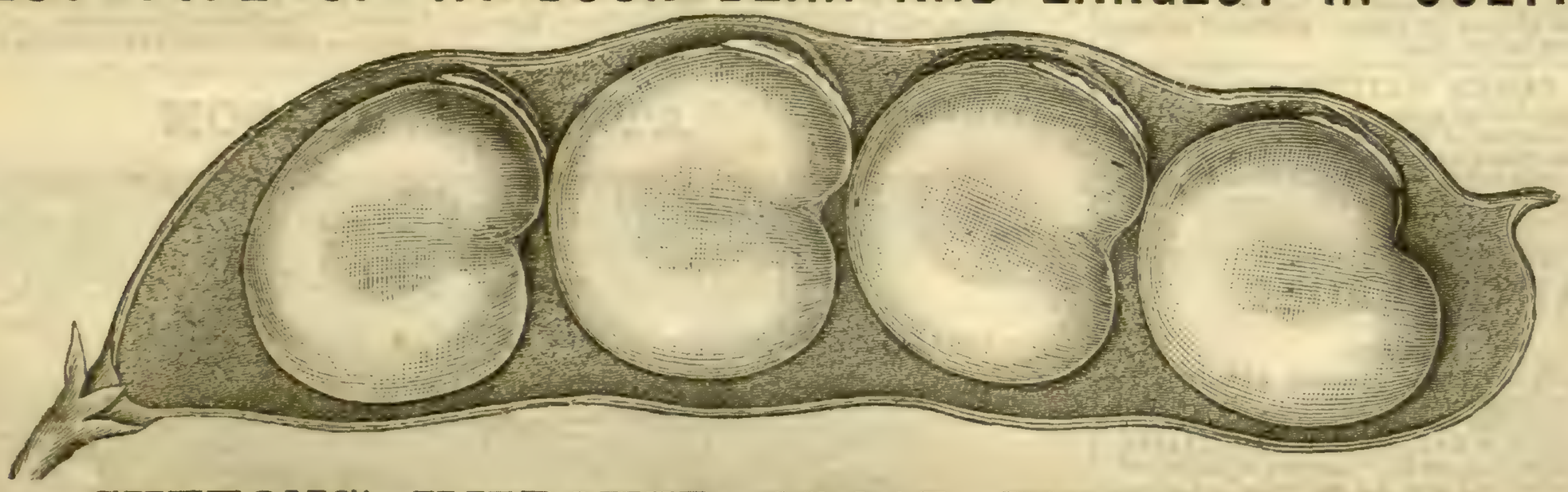
SUTTON & SONS, having had repeated opportunities of observing the growth of this Pea during the last two seasons, have the greatest confidence in recommending it to their numerous Customers, and have received from Mr. Chas. Turner a large supply on terms which will enable them to send it to their Customers in the original Sealed Bags at the same price retail as charged by Mr. Turner. *Price, 7s. 6d. per quart, 4s. per pint.*

THE BEST TYPE OF WINDSOR BEAN AND LARGEST IN CULTIVATION

Natural Size.



Natural Size.

SUTTONS' IMPROVED BROAD WINDSOR BEAN.

The largest and most productive Broad Bean in cultivation. It grows to a large size, is very prolific, and produces a succession of pods.

For further particulars of Choice Novelties, see

SUTTONS' AMATEUR'S GUIDE, price 1s., or post free 1s. 2d. SUTTONS' SHORT SELECT SEED LIST, gratis and post free.

SUTTON & SONS, The Queen's Seedsmen, READING, BERKS.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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THE ROYAL AQUARIUM SUMMER and WINTER GARDEN SOCIETY propose holding a series of GRAND FLOWER and FRUIT SHOWS at Westminster on the dates fixed below.

1876.	Amount of Prizes.
APRIL 12 and 13.—Forced Rhododendrons, Azaleas, Lilies, &c.	£250 0 0
MAY 10 and 11.—Roses in Pots, Greenhouse Azaleas, Palms and other suitable Plants for Table Decoration	350 0 0
MAY 30 and 31.—Grand Stove and Greenhouse Plant Show, Fruit, &c.	1100 0 0
JULY 5 and 6.—Grand Rose Show, Dinner-table Decorations, &c.	350 0 0
OCTOBER 4 and 5.—Great Fruit and Chrysanthemum Show	450 0 0
	£2500 0 0

The Prizes on all occasions will be paid on the first day of the Show. Schedules will be ready on January 1, 1876.
By Order, W. W. ROBERTSON, Managing Director.

Winter Gardens, Southport, Season 1876.
GRAND HORTICULTURAL EXHIBITION to be held on JULY 5, 6, 7, and 8. Prizes to the value of about £400 will be given.
Schedules will be shortly issued.—By order,
E. MARTIN, Secretary.

For the best Vegetables see
SUTTONS' AMATEUR'S GUIDE for 1876. New and greatly enlarged edition. Now ready, post free for fourteen stamps, or Gratis to Customers.

For the best Flowers see
SUTTONS' AMATEUR'S GUIDE for 1876.

For the best Cucumbers and Melons see
SUTTONS' AMATEUR'S GUIDE for 1876.

For the best Potatos see
SUTTONS' AMATEUR'S GUIDE for 1876.

SUTTONS' SHORT SELECT SEED LIST, gratis and post free.
SUTTON AND SONS, The Queen's Seedsmen, Reading.

Hyacinths, Tulips, &c.
WM. CUTBUSH AND SON beg to announce that their Descriptive Priced CATALOGUE of HYACINTHS, TULIPS, CROCUS, and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

Important to the Trade.
LILIUM AURATUM.
Bulbs are now arriving from Japan in fine condition, and being Sold Weekly at very low prices, at
STEVENS' ROOMS, 38, King Street, Covent Garden, London, W.C. Catalogues on application.

Cyclamens, Cyclamens.
J. CORNHILL AND SON have an unusually fine stock of the above from the best Prize Strains, in 60, 48, and 32-pots, luxuriant foliage, finely set with bloom. Price on application.
Byfleet, Weybridge Station, Surrey.

To the Trade.
DICK RADCLYFFE AND CO. have still on offer, CAPE FLOWERS, per 1000 or 10,000; DRIED FLOWERS and GRASSES, in Bouquets, Baskets, Wreaths, &c. A first-class assortment. Special Prices and LIST on application. A few SNOWDROPS to offer cheap.
128 and 129, High Holborn, W.C.

RHODODENDRONS (Standard).—Wanted, a number of the above, with 3 to 3½ feet clean stems, and heads of about 2 feet in diameter. State price to
THOMAS METHVEN AND SONS, Leith Walk Nurseries, Edinburgh.

MAGNIFICENT NEW HARDY EVERGREEN FLOWERING SHRUB, &c.—For particulars see our advertisement in *Gardeners' Chronicle* of Nov. 19 and 26. See also Catalogue, free on application.
The NEW PLANT and BULB COMPANY, Lion Walk, Colchester.

For Sale, to Clear the Ground.
PORTUGAL LAURELS, a large quantity, very good, bushy, 2 feet, 25s. per 100.
ENGLISH YEWS, good bushy, 1½ foot, 21s. per 100.
WILLIAM BUNTING, Nurseryman, Colchester.

Green Screens, for Shutting Out Unsightly Objects.
LOMBARDY POPLARS, fine large, 20 to 30 feet high, 3s. to 5s. each. Delivered on Rail.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

Planting Season.
SEEDLING and TRANSPLANTED FOREST TREES, &c.
List of Prices may be had on application to
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

SPANISH CHESTNUTS, a large quantity, 3 feet; ASH, SPRUCE, BIRCH, and ALDER, stout, well-grown, and transplanted, to be Sold.
G. CHORLEY, Midhurst, Sussex.

SCOTCH FIR PLANTS.—For Sale, 100,000 strong, from 2 to 3 feet high, 3-yr. transplanted; 20s. per 1000 on rail at Chandler's Ford Station, London and South-Western Railway. Apply to
Mr. MURRAY, Steward's Office, Hursley Park, Winchester.

WENZEL BROTHERS, SEED GROWERS, Quedlinburg, Prussia.—SEED LIST of VEGETABLE, AGRICULTURAL and FLOWER SEEDS, is now Published, and may be had Post Free on application.

GIANT LILY of the VALLEY.—Extra strong blooming roots, 2s. per dozen, 12s. 6d. per 100, package free.
E. COOLING, Mile Ash Nurseries, Derby.

FASTOLF RASPBERRY CANES, 15,000, strong, 4s. per 100; BLACK CURRANT TREES, 10,000, 4-yr. old, 8s. per 100; RED CURRANT TREES, Ruby Castle, 8000, 4-yr. old, 5s. per 100. Apply to
W. SELBY, Jun., Oldbury, Ightham, Kent.

Fruits for Forcing.
MESSRS. RIVERS AND SON beg to offer fine Trees in pots, well set with Fruit Buds and ready for Forcing, of PEACHES, NECTARINES, FIGS, and GRAPES, of approved kinds only. Carriage paid to London.
The Nurseries, Sawbridgeworth, Herts.

To the Trade.
Home-grown GARDEN and AGRICULTURAL SEEDS.
H. AND F. SHARPE'S Wholesale Special Priced LIST of the above Seeds of 1875 growth is now ready; it comprises all the best sorts in cultivation. The quality is very fine, and the prices will compare favourably with those of other growers.
Seed Growing Establishment, Wisbech.

Mangel and Swede.
JOHN SHARPE can furnish, on application, his quotations for the choicest Stocks of the above, selected and grown by himself.
Bardney Manor, Lincoln.

The Best Celery is
LEICESTER RED—1s. per packet.
The best SAVOY is KING KOFFEE, 1s. per packet; with many other choice stocks of Seeds. TRADE PRICED LIST on application.
HARRISON AND SONS, Seed Growers, Leicester.

SEAKALE, ASPARAGUS, and RHUBARB—Extra strong, for immediate Forcing and Planting. Prices upon application.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

Johnstone's St. Martin's Rhubarb.
EARLIEST and BEST in CULTIVATION for Open Ground, has a splendid colour and excellent for Forcing. Strong roots, 9s. per dozen. Trade price on application.
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RHUBARB ROOTS.—10,000 strong Linnæus, for Planting or Forcing. Price £1 per 100.
GOOSEBERRY TREES.—20,000 Lancashire Lad at £1 per 100, and
RASPBERRY CANES, of Semper Fidelis, £1 per 100.
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POTATOS WANTED.—Smith's Dwarf-top Curly-leaf, warranted true; also Hard Cash. Quote price to
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CHARLES TURNER can still supply strong Plants of all the leading varieties, of different heights and in pots, including the fine new kinds, Miss Hassard, Rev. J. B. M. Camm, John Stuart Mill, and Royal Standard. FRUIT TREES are also very fine this season.
A DESCRIPTIVE CATALOGUE of the above may be had on application.
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A. M. C. JONGKINDT CONINCK'S Wholesale TRADE LIST of FRUITS and ROSES is now ready, free on application.
Large quantity of home-grown, very sound bulbs of LILIUM AURATUM.
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ROSE SHOWS, 1875.—50 First Prizes, 25 Guinea Silver Challenge Cup, and other Premier Prizes. See Cranston & Mayos' DESCRIPTIVE ROSE CATALOGUE for 1875. Address,
CRANSTON'S Nurseries, King's Acre, Hereford.

Special Culture of Fruit Trees and Roses.
THE DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS (by THOMAS RIVERS) is now ready; also CATALOGUE of Select ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

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WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
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The Oxford Roses, on Cultivated Seedling Briar.
GEORGE PRINCE'S Priced and Descriptive CATALOGUE now ready. All Roses are grown exclusively on the above stock at this establishment.
14, Market Street, Oxford.

To the Trade, &c.
ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Dwarf and Standard Roses, &c.
ROSES, splendid Dwarf, as fine as can be bought, 6s. and 9s. per dozen, 50s. per 100; Standards, 12s. and 15s. per dozen, 100s. per 100, all good leading varieties. GOOSEBERRIES, Lancashire Show, 3s. and 4s. per dozen, 20s. per 100. CURRANTS, Red, White, or Black, 3s. per dozen, 18s. per 100. Trade Price on application.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

To the Trade.
OUR WHOLESALE CATALOGUE of SEEDS is in the Press, and will shortly be posted,
MINIER, NASH AND NASH, 60, Strand, London, W.C.

WINTER and SPRING BLOOMING PLANTS—a large collection. For prices, &c. apply to
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

Vines, Vines, Vines.
B. S. WILLIAMS begs to announce that his stock of VINES is now in fine condition, and ready for sending out. It comprises all the leading kinds, strong Canes of Pearson's Golden Queen.
For prices and description see BULB CATALOGUE.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

GRAPE VINES.—Strong and extra strong, thoroughly ripened without bottom-heat, for immediate Fruiting and for Planting: the leading varieties.
CATALOGUE and Prices on application.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

Splendid New Apple,
LADY HENNIKER, sent out by EWING AND CO., Norwich. Strong maiden plants, 3s. 6d. each, 21s. for seven; 2-yr. plants, 5s. to 7s. 6d. each.

Cooling's Matchless Broccoli.
GEORGE COOLING, NURSERYMAN and SEEDSMAN, Bath, has to offer his usual supply of carefully saved SEED of this unequalled variety of SPRING ROCCOLI, and will be glad to quote price of the same to the Trade. Retail price, per packet, 1s. 6d.

SEAKALE and ASPARAGUS, extra strong, for Forcing; very fine. Price on application.
FRANCIS & ARTHUR DICKSON & SONS, "Upton" Nurseries, Chester.

To the Trade.—Seed Potatos.
H. AND F. SHARPE are prepared to make Special Offers of SEED POTATOS grown on their own Farms from the finest selected stocks. Their List this season comprises all the English and American varieties worthy of cultivation. The prices will be found very moderate.
Seed-growing Establishment, Wisbech.

To the Trade.
POTATOS.—Myatt's, Rivers', Veitch's, and Mona's Pride Kidney, Paterson's Blue, Victoria, American Early Rose, and other kinds; fine samples. Prices on application to
J. AND G. McHATTIE, Seed Merchants, Chester.

SALE BY AUCTION.

Lilies and Other Roots.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 30, at half-past 12 o'Clock precisely, 8000 very fine BULBS of LILIUM AURATUM, just arrived from Japan, in very fine condition, and lotted to suit the Trade and Private Buyers; also a quantity of rare Japanese and North American LILIES and ROOTS.
On view the morning of Sale, and Catalogues had.

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Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Metallic Hothouse Builder to Her Majesty.

HENRY HOPE
(late Clark & Hope, formerly Clark),
HOTHOUSE BUILDER and HOT-WATER APPARATUS ENGINEER.
55, Lionel Street, Birmingham. Established A.D. 1818.
BOOKS of DESIGNS, 5s. each.
☞ The Extensive Ranges of Metallic Hothouses in the Royal Gardens, Windsor and Osborne, were executed at this Establishment.

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SYDNEY, NEW SOUTH WALES.—Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.
For passages and further information apply to the AGENT-GENERAL, 3, Westminster Chambers, Victoria Street, S.W.

To Market Gardeners and Others.

SUTTON AND SONS can offer

Suttons' Ringleader Peas	Veitch's Perfection Peas
Suttons' Racehorse Peas	Scimitar Peas
Little Gem Peas	Bedman's Imperial Peas
Fortyfold Peas	Harrison's Glory Peas

Suttons' Improved Early Champion Peas.
Of true stocks, at moderate prices for large quantities.
Reading, Berks.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

NUTTING AND SON'S Wholesale GARDEN and FLOWER SEED CATALOGUE is now Published, and may be had on application.
One has been sent to each of their Customers; should any one not have received his they will be glad to be informed of the same, when another List shall be at once sent.
Seed Warehouses, 60, Barbican, E.C.

Notice to the Trade.

G. WHEELER'S PRIZE QUILLED ASTERS.

MR. G. WHEELER, of Warminster, having SOLD the Entire Stock of his celebrated QUILLED ASTERS which gained the First Prize at South Kensington, September 1, 1875, and First at Trowbridge, to MESSRS. HURST AND SON, collections of the same can be had of HURST AND SON, 6, Leadenhall Street, London, E.C.

Lilies by the 100 or 1000.

For Planting in Borders, Shrubberies, among Rhododendrons, Massing in Beds, or Grouping among Shrubs.

MR. WILLIAM BULL, being an annual importer from their native habitats of immense numbers, can offer Choice and New LILIES, also the well-known ordinary showy sorts, at very low prices when taken in quantity.
Special quotations on application.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

EAST LOTHIAN STOCK SEED (Genuine), in three distinct Colours, saved by Mr. Campbell, late Gardener at Traprain, the original Raiser of this celebrated Stock, in packets 1s., 2s. 6d., and 5s. PANSY, from choice named flowers, in packets, 2s. 6d. and 5s. BALSAM, CALCEOLARIA, COCKSCOMB, POLYANTHUS, AURICULA, in packets 1s. to 2s. 6d. each, free by post.
A Special Offer to the Trade.
ORMISTON AND RENWICK, Seed Merchants, Melrose, N.B.

Evergreen Hedges.—Box, Green Hollies, and LIGUSTRUM OVALIFOLIUM.

R. NEAL, having a very large Stock of the above, can offer the same by the 100 or 1000 at a very low rate.
Also 10,000 ACER CAMPESTRIS, from 5 to 8 feet in height, clean-grown stuff.
Price on application.
The Nurseries, Wandsworth Common, S.W.

The New Japan Apple,

PYRUS MAULEI, is now distributing, at 21s., 15s., and 10s. 6d. each. It is as hardy as the common Apple, blossoms at the same time; the flowers are of a vivid Orange-scarlet, fruit of a bright transparent Lemon colour, very fragrant, about the size of the Golden Pippin Apple, which is produced in the greatest profusion.
The jam of this season has been tasted by some of the best judges and connoisseurs, and pronounced exquisite, and perhaps superior to any English or foreign fruit.
W. MAULE AND SONS, The Nurseries, Bristol.

COLOURED ILLUSTRATIONS.—Coloured Plate of W. Hender & Son's superior strain of PETUNIAS will appear in the *Florist and Pomologist* for January; also one of AMARANTHUS "PRINCESS OF WALES," in the *Floral World* for February.
Seed, 2s. 6d. per pkt.; Amaranthus Henderi, 1s. per pkt.
W. HENDER AND SON, Bedford Nursery, Plymouth.

Gilbert's New Melon—A. F. Barron.

W. AND J. BROWN are favoured by Mr. R. Gilbert, Burghley Gardens, with sending out the above New Melon, being assured that it is in advance of any preceding it. Received First-class Certificate at the Stamford Horticultural Show: see *Gardeners' Chronicle*, November 20. Price per packet, 3s. 6d.; trade terms on application.
Nurseries, Stamford and Oakham.

New Broccoli

CHRISTIE'S SELF PROTECTING LATE WHITE.—The finest late Broccoli in cultivation.
Mr. NISBET, *Gardener to* Sir Thomas Whichcote, Bart., *Oswarby Park, says*:—"Having seen Mr. Christie's Broccoli growing for the last three seasons I have no hesitation in recommending it as being the finest of all Broccolis I have yet seen, and for hardiness of constitution I know of no Broccoli to compare with it."
The above has been selected from numerous testimonials received in favour of this very valuable Broccoli for late use.
Per packet, 1s. 6d.
A limited quantity to offer to the Trade. Price on application.
EDMUND PHILIP DIXON, Seed Merchant and Nurseryman, Hull.

AVENUE TREES.

	Girth 4 ft. from ground.
LIMES, 12, 14, 15, 16 and 18 feet high ..	6 to 10 inches.
PLANES, Occidental, true, 12 to 15 feet high	5 to 8 ,,
MAPLES, Norway, 12 to 16 feet high ..	5 to 8 ,,
CHESTNUTS, Horse, 10 to 14 feet high ..	8 to 10 ,,
,, Scarlet, 10 to 14 feet high	8 to 10 ,,
,, Double, 10 to 14 feet high	8 to 10 ,,
POPULUS CANADENSIS NOVA, the fastest growing and without doubt the very best tree for smoky and exposed situations, 12 to 18 feet high	5 to 10 ,,
ELMS, 15 to 18 feet	7 to 9 ,,

ANTHONY WATERER respectfully invites an inspection of his stock of the above trees, now growing in his Nursery, stout and straight in stem, with well balanced heads, and above all, splendid roots. They are unquestionably the finest lot of Avenue Trees to be met with in any Nursery in Europe. Intending planters will not be disappointed, there are many thousands to select from.
Knap Hill Nursery, Woking, Surrey.

To the Trade.

GRANT AND COMPANY, NURSERYMEN, Portadown, Ireland, offer the following goods in large or small quantities. Prices on application.
OAK, 1-yr. seedling, English, very stout.
MANETTI, 1-yr., dressed.
SAMBUCUS RACEMOSA—Scarlet Elder.
PRIVET, 1-yr., 1-yr., strong.
WILLOWS, sorts, 1-yr. and 2-yr.
THORN QUICKS, 3-yr. and 2-yr., 1-yr.
RHUBARB, Victoria, strong.
STRAWBERRIES, transplanted runners, finest sorts.
ROSES, dwarf, choicest varieties.
BELLIS PERENNIS AUCUBÆFOLIA, per 100 or [1000.
POPLAR, Black Italian, 2 to 4 ft.
PRIMROSES, double white and lilac.
GOLDEN THYME. COMMON THYME.
SILVER POPLAR, true American, from 1½ to 2½ feet, and from 4 feet to 6 feet.
COTONEASTER SIMMONSII, 2 to 3 ft., fine.
BOX EDGING, true Dutch, very nice.

STANDARD CHERRIES.—Special offer of the above, very fine Specimens of the following kinds:—

Bigarreau Early Black	Elton
,, Large Black	Empress Eugenie
,, Monstreuse de Mezel	Governor Wood
,, Napoleon	May Duke
,, Reverchon	Morello
,, White	Turkey Black Heart.
Early Rivers	

Also strong LIMES, 7 to 8 feet.—Carriage paid to London.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

HOWCROFT AND WATKINS (late Charlwood & Cummins), SEEDSMEN, Covent Garden, London, W.C. (established more than half a century), will be glad to forward on application post free their GENERAL LIST of SEEDS, which includes their special stocks of
WASHINGTON, IMPROVED No. 1 and COMPETITOR PEAS.
NEW COVENT GARDEN PROLIFIC RUNNERS.
TRUE EARLY RAINHAM CABBAGE.
SUPERB LATE WHITE BROCCOLI.
WYKEHAM COS LETTUCE.
COVENT GARDEN and WESTBURY SWEDES, &c.

Prize Seeds.

WRIGHT'S GROVE and GIANT CELERIES and CUCUMBERS.
WRIGHT'S GROVE RED and GROVE WHITE CELERIES were awarded the First Prizes at the South Kensington Show on November 10 and 11, 1875; see *Gardeners' Chronicle* (p. 627), November 13. These have been proved to possess all the good qualities required in a first-class Celery. Per ¼ oz. packets, 1s.
WRIGHT'S GIANT WHITE CELERY has a more robust habit and stronger growth than Grove White, combined with a fine flavour. It forms very solid hearts, which blanch easily. Heads have been grown weighing from 8 lb. to 10 lb. each. Per ⅛ oz. packets, 1s.
The following have secured supplies for the coming season:—

Hurst & Son, London.	C. & J. Lee, Hammersmith.
Dickson, Brown & Tait, Manchester.	Samuel Yates, Manchester.
Sutton & Sons, Reading.	Laird & Sinclair, Dundee.
B. Crossland, Sheffield.	E. Holmes, Lichfield.
S. Finney & Co., Newcastle.	W. Smith & Son, Aberdeen.

CUCUMBERS:—Wright's Wonder, fine White-spine, and Wright's Improved Black-spine. These will grow 24 to 30 inches long, without neck or handle, are very prolific and of mild good flavour; fine for exhibition. Berks Champion, Improved Sion House, Masters' Early Prolific, Munro's Duke of Edinburgh, Long Gun, Telegraph. Per packet, 1s.
Cash with orders will have prompt attention. Trade price on application.
WILLIAM WRIGHT, Seedsman, Retford, Notts.

To Noblemen, Gentlemen, and Others who are REPLANTING this AUTUMN.

R. NEAL begs respectfully to call the attention of the above to his large and varied stock of Hardy SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS, CLIMBING PLANTS, &c., which are now in fine condition for removal. An early inspection invited.
CATALOGUES may be had on application.
The Nurseries, Wandsworth Common, S.W.

GRAND NEW HARDY FRUIT —DIOSPYROS KAKI.
A very truthful Engraving of this grand acquisition is given in the *Gardeners' Chronicle*, December 18. For further particulars see our Advertisement in *Gardeners' Chronicle*, Nov. 19 and 26; also our CATALOGUE, free on application.
THE NEW PLANT AND BULB COMPANY, Lion Walk, Colchester.

LILIUM AURATUM, in magnificent condition and at Low Prices. See SPECIAL LIST, free on application.
THE NEW PLANT AND BULB COMPANY, Lion Walk, Colchester.

Lilies, all Known Kinds (Home-grown).

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WHITETHORN or QUICK, very fine, 3-yr and 4-yr. transplanted, in small or large quantities.
SEAKALE, ASPARAGUS, and RHUBARB, extra strong roots for forcing.

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Sixty Selected, Distinct, and all First-class Show Roses.

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One Hundred of the Finest Roses, New or Old, in cultivation, Selected from upwards of 600 Varieties.

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Messrs. Dudding's "Robert Stephenson."
Bust of "Queen Mary."
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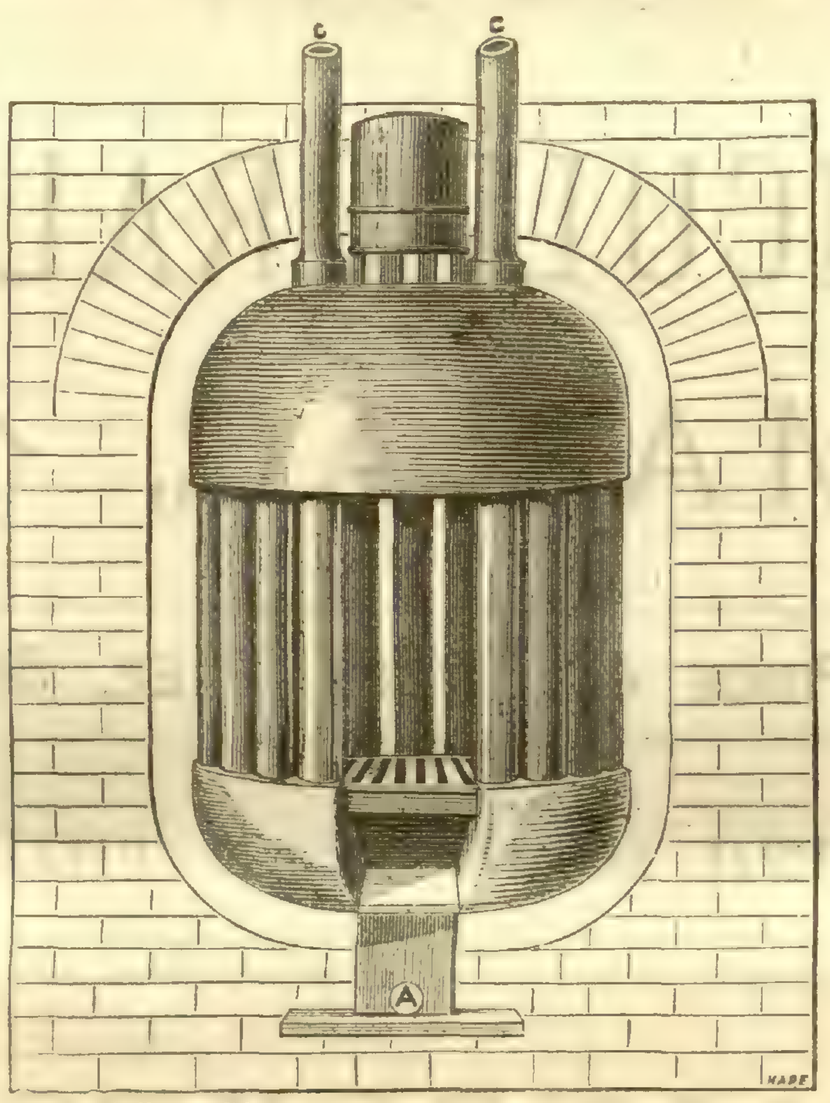

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SHEET ALMANAC.

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SATURDAY, DECEMBER 25, 1875.

CHRISTMAS BERRIES.

"Let the bright red berries glow
Everywhere in goodly show :
Christus natus hodie."

IF flowers, as we mentioned last week, are invaluable at Christmas-tide, berries are simply indispensable. "Our joyful'st feast," as George Wither calls it, would scarcely be Christmas without its accompaniments of Holly, Ivy, and Mistleto. And it is ours in a special way ; for in no country is the Christmas festival so generally and so heartily observed as it is among ourselves. There are people of a Scrooge-like turn of mind who affect to look upon Christmastide as "humbug," and Christmas festivities as shams ; and yet—putting the religious side of the feast entirely out of the question—the many happy reunions and family meetings which only take place at this season give the lie direct to such cynics, and show that Christmas gladness is no poetical fiction but a genial and welcome reality. Such a feast forms a pleasant break in "the daily round, the common task" of the work-a-day world of this nineteenth century ; and it is cheering to see from many little tokens that its observance is on the increase upon us rather than on the decline. The item of Christmas cards alone, small as it seems to be, is year by year assuming larger proportions, and must by this time have become an important branch of trade. There is really no limit to the variety which these little cards present, the conventional and impossibly red-breasted robin, and the sprays of Holly and Mistleto, play quite secondary parts in the Christmas *répertoire*, and flowers of every hue are selected—with less appropriateness as it seems to us—to convey the wishes and greetings appropriate to the season. The black cards which are in most demand this year are American importations, coming to us mainly from Boston ; and their nationality explains the frequent occurrence upon them of the bark of the paper birch (Betula papyracea).

Simultaneously with the increase of this branch of trade it is curious to notice how the neighbour festival of "Twelfth Day" has dropped almost entirely out of notice ; the iced cakes and "characters" which used to decorate our pastry-cooks' windows are hardly seen—so volatile are the ways of fashion. Christmas carols, again, have come into great prominence during the last twenty years. Previously to this date the broadsides sold by itinerant vendors, and issuing from Seven Dials, were almost the only representatives of this class of literature ; while now collections of Christmas carols may be counted by the dozen, and they have found their way even into our churches, where they often form an appropriate [?] and important feature in the Christmas services. The beautiful old story of the birth at Bethlehem, with the attendant incidents of the angelic chorus, the "watchful shepherds," and the kings from the east, is an inexhaustible theme for songs of this kind, which are none the less suitable or welcome on account of their simplicity.

As to decorations, whether of church or home, they become year by year more general and elaborate ; although, so far as the churches are concerned, this is the one festival on which decorations have always been employed, even by the most puritanical of churchmen. Of course the *modus operandi* differs in different cases, and ranges from the "sticking" of the parish clerk (which proceeds on the simple and easily comprehended principle of thrusting a stem of Holly or Ivy into any hole which presents itself), to the elaborate wreathings and floral devices which decorate the walls of the churches known as Ritualistic, or the representations—often so quaint as to be almost comic, yet with a certain simplicity which does away with their comicality—of the manger scene at Bethlehem, which adorn the Roman Catholic chapels. But in every school of thought which takes note of Christmas Day, church decoration is looked on as a matter of course. There are not wanting clergy who inveigh against the custom as a relic of Paganism, or, at any rate, of Romanism ; but they can scarcely find it in their hearts to cast a gloom on the Christmas of their congregations by suppressing the display of evergreens. In the days of the Puritan ascendancy, however, Christmas had to bear the brunt of many fierce attacks, and in 1647 the parish officers of St. Margaret's, Westminster, were fined for decorating their church with Rosemary and Bays, and allowing preaching therein on New Year's Day. Yet even if the custom of Christmas decorating be pagan in its origin there is no reason why it should not have been adopted by Christians, in accordance with the general and common-sense principle which authorises the retention of practices which in themselves are harmless, and often very beautiful. We see this exemplified in the adaptation of so much of the Jewish ritual to the requirements of the Roman Catholic Church, just as the Established Church in this country has retained many of the usages and customs of the latter, in spite of the changes brought in at the Reformation. It is but the same principle as that which prompted the remark which has been attributed to Rowland Hill and others with regard to church music, that there was no reason why the devil should have all the best tunes.

The Holly finds a mention in many Christmas carols, both new and old. An instance of the latter is the familiar one from the Harleian MSS., written in the reign of Henry VI., which is mainly in praise of the shrub and its "berrys as red as any Rose." Even more quaint, and less generally quoted in our Christmas books, is the traditional one which begins and ends with the verse—

"The Holly and the Ivy
Now both are full well grown ;
Of all the trees that are in the wood
The Holly bears the crown :"

and has for chorus to each verse the lines—

"O the rising of the sun,
The running of the deer,
The playing of the merry organ,
Sweet singing of the choir."

There is little doubt that the name of the tree is a corruption of holy, indeed it is so spelt by Turner and other of our early writers, and probably owes its name to its employment at Christmas—a supposition which is borne out by the name Christdorn, by which it is known in Germany, as well as those of Christorn or Christtorn, by which it is called in Denmark and Sweden respectively. Among ourselves it is often called Christmas, and this reminds us of a very different tree, the Ceratopetalum gummiferum of New South Wales, which is named by the colonists Christmas tree, and employed by them in decorating their houses for this festival. During the last two or three years an addition has been made to our Christmas decorations in the shape of what is advertised as "Wagga-Wagga Holly." It will be remembered that when Cuvier heard a lobster defined as "a scarlet fish that walks backwards," he said that the definition was perfectly correct, with three trifling exceptions :—1st, it was not scarlet ; 2d, it was not a fish ; 3d, it did not walk backwards. We may adapt this witticism to the plant in question, inasmuch as it is not a Holly, and does not come from Wagga-Wagga. We must look nearer home

for our supply of this very beautiful fruit, which is that of the Gladwyn, or Stinking Iris (Iris fœtidissima). We have seen it advertised also as "Tichborne's," from which it is evident that it owes its previously-quoted name to some imaginary connection with "the unfortunate nobleman now languishing in Dartmoor."

Holly berries, however, although the most conspicuous, are not the most important of Christmas berries, at any rate in the opinion of young folks in general; that place would be given by them to the Mistleto, on account of certain tender associations connected with it which will need no further introduction to our readers. So familiar indeed are they, as well as other legends and poetical allusions, that we shall make no apology for passing the Mistleto by with this slight notice. Its absence in church decoration has often been remarked upon, and is no doubt owing to its former association with Druidic rites.

Ivy is another important adjunct to Christmas decorations, though, perhaps, not so much on account of its "berys as black as any Slo," as because of its foliage in its varied forms and hues. Few things are more graceful than the Ivy wreaths as they lie along our hedge banks, or twine up the woodland trees, and few plants lend themselves more willingly to decorative purposes of all kinds, if the decorators will only select suitable sprays for the purpose they have in view. Well-formed bunches of Ivy berries are very effective as a contrast with the brighter hue of the Holly, "as red as any Rose;" and they are sometimes rendered more so by being dipped in melted sealing-wax, although the principle involved in such a practice is not perhaps a correct one. These dark black berries form the food of many a bird—

"Ther com the oule and ete hym as she goo;"

and the blackcap is particularly fond of them. They were not without their "vertues" in former days, when every plant and almost every part of a plant was credited with them, and were esteemed especially efficacious against toothache. To cure this most trying and too common complaint, "boyle five Ivie berries with oile of Roses in the rynde of a Pomegranate, and put it into the eare of the contrary side to that which the toothach is on;" or "boyle the berries and leaves in wine, and hold it often in thy mouth to take away the ache, or boyle Ivy and ginger in wine, and hold it in thy mouth, and rub thy teeth with the ginger;" and many other modes of employment are given into which it is unnecesary to enter.

Holly, Ivy, Mistleto—these are our chief Christmas berries, and a beautiful trio they are. Others, such as the Pyracantha, are occasionally employed; but they are not so generally recognised as accompaniments of the Christmas feast. *B. M.*

New Garden Plants.

CYPRIPEDIUM MARSHALLIANUM, *n. hyb.**

This has much the shape of Cypripedium concolor of the Rev. T. Parish. The leaves are very comparable to those of that species. They are mottled with dark green hieroglyphs on lighter green, and on the under side there are innumerable small reddish-brown spots. The blooms have a longer stalk, and are greater than those of C. concolor, rather like those of C. pardinum, Rchb. f., but much rounder, thus reminding one of the first-named species. The general colour of the flower is light yellowish green. The elliptic upper sepal has the inferior halves of the fifteen nerves port-wine colour. This looks very odd, and would appear to be a rather rare influence when developed in such an abrupt manner. When writing those lines, a single, though far more flagrant case, comes to mind—that of my Telipogon (semipictus). The inferior sepal is decidedly light greenish yellow, but I am not well entitled to speak about it, since the specimen at hand has two lateral sepals. (Such a monster of Cypripedium Lowei, Lindl., is represented in Van Houtte's *Flore des Serres*, iv. 375, and made such an impression on a certain Oriental botanist that he took it as a new genus, and could scarcely be prevented by me from naming it Nicolaius imperialis, in honour of his Majesty the Czar Nicholas.) The petals are rather broad, blunt acute, yellowish green, with a rich reddish hue over all the surface, except the centre, and with beautiful rows of blackish spots over the twenty-three nerves. The lip is nearly cut like that of C. pardinum, but it has the sharp inflexed semi-sigmoid lobes of C. concolor. Its colour is greenish yellow, with very numerous black-purplish spots around its mouth. The staminode is transverse, like that of C. pardinum, but in lieu of being emarginate it has a projecting middle tooth like C. concolor. The keeled bract is much shorter than the hairy ovary. Outside the flower is simply greenish yellow. It is a lovely flower, with unusually clear colours for a Cypripedium. It was raised by Mr. Seden, and has just flowered at the Royal Exotic Nursery of Messrs. Veitch. It comes from C. concolor, Parish, and pardinum, Rchb. f. *H. G. Rchb. f.*

* *Cypripedium Marshallianum*, n. hyb.—C. concolor × pardinum. Coriifolia tessellata; pedunculo unifloro; sepalo summo elliptico acuto; sepalo inferiori triangulo apice?; tepalis ligulatis obtusis acutis porrectis; labelli angulis semifalcatis involutis ostio antico pluriangulato, sacco subconico; staminodio transverso postice emarginato, antice trifido, dente medio acuto, dentibus lateralibus semifalcatis. Flos flavido-viridulus; sepalum impar nervis dimidio inferiori atropurpureis; sepalum laterale viridiflavum; tepala viridiflava purpureo-lavata seriebus punctorum numerosis; labellum viridiflavum ostio plurimi-punctato; staminodium utrinque disco viridi-nervi.

THE MISTLETO.

ON the eve of his eighty-sixth birthday Mr. Edward Jesse wrote a letter to the Editor of the *Gentleman's Magazine*, containing a list of the trees on which the Mistleto had been found. He mentions a specimen on an Oak near Godalming, and others on the same tree in the parish of Gorke, Monmouthshire, at St. Dial's in the same county, and in the neighbourhood of Usk. He had seen specimens on a Horse Chestnut tree in Bushy Park, on a Wych Elm in the Wilderness of Hampton Court Palace, on a Mountain Ash in Hampton Court Park, on a Maple (Acer Opalus) in Bushy Park, on the common Maple (Acer campestre) in Richmond Park, on the Red Swamp Maple (Acer rubrum) near the Ranger's house, Bushy Park; on the Acacia in the Home Park, Windsor, and in the Studhouse Grounds, Hampton Park; on the Laburnum in Hampton Court Gardens, and on the slopes of Windsor Home Park. It is common on the White Poplar all around Windsor, and was found on the Black Poplar at Sutton Place, Surrey, and between Usk and Caerleon, Monmouthshire. Mr. Jesse received a specimen of Mistleto found on the common Hazel at Godalming. It was found on the same tree at Malverley, Shropshire, and on the White Beam (Pyrus Aria) at Cobham, Kent, near the churchyard; on the large-leaved Sallow (Salix caprea) at Wood Rising, Norfolk; in the garden of the Rev. A. Roberts, on the Locust tree (Robinia Pseud-Acacia) at Ampthill, Bedfordshire, and in the Stud-house Grounds, Hampton Court; on the Larch at Cold Weston, Shropshire; on the Ash (on the authority of the Rev. J. Herbert) in Monmouthshire; on the Service (Pyrus domestica), according to Dr. Hooper; on the Hornbeam, according to Dr. Hooper; on the Elm in Monmouthshire, and at Strensham Court, Worcestershire; and on the common Laurel, on authority which Mr. Jesse could rely upon.

In the neighbourhood of Guildford, lately, I observed the Mistleto in great abundance on Lime trees at Losely Park and other places, and in some districts it grows more freely on that tree than on any other. A gentleman who knows the Weald well informs me that the only specimen he had seen on the Oak was at Burningfold Farm, Dunsfold, Surrey.

It has been said, on good authority, that this parasite has been found on the Spruce Fir in France [we can confirm this so far as Switzerland is concerned. EDS.], on the Vine in Italy, and even on the Loranthus europæus, a parasite of the same natural order.

In France the Mistleto grows on the Oak even more rarely than in England. De Candolle found it in France on the Lombardy Poplar, the Walnut, common Plum, and Medlar, and mentioned it as growing on the Spruce Fir and Ash. Mr. Loudon observed it, in 1814, on the Scotch Fir, in the neighbourhood of Magdeburg, in immense quantities, and says that it grows upon the Olive in Spain and near Jerusalem, but not in France. He had it on the Cherry in his garden at Bayswater, and observes, in his *Encyclopædia of Trees and Shrubs*, that it would be difficult to say on what dicotyledonous trees it will not grow. The usual agent of propagation is the missel thrush, which sometimes leaves the berries sticking to the branch of a tree on which it has rubbed its beak after a meal of Mistleto berries. The seeds will germinate on the smooth bark and root into it in the spring, if they have been fecundated by the proximity of a male plant. Some berries were stuck on the upright trunk of a Cherry in March, and on May 20 the seeds had germinated, and the radicles were already laying hold of their support.

I once found a bit of Mistleto on a stunted old Whitethorn, which the cattle had rubbed against for some years and nearly destroyed at last. Neither the Mistleto nor its foster-parent were thriving, and I felt no compunction in sacrificing them both—in dissecting out, so far as the patience and pocket-knife of a school-boy would admit, the roots or feeding filaments of the parasite. I remember that a root growth, belonging apparently to the Mistleto, but united organically with the parent, extended many yards up and down the limb. When the radicle of the seed, planted perhaps by a missel-thrush before the invention of gunpowder—since this parasite lives to a great age—had pushed through the bark of the Thorn tree into the cambium layer where the absorption of nutriment takes place, an extension of the absorbing vessels had occurred, and they had afterwards become embedded in the wood by the growth of the limb on which the plant was fixed.

The Mistleto may be grafted as well as propagated by seed. It has been successfully grafted on the Apple, Pear, Poplar, and Willow. The grafts should be inserted early in May, between 5 feet and 10 feet from the ground, by means of an incision in the bark, into which a scion of Mistleto, with a bud and leaf, should be inserted. The plant, grafted on parent stocks growing in pots, would be an object of interest, blended with the Holly-berry in winter decorations. It has not hitherto been used in churches, I believe, but it might be so, since every winter berry is precious, and the Mistleto has ceased to be of evil omen, and no longer excites prejudice as a plant devoted to superstitious observances. It is, moreover, a native English evergreen. *H. Evershed.*

ROSES IN POTS.

THE photograph of the pot Rose (H.C.) Charles Lawson, from which the accompanying woodcut (fig. 161) is so accurately copied, was taken just previous to the plant being sent off to the Manchester show last Whitsuntide. The group of which it formed part we considered the finest we had grown, and the thirteen plants occupied in transit two large railway trucks, which they thoroughly filled.

The *Gardeners' Chronicle* at the time commended this, and the competing group of Mr. Turner, which together were considered by practical judges to be the most highly cultivated groups of pot Roses ever shown.

This plant was thirteen years ago one of a lot exhibited in 8-inch pots at one of the spring shows. Year by year it grew in size of plant and of pot, from a 9-inch to a 10-inch pot, and for which size there was then a class with prizes. It was 7½ feet by 5½ feet in diameter, and 4 to 5 feet high. Gradually it attained the size now necessary for a specimen, this season reaching its fullest perfection, not only of size, but of rich leafage and fine well-formed flowers—the two latter the highest points of excellence in judging pot Roses.

It should be stated that more than one of its companion plants, as large or larger, are much younger than this, the rounded somewhat flat-topped shape of the plants requiring one or two years more than the upright pyramidal shaped plants to become furnished thoroughly with branches. Such shape is, however, the most effective for conservatory decoration as enabling more flowers to be displayed; the shoots being nearly all of the same length, a more even habit of growth is encouraged, and the flowers are of more equal size and come more regularly together than when a plant has a central or leading shoot towering above the others. For the same reason plants of this shape remain for some years in a free growing healthy condition. The admirable paper of Mr. J. W. Moorman, of Coombe Bank, published at p. 648 of your journal, describes well the simple common *sum rationale* of the modern culture of pot Roses. We should only differ in pruning the plants earlier, and allowing the Roses after pruning longer time to break before shutting up close, and one or two trifling details on the value of which the best growers differ.

In growing these large specimens great care is necessary to maintain in free health the older and less vigorous plants. There is, too, a not unreasonable dislike to increase the difficulties of moving such plants by giving the larger pot room which all free year by year larger growing specimens require. *Paul & Son, The "Old" Nurseries, Cheshunt, N.*

COVENT GARDEN AT CHRISTMAS.

To those who are in any way connected with or fond of gardening pursuits, a visit to Covent Garden Market is always a source of interest. It is one of the sights of London, which few gardeners who visit the Metropolis fail to avail themselves of, and which at all times may be seen alike with pleasure and advantage. To an individual of inquiring mind to see anything relating to pursuits in which he is engaged well done is to awaken a spirit of inquiry as to how it is done. This does not so much apply to

the different kinds of garden produce forthcoming in its usual season, but to that which is to be here always seen when most rare and out of its natural season. For there is no disguising the fact that the majority of people with means think quite as much, if not more, of rarities than they do of things that are produced nearer their natural time. That this kind of feeling is on the increase, and likely to continue, is evident; it is a circumstance that it behoves gardeners not to lose sight of. In addition to the finest productions of the kingdom, there may always be seen in Covent Garden the produce of every country accessible to the enterprise of those whose business it is to cater for the requirements of people who are always willing to pay a high price for rarities, and at no time are there greater efforts made to secure every thing possible than at Christmas. The immense quantities of produce that are brought to this market at all times of the year cannot be realised by those who are not personally acquainted with it, and at this festive season it, as might be supposed, it is greater than ordinary.

Amongst fruits English Grapes, as they always do, hold the first position; there are still some Muscats—the examples of late keeping kinds, such as Black Alicante, Lady Downe's, and Gros Colman, are as fine as it is possible to conceive, large in berry and faultless in colour, the bunches moderate in size. At no season of the year are large bunches held in estimation, perfection of finish being here the standard. Of foreign Grapes there are immense quantities, but there does not appear to be any improvement in their quality, the length of time most of them are cut before ripe prevents the possibility of their being otherwise than very inferior. Even the best looking of them, the Hamburghs, that now make their appearance each autumn, are almost as sour as vinegar.

Of English Pines there are some splendid fruit, but in these the St. Michael's productions are seriously affecting the home growers; the size and general condition of these Pines is such as to make them at this time of the year preferred by the dealers to home-grown fruit. Perfectly sound and light in colour at the core, sufficiently ripe before they are cut, and packed singly in the little crates, so as not to have a pip bruised, they are both fine in appearance and good in quality. Smooth Cayenne seems to be a great favourite with the St. Michael's growers. There are also in plenty those green-looking Spanish Melons, not very inviting in appearance, but sometimes better than they look.

Pears are very fine, and produced in large quantities: the finest looking are from the Channel Islands. At present they consist principally of Glou Morçeau, very large, and Easter Beurré. Some varieties of these foreign Pears ripen much before our home-grown. There is also, as usual, some of the immense cooking Pear, Uvedale's St. Germain, almost as large as moderate-sized Swede Turnips, and offered at the moderate price of £30 a dozen! We likewise saw examples of this variety, grown in the West of England, that weighed 3 lb. each, differing little in general appearance from the Jersey fruit, but not so highly coloured. The best English Pears are Glou Morçeau and Winter Nelis, the latter still unsurpassed in quality by any Pear ripe at the close of the year.

Home-grown Pears are coming in much earlier this season than usual; this is always the case after a wet summer; neither have they in general been so fine in flavour as after a warm, dry season, which, from the extra quantity of saccharine matter stored up in them, extends their keeping powers as well as improves both flavour and texture.

Foreign Apples are represented by American New Town Pippins and French Calville Blanche, the latter very large. As might be supposed, from the plentiful crops, English Apples are abundant, the finest-looking being Hollandbury Pippin and Blenheim Pippin. There are also some very fine Russets in, and the highly-coloured American little Lady Apple. It may be worthy of remark that nothing for culinary purposes appears in such general demand, or commands so high a price, as Blenheim and Wellington (Dumelow's Seedling).

Amongst specialities we may mention are West Indian Bananas (the fruit of Musa Cavendishii and M. sapientum), but these are not equal to home-grown examples when the fruit has had time to ripen before being cut. From the same source are also Custard Apples (the produce of Anona squamosa); Citrons of different varieties, and immense size, some almost as large as moderate sized Melons. Then there is the singular looking Prickly Pear, which is not a Pear at all, but the fruit of Cactus Opuntia. We noticed likewise a splendid basket of the fruit of Passiflora quadrangularis.

Fruits of all kinds that are consigned to the numerous salesmen are sold by auction, and the rapidity with which the lots are knocked down, even when they represent considerable sums, would surprise any one who has not seen such sales, and who is not acquainted with the business that has to be got through in little time.

Amongst the foreign productions in the vegetable department are French Asparagus, crisp Lettuce, and small Olive-shaped Radishes, the latter quite true to its kind—not the thick, tap-rooted, coarse strain, generally sold here for this best of all Radishes. Horseradish is sent from Holland, in quantities; it is evenly grown and moderate in size, but not equal to that which is produced by the market gardeners in the North of England, who make a speciality of this root. In reference to that most important of all culinary vegetables, the Potato, it is evident that the introduction of the coarse American varieties to this country has been a positive infliction upon consumers who have not the means of growing their own. The weight of crop that these will produce has induced growers to go into them to such an extent that with them and the Continental sorts up to the present time the market might be traversed from one end to the other and few samples of good English kinds met with. No doubt later on Scotch, Yorkshire, and Lincolnshire Regents and Victorias will make their appearance, but all through the autumn the general complaint has been that to meet with a good Potato in London was an exception.

For that indispensable Christmas decorative plant, Mistleto, there has been, as usual, a great demand; scores of tons have been brought by rail. Holly, which like most other trees and shrubs is this year more than usually laden with its berries, is here in such quantities as would lead to the supposition that the produce of whole districts must have been cleared. Waggon loads by the hundred have been brought in piled up above the sides like loads of hay. This and the Mistleto are the most in demand.

Christmas trees (mostly Spruce) there are in untold quantities, from the small plants in 8-inch pots up to

FIG. 161.—SPECIMEN POT ROSE (SEE P. 804).

such as have attained the dimensions of moderate-sized trees. Amongst flowering plants the most in demand are Poinsettias, Cyclamens, Early Van Thol Tulips, Richardias, small Azaleas, Bouvardias, Erica hiemalis and E. gracilis, Epiphyllums, Mignonette, Lily of the Valley, Primulas, and Roman Hyacinths, berry-bearing Solanums, Veronicas, Cyperus, Dracæna terminalis, D. viridis and D. Cooperi, Ficus elastica, Myrtles, Euonymus, green and variegated, Tree Box, Laurustinus, Cupressus Lawsoniana, Thujas, Ferns—principally Adiantum cuneatum and formosum, and Pteris cretica albo-lineata; and Palms—Latania borbonica in a small state being a favourite. Cut flowers consist principally of Camellias, Tea Rose buds, Lily of the Valley, white French Lilac, Eucharis amazonica, Gardenias, Epiphyllums, Cyclamens, Violets, scarlet Pelargoniums, Narcissus, Roman Hyacinths, Bouvardias, red and white Primulas, and the following Orchids—Phalænopsis, Dendrobium formosum and D. moniliforme, Lycaste Skinneri, Cypripedium insigne, Calanthe vestita, C. Veitchii, Oncidiums, and Odontoglossum Alexandræ. Ferns for bouquets are mainly Adiantum cuneatum and Pteris serrulata.

In gardens generally throughout the country the requirements in the shape of cut flowers have greatly increased, especially in the winter season; the selection of subjects, growth of the plants, and treatment in bringing them into bloom so as to produce their flowers in a condition that they will stand as long as possible when cut, form at the present day a very important part of the gardener's duties. There is no better school than Covent Garden Market wherein to learn what to grow for this purpose, or than in the market growing establishments how to grow them. The grower for market has to study closely what plants will answer the requirements of his purchasers, and it is equally imperative upon him to produce their flowers in the best condition. The man whose fronds of Adiantum cuneatum and Pteris serrulata shrivel up when exposed to the air, or whose flowers droop when subject to similar influences, would very soon find that he had no purchasers, no matter how fresh his productions were at first sight. To have forced flowers of many things as early as it is possible to get them, yet with the ability to stand as required for market, needs considerable practice and close observation of the nature of the plants grown.

As to the market itself, the less said the better. So far as meeting the requirements of the present day, it is simply deficient in every way. It is mean in appearance. At no time in the year is it nearly adequate in size, and through the London season this deficiency is almost intolerable to both buyers and sellers. On such occasions as Christmas quantities of produce can never get in at all, but has to stand in the streets leading to it. Of the fruiterers and greeengrocers who come to purchase not one in a hundred even attempt to get their vans or carts inside, but leave them in the streets.

On Saturday last, at 5 o'clock in the morning, all the streets—east, west, north, and south—leading to the market (in several cases for over a quarter of a mile), and the numerous cross streets connecting these, were jammed full with a double row of vehicles down the middle, leaving a narrow passage on each side, which in turning round the horses often necessitates coming right on to the footpath. It may very naturally be asked, how are the thousands of tons of produce got out of the market into the purchasers' vehicles? It is carried by an army of porters, numerous enough to throw up earthworks round a beleaguered city of considerable extent, and the way these men thread their way with the loads they carry through the mass of human beings is a perfect marvel. This market might have been large enough to meet the requirements of half a century ago. At the present time we question if there is a place in Europe devoted to the sale of commodities of any description so ridiculously out of proportion to what is required. In appearance and every necessary convenience it is a disgrace alike to the richest city in the world, and to those who pocket the high rents paid by those who are compelled to put up with it.

ORIGIN OF THE AURICULA.

IF any English horticulturist were asked the parent form of the garden Auricula, we presume he would answer without hesitation—Primula Auricula, Linn., the glory of the Southern Alps when first the sun's warm rays compel the snow in the earliest spring to retreat from the exposed mountain rocks. But in this, as so many other points, it seems as if we should be compelled to modify long-held opinions. In a most interesting pamphlet, entitled *Die Geschichte der Aurikel*, reprinted from the *Proceedings* of the *Deutscher und Osterreichischer Alpenverein*," Professor Kerner, of Innsbrück, recently appointed to succeed the veteran Fenzl, at Vienna, gives a full and detailed account of the introduction of this favourite flower into the gardens of Europe.

Towards the close of the sixteenth century the wonderful beauty of the alpine flora appears first to have attracted the attention of plant growers in the West of Europe. Even at that time many of the most striking of these—Primula Clusiana, P. Auricula, P. farinosa, Anemone Hepatica, Adonis vernalis, Cypripedium Calceolus, Daphne Cneorum, and others—were freely sold in the market at Vienna, and were cultivated in the gardens of that and other neighbouring towns. The summits, precipices, and ravines were also then visited by foreign botanists, who for the first time investigated the alpine flora, especially Pona of Verona, Kamerer (Camerarius) of Nürnberg, but especially by the great Belgian botanist De l'Escluse* (Clusius), who lived for some years (1573—1587) at Vienna, and during that time scaled many of the alpine peaks of Carinthia, Styria, and the Tyrol, in search of floral treasures, which he transferred to his garden in the Austrian capital.

For the genus Primula Clusius had a special affection. The three English lowland species, P. veris, P. vulgaris, and P. elatior, were then commonly cultivated in gardens, as well as the hybrid Polyanthus under the name Primula anglica; and he endeavoured to naturalise in his garden a considerable number of the alpine species, especially P. Auricula and P. glutinosa. To the whole of these species so introduced he gave the name "Auricula Ursi," from a supposed resemblance in the shape of the leaves to that of the ear of a bear—a name subsequently corrupted into the local designation, "Sanikel"—distinguishing each of the varieties or species by separate numbers. Of all these transplanted species Clusius finally succeeded in naturalising only two, the Auricula Ursi I., or Primula Auricula, Linn., and the Auricula Ursi II., or Primula pubescens, Jacq., roots of which he transmitted to his friend Van der Dilft in Belgium, whence they spread over Germany, and were known at Strasburg in 1595; and by the middle of the following century had come into general cultivation throughout continental Europe and England. Of these two Auriculas, however, the P. Auricula, Linn., being a true species, showed but little tendency to variation, was comparatively neglected, and in time died almost entirely out of cultivation; while P. pubescens, Jacq., which is shown by Kerner to be a natural hybrid between P. Auricula and P. hirsuta, All., gave birth to a great series of varieties, the English, or farinose, and the Dutch strains being especially distinct; and by the close of the seventeenth century had become one of the most valued of all cultivated plants. The name Auricula did not originate with Clusius, but is used by Matthioli in 1555, and even by earlier writers.

The history of Primula pubescens, Jacq., the ancestor of our garden Auriculas, is then investigated. In his *Historia Plantarum*, published in 1601, Clusius states that he has in vain sought for his Auricula Ursi II. on the Austrian and Styrian alps, and that he first saw it in the garden of his friend Professor Aichholtz at Vienna; but subsequently records his delight at gathering it in the neighbourhood of Innsbrück. For two centuries after this it was sought for in vain by many botanists in its native habitat. Between 1774 and 1794 it was again found in the Tyrol by Wulfen, but only in the gardens of peasants, who asserted that they obtained it from the neighbouring mountains. Wulfen forwarded the plant to Jacquin, who described it in his *Miscellanies*, i. 158, t. 18, as a species, under the name Primula pubescens, which it has since retained. In 1867 Professor Kerner himself re-discovered the P. pubescens apparently in its original habitat, near Innsbrück, in a chasm known as the Hematkehl, near the village of Gschnitz. There occur in this neighbourhood alternations of dolomitic limestone and slate, and consequently of the two parent species of the hybrid, P. Auricula and hirsuta, which are partial to these two different geological formations. Other habitats of a precisely similar character were afterwards discovered.

This then appears to be the history of the cultivated Auricula, which is stated in conclusion by Professor Kerner to be, as far as he knows, the only alpine plant which has, in the course of time, come into general cultivation in the gardens of the rest of Europe. *A. W. B.*

* This is the spelling of his name adopted by Clusius' biographer, Morren.

FRUIT FARMING IN WORCESTERSHIRE.

WORCESTERSHIRE is well-known to be one of the largest fruit-producing counties in England. Such being the case, it will not be without interest to glance at the system of culture, if system it can be called, most generally adopted. In very many instances much is left to chance, the surface being seeded down with a raw hungry turf. Chance selection of site, with not unfrequently unsuitable soil, is by no means an unusual occurrence, as witness the miserable, decrepid, hide-bound objects covered with lichen, barely out of their teens, we frequently see. These, doubtless, tend to show that the plants lack those conditions favourable for the activity and development of their roots. At the same time the soil may not be originally deficient in nutriment, if those mechanical conditions, such as drainage and deep cultivation, which impart fertility, were extended to it. Yet, with so much enlightenment as now exists upon the best methods of culture and improved appliances, there are those who do not avail themselves of anything in the shape of fostering tillage, as is most assuredly evinced by the state of those orchards, which, from neglect and mismanagement, appear as if they belonged to nobody. There is, in fact, seldom any preparatory working up of the soil previous to planting, further than ploughing over the surface; and without the subsoil is naturally of a deep rich mellow nature but little chance is afforded for trees so planted to succeed. This is by no means an unusual procedure in the management of orchards. Their condition nevertheless is one of general interest to the farmers, to whom these remarks more immediately apply; for the superior excellence of the fruit adds greatly to its marketable value, and even for cider manufacture for home consumption large quantities of superior Apples are annually in demand on account of their yielding the greatest quantity of juice.

Such being the case, let us consider the advantages to be derived from a higher state of culture. In point of management few plants in cultivation are more pliable than the Apple and Pear. A deep alluvial soil of medium texture—that is, neither too light nor yet containing much clay—is the soil for the Apple, Pear, and Plum, as well as for the majority of fruits, so that in choosing a site for an orchard this important feature must not be lost sight of. Such a soil naturally contains within itself the requisite elements of fertility essential to successful and permanent development, with the least possible expense in preparation and management. In the next place situation and shelter is of great importance. We find very fruitful and satisfactory orchards upon flat table-land, but doubtless the best position is one gently inclining to the south, south-east, or south-west. A low situation is to be avoided if possible, for although the staple soil in valleys is rich in the elements of nutrition, and trees generally attain large dimensions with occasional heavy crops, spring frosts, from which the blossoms suffer so much, any far more destructive in low-lying localities.

Natural shelter should always be taken advantage of when this can be done consistently with the other arrangements. That which protects from the north, north-east, and north-west, is the most requisite; at the same time, while we break the force of the wind from the more exposed points by means of planting, such shelters should not be so near at hand as to obscure light and sun.

As every cultivator recognises the advantages derivable from the mechanical and physical condition of the soil, which exercises such important influence on vegetation, it is necessary that those requisite conditions should, as far as possible, be imparted to the subsoil, and a ready means of escape for bottom-water by an efficient system of drainage must be secured. The drains should be from 4 to 5 feet in depth, as the roots of Apples and Pears more particularly penetrate deep in the underlying soil, searching for nutriment; and as downwards is the natural tendency of the roots, the soil should be worked over from 2½ to 3 feet in depth, for by thoroughly stirring up the soil we encompass an unfailing store of nourishment, which is requisite, more particularly in seasons of prolonged drought, to insure the maturity of the fruit. This lack of sustenance and moisture is frequently most disastrous upon light hungry lands and shallow surface soils upon bad subsoils, the trees being incapable of maturing their fruit, and canker and general constitutional derangement affecting their branches. In the case of soils where the surface is good but the subsoil sterile, the underlying stratum should be worked over for some depth, yet by no means should the raw, worthless soil be brought uppermost. The depth and fertility of such soils may be greatly improved, when it becomes necessary to plant upon them, by adding a substantial loam.

As regards planting, which operation is best done early in autumn, it is advantageous to surround the roots with some fresh pasture turfs, to which the roots cling, and they have a tendency to multiply the roots near to the surface. Plant firmly, and at once securely stake, mulching over the surface with manure. Never plant upon hills, as some advise, as it presents a slovenly appearance, and tends to no good purpose, since the roots are not retained upon the surface by any such means. Periodical manuring, that is when the trees require it, is much to be preferred to the mode of working in a large quantity of manure at the time of planting, which has a tendency to encourage an undue exuberance of growth when

it is least required. Orchards planted with standard Apple and Pear trees should always be kept under cultivation, as from their improved condition of the fruit they amply repay the labour—to say nothing of the surface-crop. By keeping the soil porous and frequently stirred we greatly improve the temperature, there is no stagnant water, the warm rains penetrate it freely and feed the roots, exercising a wonderful influence on the health and quality of the fruit. In proof of this, let us look at the fine trees that are grown upon arable land, with stems and branches clear and healthy—veritable veterans in themselves, which carry their tons of fruit.

Doubtless there are numerous orchards which are laid down with grass and neglected, but which, by manuring and working up for a season or two, would be greatly invigorated, and brought from comparative barrenness to supply valuable fruit. There is no question that the rejuvenating of old fruit trees is a point which merits a greater share of attention than it receives, the fruit invariably being of superior quality. Such standard trees as I refer to should never be too severely pruned, for by doing so we encourage a useless multiplication of shoots, and as the roots are allowed to extend at will, we at the same time repress the formation of fruit-buds. There is no doubt that the knife is often wielded with merciless severity, whereas we should simply cut back to form the head in proper proportion when young, and afterwards thin out superabundant branches only. Thus with a favourable climate, fertile soil, and appropriate aspect, adding such fertilising elements as may be requisite, and keeping the soil thoroughly stirred, we may insure a vast improvement in the aspect of our fruit farming. In offering these comments as to management, I hope it may clearly be understood that there is no wish on my part to cast a doubt upon the skill of those who so ably manage the meritorious examples of superior cultivation we incidentally meet with. *George Westland, Witley Court.*

OBSERVATIONS ON ERGOT.

By A. Stephen Wilson, of North Kinmundy.*

(*Concluded from p.* 775.)

Relation to Climate.

It will now be seen that as the spores which produce ergot are thrown out copiously in bright, warm weather, and are carried by the air, lifted up from the damp places where they grow, by atmospheric motions caused by ascending vapour, a dry season at the time of sporing is favourable to the production of ergot. Damp weather is necessary for the ripening of the Claviceps, and dry weather for the dissemination of the spores. But a whole season is not involved; a bright day now and then, while the grasses are opening and these sphæri sporing, is sufficient for the production of ergot. The notion that a wet season is requisite to the development of ergot has perhaps usually contained the implication that ergot is a disease, or a kind of rotting of the grass ovary. It is neither the one nor the other, but the first form of a parasitic plant.

That there may be a large crop of ergot in any year, it is necessary that a considerable quantity of ergot should retain its vitality from the previous autumn; but, although in July and August there may be numerous spores in the atmosphere, yet, if the season has not been sufficiently damp to make the grasses tiller and throw up late spikes, there will be fewer florets to be ergotised. A season which is at once favourable to the Claviceps, and to the production of late-flowering grasses is, in this country, demanded for the largest development of ergot; but the quantity of ergot which may be gathered almost any autumn on the various grasses in Scotland, would probably be equal to the home demand. The smaller ergots are more compact and less fractured than those of cereal Rye, and contain fewer of the eggs of flies, and would probably better preserve whatever qualities they possess. If these smaller ergots have not been tested in medical practice, they seem to be worth a trial.

* Read at the December meeting of the Botanical Society of Edinburgh.

Various Forms of Ergot.

The form and size of the ergot of each grass are peculiar to that grass. It would be easy to tell that this ergot grew upon Nardus stricta, and that upon Anthoxanthum. The heavier spurs on Rye weigh from 3 to 5 grains, coming up to ten times the weight of the Rye kernel. But many ergots on Rye and other grasses do not project beyond the pales, nor show themselves to a cursory inspection. The weight of a kernal of Vernal-grass is .011 of a grain. The weight of the ergot of this grass is sometimes, even when very dry, .4 of a grain, or 36 times the weight of the kernel. The seed of Glyceria fluitans weighs .036 of a grain, while its ergot will sometimes weigh 1.02 grains, being twenty-eight times the weight of the ripe seed. On Poa pratensis the ergot is about one-hundredth of a grain in weight.

Mode of Action.

The ergotising of a grass floret takes place at or a little after the time of fertilising. It has been stated that the ergot often carries on its apex a cap formed of the agglutinated anthers and stigmas. This would imply that ergotising may take place before fertilising; because the moment that fertilisation takes place, the anthers are pushed up by the filaments beyond the possibility of ever being involved in the ergot. The filaments are usually longer than ever the ergot grows, and the anthers are usually broken off before the ergot emerges from between the pales. That the stigmas are sometimes involved there can be no doubt; but I have never seen a case in which the anthers were

Fig. 162.—Garden in the Scilly Isles.

retained. In many cases there is a contracted grey point on the mature ergot, having the appearance of agglutinated anthers; but if these ergots are observed at an early stage when they are only just coming from between the pales, and are still a soft white mass, nothing like anthers or stigmas project from the apex. The contracted points shrivel up, apparently because they are not fully injected with spermatia.

Soon after the spore has planted itself in whatever part of the floret it selects or falls on, the glitter of a fluid on the pales points out where the young ergot is in deadly conflict with the living cells of the ovule. Gradually the fluid increases to a drop and a "blob." At the bottom of this blob a deposit of spermatia accumulates, exuded from the growing ergot. But it seems a mistake to suppose that the fluid also is exuded from the ergot. The quantity is so large and continuous that absorption from the air seems the true explanation.

On Artificial Ergotising.

Some spikes of newly flowered Rye were inserted and turned round and round in a test tube containing many ripe heads from the ergot of Glyceria fluitans. Probably thus inoculated in a few days drops begin to appear. The ears were then tied to a stake and inserted in a clear bottle, through the neck, with the bottom partly out. This protected the ears from wind and rain, and so allowed the drops to attain their full size before being carried down by gravity. They were collected, however, every morning with a dropping tube and put into a small phial.

It is stated by Mr. Carruthers that the striking of one ergoted ear in the early stage upon another will communicate the disease, and that this has been experimentally tested by Bonorden and confirmed by Rose. In this operation I have not yet been successful, although carrying part of a drop to newly fertilised flowers none of them were egotised. If the matter of these drops is capable of producing ergot, why does it often happen that a single floret on the upper part of a spike is alone ergotised, the drop running down producing no effect on the lower florets?

Still I am not in a position to deny that the granule in these drops may be a vital spermatium. The drops on the spikes of Rye in my bottle were persistently visited by about six species of diptera, for which they seemed to have a great attraction, the strong smell of these drops bringing flies I had never observed in the place before. Other two spikes of Rye close beside, but not in the bottle, now showed drops upon them. Perhaps it is possible these had been inoculated by the flies. It would be altogether unwarranted to affirm that spermatia carried by the flies produced ergot. All that is yet certain is that the flies went constantly in at the neck of the bottle, or at the openings of the paper which covered the broken bottom, and sucked or drank part of the fluid on the ears. Three Barley florets which I had ergotised by applying the spores of the Claviceps of Glyceria fluitans, and which stood in the house in pots, were also, when in the fluid stage, constantly visited by the house-fly. During this time a fly fell dead on the paper before me, and others I found dead about the windows. I do not know that they died from the ergot fluid, I only know that they drank it. A question is thus opened bearing upon the facts of fungi in flies.

Two of the florets of Barley which were probably ergotised artificially, produced large spurs, while one which showed the drop for six or eight days seemed to have simply been killed without producing an ergot—suggesting the notion that possibly the production of an ergot requires a certain amount of growth in the grass embryo to give it that start which shall eventuate in a complete ergot. None of the spurs on the Rye in the bottle was of large size, although the blobs of fluid were enormous and renewed night after night as they were removed. Perhaps the removal of these every morning was inimical to the growth of the ergot. In various of the florets which produced drops, no ergot followed.

Several methods were tried of producing ergot. Little bits of the ripe heads of the fungus were placed on newly opened florets. In two cases these killed the ovule, producing red drops, but no ergot. In other cases the young embryo was thus killed without producing any drop or any ergot. Various Wheat embryos were killed, but no ergot produced. Probably the quantity of spores was too great, or the rotting of the bits of the fungus interfered with the expected result. I believe I succeeded in ergotising half a dozen florets of Glyceria fluitans with spores from its own Claviceps, on an isolated tuft, and on which there had not before been any ergot. Many florets were tried with the spermatia from the drops, and although in this case one can be quite sure that the granules are actually applied to the floret, no ergot was thus produced. Reserve is prudent in any assertion of artificial inoculation. I do not know in any case how certainty can be attained, that a floret which has had spores applied to it may not also have been naturally acted upon by sporules from the air. The grey matter or spermatia which exudes from the young ergot and runs down the spike, seems to give rise to fungi of the mould tribe; but I have not seen a case where it thus produced ergot.

In order to grow the Claviceps, the ergots may either be thrown upon earth in a saucer and half covered with withered leaves, watering occasionally, or be placed on a damp cloth between plates. Some of them will soon get covered with mould, and will never produce the Claviceps. Perhaps these are dead, for others close beside them will remain untouched by mould, black and shining, till they burst into a crop of the true fungus.

Is there More than One Species?

But the identity of ergot, says Berkeley (*Introduction to Cryptogamic Botany*, p. 282), with Cordyceps has been called in question by Cesati, because two species occur occasionally on the same kind of ergot, in deprecation of which, says Berkeley, it is very possible that the same grass may be ergotted by more than one Cordyceps; and even should a single ergot be found to produce two species at once, it is possible that the sporidia of the two species may have concurred in its production. The writer and others have submitted to Mr. Berkeley ergots with the Claviceps upon them, which he has found to be of the species not usually growing on these ergots—purpurea where it should have been microcephala, and the converse. The truth seems to be that there is only one species of ergot fungus. Tulasne's definition of purpurea includes a villous base. An ergot of Oat-grass is before me in which two stipes beside each other are very hairy at the base, while five others on the same spur are entirely without hairs.

Growth of the Ergot.

All through the winter below the rotting grass on which they grow the ergots lie black and free from mould, subject only to ants and other unpoisonable enemies, which scoop out cavities in them or bore holes through through them. Swarms of black ants I have seen visiting the ergot while it still remained on the grass. The least bit of an ergot will produce a fungus. The first sign of vitality is the rupturing of the black cuticle of the ergot. Generally the half-formed head pushes aside the black skin, and shows its whitish purple above the surface. The fungi grew out from all sides of an ergot, while the number which one ergot may produce is indefinite. Sometimes only one is produced; sometimes two, three, four, or other numbers. A home-grown Rye ergot produced twenty-three, all from one side—the upper side as it lay on the surface of the damp earth. In growing these thin-stalked fungi incline towards the light, perceiving very well through a plate, on which hand the window lies. The stems are of all lengths up to rather more than an inch and a half. Tulasne seems to have attained only a length of from 15 to 25 millimetres; some of mine have been 40 millimetres, and frequently they are longer and thicker on the ergot of Glyceria fluitans than on that of cereal Rye. Sometimes an amorphous mass grows up without stalk or head; sometimes the base of the stalk is villous, and sometimes bare on the same ergot. For the most part they grow solitary; sometimes two or three come out near each other, but the connection seems merely local. Certain points in the mass of mycelium composing the ergot are more vital than others, and at these points growth takes place, and probably withdraws vegetating force from points immediately around it. The fungi are of various sizes on the same ergot. The stipe is sometimes $\frac{1}{12}$ of an inch in diameter, and sometimes half as much or less. The heads where twenty-three grew together were about $\frac{1}{16}$ of an inch in diameter, and the stems about half as much. I have grown the Claviceps on the ergots of eleven species of grass (see appendix), and the most delicate of them is that on Aira cæspitosa; the head being $\frac{3}{100}$ and the stem $\frac{1}{100}$ of an inch in diameter, with a stalk rather less than half an inch in length.

Looking at hundreds of them growing naturally in the sides of a ditch, it is seen that various shades of colour characterise them; apparently referrible to age and exposure to light. The Claviceps which grows in a hole is less ruddy than that which grows from the ergot of the same grass on a ledge having less moisture and more light.

If, as some have conjectured, the spores were carried up the plant with the sap, no obvious reason exists why Wheat and Barley which are ergotisable grasses should not everywhere be as frequently ergotised as cereal Rye. But if the spore attacks the floret from the atmosphere, then the character of the floret will be a determining element in the frequency of inoculation.

Relation to Structure of Flower.

The structure of many grass florets and their mode of fertilisation render them specially liable to the floating spores of the ergot fungus. When a ripe floret opens for fertilisation, the feathery styles are thrown outside the pales on both hands, and are seldom retracted, while in many cases the pales remain slightly ajar after fertilisation has taken place. It is the same with many other grasses—some do not close again after opening for several hours, and in many the feathery stigmas remain permanently exposed till they wither off. In Vernal-grass the mode of fertilisation is peculiar; this grass (in the locality always referred to) never opens out its pales at all, the stigma is exposed before the corresponding anthers, and these anthers are pushed out from between the points of the closed pales. The part, therefore, of this highly ergotisable floret which is attacked would appear to be the upper end of the stigma or the styles. I have observed a very small fly, like the saw-fly, in great numbers, pushing out and in between the close pales of this grass, and it is possible that spores may be thus conveyed to the ovary. The pales of Glyceria fluitans open wide for fertilisation, while the feathery styles spread out on both sides. It is the same with others of the more ergotisable grasses.

In the Wheats again, and in most of the Barleys, the florets are open for a very short time and to a very slight extent, while the feathers are scarcely ever exposed outside the pales to the flying enemy. These grasses fertilise themselves and immediately shut their doors to intruders. It can hardly be, however, that mere mechanical exposure to the spores is all the explanation, because the exposure of the cultivated and wild Oats presents an open floret hanging downwards as if ready to be entered by any spores which may be rising on an eddy of vapour beneath them, and yet none of the Oats is ever ergotised; still, there is reason to suppose that greater mechanical exposure is a large part of the explanation of greater liability to ergot. The species of Bromus which grow here open very little for fertilisation, and soon close very tightly, and are never ergotised.

Effects Produced by the Ergot.

The question of the effects of ergot upon cattle does not fall to be here considered; besides, not a single fact bearing upon it has fallen under my notice.

But another question suggests itself: What is the effect of ergot upon the grasses? Of course, one immediate effect is, to prevent the growth and ripening of a certain proportion of the seeds, and thus to hinder the seminal propagation of the plant; but it is a fact that the ripening of the seeds and culms of the cereal grasses tends to make these grasses more strictly annual. They are not absolutely annual, even when a few spikes on a stool are fully ripened, but grow occasionally, producing ripe spikes from the same stool for two or three years. Now, if before Rye was cultivated, it was so closely ergotised as to prevent all but a few seeds from maturing, the plant may at that time have been a perennial grass; and the present effect of ergot on the grasses may be, while diminishing their seed-bearing capacity, to give a larger term of duration to the roots and lower nodes, than if all the seeds were allowed to exhaust the plant by going to maturity. Probably the balance of the natural grasses is somewhat different from what it would be were there no ergot. The Vernal-grass, which is highly ergotisable, is perhaps encroached upon by the Crested Dog's-tail, which is not ergotised at all; or, if the ergot conserves vitality in the lower nodes, the Vernal-grass may thus hold its own.

Appendix.

No. 1. *List of Ergotised Grasses referred to.*

1. Wheat. Triticum sativum, L.
2. Wheat-grass. T. repens, L.
3. Rye. Secale cereale, Will.
   Rye. Secale cereale, artificially ergotised.
4. Barley. Hordeum distichum, L.
   Barley. Hordeum distichum, artificially ergotised.
5. Vernal-grass. Anthoxanthum odoratum, L.
6. Mat-grass. Nardus stricta, L.
7. Foxtail-grass. Alopecurus pratensis, L.
8. Reed Canary-grass. Phalaris arundinacea, L.
9. Catstail-grass. Phleum pratense, L.
10. Turfy Hair-grass. Aira cæspitosa, L.
11. Waved Hair-grass. Aira flexuosa, L.
12. Creeping Soft-grass. Holcus mollis, L.
13. Meadow Soft-grass. Holcus lanatus, L.
14. Oat-grass. Arrhenatherum avenaceum, Beauv.
15. Smooth Meadow-grass. Poa pratensis, L.
16. Annual Meadow-grass. Poa annua, L.
17. Floating Sweet-grass. Glyceria fluitans, R. Br.
18. Cocksfoot-grass. Dactylis glomerata, L.
19. Tall Fescue-grass. Festuca elatior, L.
20. Meadow Fescue-grass. Festuca pratensis, Hudson.
21. Rye-grass. Lolium perenne, L.
22. Darnel-grass. Lolium temulentum, L.

No. 2. *Grasses referred to on the Ergots of which the Claviceps has been Grown.*

Wheat-grass. Triticum repens, L. [spur).
Rye. Secale cereale, Will. (twenty-three fungi on one
Vernal-grass. Anthoxanthum odoratum, L.
Mat-grass. Nardus stricta, L.
Turfy Hair-grass. Aira cæspitosa, L.
Creeping Soft-grass. Holcus mollis (also found growing naturally, 1874).
Oat-grass. Arrhenatherum avenaceum, Hud.
Floating Sweet-grass. Glyceria fluitans, R. Br. (also gathered growing naturally in great numbers in 1874 and 1875).
Cocksfoot-grass. Dactylis glomerata, L.
Tall Fescue-grass. Festuca elatior, F. gigantea (?), L.
Rye-grass. Lolium perenne, L.

Foreign Correspondence.

THE COLORADO BEETLE AND THE WINTER IN CANADA.—A young agricultural labourer emigrated from this parish to Canada about six years ago, and now writes an account, among other things, of the Colorado beetle, and of the last winter's weather, in so clear a style that I think some extracts from his letter may interest your readers. I have corrected the spelling a little, and added some stops, but no verbal alteration or addition has been made. The letter is dated "Peterborough, Ontario, D.C., August 30, 1875." *S. S., Sevenoaks.*

"Our Potato tops are mostly eaten up by the Potato bug: it originated in Colorado, one of the South-Western States; it has gradually spread east and north till it has reached here. It is called the Colorado bug or beetle, and was not seen till about three years ago a few stragglers were to be seen, and have increased every year till this year they are here by the million. The beetle is not quite so large as your May bug, and has pretty striped wings; the beetle lays its yellow eggs in bunches on the under side of the leaves, and they hatch out into grubs, which feed on the leaves till they grow to full size, and ultimately become beetles. People said that the chickens would not touch them, and if they did they would be poisoned, but it is just the opposite—they are very fond of them. The Potato crop is reported very good in spite of them.

"We have a remarkable year for weather ever since the year commenced. We have had a deal of stormy weather; we had no extreme winter till the last two days of the old year, and then we had about two months of terrible weather. January was bad, but February beat it hollow: bitter, stinging frost; roaring, whistling, and howling winds; falling, drifting and flying snow; roads and railroads blocked up in all directions; fences buried out of sight; such intense frost that the snow was as fine as flour, and the least puff of wind sent it flying. It was looser than so much sand under foot, and squeaked and grated under foot. The snow has a peculiar squeak under foot when the thermometer is below zero. I can often tell nearly how cold it is by it. The middle of March we got a lot of thunder and lightning; one man had his barn struck about 20 miles from here. I never saw such strong lightning in the winter; it looks very strange to have it when the country is covered up in snow; it often brings cold weather after it. We had a cold and late spring; the 1st of May we got rain, hail, and snow; on the 8th a heavy thunder-storm, doing some mischief about 18 miles from here; on the 15th we got up in the morning to see the ground covered with snow, and snowing fast. We got spring after that; no grass for the cattle till after May 20, but Providence sent an abounding crop of hay and straw last summer, or what the consequences would have been it is hard to say."

Notices of Books.

Floral Decorations for the Dwelling-house. By Annie Hassard. Pp. 163. Macmillan.

The authoress of this handy little work also entitled it, *A Practical Guide to the Home Arrangement of Plants and Flowers*, but the remarks upon plants occupy so small a portion of the book that we may fairly regard it as a work upon the preparation and arrangement of cut flowers for ornamental purposes. Considered in this light it may be asserted that it is the first separate work on the subject that has appeared, for, although it has been treated of by Mr. Shirley Hibberd in his *Rustic Adornments for Homes of Taste*, and by Mr. Burbidge in his *Domestic Floriculture*, neither of them gives more than one-tenth part of his book to this attractive subject. Miss Hassard has been well known to those who have attended the Metropolitan and West of England flower shows during the last four or five years, from the numerous and elegant arrangements of flowers upon dinner-tables which she has exhibited, and our columns from time to time have not only recorded her high position on the prize list, but have also very fully described most of her tasteful handiwork upon these occasions. Our readers may remember that we have on more than one occasion noted the improvement in taste in the arrangement of flowers in vases at shows of late years, and these remarks have applied quite as much to Miss Hassard as to any other exhibitor, as doubtless she would be the first to admit. We have on this account the best reasons for believing, after perusing this her first essay in book-writing, that her succeeding efforts in the literary world will be characterised by similar advances to these which she has shown in decorative art, with reference to the floral branches of which it is not too much to say that her public exhibitions have materially helped to educate and improve public taste in these matters.

The present season naturally induces us to mention first her chapters upon Christmas decorations, and upon table decorations for Christmas day, and as a specimen of her style we cannot do better than submit the following account of one of her Christmas tables:—

"A March stand with a trumpet rising out of the top tazza would look well in the centre. Round the edge of the bottom dish should be placed some fresh Fern fronds (hardy kinds), and on these might be rested some leaves of golden and silver varieties of Ivy; the dish should then be filled in with white Chrysanthemums, scarlet Pelargoniums, Laurustinus, Holly berries, Arbutus berries, white Lilac, and a few fronds of Maidenhair Fern, whilst up the glass stem might be twisted a spray of variegated Ivy. Then from the edge of the second tier might be drooped some long sprays of Selaginella denticulata, and in the tazza itself be arranged some scarlet Pelargoniums, Jonquils, or any other scarlet or white flowers that may be at hand, and a few fronds of Maidenhair. Round the mouth of the trumpet should be put some Selaginella, finishing off with a few light-looking scarlet and white flowers, Ferns, and grasses, and two or three leaves of Pampas-grass, placed outwards in a graceful wavy manner. Round this centre stand should be arranged eight specimen glasses, four of the usual height, and four rather shorter: these should be filled with flowers similar to those used in the centre-piece.

"At the top and bottom, where, in a larger table, two other stands would be, two well-berried plants of Solanum capsicastrum should be placed, the rough pots being dropped into more ornamental ones, fresh moss placed over the soil, and three pods of Iris fœtidissima pricked into each. Some white and black Grapes should be put at the top of the tables, and Apples at the bottom. Pears, Nuts, Medlars, &c., or any other fruit that may seem desirable to add, can be then placed at the side."

Other chapters describe the preparation of flowers by wiring and gumming, and the various methods of arranging them, whether in bouquets, in vases, in garlands, in wreaths, in crosses, in head-dresses, or in coat bouquets; also the different kinds of vases, baskets, and other receptacles for holding them and setting them off to the best advantage, according to the place whereon or the object for which they may be required. Thus breakfast, dinner, or drawing-room tables are treated of, together with *buffets*, mantelpieces, fireplaces, and halls; and simple directions are given for placing the pots of plants through a dining or breakfast-table, for cleaning and polishing glass vases, for lighting a dining-room, and for arranging fruit.

Perhaps the most useful, and certainly the most novel part of the book, is that devoted to a list of suitable flowers in bloom in each month, and to an arrangement of flowers for each month. In the former, the year is divided into three parts of four months each, and each part has a list of flowers and fruits to be had at that season arranged according to their colours. In the latter the year is divided into twelve months, and an arrangement of three different forms of vase is given for each month.

Miss Hassard deserves much praise for bringing out in a compact form a work which beginners will find invaluable, and experienced decorators will be glad to refer to, and we recommend it to our gardening friends as one of the prettiest of new year's gifts, but we hope they will read it before giving it away.

Historia Filicum; *an Exposition of the Nature, Number, and Organography of Ferns, &c.*; with thirty lithographic plates by W. H. Fitch. By John Smith, A.L.S., ex-curator of the Royal Botanic Garden, Kew, &c. London: Macmillan & Co. 1875.

In the volume whose title is quoted above our veteran pteridologist, Mr. John Smith, formerly curator of the Kew Gardens, propounds his final views respecting the affinities of Ferns one to another. The original MS. was, it appears, completed some ten or twelve years ago, but its revision and condensation has served to while away the days of darkness to which the author has now been for some years subjected through loss of eyesight.

Mr. Smith is truly a veteran in this branch of botany, since it was in 1823, as he tells us in the preface, that the collection at Kew—the tender ones then occupying only a space of 12 feet by 6 feet in a lean-to house—came under his charge. This collection now occupies an area of 6570 feet, and fills three hot-houses. The constant observation of this ever-increasing series of living plants, and the study of a dried collection comprising some 2000 species (now in the British Museum) gave peculiar facilities for acquiring a correct and extensive knowledge of this class of plants, and Mr. Smith has done well to leave on record his final conclusions on the subject.

The book is divided into four parts, the first containing chapters on the nature and number of Ferns; on organography, consisting of definitions of the organs on which genera are founded and classified; on the genera of early and of modern authors and their respective systems of classification; and on the genera and classification founded on habit of growth. The second and most important part consists of the general arrangement and characters of the tribes and genera adopted, this constituting more than half the entire bulk of the work. The third part treats of the reproduction, of the geographical distribution, and the properties and uses of Ferns. The fourth gives the names of writers on Ferns and the titles of their writings, the derivation of names, an alphabetical list of generic names not adopted, and an index to the adopted genera.

Mr. Smith argues that neither the form nor position of the sori or of the venation, nor the absence or presence of an indusium, takensingly or combined, can be depended on for determining genera, but that the different modes of growth—that is, the manner in which the developing axis (caudex) increases, its direction, and the mode of evolution or attachment of the fronds, must be taken into account. These latter, in fact, he exalts into primary characters, separating all the circinate Ferns (that is, all Ferns except the small group Ophioglossaceæ) into three unequal groups:—Eremobrya, with lateral articulated fronds, including the tribes Oleandreæ and Platycerieæ, with one genus each, and Davallieæ with three, Polypodieæ with twenty-eight, and Hymenolepideæ with six genera respectively; Desmobrya, with fasciculated adherent fronds, including twenty-one tribes and the bulk of the genera; and Scaphobrya, with terminal articulate fronds, having a pair of stipuliform appendages, including the tribe Marattiaceæ with five genera.

This mode of classification leads to the multiplication of genera, since the Desmobryous and Eremobryous plants must necessarily be separated, and the genera are, therefore, equal in number to those which were founded on fructification and venation, plus the separations rendered necessary by taking these additional characters into account; for in addition to the characters derived from development, Mr. Smith makes full use of those derived from the venation and the fructification. Hence while Hooker and Baker in *Synopsis Filicum* have seventy-six genera mainly based on the fructification, and Moore in *Index Filicum* has 178 genera based on the fructification and venation combined, the author of *Historia Filicum* swells the number of genera up to 220, a good number of which are monotypic, or represented by but few species.

Interspersed as it is with many critical remarks, the fruits of long-continued observation in an exceptionally favourable position, Mr. Smith's book will be welcomed by all students of Ferns, even those by whom his conclusions may not be adopted. Practically, it is, indeed, some years in arrear, as the misfortune—loss of sight—under which the author labours, while rendering it a marvel that so much has been so well accomplished, necessarily places him at a disadvantage in regard to observations on recent acquisitions, and the light they might have thrown on his own former conclusions. Notwithstanding this, no one anxious to work up a thorough knowledge of Ferns can afford to do without it. As regards the classification now set forth, we must own that we are scarcely prepared to adopt Mr. Smith's special groups as representing primary divisions, since their adoption must lead to a "confusion worse confounded" in the nomenclature, by necessitating wholesale alterations. We therefore much prefer, since they, no doubt, have a value of their own, to use them as subsidiary characters, by which they may serve to classify the species, instead of breaking up existing genera. The plates, which are intended to illustrate the tribual groups adopted, though showing fragments only of the plants, are, like all Mr. Fitch's figures, admirably illustrative of the structure of the parts represented.

—— The December number of the *Botanical Magazine* contains coloured figures of Calochortus citrinus, a very handsome hardy or half-hardy bulbous plant with large bearded yellow flowers. Diuris alba is a terrestrial tuberous-rooted Orchid with singular flowers; the upper sepal is ovate, pale lilac, the two lower ones much longer, linear deflexed, with a central red stripe; the lateral petals are ovate, stalked, pale lilac, and the lip is trowel-shaped, pink, with a central yellow callus. The plant was introduced from Sydney to Kew, and flowered in the open border there. Gladiolus Cooperi is a handsome species, with flowers like those of G. psittacinus. It is a native of Natal. Decabelone Barklyi is another species of a remarkable genus allied to Stapelia, but in which the flowers are tubular or with a spreading limb. The internal structure is exceedingly curious. The species are sure to be favourites with succulent growers. The plant was introduced to Kew by Sir H. Barkly from Little Namaqualand. Pernettya Pentlandi is similar to P. mucronata, but has purple fruit surrounded by succulent calyx lobes; it was introduced from Quito by Mr. Anderson-Henry, and proved hardy with him in Edinburgh. Calathea leucostachys is a native of Costa Rica, whence it was sent to Messrs. Veitch by M. Endres; the leaves are elliptic oblong, green above, claret coloured beneath; the flowers are borne in an erect spike clothed with conspicuous white bracts—yellow at the base. The whole plant is more or less villous.

—— The *Villa Gardener* for the present month contains amid its lighter food a substantial article on the culture of pot Cherries, in which very great stress is properly laid upon the necessity of having good stocks, as well as good scions.

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 25, 1875.

AN abundance of ROOTS IN A HEALTHY CONDITION is a most important and essential element in the successful cultivation of plants, no matter what is the purpose for which they are grown. The existence of these food-absorbing organs in plenty is as conducive to the strength and vigour of the most insignificant summer annual, as it is to the monarch of the forest that has weathered the storms for a dozen generations. Suitability of climate, we know, has much to do with the development of vegetable life, but, no matter how favourable this may be, if roots do not exist in sufficient quantities, the powers of the plant are restricted. Although favoured by climate there is not a doubt that the gigantic Wellingtonias of the Yosemite Valley owe much more of their stupendous proportions to the immensity of their root-power, than they do to climatic influences. However healthy the rootlets may be, their individual feeding powers are limited. Thus we see that in soils which are of such a nature as to induce the greatest amount of root development in any particular plant, if there are also present the required elements of food in sufficient quantities, the progress of the plant will be proportionate to the quantity of roots it has; this is more apparent in quick-growing subjects, especially such as are deciduous, where a great amount of leaf is produced in a short space of time, as in the case of the Vine.

In the cultivation of this fruit there is evidently at the present day, even amongst those who may be set down as highly successful in its culture, a much greater difference in many matters of importance than formerly. Yet upon one thing all appear to be agreed—that is, the advantage to be derived from an unlimited quantity of healthy feeding roots. To produce these in the greatest possible numbers, many and varied are the means resorted to. Some four years ago we happened to see a device employed for increasing the roots of Vines as novel as it was interesting; the means resorted to was simply rooting at both ends by layering the extremities of the canes. This experiment was tried by Mr. ROCHFORD, market gardener, Page Green, Tottenham; his is one of the large number of comparatively small places, consisting almost exclusively of glass erections devoted to the cultivation of fruit and plants to supply the ever increasing demands of Covent Garden market. Mr. ROCHFORD has been long known as a producer of very early Grapes, and also as a Pine grower—his name, as a successful exhibitor of the latter fruit at the principal London shows having often, as our readers are doubtless aware, appeared in the pages of the *Gardeners' Chronicle*. The houses wherein are grown the Vines in question are three in number, span-roofed, about 14 feet wide, and standing side by side close together; there are a number of brick piers running betwixt each house that carry the gutters, on which rest the rafters. There is no further division between the houses longitudinally except movable shutters; the paths, which are not wider than are necessary to afford walking room, run down the centre of each house, and have a brick wall on either side to support the borders, which are about 2½ feet above the level of the paths. The Vines are planted on both sides of all three houses, sufficiently far apart to admit of their extending right across to the opposite eave, which in the case of all the houses is about 2 feet above the surface of the border.

It will thus be seen that the roots of the Vines planted on one side of each house can extend without interruption to the centre path of the adjoining one, through the absence of side walls. They were planted in the spring of 1858, two houses with Black Hamburghs, and one with Muscats. In the autumn the whole were cut back to the ridge, forced, and bore a heavy crop, averaging 18 lb. per Vine, the first of the Hamburghs being cut on May 1. From this it will be seen that the Vines must have made good growths the first summer, otherwise they would not have had sufficient strength to bear such a prematurely forced heavy crop. The following year they were allowed to occupy the full width of the houses, and were cropped the whole length; but before growth commenced the points of the shoots were taken down to the border on the opposite sides to which they were planted and layered, leaving a couple of eyes to each beyond the portion of the shoots covered with soil. These were allowed to grow through the season, and at pruning time were cut away altogether. By the end of the second season, after layering, they were as firmly rooted at the tops as at the base, and in a very short time were equal in thickness at both ends. To see what effect would be produced by the Vine being made dependent alone upon support from the roots formed at the extremity of the cane, one of them was severed above the collar at the planted end, virtually standing the plant on its head. This was done at a time to put the experiment to the most severe test just when the crop was about half-grown—when, as all experienced Grape growers are aware, the swelling fruit requires a maximum of support. The result was that the fruit finished off perfectly, adding one more to the innumerable evidences of the wonderful powers in vegetable life of adaptation to circumstances, and of the fact too much overlooked by gardeners, that the direction taken by the sap and the nourishing fluid is not limited strictly to ascent or descent, as the case may be, but that the current may be in any direction, according to circumstances—now in one now in another—perhaps in different directions at the same time in different parts of the same plant.

Each season after the first year of planting the three houses were started at the beginning of November, and cutting commenced with the Hamburghs about the second week in April, and Muscats before the middle of May. Four years ago last March we saw these Vines; the Hamburghs were then fast colouring, a good even crop of moderate sized bunches—the Muscats equally promising, the foliage ample, clean, and healthy. As might be supposed from the early and continuous forcing they had been subject to—commenced whilst the Vines were so young—the canes had not attained nearly the thickness they would have done had they been worked more leisurely and allowed to get older before they had been cropped. But one thing we remarked was the more than usual strength of the young wood as compared with the principal canes. Evidently the double set of roots had enabled them to maintain their fruitful condition through the severe and continued ordeal of early forcing they had been subjected to. The whole experiment is a highly interesting subject for the study of the vegetable physiologist, as also those who cultivate the Vine.

The treatment was regularly continued until two years ago, when they were taken out. The glass with which these houses are glazed is very small, only 6 inches square; consequently they were dark, and better adapted for the growth of their present occupants—Adiantum cuneatum and Dracæna terminalis, which, despite the high prices early Grapes command, are found by many market growers to pay better. New light houses, much more fitted for Grape growing, have been built; these were planted during the past summer, and so convinced is Mr. ROCHFORD of the advantages of these double sets of roots, that, as soon as the Vines have attained the necessary length, they will be layered in the same way as those we have noticed.

—— A CORRESPONDENT has furnished us from the Isle of Man with some CURIOUS FLOWERS OF RHODODENDRON ARBOREUM. The shoots are tipped with a bloom-bud for next season's flowering period; below it, in the axils of the leaves, are more or less malformed flowers, which occupy the place of the small leaf-buds usually found in that situation. It is difficult to say what has induced a leaf-bud thus to assume the characters of a flower, but that it is probably due to season is shown by the fact that several instances of a like character have come under our notice this year. Of quite an opposite character is a leaf shoot before us, and which has been produced in, and is prolonged beyond, the centre of the flower truss. The "definite" mode of growth usual to the inflorescence of Rhododendron is here replaced by the indefinite mode of growth.

—— We had the opportunity on a former occasion (see *Gardeners' Chronicle*, 1872, p. 1102) of laying before our readers some illustrations of the GARDEN formed by the late Mr. AUGUSTUS SMITH IN THE SCILLY ISLANDS, and we have from time to time published lists of the plants in bloom in those favoured isles. At the present time we are enabled to give two views in the same gardens, the one (fig. 163) representing a group of Agave americana in full flower, as fine as can be seen even along the Mediterranean coast, and the other (fig. 162, p. 807) a border with Palms, Dracænas, &c. As frost is scarcely known, and when it does occur is but slight, a vast number of plants thrive in the open air with a luxuriance inconceivable to those who are only accustomed to see such plants under glass. Hedges of Pelargoniums, 14 feet in height, Mesembryanthemums and succulent plants generally, thrive marvellously. The mansion of Tresco Abbey is modern, the only remains of the former Abbey consisting of a pointed arch. Close by is a fresh-water lake of 50 acres in extent, separated from the sea by a bar of white sand. In the subjoined list are enumerated a few of the more striking plants in bloom in the open air in November:—

List of Plants in Bloom in Tresco Abbey Gardens in the open air.

Olearia stellulata	Acacia lophantha
Cassia corymbosa	,, Newmanni
Correa virens	Berberis Darwinii
,, alba	Statice purpurata
Dolichos lignosus	Spartium odoratissimum
Candollea tetrandra	Medicago arborea
Genista canariensis	Pyrethrum grandiflorum
,, racemosa	Yucca florida
Hakea sauveolens	,, gloriosa
,, prostrata	,, filamentosa
Myrsine undulata	Boussingaultia baselloides
Cestrum aruntiacum	Psoralea pinnata
Escallonia macrantha	Colletia horrida
,, montevidensis	Aralia papyrifera
,, organensis	Teucrium fruticans
,, floribunda alba	Pittosporum Tobira
Pernettya mucronata	Hydrangea japonica
Polygala Dalmaisiana	,, hortensis
Malvastrum capensis	Veronicas in variety
Sparmannia africana	

—— Dr. DENNY has kindly sent us the following scrap of PELARGONIUM HISTORY, contained in a recent letter from M. JEAN SISLEY, of Lyons:—Beauté de Suresnes was raised by CASSIER, of Suresnes, near Paris. In 1856 he obtained a pink Zonal, which he sent out under the name of roseum nanum. From this he obtained, in 1858, Madame Cassier; and by this, in 1862, Beauté de Suresnes; and in 1866 Surpasse Beauté de Suresnes, which, according to what he wrote in February, 1874, has superseded the other, and he thinks that the real Beauté de Suresnes is lost. It is a great pity, because it bore seeds.

—— In reference to the note on CLIVIA GARDENI, at p. 687, where it is said to be closely allied to Imanto-

phyllum, Mr. BAKER has kindly pointed out that these generic names belong to the same genus. The former was published by Dr. LINDLEY, and the latter by Sir W. HOOKER on the same day, so that as regards priority there can be no choice. As in cultivation the two commoner species are usually known as Clivia and Imantophyllum respectively, and often so printed in catalogues, it may be desirable to show the correct naming. For the genus it may be preferred to keep up Imantophyllum, it being the most frequently in use, and as under that title three of the four plants of this relationship are already familiar. We have, therefore, Imantophyllum Aitoni, Hook. (Clivia nobilis, Lindl.); Imantophyllum miniatum, Imantophyllum Gardeni (Clivia Gardeni, Hook.), and Imantophyllum cyrtanthiflorum, a hybrid (I. Aitoni × I. miniatum), figured in the *Flore des Serres*. The others have been figured in the *Botanical Magazine*. I. Aitoni and I. Gardeni have pendulous flowers. Those of the former are straight with a contracted mouth, and it has rigid, obtuse, or even retuse leaves. The flowers of the latter are curved, and twice as large, with the apices of the perianth spreading, while the leaves are flexible, tapering to a blunt point. I. miniatum is very distinct in appearance from either; it has an umbel of erect or ascending flowers, the perianth with a short tube and spreading in a campanulate form. This has been considered as generically different from the two last mentioned, an opinion with which many would agree. It has been proposed to call it Imantophyllum, and allow the others to be Clivia, but from the present views of classification the distinction cannot be made. The flowers of I. cyrtanthiflorum are pendulous, and in form intermediate between the parents. As they represent the once proposed distinct genera, this plant is witness of the very close relationship that must obtain between them.

—— We learn from a communication in the *American Gardeners' Monthly* that the splendid new LILIUM PARKMANNI, illustrated at p. 493, is the result of a cross between Lilium speciosum and L. auratum, the latter being the pollen parent, and the one to which, with the exception of the colour of the segments, it bears the closest resemblance. Mr. FRANCIS PARKMAN, of Boston, flowered it for two or three years, but the bulb increased slowly, and, showing a certain want of vigour, one bulb was sent to Mr. ANTHONY WATERER for trial in the excellent peaty soil at Knap Hill. The result of the change of soil we all know.

—— It is proposed to present a testimonial to Mr. MCKENZIE, the landscape architect, to whose skill and taste the public owes the design and planting of the Alexandra and Finsbury Parks, the Victoria Embankment, and other public works. Mr. MCKENZIE'S labours at the Alexandra Park are well known to and appreciated by our readers, as well as the disappointment that must have befallen him after the calamitous fire at that institution. There must be many who would willingly show their acknowledgments for what Mr. MCKENZIE has done to advance horticulture: such persons should communicate with Mr. BERTRAM, Alexandra Park.

—— At this time of the year the PROTECTION OF BEDS OF CHOICE TULIPS become an important duty with cultivators of this fine flower. The object is not so much to protect from frost as from wet; for excessive moisture does harm, and when frost follows much wet, the plants surrounded by soil of a moist character are likely to suffer materially in consequence. At this time of the year it is necessary to keep the bed as moderately dry as possible, and so a covering should be provided, which can be kept on the bed in wet and moist weather, and be readily removed when it is at all fine and dry. The usual rule is to plant Tulips early in November, and if this month proves at all genial, growth sets in quickly: and as the sheath gradually reaches the surface of the bed, the need of protection becomes more urgent. There must be first of all provided a framework for the covering, and cultivators who constantly grow this flower provide iron hoops or arches, made half an inch or so in diameter, with pointed ends, and wide enough to span the bed. The ends are thrust into the path on either side, and the centre of the arch may be from 12 to 20 inches above the centre of the bed. Then light iron rods or strips of deal, or ordinary builder's laths, can be passed along the top of the arches, and fastened to each; and a similar line should be placed along, about half way down on either side. This forms a solid framework of a durable character. The iron hoops should be 4 feet or so apart. The best kind of covering material is the next consideration. What is really wanted is something that will throw off the wet without absorbing too much of it; and at the same time furnishing a little warmth. Two good tough Russian bast mats placed lengthwise along the framework, and fastened at the side to 2-inch deal poles, to keep the covering in its place and secure, is as good a covering as can be provided, as it throws off the wet, soon dries, can be rolled up in fine weather, and put aside without difficulty. It must be borne in mind that when the young leaves appear above the beds, which they sometimes do as early as January, that keen cutting winds need to be guarded against. As a general rule the protection provided against wet only covers a portion of the framework, namely its crown, but falls over sufficiently on either side to throw off wet from the bed, without excluding light and air. When cutting winds prevail, and

FIG. 163.—AGAVES IN THE SCILLY ISLES.

they come from any point between the north-west and the north-east, the covering should be placed low enough on the side of the wind to protect the plants from it. In fine weather protection could be got by dragging the mats over the framework almost on to one side, so as to bring the covering close to the ground towards that point from which the wind proceeds. If wet and wind have to be guarded against at the same time, an extra mat may be thrown over the windy side, and brought down close to the ground, and fastened securely by means of a few wooden pegs. As the protection will require to be kept on the beds till some way in the spring, it is obvious that it will need raising from time to time to keep up with the advancing growth of the Tulips; and this can be easily managed by pulling up the rods a little way out of the ground on either side of the bed.

—— In the *Gardeners' Chronicle*, June 8, 1872, p. 762, I gave an account of a disease which had proved extremely formidable to Vines in Australia, where it is known under the name of the BLACK SPOT. The specimens were not so perfect as might have been wished, but it seemed highly probable that it was due to an obscure fungus belonging to the genus Glæosporium. This, like many allied fungi, is probably a mere form of some more perfect organism, connected possibly with it by an alternation of generations. I have now numerous specimens of live shoots sent to the Editors by Mr. EDWIN RICE from New Senakie, near the seaport of Poti Caucasus, which are affected apparently in the same way, and in a most disastrous condition. Varieties received from England three years since equally with a large quantity of Vines from the Crimea, have fallen a prey to the destructive malady, the former having not at present produced a single bunch of Grapes. "The malady first shows itself at the latter end of June; the leaves begin to shrivel round the edges, diminish in size, and partly curl up from the contraction of the edges; all the young shoots wither as soon as they appear, the first appearance of the disease, as observed under a good lens, being a small blister or bladder containing liquid exactly like a scald in the human flesh; this blister darkens gradually, till it becomes almost black, and turns to a scale, which extends and destroys not only the bark of the shoots, but penetrates a considerable distance into the wood. The bunches of Grapes are likewise affected with black spots, which eventually entirely destroy them. The Vines at the end of the season have the appearance of plants nearly scorched to death, all the young wood being consumed, and none left for the next year's training." It is curious that the American Catawba is not affected, a circumstance agreeing with the fact that American varieties are in great measure unaffected by the Oïdium. On examining the shoots I cannot find any perfect Glæosporium, though there are plenty of minute tubercles which, from their internal structure, I should conceive to be their early stage, as I find perfect sporophores; but, on the contrary, on one of the specimens there is a Sphæria, which appears to be identical with Sphæria acuminata, Sow., or, at least, is identical with what is figured under that name by Mr. CURREY in the *Linnean Transactions*. It is quite possible that this may be the perfect form of the Glæosporium. It is greatly to be hoped that the disease may not visit us after the fashion of the Puccinia malvacearum. *M. J. B.*

—— Mr. WEEKS, gr. to H. L. BISCHOFFSHEIM, Esq., Hyde Hall, Sawbridgeworth, has been appointed Manager of the New Winter Gardens, &c., at Rhyl.

—— Amongst the newly elected members of the French Senate few are more eminent than M. BARTELEMY ST. HILAIRE. Ranking as one of the first Hellenists and Latinists of the present day, he is also an able Orientalist. Not less prominent is his position as a politician, and the eminent services he gratuitously rendered as secretary to M. THIERS whilst the latter occupied during the most trying crisis in the history of France the position of President of the Republic, are too well known to need recapitulation here. Elected a member of the present Assembly, M. ST. HILAIRE has also just received a merited reward in the election to the position of a life member of the new Senate. A long previous course of hardships, nobly borne, prepared him for the post of trust he filled under M. THIERS. LAMARTINE, in his *Memoirs*, gives an exquisite picture of M. ST. HILAIRE, after his expulsion from the chair of Greek and Latin at the Sorbonne, for refusing to swear fealty to the Empire, working as a market gardener. He retired in 1852 with an aged aunt, to whom he stood in lieu of a son, to a poor cottage standing in a patch of ground near Meaux; whilst she lived he went on cultivating vegetables for the Paris greengrocers, whose patronage he was very glad to secure. M. ST. HILAIRE is now seventy years of age, and a hale hearty man, and is probably in body or intellect none the worse for having at one period of his life had to ally himself to the ancient fraternity of gardeners.

Home Correspondence.

Christmas Flowers. — Your correspondent "B. M." is not so instructive as usual in his article of last week entitled "Christmas Flowers," especially when he comes to treat of everlasting flowers. Helichrysum imbricatum is doubtless a slip of the pen for H. bracteatum, which is the Australian species that furnishes not only the greater part of the larger yellow everlastings dried for decorative purposes, but also the white, pink, red, crimson, copper, and two-coloured varieties. H. macranthum is regarded by both gardeners and botanists as a variety of H. bracteatum; and the names niveum, macrocephalum, acuminatum, chrysanthum, have been applied to varieties of the same species. Although the species of the genus Helichrysum are more numerous in South Africa than in Australia, they are, on the whole, less showy; but H. vestitum from the former country is the principal large white everlasting employed in making wreaths, &c. This species is very distinct, having soft, felt-like leaves, similar to those of Helipterum eximium, and silvery white very large flower-heads. The involucral bracts are long, and taper off to a slender point; and they are of thinner texture than those of H. bracteatum, and nearly transparent. H. orientale presents several shades of yellow, and the ordinary variety is of a rich lustrous yellow. Unfortunately this is not hardy in Britain; indeed it flourishes only in a dry, hot climate, as on the shores of the Mediterranean. Several other Australian genera, as Schœnia and Waitzia, have very pretty flower-heads. It is worth noting that the coloured showy part consists of the bracts of the involucre, the flowers or florets being very small and inconspicuous. I may add that the leaves of Leucodendron argentum are very extensively used in devices for church ornamentation. *W. B. H.*

Aristotelia Maqui.—In the description of this plant given, together with a nice figure, at p. 772 of the *Gardeners' Chronicle*, the dimensions which it assumes with us are surely much underrated. My gardener and I have this moment measured with accuracy one which has grown for several years in my garden here. The height of its topmost twig from the ground is 13 feet 3 inches, the diameter of its head of foliage is exactly 1 inch more than this. It is quite a tree, with a trunk about 6 feet high at the lowest branches; the foliage forms an evenly rounded head and is evergreen. The berries are quickly devoured by birds. *P. H. Gosse, Marychurch, Torquay, Dec.* 18.

Mushroom Growing.—In April last year I had a bed made in a warm situation in the open ground of leaves and litter, there being about a third of the former and two-thirds of the latter; there were very few horse-droppings in the latter. The bed was about 12 yards long, 2 yards wide, and about from 20 to 24 inches deep. The surface was covered with a few inches of common garden soil, the whole trodden firmly, and a quantity of late Celery pricked out all over it, at a few inches apart. As, after as many of the strongest plants as were wanted were planted out in July a number still remained all over the bed, it was left undisturbed, and no attention was paid to it. Towards the end of August and beginning of September a quantity of Mushrooms sprung up all round the sides and over a great part of the bed between the Celery plants. During September, October, and November a great abundance continued to be produced. The Mushrooms were remarkably good, and of a firm, fleshy substance. The gardeners who saw the bed expressed their surprise at the quantity and quality of the crop. There had not been any spawn inserted in the bed. The Mushrooms continued to grow until the snow and severe frosts in December stopped their growth; but even after severe frost set in Mushrooms continued to spring up under the Celery leaves, where the ground was clear of snow and not frozen. I have no doubt, had the bed been covered and protected from the frost, an abundance of Mushrooms would have been produced during the whole of the winter. *M. Saul, Stourton.*

Roman Hyacinth.—This much-neglected white flowering bulb is not nearly so often met with as it deserves to be. It is easy to manage and can be depended upon, providing ordinary care be given. For decorative purposes, at this dull season, it is unrivalled; and, where cut flowers are the order of the day, its pure white fragrant flowers cannot fail to be appreciated. It can easily be had in bloom by the beginning of November, when good flowers are scarce; this adds greatly to its value. Each bulb produces two or three spikes of bloom. *J. W. H.*

Limekiln Heating.—Having had some little experience of Cowan's Compensating System (as it is called), I was somewhat surprised to hear that Mr. Gordon, of Niddrie House (see p. 498), is able to heat 2000 feet of piping with a weekly consumption of 2 tons of stone and 13 cwt. of culm. But I was still more startled to learn that, after he has passed these 2 tons of stone through his kiln, he had 35 cwt. of lime for sale. At first I thought it a mistake, or a misprint, but as it has not yet been corrected I presume we are to consider the statement is correct. My own experience is that stone when burned loses well nigh half its weight; or, to be more exact, I find that 1 ton of stone only gives 11½ cwt. of lime, instead of 17½ cwt., as stated by Mr. Gordon. I would not for a few weeks have touched upon this subject had I not known that such statements as these oftentimes cause much unpleasantness and distrust between employer and employed. In a few weeks, with your permission, I will give you a truthful twelve-months' experience of this system, when your readers will be able to judge for themselves how far it deserves the name "compensating." *P. Wadds, The Gardens, Moore Abbey, Monasterevan.*

Fruit Prospects for 1876.—At the present season of the year, when the pruning of trees, &c., forms the most important operation in the fruit garden, those who are responsible for the same, and if only ordinary observers, cannot help forming some opinion of the fruit prospects for the next season. Taking into consideration the little real summer weather we have this year experienced, one cannot be surprised at the immature state of the wood. Where the frost has been very severe the coming spring will trace its treacherous footsteps in the dying of the young shoots and the failure of the buds to produce fertile blooms, which again can be traced to the preceding summer failing in weather effecting the maturity of the wood. Hence we may conclude our fruit crops will be considerably under the average of this year (here with us Plums and Apricots are excepted, they having been a complete failure). Here some of our Peaches and Nectarines are still with many green and healthy-looking leaves on them. I have several times had all those that would easily separate from the stem removed by hand, in order to assist the process of ripening. The wood is also very green and tender, and I fear the results next year, as we have had it exceptionally severe for Devonshire. I may mention that I have a few Peach trees with Parham's patent protectors over them, which have much better ripened wood than those having only narrow wooden protectors, and from which trees I gather fruit several days earlier than the latter. I take out the glass as soon as the last fruit is gathered, for the purpose of admitting a freer circulation of air for ripening the wood, and also to prevent red-spider, so liable to attack the foliage close under the glass, replacing it about the middle of January. Until the recent frosts, Apples, Pears, Gooseberries, and Currants were covered with green foliage, the former especially, and although the same were discoloured, yet they seem very reluctant to leave the stem. Many of the common kinds of Oaks present quite a vernal appearance, seeming to have left autumn entirely out of their calendar, and, whether jealous of their surrounding evergreen allies or not, seem determined to join in welcoming the festive season now at hand. *D. C. Powell, Powderham Castle, Exeter.*

Easter Beurré Pear.—How often we see in gardens this Pear planted against the wall. I have seen it so situated in different parts of England, but the fruit perfectly useless for storing. Here I have three fine trees so situated, and with the same results, yet always bearing large crops of fruit. I have seen it growing as a pyramid on the Quince stock with excellent results, producing clean and fine fruit. It is a Pear invaluable for its late keeping qualities as well as fine flavour, and should be in every collection. It should be grown either as a standard or a pyramid; the latter is preferable, and where it can be sheltered from high winds, because it generally produces fine and heavy fruit, so liable to be bruised or shaken down with the wind, and for fruit intended for keeping it is necessary they should have neither spot nor bruise. Although the best time for planting is past, yet perhaps there may be those who are or may be doing so, and to whom this may not be unwelcome. *D. C. Powell, Powderham Castle, Exeter.*

Aralia Sieboldii.—Mr. Dean having learned from correspondents in Scotland and Ireland that this fine-foliage plant flowers every autumn, permit me to inform him that it is perfectly hardy, and although, owing to the lateness of its flowering, it does not with me ripen or even set its fruit out-of-doors, it passes through our sharpest winters without injury to a single leaf. My largest plant, nearly 6 feet high and 9 feet in diameter, planted out about ten years ago, having withstood a severe frost without protection or mulching. Originally it formed a centre plant in a circular flower-bed, which it now covers, and very few, if any of the popular subtropical plants, which require a great deal more care, form more beautiful groups than this neglected shrub. Some years back I purchased three plants of this Aralia, the plain green variety. The variegated form, like that of Thujopsis dolabrata, soon returns to the green state. Two of them I planted in tubs for terrace plants, the third I planted out to test its hardiness; formerly the tub plants were taken into

a cold house with Aloes and New Zealand Conifers in October, where they ripened quantities of fruit, from which I now have fine flowering plants growing in the open air. Some ten or fourteen years ago I used to pay occasional visits with the late Mr. Veitch to his favourite nursery at Coombe Wood, where I soon saw for myself that he looked upon everything from Japan as hardy, and my experience warrants me in saying he was quite correct in his far-seeing judgment, and yet how rarely do we see these beautiful Japanese forms and colours in our public subtropical gardens. Often have I looked for a group of the exquisite Acer polymorphun atropurpureum, but never have I seen a single specimen, to say nothing of a group, in our parks. This fine Maple is as hardy as an English Oak. Its leaves unfold in the spring a beautiful claret colour, which they retain all the season, and they are off in October or November, a magnificent flaming crimson. Our largest tree, about 10 feet high and as many through, at the present time throws all the Liquidambars and American foliage trees into the shade. At the present time one of my best beds is composed of about twenty-four small standards of this Acer with Golden Pyrethrum for covering the soil. I might enumerate many more of the fine things introduced by Veitch and Fortune from Japan which, unlike the Canadian trees, are not dependent on hot summers and bright autumns for bringing out their brilliant colours. *W. Coleman, Eastnor Castle.*

Couve Tronchuda.—I did intend saying a few words in support of your correspondent's remarks (see p. 560), but have been waiting for further proofs to justify me in giving my opinion more definitely. By so doing I am enabled to fully endorse every word of praise Mr. Sheppard bestows upon so worthy a vegetable as the Couve Tronchuda. It is beyond all question the most tender, delicate, and richly flavoured of all the Brassica tribe, and deserves a place in every garden. I remember first seeing it about ten years ago, since which time I have seldom seen it grown to the extent which its merits deserve. There are two reasons which may be assigned why the Couve Tronchuda is not more generally cultivated—either that its edible qualities are not sufficiently known to be appreciated, or that its inability to withstand severe frost may tend to impair its value in the estimation of some people. Nevertheless I think Mr. Sheppard's remarks, together with his cultural directions, coupled with my opinion, will induce those of your readers who have not already given the above Cabbage a fair trial, to do so this coming season, after which I think they will always give it a hearty welcome. *E. Morgan, Harrow-on-the-Hill.*

The Hepatica.—It is just now a good time to propagate these plants, and as the only satisfactory mode is by division of the roots, great care must be exercised in using the knife, as where crowns are plentiful it is very possible that several may be cut off without having any portion of root attached. Common kinds, especially the double red, which is probably the commonest of all, may be increased sufficiently fast without hard cutting, and when once plentiful the less frequently removed the better. The scarcer kinds, such as the double blue, single white, red, and mauve, Barlowii, and others, should be grown in pots until the stock is abundant, and will probably increase the more rapidly if disturbed and cut up once only in two years, as few plants are more impatient of frequent removal. To make the most of a plant the soil should be well shaken from the roots, and then with a sharp knife as much root as possible taken off, potting the several pieces into a small 60-sized pot, and placing them in a cold frame until the spring, when they should be plunged in ashes or in cocoa-nut fibre refuse, under a north wall or fence during the summer. The Hepatica suffers considerably at this time of year when grown in open borders, because it loses most of its foliage, and thus its small crowns are not easily seen. The teeth of a rake, or being trodden upon, or an incautious use of the spade, are all so many dangers to the Hepatica, and necessitate more than ordinary care where it may be growing. In such borders, the less raking or digging the better. No mode of cleaning is better than the giving of a light forking over the surface of the soil, and then dressing it with old pot soil, Cucumber soil, or vegetable earth. Under such conditions these pretty hardy perennials will thrive for many years. *A. D.*

Dion edule.—Will any of your correspondents give me information as to the proper course to be taken with a large plant of Dion edule which was purchased last summer? Finding it had by some means been checked in its growth, having made only four leaves, and those very indifferent ones—it was then in a 20-inch pot—I felt inclined to shift it, and examined its roots. Finding it had been potted with 6 inches of its stem in the soil, and some of the roots decayed, others in a healthy condition, I disrooted it and put it into a 15-inch pot in the stove. What results may I expect? Any information will oblige. *G. Blake, Sedgemoor House, St. Austell, Cornwall, Dec. 20.*

Luculia gratissima.—I send herewith two trusses of this lovely flower, cut from a plant about thirty years old. It is planted out in a small conservatory, and is bearing about fifty heads of bloom, which will be at their best in a few days. Why is this plant so seldom seen? It does not strike very freely I admit, but its culture is of the simplest when once established. The one we have is cut hard back every spring, and receives an occasional soaking of manure-water during summer, that is all; but it never fails at Christmas to gladden us with its beautiful flowers, and still more beautiful perfume. *Nemo.* [Fine specimens of a glorious plant. EDS.]

Extraordinary Growth of Tree Ferns.—I do not remember seeing or hearing of any record of an extraordinary growth taking place in the case of Tree

FIG. 164.—DICKSONIA ANTARCTICA.

Ferns after being shifted suddenly into much larger pots or tubs than they before occupied. Perhaps you may think the following facts which relate to the Dicksonia antarctica worth reading, and more so, perhaps, as some doubts have been expressed as to the branching of Tree Ferns. In practice I have found the above plant after it has been shifted into a good deal more root-room forms three or four separate heads or crowns. Since I accidentally found this result from such a practice, I have tried the plan purposely, and have secured some young plants in each case. All the separate crowns can, if desired, be made into as many plants. I have always left one crown, my object being to induce the plant to grow into a stem. I have tried the same treatment with Cyathea dealbata, Alsophila australis, and A. excelsa, with no such

FIG. 165.—CYATHEA MEDULLARIS.

results. Cyathea medullaris, however, throws up double or branched fronds under this treatment, as shown in the enclosed sketch (fig. 165). The other sketch (fig. 164) shows the Dicksonia antarctica with a multiplied head. *H. Mills.*

Wistman's Wood.—In Captain Oliver's very interesting letter on Dartmoor (p. 711) he alludes to my account of a visit to Wistman's Wood. I should like to say that the idea of this being one of the very numerous hunting grounds of Wistman, or Wishman, and his Wish-hounds, was not original. It appeared in an admirable article on "Sacred Trees and Flowers" in the *Quarterly Review* in 1863. I had also in mind Kemble's *Saxons in England*, in which he traces the word *Osk*, which is one of the names of Odin in the Norse mythology, through its etymological equivalent, *Wunsch*, in German, and *Wisc* in Anglo-Saxon, or first English, as some recent writers have it, to the modern English word, *Wish*, which appears in the Devonshire word, whishtness, and in the names of several places, such as Wishanger and Wisley, in Surrey, and Wisborough in Sussex. I find that at least a dozen writers on Dartmoor give a similar account of the derivation of this name, and they all begin the story with the words "according to Mr. Kemble's *Saxons in England.*" No doubt the Black Hunstman might have been expected to hunt over Dartmoor, if anywhere, and there would appear to be nothing unreasonable in the Scandinavian derivation, especially as more than half the names of places on and around Dartmoor are of Teutonic origin. Still one must bow to the authority of the Devonshire Association and to that of Captain Oliver. With regard to the origin of the wood, perhaps the safest guess is that it was planted by Nature, who planted the Wellingtonia in the Yosemite Valley, the Deodar on the Himalaya, and the Oak upon all suitable soils in England and up the bases of the Welsh mountains as far as the limit of trees. No doubt when the Oak begun to clothe the naked surfaces of Devonshire it worked its way round Dartmoor as Athelstane and his army did in the tenth century, when they expelled the ancient race from Exeter and won the Tamar. But when once the Oak had obtained possession of the better soils its Acorns would command the whole of Dartmoor; and, according to the twelve authors, the bogs of Dartmoor—which have been called "stables" from the special accommodation they offered to horses—contain numerous remains of Oak, Birch, and Hazel, that attained to the size of underwood, and were, in all probability, planted by pigeons which died on the moor, with their crops torn open by prehistoric hawks, just after they had been stuffed with acorns at Tavistock. Pileswode, in the valley of the Erme, appears to have been planted a short time before 1240, the date of the map which Captain Oliver mentions, and which still shows the stakes or piles which the planter, by an odd freak, provided for each tree. The owner must have been eccentric. Who was he or she? Perhaps this was the very spot of land owned by Adeline, an historical dancing girl, who got some knights' fees given to her as the reward of merit; or Pileswode might have been planted by her lover, or by such a potent person as Sir Trans Fixu, a doughty knight, who would not have hesitated to stake a whole wood—when the labour of thralls cost nothing—to please himself, or the good lady his wife, Dame Trans Fixu; and Pileswode, being thus planted in its very unfavourable situation, would be named by the Saxon wood-reeve, or by the general voice of all who saw it, and who began to speak Saxon about that period, in the field at all events, even if they were Normans. *H. Evershed.*

Chrysanthemums in October.—The Royal Westminster Aquarium Society advertises a Chrysanthemum show on October 4 and 5. Very good, but the only obstacle in the way is the fact that it is just five weeks too soon. But then the Aquarium is in the hands of such thoroughly go-a-head people that perhaps they can infuse that spirit into the Chrysanthemums and induce them to go-a-head also in time to meet the show engagements. *D.*

Hybrid Primulas.—Professor Kerner, of Innsbrück, has reprinted from the Austrian *Botanische Zeitschrift*, a description of the hybrid Primulaceæ of the Alps, numbering thirty-one in all—twenty-five belonging to the genus Primula, four to Androsace, and two to Soldanella. Of the hybrid Primulas by far the majority (twenty) are included in the section Auriculastrum, the remaining five in that of Primulastrum, Schott. No intercrossing is known between these two sections. In the section Primulastrum all the hybrids belong to the subsection Euprimula, Schott—P. acaulis (vulgaris, Linn.) showing the greatest sexual affinity for the others. In the section Auriculastrum, P. Auricula and minima are the species which show the greatest tendency to hybridise, although these two species cannot be made to fertilise one another. These hybrid Primulas are much more easily cultivated by the vegetative modes of reproduction than their parent forms, and usually exhibit a combination of the characters of their parent forms. Of "derivation hybrids," *i.e.*, crosses between a hybrid and one of its parent forms, the author only knows one or two instances. Of these hybrid Primulas not a few have been described as species: among the most interesting of which are P. brevistylis, D.C., between acaulis (vulgaris) and officinalis (veris); P. pubescens, Jacq., the ancestor of our garden "Auriculas," between Auricula and hirsuta; P. alpina, Schleischer (P. rhætica, Koch), between Auricula and viscosa; P. Flörkeana, Schrad., between glutinosa and minima; and P. venusta, Hort., between Auricula and carniolica. *A. W. B.*

The Hemlock Spruce.—In selecting Coniferæ for ornamental purposes, planters are apt to make choice of such as are of comparatively recent introduction, and in so doing things of sterling value that

might often be used much more effectively in certain positions are frequently overlooked. In the latter category, and standing in the very front rank among Coniferæ, I would name the Hemlock Spruce. The gracefully pendulous habit of its branches, clothed as they are with the richest feathery foliage, renders it almost unapproachable as an ornamental plant. Considering its great merits, and the length of time it has been introduced to this country, it is much to be wondered at that one so seldom meets with it in either a large or small state. This may perhaps be accounted for from the plant having been placed in situations unsuited to its requirements, and by that means it is very likely to have got a bad name among planters. Although indigenous to the northern part of the American continent, it does not succeed here when planted in dry, exposed situations, but appears to like the shelter and protection afforded by other trees. Moisture and shelter are the two essentials to its successful cultivation, and where these can be afforded its growth is rapid, and the colour of the foliage of the most pleasing description. With the gracefully waving branches, moved by the slightest breeze, there is such a play of light and shadow afforded by the rich contrast between the upper and under sides of the leaves, that it cannot fail to attract notice when placed in the foreground of plantations or other suitable situations. Most of the Coniferæ assume the pyramid form, but the habit of the Hemlock Spruce is generally more free and spreading, and it may on that account be used with good effect where many of the others would be quite out of character. Its drooping, pendulous habit, and the deep green colour of its foliage, render it just the plant for cemeteries, or for planting in groups near the margins of lakes, in which positions they would form a very pleasing feature in the landscape. In the older settlements of North America it is the tree most frequently met with, and although a mere scrubby bush in the extreme northern parts, in others it grows freely and often attains to the height of over 100 feet. Although the habit of the tree is naturally branching and spreading, it may with very little trouble be made to assume a pyramidal shape by a timely removal of any shoots that appear likely to form a separate leader. Excepting for ornamental purposes the tree is of very little value, as the wood is found to decay rapidly it at all exposed to the weather. *J. Sheppard, Wolverston.*

Anthracite Coal.—In answer to "T. S.'s" inquiry, respecting the action of anthracite coal on boilers, I may state it has been used here for upwards of three years, and I find no injurious action on the boiler whatever. Coke also contains a great amount of sulphur, but I very much prefer the coal to the coke, as I think I may say it lasts double the time, is quite smokeless, and a very strong heat-producer. *E. R.*

—— In reply to the letter of your correspondent, "T. S.," in your issue of the 18th inst., permit me to say that he is wrongly informed as to anthracitic coals necessarily destroying the boilers on account of the "great percentage of sulphur." There are as many degrees of purity among anthracitic as among bituminous coals, but the best anthracite is the purest coal raised, and contains scarcely a trace of sulphur. It is on this account that it is largely used for malting and chemical manufactures where a pure fuel is indispensable. If your correspondent will communicate with me, I can give him the names of nurserymen who have used anthracite coals for a long while, and who, I have no doubt, will answer his inquiries. *Arthur H. Gibson, General Manager, David Lloyd & Co. (Limited).*

Pruning.—I do not think it is a general practice for head gardeners to do the whole of the pruning. I served under a head gardener something like twelve years, and during the latter part of that time I had ample opportunities of learning to prune. Perhaps some of the under gardeners who have already written to you are something like myself when I first went into a garden at the age of seventeen. I thought that I was going to prune Vines and Peach trees, and all the rest of it, but I soon found that I had something to learn before I came to that. However, I found I had ample opportunity of learning by the process known as helping oneself. For instance when a Peach house was ready for pruning, the head gardener would order me to bring my paint and dress the trees over after him. Having to go over every shoot to paint it, and afterwards to tie it, I should, in common parlance, be a noodle if I did not know how to prune when the time came for that duty to devolve upon me. *J. M., Basford, Notts.*

Royal Horticultural Society.—I attended the meeting convened by the Council to consider their proposed revision of the Fellows' privileges, which had been recommended by that body as a means of providing the income (*i.e.*, £10,000 per annum) required for the maintenance of the South Kensington Gardens by the terms of the arrangement recently entered into with Her Majesty's Commissioners. The circular issued to the Fellows stated that the meeting was convened in consequence of sundry objections having been raised to the scheme devised by the Council, and from the remarks that fell from the assembled Fellows it was quite evident the South Kensingtonians were determined not to tax themselves. I was amused by the observations made by our late President, who twitted Lord Aberdare for presiding over a Council of gardeners, and with having been too much influenced by his colleagues in the formation of the new code of privileges. Lord Bury may style the present Council mere gardeners if he pleases, but he must not forget that the non-horticultural clique over which he presided miserably failed in everything they attempted, save in placing a relative in a salaried office, and in insulting the horticultural fellows. The question that presents itself to my mind is, What can the present Council under existing circumstances do? Are they to struggle on against the sad condition in which the Society is placed, or dissolve the partnership? So long as the Society has to expend its entire income to keep up the square garden, how is it possible to maintain its experimental garden at Chiswick, or to provide in any way for the advancement of the science of horticulture? If the continuance of the Society at South Kensington is to depend upon the income derived from the attractions offered there, how is it to compete with the various institutions by which it is surrounded? The *Saturday Review* tells us our shows are far inferior to those of the Crystal and Alexandra Palaces—it might have added to many country shows also; and now we have the Westminster Aquarium offering nearly £3000 in prizes for its flower shows of next summer. Can the Royal Horticultural offer sufficient to produce one really good one? If not, it would be far better not to attempt any. A short time since a letter appeared in the *Morning Post* bearing the signature, "A Former Member of the Council," advocating the abolition of prizes for flower shows at South Kensington altogether. We have heard it proposed that skating-rinks, fireworks, dancing, &c., should be adopted as a means of supplying the funds for the promotion of the science of horticulture. Perhaps these are the views of the late member of Council, if so it is quite certain he is not a horticulturist. Is it possible that a national and Royal scientific society of England in the nineteenth century can have fallen to such a depth of degradation as to number amongst its Fellows one who could suggest such means for its support? Surely it is absurd enough that such a society should be so mixed up with matters beneath its sphere as to lend its name to dignify and keep up a mere recreation ground. The Royal Horticultural Society's connection with South Kensington ought to have ceased long ago; its partnership with Her Majesty's Commissioners, who fail in everything they attempt, can never lead to any good result. Horticulture should stand alone upon its own merits, it is a power of no common order, its workings are transparent throughout the length and breadth of the land, it is firmly rooted in the hearts and homes of the British people, and hailed with equal joy by the wealthy and the humble—a science the practice of which alike exalts and refines the mind, but unless our Society can be rendered free from its present fetters it can never fulfil its mission, or be entitled to the royal and honourable name it bears. *An Observer.*

Carnations and Picotees.—The many duties which devolve on even country parsons at this season must be my excuse for deferring my answer to Mr. Dodwell's strictures until next week, in the meantime I may say that there are no two names to which I should pay greater deference in the matter than his and that of my lamented friend the Rev. G. Jeans. *D., Deal.*

Plumbago rosea.—In reply to Mr. Ollerhead's inquiry as to how long I have been able to keep the flowers of Plumbago rosea in a cut state, I beg to say that I have kept them in varying degrees of freshness for at least a week at a time. One or two of the first-expanded blooms close daily, and continue to do so till the whole are gone, but with such a number open at one time, two or three disappearing in this way are scarcely missed. I have now before me, standing in the window recess of the room in which I am writing, some cut blooms of the above that were placed in their present position on Saturday morning, and which are now (Monday evening), with the exception of three blooms, looking just as fresh as when cut. If your correspondent refers to the remarks I made he will there find I stated that if the plants were placed in moderate heat, so as to be near the glass some time before the flowers expand, they would be found to stand tolerably well in a cut state. Such a remark could hardly be taken as recommending them for the purpose of supplying cut flowers, or that they might be grown in a low temperature, although Mr. Ollerhead does speak of them as being suitable for furnishing stoves and intermediate houses, If those your correspondent is growing are, as he states, 2 feet from the glass, and standing on a stage just over two hot-water pipes, where there would naturally be a rush of hot air amongst them, their natural flimsiness of petal cannot be improved by being in such a position, and that may account for them not lasting twelve hours when cut. What I wished to point out was, that the lasting qualities of flowers in a cut state might be greatly prolonged if a certain course of treatment were pursued some time previous to the blooms expanding; and I am of opinion that sufficient attention is not paid to this when growing flowers for that purpose. Those who have had much to do with cut flowers must have observed the great difference there is between the lasting properties of such as are brought from a comparatively cool temperature over others that are forced, and allowed to expand their flowers in a hot moist one. The latter stand no chance whatever of lasting in a fresh state when severed from the plants and exposed to the constantly changing temperature and dry air of a room. Of course thin-petaled flowers, such as those of the Plumbago rosea, cannot be expected to last long in any position, however favourable; but even with these and others of a like character much may be done to prolong their beauty at this time of year by having them well up to the glass and in a suitable temperature while unfolding their blossoms. As I before remarked, much depends on the positions in which flowers are placed after being cut as to the time they may be expected to last, and there is no place so trying as the body of a room where there is sure to be a rush of dry air from the door to the fireplace the moment the door is open. The window recesses, being the coolest part of the apartment, what moisture there is for the most part finds its way there; and as the air is not much in motion near the windows, flowers there are in a much more favourable position for lasting than they are if placed in any other portion of the room. *J. Sheppard, Wolverston.*

A Gold Fish Tank.—Having a conservatory into which we are going to put hot-water pipes, and a tank for gold and silver fish, and being desirous, if possible, to breed them, I would like to know from any of your correspondents the best means to accomplish that end. We have thought of having a large slate tank with glass front, into which we shall put some rockwork to take off the stiffness, and also for the benefit of the fish; also some plants. We think of conveying the pipes under the tank, so that there will be at least a flow and return, the tank resting on them. Will that give the water a proper temperature, and what kind of rocks and plants would be most suitable for the purpose? Any information relating to the above will oblige. *Guy Blake, Gr., Sedgemoor House, St. Austell, Cornwall, Dec. 20.*

HELLEBORUS NIGER MAJOR.

I ALWAYS fancy that H. niger major, H. maximus, and H. grandiflorus are merely provisional names for this grand Christmas Rose, but as yet it has no other. With reference to this valuable winter-flowering plant it has been said that it is very easily increased. As such a hint may lead to the making of this fine plant still more scarce, I will here note down some practical remarks on its propagation, which, from this particular Hellebore having been for years a speciality here, I am enabled to give. It seems to me that a plant that will not seed, nor strike by cuttings, nor divide like Dactylis, nor chop up like Verbena venosa, can never be, in the popular sense, easily increased.

It is about six years since Mr. M'Nab told me how to propagate this particular Hellebore from the root, and in conversation with Mr. P. Robertson, of Trinity Nursery, he suggested as a suitable time when the leaves were at their ripest, that being the rule in collecting the roots of the Hellebore of commerce. On these two hints I worked, having a large stock of plants to operate upon, and I do not deny we were most successful from the first, and have increased the plant by the hundred; notwithstanding this, it will always be a slow plant to propagate.

The clumps operated on must be well established plants, that have formed root-stocks large enough to be worth cutting up, and the pieces of root must lie dormant (so to speak) for the best part of a year, and are safer left alone in the root-bed for two years; then they should be transplanted into their permanent bed, and, if undisturbed, will be good flowering plants in another couple of years—four years in short: that is a long time to wait for a Christmas Rose. By July this Hellebore is in its strongest vigour, and we select, I should rather say make, a leisure day or days for the interesting work, lifting only two or three clumps at a time and at once wheeling them to the cool shed.

In breaking up the plants in the ordinary way the

point to consider is to avoid as much as possible the loss of leaves, then cut off as much of the thick root-stock as can with safety be spared—do not be too greedy—leaving the true roots attached to the neck of the plant unmeddled with, and at once replant the divided clumps in their permanent place, watering carefully, and, if need be, shading with a branch until evening, the object being to prevent flagging, and that your bed or border be unspoilt in appearance during the summer when this Hellebore makes a fine foliage plant, to use a hackneyed word, and that the clumps will flower all right in autumn. The growing plants safe, we commence cutting up the root-stocks, and here I shudder to think of the sad waste of plants that in my ignorance yearly took place, for these useless old roots were thrown away, as one does with the hard pieces of Primulas. Can anything be done with these, by-the-bye? Sitting down, with a sharp, thin, strong blade and great deliberation, I cut up the root into pieces from 1 to 2 inches in length, according to the appearance of the buds or swellings—some of these may be blind, so one must look well; and at times you will have to sacrifice an eye, so to speak, in making two plants of a piece of root, or, what is wiser for the amateur, to be satisfied with one plant and keep all the eyes. But there is a dangerous fascination in seeing how many safe cuts you can make in a lump of root-stock, and one turns it round and round before deciding on the best angle to take to make most and lose least. Now I am getting wise, and in these doubtful cases resist the temptation and leave the piece whole, being sure that a finer plant will be quicker secured. I am particular in planting each day's batch of cut-up roots the same day, leaving nothing for to-morrow, and, therefore, only lift and cut up what can be safely completed that day. Plenty of sand is needed in the shallow bed of light soil, and a gentle watering with a fine rose when the lines are filled up and the bed full completes the business. A label numbered and dated, and with the number of pieces of root noted down, is set in each bed. Possibly there will not be in the whole bed one leaf visible above or true root below.

By the following April, if genial weather occur, you will see the lines cracking, and a loop of young leaf coming through here and there, day by day—very exciting; and then it is well to lay lightly a few Thorn branches over the bed to keep off cats and birds, who love to scrape in the loose soil.

I should much like to trace the origin of this Hellebore, but no one I have applied to can give any information. Some wildly assert that it is a seedling of H. niger. All agree that the North of Scotland is its adopted home. My own acquaintance dates back to November, 1863. Hearing often of a wonderful Christmas Rose at Newliston (Mr. Hogg's property, some 10 miles from Edinburgh), I drove over to see it, and Mrs. Hogg kindly gave me a good plant (they had got it in Aberdeen), and from that time I have never neglected increasing our stock—1st, by the usual slow process of division, and by begging and buying bits wherever I found a plant; then sending a trusty man to the North who secured some dozens of old clumps; and lastly, when enlightened by Mr. M'Nab's root hint, I went myself to Aberdeen, and, with the aid of a lorry from the railway, and sundry casks and sacks from the docks, in which to pack my booty, I reached home with a really sufficient stock. These palmy days are past, the London nurserymen are far better stocked than the Aberdeen ones, and know how to "secure" what is so well "worth looking after." One ought to have four lots, and in rotation yearly cut up one set of plants. It is no use tormenting and giving a check to a younger plant, and if left too long (six or seven years) we find there are many dead and blind buds, and it is not the most imposing clump of leaves that has the largest crop of root; in fact, until lifted one cannot be certain of the result. As to the seeding of H. niger and its varieties, I am curious to learn. Mr. Ellacombe is my only authority. He wrote to me:—"I certainly include H. niger among the Hellebores that sow themselves. I have had seedlings at different times; it is, however, not common." Bitton is quite an exceptional place, and I hope H. niger major will seed there also. Any to whom I put the question first affirm that the common Christmas Rose does ripen seed, and then, when they come to think, and wish to prove the fact, they have to back out of the assertion, or I am put off with the well-known examples of H. fœtidus and H. orientalis, which yearly have a sod of seedlings around the parent plants. To be sure fœtidus is not esteemed for cut flowers, and orientalis does not stand in water unless the flowers are cut short with their own inch or two of footstalk, so both these sorts are left alone.

I have repeatedly tried to seed H. niger major in open winters and severe ones in a south border of light and shady beds of heavy soil: fine clumps bearing from three to six dozen stalks of flowers have been selected in these seasons and situations; one has been covered close with a *cloche*, another properly aired with a hand-glass, a third protected with a few branches. The pods seemed to set and swell, but came to nothing. I have tried leaving the whole crop of flowers, and cutting off all except five or six best blooms, and taken those that seemed promising into the house. I have saved the first flowers that open (October) for experiment, and the last (March). In short, I do not believe it will seed here at least (is it a hybrid possibly?) and have given up the fruitless attempt. It has also been stated that Hellebores force well, but they do not require forcing, merely lifting and putting them into the greenhouse brings them on quickly, but they hate it, and in most places do no good after such treatment. I know several gardens where Christmas Roses were potted and brought into the house every winter, and the consequence was that there was not a Hellebore plant worth looking at for years after about the place. I may as well own we have been guilty of the unwise practice in our day, and lost and hurt many a good clump, although we were by way of doing the plant all justice afterwards. Hellebores resent being meddled with in this way; and for one amateur who loves the plant there are a hundred who merely love the display it makes, or the use it may be of, for their temporary fancy. I do think it is a melancholy sight to a true lover of plants to go in spring to back premises and out-of-sight corners, in most establishments, and see the waste and destruction of hard-wooded, soft, and bulbous plants after the forcing season. There they are no longer useful nor ornamental, shoved out of sight until at that busy season there is time to attend to them; meanwhile their pots are required for spring shiftings, and they are ruthlessly turned out with their roots roasting in the sun and shivering up in the east winds; and the end is, when they can be attended to, a large proportion are wheeled off to the rubbish heap. Of course this need not, and ought not to be the practice; nevertheless it is what happens yearly, and when I see Hellebores and Hepaticas tossing about in this cruel way, it does annoy me, for no two plants suffer more; and I really think hardy plants should be enjoyed in their legitimate place, and at their natural season.

Query: Is the love of forcing plants a healthy and instructive one? I deem it is not so for amateurs, or one to be fostered. It is all very right in regular large establishments, but then you will find a hothouse full of Eucharis amazonica and a cool conservatory for white Camellias, and Christmas Roses will not be required, and therefore left in the shrubbery borders safe. I always wish that those who will have birds in cages and chains would keep to canaries and parrots, and leave our native larks and bullfinches alone, and on the same principle with plants keep to bulbs which have been grown for generations for forcing purposes, and endless exotics, and leave our hardy plants in the garden. That is the place to appreciate Christmas Roses, and it is easy to have *cloches* or some sort of protection to save the flowers if the winter is severe; a very gentle exercise for even a frail amateur will be to lift off and on such protections, or, if this is too fatiguing, better cut the flowers and keep them in water where the buds will expand and the flowers last for weeks: in water the fine stalks of H. niger major are very beautiful, with the red spots and markings brightened and magnified in the clear glasses—all they require is a slice clean cut off when the extremity of the stalk gets discoloured or splits up.

I conclude with a hint or two for amateurs who exchange plants, and may have H. niger major to dispose of: many treasures to our garden have been added with the help of this Hellebore; again, thanks to Mr. M'Nab, we seldom buy plants—what we cannot get by exchange we do without.

1. Take as matter of course that you have the worst of the bargain in a commercial point of view, but be well satisfied for all that, because—

2. You get plants you want.

3. You get rid of those you do not require, and have more room in your crowded borders or shelves.

4. Fine healthy young plants that are sure to flower, and may divide in a few months into two or even three plants, but keep every inch of root-stock for yourself, and all weak little plants that would merely go in to the dozen or hundred.

5. (And here you have the best part of your bargain, for you cannot lose it). You have gained much knowledge about the plant so worked with. Never can one know too much of a plant; never can we know all there is to be learnt.

De Candolle's advice in a letter to Mrs. Somerville often comes to my remembrance when I am having a thorough exercise about some plant:—

"Londres, Juin 5, 1819.

"Mais je vous engage surtout à voir par vous-même, les plantes à tous leurs ages, à suivre leur végétation, à les décrire en detail, en un mot à vivre avec elles, plus qu'avec les livres."

F. J. Hope, Wardie Lodge, Dec. 16.

ROSES ON THE BRIER.

ROSE growers have long complained of the losses they experience every year of Roses worked on the Brier. Some attribute this to fungus at the root, and are on the look-out for a remedy. On the other hand, it has been said that the invasion of this parasite must be dependent on contact of the roots with dung or other putrefying matter, from heavy rains, from the employment of old stocks, from late or ill-managed planting, the spaces left between the mounds, &c. The causes assigned by the plant doctors for the evils of which rosomaniacs complain seem to me to be curious, and have brought to my recollection that I had at one time in my garden a bed of standard Roses; that one day I took a dislike to them because they were looking wretched (*souffreteux*). When they flowered they gave me the impression of bouquets tied to old brooms, and when the flowers were over, nothing but the brooms remained. I took them all up and, having cut their heads off, planted the stems in different places among other shrubs, and in one case at the foot of an Ailantus glandulosa (Tree of Heaven). The following year all grew vigorously. The one planted at the base of the Ailantus grew superbly; it is now about 15 centimetres in circumference, and its branches reach even to the head of the Ailantus. Every spring its branches, which curve over in a most graceful manner, are covered with flowers. It is the admiration of all my visitors, and in the autumn my glorious Brier is covered with hips, which give an aspect as if the branches were laden with wreaths of coral.

The others, though they have done well and are indifferent to fungus, are less luxuriant, because the Lilacs, the Elders, the Filberts, and other shrubs contest with them the enjoyment of the light and air. Since their transplantation they have been neither manured, nor watered, nor pruned. What are we to infer from this? That the scion is injurious to the Brier? That the Rose budded on the Brier, being less vigorous than the latter, does not obtain for it sufficient atmospheric food? That the variety which it bears being pruned to an extreme cannot fulfil the functions to which the branches and the leaves are destined? That if Roses worked on the Brier were less pruned or not at all, the stock would do better? That this unhealthy, enfeebled, and unnatural condition renders the plant more subject to the invasion of the fungus? I cannot answer these questions, but I am disposed to think that the continual mutilation of plants is injurious to their well doing. All horticultural writers agree in saying that in order that a plant may live its allotted span, there should be a proper balance between root and top—which is probable; and yet they recommend all sorts of mutilations, and laugh at those who think pruning injurious if not useless. At the recent Pomological Congress at Ghent did not the members laugh at one of the speakers who at the close of a rather long discussion as to the best mode of pruning recommended his hearers not to prune at all, and to plant standard trees! Many people are now of the same opinion. *Jean Sisley, Monplaisir, Lyons.*

HIGHLANDS, JERSEY.

THIS pretty property, situated on the brow of St. Saviour's Hill, and facing south and west, has lately been purchased by Charles Kepling, Esq. It presents so many interesting and beautiful features, both as to its position and the specimens of horticulture and floriculture it contains, that I may be pardoned for introducing it to the notice of your readers.

The "maisonette"—for it can scarcely be called a mansion—is built upon the highest part of the grounds, and commands the most beautiful land and sea views imaginable. The elevation is so good that, looking out from the front, the line of coast and bay from Noirmont Point to St. Aubin's Bay is brought into view, and are within the limits of the survey. All shipping coming from England and the adjoining islands are bound to pay tribute to the beauty of the scenery from the west, whilst from the south the views are not less attractive, as they bring the Bay of St. Clements, the Minquier Rocks, and the romantic fishing islets adjoining within their limits. There is something so majestically grand about the sea, especially in rough weather, when the white sea-horses are seen foaming with rage, and dashing their spray against the rock-bound coasts of these islands, that

it needs be seen to be realised. No conception can be formed of the mighty power and beauty of Father Neptune's domains when he is excited. He tumbles down breakwaters and newly-built piers, and with his mighty and resistless force strands shipping on the coast, which, however much to be deplored, adds a mighty feature to the grandeur of the scenery to be viewed from the elevations of these Channel Islands, one of which is the site of that pretty residence, "Highlands."

The house is approached by a long serpentine avenue, which wends its way through natural island rock, to the left of which is a marvellously beautiful, well-constructed, aad romantic garden, formed on the site of a former stone quarry, from which hundreds of thousands of yards of stone must have been removed. The avenue also passes over a stone bridge, originally formed for an entrance to the quarry, and also over a stone archway at a great elevation, which it must have required much skill and ingenity to construct, and which supports another portion of the drive to the plateau, upon which the house, lawn, pleasure grounds, and fruit gardens have been made; for made they are, and that by the indomitable skill, perseverance, and industry of the original proprietor.

On the right of the avenue, but many feet below its level, is the fruit garden, containing a splendid collection of fruit trees, some of which are remarkable for their size, and wonderful as to productiveness. To quote a single example, imagine a single Peach tree producing 12 gross of fine-sized fruit, which, if sold at 24*s.* per gross, would realise a sum of £14 8*s.*, and you have the result of its one year's produce, without the aid of locomotives, fruit cases, or glass protection in any shape or form. The soil being made upon the rock, is necessarily a light, friable loam, and is retentive both of moisture and the manurial elements introduced into it, so that its productiveness is immense—the slope of the ground, no doubt, from the increased area for the admission of light, assisting. To the left is the lawn, upon which are some of the grandest clumps of evergreen Oaks imaginable, 50 to 70 feet high, and from 100 to 150 feet in diameter, with their splendid dark green foliage unaffected, unhurt, and not in the least disfigured by the constant storms of wind to which they are exposed. Elms, also, in all their power of resistance, Rhododendrons, Laurustinus, Roses, *et omnium gatherum* of the specifically useful and ornamental plants generally used to plant the clumps on well-designed and better planted lawns.

The nearer approach to the house brings you to a pretty Elizabethan-constructed conservatory, which on the occasion of our visit was filled with a most beautifully-developed collection of Ferns, including many varieties of Adiantum or Maidenhair, fine, well-developed specimens, with splendid fronds upon them—so fine indeed, that the practice of thirty years in their cultivation excited my curiosity to know how it had been done. Next to that, but on a lower level, a vinery, and again, lower down, another long vinery, all connected and ingeniously heated by one hot-water apparatus, acting admirably and sending its volumes of hot water through several hundred feet of piping, imparting health and earliness to Vines, Orchids, and a general collection of useful and ornamental hothouse plants. Descending lower down the slope is the coach house, stabling, gardener's lodge, and poultry yard, in which is a useful pit and propagating house; but these being less interesting than the more prominent features of the property, I leave them for the purpose of leading the reader round the front of the house to the flower garden, which is situate on the northern side of the building and faces north and west. It is a long parallelogram, bounded on the eastern side by a wall, against which are some very fine Peach and Pear trees, and on the western side by a shrubbery, the facing of which is a well trimmed Laurustinus hedge, behind which and between that and the lawn is a maze, with its pretty and intricate serpentine paths, leading round shrubs after shrubs, each in itself forming a clump, until you reach the extremity, which is bounded by a circular Yew hedge, neatly trimmed and as close as a hoarding. When your curiosity is excited to know how to get out, round and round you renew your peregrination, unless you determine to turn your face to the north and work your way out whence you came to a pretty winding path bordered with flowering shrubs and herbaceous plants, which leads to the top of the cliff overlooking the quarry garden on the northern side, whence there is a prospect Infinity alone could create—I confess I cannot describe it, but will make an abortive attempt. Below you lies the greater portion of the valley of St. Helier's, with its thousands of houses and pretty detached villas on the slopes surrounding it. In the distance is the sea, in all its beautiful serenity or convulsive strife, as it may happen, and immediately below you is the marvellously-formed quarry garden, hewn out of the mighty rocks, which had existed from the time of the Creation, until the industry of man had required their removal to build homes for the thousand. Who would have conceived the idea of turning this tremendous hole into a beautiful garden? Who would have hewn that alpine path upon and around its side to descend to the bottom? Who would have filled those fissures with Mesembryanthemums, Vincas, Veronicas, Linarias, Helianthemums, Muhlenbergias, Sempervivums, and all those half-hardy and exotic plants which line the walls of the natural rock on your left, as you descend to the bottom, but the most ingenious of men? Arrived there, you find Osmunda regalis, 7 and 8 feet high; Hydrangea hortensis, growing on a raised plateau prepared for it, with evidence of scores of heads of bloom, which had flowered in all their blueness during the past season; Edwardsia grandiflora, grown to the size of a tree; Camellias, 15 feet high, and of a corresponding diameter; Magnolia grandiflora, of a much greater size, Banksian Roses growing and covering scores of yards of the rocky sides, Forsythia viridissima, Clematis, Jasmines, Hypericums by the yard, Sophora pendula as a beautiful weeping tree, a grand specimen of Cedrus Deodara gigantea towering above all, but detracting from the beauty of none—these formed but a few of the features of this remarkable garden, with its caves and subterranean passages stocked with Ferns of the more ordinary kinds. We continue walking round, astonished, pleased, and amused at the ingenuity of the means adopted for attaining the different elevations, each and every one planted with a great variety of plants. We follow up a flight of irregular steps, partly hewn and partly fixed, to find revealed more and more curiosities of vegetable growth—ascending from plateau to plateau until we again reach the top, and return, through sundry patches of useful garden ground, well planted and cropped, back to the front of the house, through the flower garden, which I have already partly described, with its elliptically designed paths encircling two large oval-shaped beds, divided into a great number of smaller ones, no two of which are of the same shape or correspond in size, but all so arranged that access to any part is easy, and the different plants growing in them may be reached without difficulty. These beds and borders are filled with an immense variety of bulbs, herbaceous flowering plants and shrubs, amongst which we noticed large clumps of Agapanthus umbellatus and Amaryllis Belladonna: in fact, so great was the variety that it would take pages to describe them. I abandon the task, confessing that I think Highlands the most romantic, beautiful, and productive property I ever visited,—productive in many senses of the word, and quite unique in its style. *C. B. S., Jersey.*

SMALL, MEDIUM, AND LARGE COLLECTIONS OF PEARS.

THE undeniable excellence of certain Pears—an excellence maintained under a variety of circumstances both of soil and climate—renders the task of selecting the limited number of kinds required for a small garden comparatively easy. Quality is not always combined with beauty; but it may be assumed that the possession of the properties that are generally recognised as constituting excellence in a Pear give, to whatever Pear possesses them, pre-eminence over Pears that possess only the merits of size and beauty, of form and colour. In indicating a small collection that may include eighteen varieties, I will venture to assume that their cultivation is undertaken for the palate, and not for the gratification of the eye. To supply the dessert from July to December, the following sorts may be recommended:—Doyenné d'Eté, Jargonelle, Beurré d'Amanlis, Beurré Superfin, Louise Bonne of Jersey, Beurré Hardy, Marie Louise, Huyshe's Victoria, Huyshe's Prince Consort, Doyenné du Comice, and Beurré d'Anjou; and from January to April, Winter Nelis, Josephine de Malines, Easter Beurré, Beurré Rance, Bergamotte d'Esperen, Olivier des Serres, Doyenné d'Alençon, will afford everything we possess in constitution, fertility, and quality in Pears.

A collection that may number thirty kinds and be marked as one of medium dimensions, may add a dozen excellent and useful Pears to the kinds already named, aud these should be Citron des Carmes, Williams' Bon Chrétien, Fondante d'Automne, Urbaniste, Doyenné Boussoch, Conseiller à la Cour, Van Mons' Léon le Clerc, Glou Morceau, Knight's Monarch, Crassane, Beurré d'Aremberg, Huyshe's Prince of Wales. The more extended collection should include Madame Treyve, Gansel's Bergamot, Thompson's, Beurré Bosc, Beurré Bachelier, Beurré Clairgeau, Beurré Diel, Ne Plus Meuris, Madame Millet, Duchesse de Mars, Hacon's Incomparable, and Zephèrin Grégoire.

Many of your correspondents will be able to extend this list, and this fruitful season has given us opportunities of testing a greater number than usual, and I hope at a later period, when I have proved the new varieties which have fruited with me, to give a supplementary list. *W. Ingram, Belvoir, in the "Villa Gardener."*

CONCERNING OAKS.

THE publication of the note concerning the fine seedling Oak raised by Sig. Sada, of Milan, and called by us, at p. 685, *Quercus Sada*, has brought us sundry inquiries as to other Oaks. In the first place Mr. Charles Lee, whose opinion on such matters we completely defer to, doubts whether M. Sada's Oak is a seedling from Q. rubra at all, and we are bound to admit that, on the face of it, it looks much more like a seedling of Q. nigra, the Black Jack of American woods. The form and pubescence of the leaf are much more like those of Q. nigra. On the other hand, we are assured by M. Sada that the parent was Q. rubra.

Quercus pannonica.—In some nurseries, and specially in the Royal Botanic Garden, Edinburgh, may be met with a handsome deciduous Oak under the name of Q. pannonica. As no such name occurs in recognised works, we have been at the pains of determining what this Oak might really be. Comparison with native specimens shows indubitably that the Q. pannonica of English gardens, originally derived from M. Booth, of Hamburg, is Q. conferta, the Hungarian Oak. As we propose shortly to publish a description of the tree, we need say no more about it at present.

Quercus pannosa of gardens.—The Oak known under this name has broadly obovate or oblong-obovate, sharply-pointed leaves, tapering gradually but sharply to a wedge-shaped base. In its distal two-thirds it is slightly lobed in a pinnate fashion, the lobes being rather acute at the point, but not spiny. The upper surface is quite glabrous, while the lower is covered with white-felted down. This Oak is clearly a variety of Q. bicolor, the Swamp White Oak of America. It is, in fact, the Q. bicolor var. platanoides of Alph. De Candolle (*Prodromus*, xvi. ii., 21), differing from the type mainly in being less hoary on the under surface.*

Q. nobilis, Hort. Ottolander.—Under this name we have seen a fine-leaved Oak, very markedly broader at the upper end, wedge-shaped, and entire at the base, but above with shallow, spine-pointed lobes. On comparing these with North American specimens of Q. nigra—Black Jack—it is is obvious that Q. nobilis, Hort., is a seedling form of Q. nigra. *M. T. M.*

THE FARM.

TURKEYS.—Amateur poultry keepers, who dislike their charges being an anxiety to them during all the earlier stages (at least) of their existence, would do well not to select turkeys as their special care, the extraordinary stupidity of the turkey chicks makes a helping hand necessary in the small difficulties which are of no account to common chickens, while their delicacy of constitution necessitates constant watchfulness; and though where there are large country runs the flocks, when once grown, will thrive admirably, straying in the autumn stubble fields, and trespassing irrepressibly wherever acorns or Spanish Chestnuts are to be found, even then they require an eye to their proceedings, whilst the aggressiveness of the cock birds in the flock make them the terror of all the children, and sometimes a source of discomfort even to their elders.

The varieties commonly reared are the Norfolk or black turkey, and the Cambridge, perhaps most beautiful when a medium shade of copper is the one selected of its many tints. The white variety, though ornamental as a live adjunct to park scenery, is not as desirable as the others for household purposes, on account of its greater tenderness of constitution; and the amateur should be careful to select (or to obtain some experienced assistance in selecting) thoroughly well formed and healthy birds.

It is not at all necessary for mere household purposes that the birds should be quite pure bred, if of a good strain, but the plumage should be hard and glossy, and rich in colour, the skin about the head bright, the eye clear, the breast both broad and deep, and the legs straight and powerful, and especial care should be taken to ascertain that the breastbone is straight. In procuring cock birds, if these matters, and particularly the proper form of breastbone, are not made sure of, the young will probably inherit a deformed figure, and the results be exceedingly disappointing when they appear at table.

* The synonymy of this Oak may be given as follows:—
Q. bicolor, Willd. (1801); Asa Gray, *Man. Bot. N.U. States* (1868), p. 451; Koch, *Dendrologie*, ii. 2, p. 47.
Q. Prinus var. tomentosa, Michx.; *fide* Gray, *l.c.*
Q. Prinus var. discolor, Michx.; *fide* Gray, *l.c.*, and Loudon, *Arboretum*, iii., p. 1876; Prinus bicolor, Spach. *Hist. Veg. Phan.* xi. 158 (1842).
Q. bicolor var. platanoides, Alph. D.C., *Prodr.* xvi. 2, p. 21.
Q. Prinus platanoides, Lam. *Dict.* i., p. 720.
Q. pannosa, Bosc. et Hort., Europ.
Q. lyrata, Hort.

For a small flock suitable to the wants of a moderate family, a cock bird, with five or six hens, answer well; the number of hens may, according to some authorities, be much more, even up to fifteen, but the smaller number is probably much better, and the age at which it is requisite to renew the birds is best judged of by the grower's own observation of any failure in the health of the young, whether affecting the chicks of one particular hen or the whole flock.

The tenderness of the constitution of the turkey lays it open to be much influenced by its surroundings, and the varying effects of different climates, amount of liberty, warmth, and comfort of the birds especially observed, have probably much to do with the varying opinions expressed by different growers as to the best method of treatment.

The number of eggs laid averages about sixteen, but amounts to as many as twenty at times, and it is doubtful whether they are best removed one by one, as laid, from the nest, or allowed to remain, so as to be slightly warmed on each return of the hen. Where the turkey cock has a tendency to destroy them (as is sometimes the case) they should of course be removed; or if there is difficulty of access, or any likelihood of fighting over the nest, the removal is recommended by without doubt one of our best authorities on rearing turkeys. But there is so much risk of injuring the eggs by rough handling, or placing them in draughts, or otherwise improperly, that I believe where the nest is well made and protected, and the hen can move on and off without difficulty, that it is the safest course to leave them in their natural position. If removed, a shallow box placed in an airy, but neither cold, damp, nor draughty locality, with the eggs laid on a layer of bran and lightly covered over with it, is as good an arrangement as any for their preservation.

With turkeys, as with all other domestic fowls, care should be taken to keep off intrusion, so that they may not be disturbed when they are sitting. A roomy lean-to shed against a dry wall or warm building, with sides of wooden bars, a flagged floor, and weather-tight roof answers well, taking care that it should be large enough to accommodate the stock birds without crowding. There should be stout perches, which may be made of Fir poles carefully chosen large enough to give comfortable support to the feet, and at the back a space just wide enough to allow the hen to turn comfortably in, should be partitioned off for sitting pens. All that is requisite is a row of narrow open wooden bars in front to divide it from the shed, narrow wooden bars similarly set at short distances apart, fastened horizontally at any convenient height to keep out intrusion from above, and each pen divided by a solid partition from its neighbour, a space being also left free in front of each as a doorway for the hen.

With a well-made nest, ample in material to keep the eggs from rolling about, and secure from chills, and anything at hand placed against the open doorway to keep out the other birds, the turkey will probably sit and hatch well, only requiring to be moved off and seen safely back again at feeding time.

Both these matters require constant attention, or the hen would very probably not stir till her health was injured, and once off would as probably remain so till it was immaterial whether she returned or not. It is a good plan to place the food and water at some short distance from the pen, so as to insure a little wholesome exercise daily in reaching it; and it is well also to have a heap of ashes or sand close by for the hen to dust herself in occasionally.

The plan sometimes followed of giving the sitting hen specially indigestible food to obviate the necessity of daily removal from the nest, is by no means to be recommended; on the contrary a little moistened bread gently held in the hand of some known friend, is often a great relief to the feverishness of the sitting bird towards the end of the period of incubation, and if more practised with the domestic fowl might probably often prevent her destroying her own eggs.

The time of incubation is usually four weeks, but varies a little with circumstances, and towards the end of the period gently dipping the eggs in lukewarm water, just their own temperature, will probably facilitate hatching, but where there is any difficulty in meddling safely with the eggs it is perhaps the wisest course to wait and see whether the chicks begin to hatch unaided at the proper time, and only to apply the remedy if it should be found they are glued in the shells so as to require the egg to be moistened externally.

If they hatch properly and nearly at once, it is best to leave the chicks under the mother, but otherwise they should be removed temporarily for fear of injury from amongst the remaining eggs, and placed in a soft piece of flannel securely in a basket, or open box, in some warm and sheltered place, observing that though they should have warm, soft folds to nestle under, as under the parent bird, they should not be smothered and weighed down by a heavy kitchen cloth or any other cumbrous wrappings.

It may be remarked in passing that (however much he may wish to volunteer for the office) it is not prudent to let the cock bird undertake the sitting department; the difficulty is usually quite the other way—he is only too willing to destroy the eggs; but on one occasion in a friend's establishment, the turkey cock being indulged in his unusual wish, he sat out the time with the greatest steadiness, on the top of as many eggs as could be got under him; not a chicken, however, resulting from his operation, and domestic science settling it was "because he did not know how to turn the eggs!" the experiment could hardly be called successful from any point of view.

It is a common practice, and a good one, to put a few eggs of the common fowl under the turkey hen a week after the others, as it is phrased, "to show the turkey chicks how to eat," the want of capacity in the young birds in the domesticated state being something astonishing, and making it necessary to keep the most constant watch on their proceedings.

For the first twenty-four hours the young birds require no food; after that the course of diet recommended by one authority is—eggs boiled hard for the first eight days; for the second eight days, an addition of bread crumbs, parsley, and nettles; then the bread and vegetables without the eggs, and afterwards moistened meal, boiled peas, and especially millet. As far as my personal experience goes, I should recommend the addition of bread crumbs rather earlier for the very young chicks, and (for their elders) to vary the dietary with any waste scraps which may be at hand; bits of bone to pull at, curd, or any wholesome fragments, with a little sweet milk occasionally. If the young birds will not peck enough for their health the materials of their food may be made into small worm-like rolls, and a small quantity gently put down their throats occasionally with the greatest possible care; but the too favourite peppercorn is much better withheld altogether, and on no account whatever thrust down their throats just after hatching. Being liable to the disease known as the gapes, the most scrupulous cleanliness should always be observed, and especially in keeping the young chicks supplied with perfectly clean water.

The store birds thrive well on such food as is commonly given to the other fowls, such as barley, any wholesome scraps, and barley meal made into a rough crumbly paste, as an especial supply. When anything more is required, and where there is a good country run, nothing more will be requisite for the birds destined for the family table.

Where it is allowable the birds will stray widely in the autumn, picking up immense quantities of varied food from the corn stubble, and from the sheaves also if not well watched. The acorns in the woods, and park groves, Spanish Chestnuts, Beech-mast, and similar fruits have all great attractions; and the birds, gently strolling along, eating everything that comes in their way, gain health and vigour in their half wild life, and acquire a game-like flavour much preferred by those accustomed to it to that of the birds put up to fatten.

The power and spirit of the cock birds is enough to protect the flocks from common danger, but where a solitary turkey is either sitting out or left towards dusk unprotected with her young, there is much risk of attack from any foxes that may be straying round. The animal will come even close to the homestead, and rapidly and quietly remove a whole brood; and on one occasion it was only by the outcries of the old bird, when the aggressor endeavoured to finish his evening's work by carrying off the mother as well as the young, that his presence was found out, and the bird saved almost literally out of his jaws.

Turkeys can in no case be recommended as ornamental additions (like peacocks or many kinds of poultry) to garden scenery; but where they can be well selected to begin with, and there are conveniences for the warmth and comfort they require, and a sufficiently extensive run to keep them from being inconveniently obtrusive, they are useful, and repay much trouble; but for households the same amount of care spent on the domestic fowl would insure a much more certain and a fuller return, and, as far as mere table supply is concerned, an exchange with a neighbour of a couple or three fowls for a good-sized turkey will usually produce the bird as often as it is needed with far less trouble than rearing it on the premises. *O.*

NEW PLANTS CERTIFICATED

AT THE ROYAL BOTANIC SOCIETY'S EXHIBITIONS, 1875.

*** *B.C., Botanical Certificate; F.C., Floricultural Certificate; both being equal to a First-class Certificate*

Abutilon Darwinii	.. ..	Veitch & Sons, May 26—B.C.
Acalypha marginata	.. ..	B. S. Williams, May 26—B.C.
Adiantum Hendersoni	..	Veitch & Sons, May 26—B.C.
Agave Beaucarniana	.. ..	Croucher, May 26—B.C.
„ Bessereriana major	..	Croucher, May 26—B.C.
„ marmorata	.. ..	Croucher, May 26—B.C. B. S. Williams, May 26—B.C.
„ Pilgrimii	.. ..	Croucher, May 26—B.C.
„ polyacantha	.. ..	Croucher, May 26—B.C.
„ pubescens	.. ..	Croucher, May 26—B.C.
„ Salmiana aureo-marginata	.. .. ..	Veitch & Sons, May 26—B.C.
„ Veitchii	.. ..	Croucher, May 26—B.C.
Alsophila Van Geertii	..	B. S. Williams, March 31—B.C.
„ hirta	.. .. ..	Veitch & Sons, June 16—B.C.
„ australis Williamsii	..	B. S. Williams, May 26—B.C.
Anthericum variegatum	..	B. S. Williams, March 31—B.C.
Anthurium cordifolium	..	Veitch & Sons, June 16—B.C.
„ Scherzerianum album	..	W. Bull, June 16—B.C.
Asplenium ferulaceum	..	Veitch & Son, June 16—B.C.
Athyrium Filix-fœmina apiccale	.. ..	W. Bull, May 26—B.C.
„ „ Jacksoni	.. ..	Jackson & Son, May 26—B.C.
Auricula Gertrude Knight	..	Turner, April 28—F.C.
„ (alpine) National	..	Turner, April 28—F.C.
„ „ Iron Duke	.. ..	Turner, April 28—F.C.
Azalea Gem	.. .. ..	Carmichael, April 28—F.C.
„ Mrs. Carmichael	..	Carmichael, April 28—F.C.
Begonia Emperor	.. ..	Veitch & Sons, June 16—F.C.
Bertolonia Miranda	.. ..	Van Houtte, April 28—B.C.
„ Van Houttei	.. ..	Van Houtte, April 28—B.C.
Betula purpurea	.. ..	Veitch & Sons, June 16—B.C.
Blandfordia princeps	.. ..	W. Bull, May 26—B.C.
Carnation Scarlet Defiance	..	Turner, June 30—F.C.
Cattleya tricolor	.. ..	Veitch & Sons, May 26—B.C.
Cibotium glaucum	.. ..	W. Bull, May 26—B.C.
„ Menziesii	.. .. ..	W. Bull, June 16—B.C.
Cineraria Ann Page	.. ..	James, March 31—F.C.
„ Brightness	.. ..	James, March 31—F.C.
„ Charles Bending	..	James, March 31—F.C.
Clematis alba magna	.. ..	Jackman & Son, May 26—F.C.
„ J. P. Gassiott	.. ..	Jackman & Son, May 26—F.C.
„ Mrs. Hope	.. .	Jackman & Son, May 26—F.C.
Coleus Duchess of Edinburgh		Carter & Co., March 31—F.C.
Crinum brachynema	.. ..	W. Bull, April 28—B.C.
Croton appendiculatus	..	Veitch & Sons, April 28—B.C.
„ Disraeli	.. .. ..	Veitch & Sons, April 28—B.C.
„ picturatus	.. ..	W. Bull, June 16—B.C.
„ tortilis	.. .. ..	Veitch & Sons, April 28—B.C.
Cypripedium selligerum	..	Veitch & Sons, May 26—B.C.
Dasylirion longifolium glaucum		Croucher, May 26—B.C.
Davallia Youngii	.. ..	Veitch & Sons, June 16—B.C.
Dendrobium Wardianum	..	Low & Co., May 26—B.C.
Dictyogramma japonica variegata	.. ..	B. S. Williams, May 26—B.C.
Dracæna candida	.. ..	W. Bull, April 28—B.C.
„ elegantissima	.. ..	W. Bull, April 28—B.C. Veitch & Sons, April 28—B.C.
„ hybrida	.. .. ..	Veitch & Sons, April 28—B.C.
„ insignis	.. .. ..	W. Bull, April 28—B.C.
„ Princess Teck	.. ..	E. G. Henderson & Son, May 26—B.C.
„ Princess of Wales	..	E. G. Henderson & Son, June 16—B.C.
„ rex	.. .. ..	W. Bull, June 16—B.C.
„ rubella	.. .. ..	W. Bull, June 16—B.C.
„ Taylori	.. .. ..	Veitch & Son, June 16—B.C.
„ triumphans	.. ..	W. Bull, June 16—B.C.
Fourcroya variegata	.. ..	Croucher, May 26—B.C.
Friesia Leichtliniana	.. ..	New Plant and Bulb Company, April 28—B.C.
Geonoma gracilis	.. ..	B. S. Williams, March 31 and May 26—B.C.
Gloneria jasminiflora	.. ..	B. S. Williams, April 28—B.C.
Gloxinia Lisère d'Argent	..	Veitch & Sons, June 16—F.C.
„ Mdme. Patti	.. ..	Veitch & Sons, June 16—F.C.
„ Marquis of Lorne	..	Veitch & Sons, June 16—F.C.
Kentia Moorei	.. .. ..	W. Bull, June 16—B.C.
Lomaria capensis	.. ..	W. Bull, June 16—B.C.
„ dobroydensis	.. ..	W. Bull, June 16—B.C.
Metroxylon filare	.. ..	W. Bull, April 28—B.C. B. S. Williams, April 28—B.C.
Nepenthes albo-marginata	..	Veitch & Sons, May 26—B.C.
„ rubra	..	Veitch & Sons, June 16—B.C.
Nephrodium truncatum	..	W. Bull, May 26—B.C.
Odontoglossum Roezlii	..	B. S. Williams, April 28—B.C.
„ „ album	.. .. ..	W. Bull, April 28—B.C.
„ vexillarium album	.	Veitch & Sons, May 26—B.C.
Osmunda obtusifolia	.. ..	W. Bull, May 26—B.C.
Pelargonium (fancy) Countess of Dudley	.. ..	Turner, May 26—F.C.
„ „ Mrs. Baker	.. ..	Turner, June 16—F.C.
„ „ Mrs. Porter	.. ..	Turner, May 26—F.C.
„ Alchymist	.. ..	E. B. Foster, June 16—F.C.
„ Andrew	.. .. ..	Rev. A. Mathews, June 16—F.C.
„ Edith	.. .. ..	E. B. Foster, May 26—F.C.
„ Eclipse	.. .. ..	E. B. Foster, May 26—F.C.
„ Frances	.. .. ..	Rev. A. Mathews, June 16—F.C.
„ Flirt	.. .. ..	E. B. Foster, May 26—F.C.
„ Lord of the Isles	..	E. B. Foster, June 16—F.C.
„ Magician	.. .. ..	E. B. Foster, May 26—F.C.
„ Mountsineer	.. ..	E. B. Foster, June 16—F.C.
„ Revenge	.. .. ..	E. B. Foster, May 26—F.C.
„ Sappho	.. .. ..	E. B. Foster, May 26—F.C.
„ Viscount	.. .. ..	E. B. Foster, June 16—F.C.
„ (double-flowered ivy-leaved) König Albert		W. Bull, June 16—F.C.
„ (decorative) Beauty of Oxton	.. .. ..	C. Turner, May 26—F.C.
„ (Golden Tricolor) Enchantress	.. ..	E. G. Henderson & Son, June 16—F.C.
„ (Zonal) Boadicea	..	Burley, June 16—F.C.
„ „ Levison Gower	..	Burley, June 16—F.C.
„ „ Squire of Weal	..	Burley, June 16—F.C.
Pellæa ornithopus	.. ..	B. S. Williams, June 16—B.C.
Persica vulgaris, purple leaved		Veitch & Sons, June 16—B.C.
Pink (forcing) Derby Day	..	Turner, May 26—F.C.
„ Henry Hooper	.. ..	Turner, June 30—F.C.
„ Lord Lyons	.. ..	Turner, June 30—F.C.
„ Shirley Hibberd	..	Turner, June 30—F.C.
Platycerium Wallichii	.. ..	Veitch & Sons, May 26—B.C. B. S. Williams, May 26—B.C.
„ Willinckii	.. ..	Veitch & Sons, June 16—B.C.
Polypodium (Phegopteris) Dianæ	.. ..	Jackson & Son, May 26—F.C.
Polystichum lepidocaulon	..	B. S. Williams, May 26—B.C.
Ptychosperma robusta	.. ..	W. Bull, April 28—B.C.
Rhododendron (hyb.) Countess of Dudley	.. .. ..	Turner, April 28—F.C.
Rose (H.P.) Magna Charta	..	W. Paul, June 30—F.C.
„ „ Peach Blossom	..	W. Paul, April 28—F.C.
„ „ St. George	.. ..	W. Paul, June 30—F.C.
„ „ Star of Waltham	..	W. Paul, March 31, and June 30—F.C.
„ „ Sultan of Zanzibar	..	Paul & Son, June 16—F.C.
Sadleria cyathoides	.. ..	W. Bull, May 26—B.C.
Saxifraga aretoides primulina		Parker, April 28—B.C.
Saxifraga odorata	.. ..	E. G. Henderson & Son June 16—B.C.
Sedum californicum	.. ..	E. G. Henderson & Son, June 16—B.C.
Sibthorpia europæa variegata		W. Bull, June 16—B.C.
Sonchus elegantissima	..	E. G. Henderson & Son, April 28—B.C.
Sonerila Hendersoni	.. ..	E. G. Henderson & Son, May 26—B.C.

Sonerila Hendersoni marmorata		E. G. Henderson & Son, May 26—B.C.
Thrinax nobilis		W. Bull, April 28—B.C.
Tillandsia musaica		W. Bull, April 28—B.C.
Typhonium Brownii		W. Bull, April 28—B.C.
Vanda Parishii		Veitch & Sons, May 26—B.C.
Viola Lady Diana		J. Gray, June 16—F.C.
Zamia calocoma		E. G. Henderson & Son, June 16—B.C.
,, Lindeni		B. S. Williams, June 16—B.C.
,, Wallisii		Veitch & Son, June 16—B.C.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DEC. 22, 1875.

MONTH AND DAY.	BAROMETER. Mean Reading Reduced to 32° Fahr.	BAROMETER. Departure from Average of 18 Years.	TEMPERATURE OF THE AIR. Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Degree of Humidity. Sat. = 100.	WIND. Average Direction.	RAINFALL.
Dec.	In.	In.	°	°	°	°	°	°			In.
16	29.95	+0.13	35.3	31.8	3.5	33.6	— 7.1	31.4	90	S. : S.S.W.	0.00
17	29.79	—0.03	48.9	30.1	18.8	40.4	— 0.1	38.4	93	S. : S.W.	0.02
18	29.69	—0.14	46.8	32.8	14.0	40.0	+ 0.7	39.1	94	S.S.W. : S.W.	0.00
19	29.52	—0.32	47.8	41.9	5.9	45.2	+ 5.2	40.0	82	S.S.W. : S.W.	0.09
20	29.48	—0.36	51.7	38.1	13.6	44.6	+ 4.9	42.2	91	S.S.W. : S.W.	0.02
21	29.68	—0.16	54.1	40.4	13.7	46.0	+ 6.7	42.3	88	S.W.	0.08
22	29.52	—0.33	56.8	47.2	9.6	51.4	+12.6	47.2	86	W. : S.W.	0.20
Mean	29.66	—0.17	48.8	37.5	11.3	43.2	+ 3.3	40.1	89	S.S.W. : S.W.	sum 0.41

Dec. 16.—Overcast, dull, foggy, and gloomy throughout.
— 17.—Dull, and slight rain fell at 10 A.M. Very fine and bright after.
— 18.—Fine till noon, dull and cloudy after.
— 19.—Dull, and occasional rain fell till 2 P.M. Fine and clear till night.
— 20.—Dull day. Frequent rain fell between noon and 6 P.M. Very mild. Windy.
— 21.—Fine, but cloudy day. Very mild. Rain fell in early morning.
— 22.—Overcast, dull, with frequent rain till 1 P.M. Fine and bright after. Gale at 6 A.M. Warm day.

—— During the week ending Saturday, Dec. 18, in the vicinity of London the reading of the barometer at the level of the sea increased from 30.12 inches at the beginning of the week to 30.25 inches by 10 P.M. on the 13th, decreased to 30.14 inches by the afternoon of the 14th, increased to 30.19 inches by the morning of the 15th, decreased to 29.88 inches by the end of the week. The mean reading for the week was 30.09 inches, being 0.16 inch lower than that of the preceding week, and 0.10 inch above the average.

The highest temperatures of the air observed by day ranged between 49° on the 17th, and 35¼° on the 16th; the mean value for the week was 42½°. The lowest temperatures of the air observed by night varied from 27¾° on the 14th to 37¼° on the 12th; the mean for the week being 31¾°. The mean daily range of temperature in the week was 10¾°, the greatest range in the day being 18¾° on the 17th, and the least, 3¼°, on the 16th. The mean daily temperatures of the air and the departures from their respective averages were as follows:—12th, 41°.3, +0°.6; 13th, 37°.6, — 3°; 14th, 34°, — 6°.7; 15th, 35°.6, — 5°.1; 16th, 33°.6, — 7°.1; 17th, 40°.4, — 0°.1; 18th, 40°.9, + 0°.7. The mean temperature of the air for the week was 37°.6, being 3° below the average of sixty years' observations.

The highest reading of a thermometer with blackened bulb in vacuo placed in sun's rays was 68¼° on the 17th. The lowest reading of a thermometer on grass with its bulb exposed to the sky was 25° on the 14th; the mean for the week was 30°.

The direction of the wind was S. and S.W., and gentle in motion. The weather during the week was dull and the sky cloudy. Fog prevailed on the morning of the 16th inst.

Rain fell on one day, the amount collected was 0°.02 inch.

In England, the highest temperature of the air observed by day was 52°, at Truro; at Norwich 44° was the highest temperature in the week; the mean value from all stations was 47¼°. The lowest temperature of the air observed by night was 25°, at Newcastle-on-Tyne; at Truro 35° was the lowest temperature in the week; the general average from all stations was 29¼°. The range of temperature in the week was the greatest at Bristol, 21¾, and the least at Norwich, 12°; the mean range from all stations was 18°. The mean of the seven high day temperatures was the largest at Truro, 49°; and the smallest at Hull, 40¼°; the mean value from all stations was 42¾°. The mean of the seven low night temperatures was the greatest at Truro, 40¼°, and the least at about London, 31¾°; the mean from all stations was 35°. The mean daily range of temperature in the week was the largest at about London, 10¾°, and the smallest at Leicester and Hull, both 5½°; the mean daily range of temperature from all stations was 7¾°. The mean temperature of the air for the week from all stations was 38¾°, being 6¼° higher than the value for the corresponding week in 1874. The highest was at Truro, viz., 44¾°, and the lowest at about London, Hull, and Bradford, all 37¼°.

The amounts of rain measured at the several stations was everywhere small, except at Truro, whose fall was nine-tenths of an inch. At Leicester, Norwich, Birmingham, Sunderland, and Newcastle-on-Tyne, no rain was recorded; the average fall over the country was one-tenth of an inch.

The weather during the week was dull, and the sky generally cloudy.

Fog was prevalent over the country on the morning of the 16th inst.

In Scotland the highest temperatures of the air ranged from 48° both at Aberdeen and Paisley to 46° both at Glasgow and Dundee, the general average being 47°. The lowest temperatures of the air varied between 21½° at Glasgow and 32¼° at Greenock, the general average value being 27¼°. The mean range of temperature in the week was 19¾°. The mean temperature of the air for the week was 40¼°, being 8° higher than the value for the corresponding week in 1874. The highest occurred at Greenock, 42½°, and the lowest at Aberdeen, 38¼°. Rain was measured at Glasgow and Greenock to the amount of three-quarters of an inch, at Aberdeen one-tenth of an inch only was recorded, and at Paisley no rain fell; the average fall over the country was four-tenths of an inch.

At Dublin the highest temperature was 53½°, the lowest was 27°, the mean 40¼°, and the fall of rain 0.16 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season.

PLANT HOUSES.

SOFT-WOODED GREENHOUSE PLANTS.—*Pelargoniums.*—The large varieties of these—that is, such as are generally known under the name of show sorts—are in many places not so much grown as they were before the Zonal kinds had reached their present degree of excellence; but useful as are the latter from their almost continuous habit of blooming, yet the eye gets weary of continually looking upon the same forms and colours all the year round. If merely to give change for general decorative purposes, it is a mistake to lose sight of either. The show or fancy kinds, flowering so profusely as they do at a time when most of the spring-blooming greenhouse subjects are on the wane, makes them doubly acceptable for conservatory decoration. It is not advisable to aim at growing specimens anything approaching the size, or trained in the manner that the most successful exhibitors produce, neither should the opposite extreme be followed with the meagre, straggling, badly-managed examples of these plants too often met with. With these, as with the generality of other subjects intended for conservatory display, a middle course should be followed by growing them of medium size, and with just as much tying as will keep them shapely, but no more. It is at the present time that means should be taken with such as are wanted to flower in May, to tie them out, placing the requisite number of sticks to them, and bringing the shoots out to their places so as to allow light and air to get to the centre. Vigorous growing young plants may have their points pinched out, older stools that do not grow so fast will, if desired in flower early, be better without stopping. Such plants as bloomed the latest in the season, and were consequently not shaken out early, will now require moving into their flowering pots; it is well to put at once something like the number of sticks to these that will be required, as, if this is deferred until later on, their insertion necessarily mutilates the roots more when these have got further hold of the soil. Fancies should be similarly dealt with, and all ought to be placed in a good light situation as near the glass as possible. Keep the temperature from 40° to a few degrees higher at night. In potting Pelargoniums of both the above sections care should be taken to ram the soil quite hard; if lightly potted they never flower satisfactorily. Give no more water than sufficient to just keep the soil a little moist.

Herbaceous Calceolarias.—The earliest sown plants of these will require attention at once in shifting out of their small pots before they get root-bound, as if ever they become stunted it is useless to expect them to move freely afterwards, and there are few soft-wooded subjects that better repay a reasonable amount of care than they do. Rich light soil they delight in, such as a mixture of three parts good loam to one of rotten dung and leaf-mould with a little sand; press modeartely firm in the pots.

A regular look-out should be kept upon both *Calceolarias* and *Pelargoniums* for aphides, as if these are allowed to get considerable hold of the plants now they do much harm, and are more difficult to destroy afterwards. Where a few old plants of yellow shrubby kinds, such as the old *aurea floribunda*, which is invaluable for its early flowering habit, are kept on from year to year and cut back each season after blooming, like *Pelargoniums*, they make a fine display in the conservatory, as they can with little trouble be grown large enough to be effective. They should have good sized pots—10 or 12 inches diameter will not be too much, and they ought to be tied sufficiently open to keep them bushy.

CONSERVATORY.—*Richardias* should be introduced to the conservarory as their flowers open in heat where they have been placed, to bring them on into bloom. A sufficient supply of these should be at hand to keep up a succession until spring; their distinct, stately flowers contrast well with anything else. *Heliotropes* that were especially prepared for blooming late should have a good light situation, or their flowers do not open kindly. There is no time of the year when sweet-smelling flowers are more prized than during the next two months. If a few pots of *Violets* that have been well grown through the season are now placed about in the conservatory their agreeable odour will be acceptable. It is even more necessary to provide a continuous supply of sweet-scented plants all through the year where a conservatory is attached to the dwelling-house. The late severe weather will have necessitated the use here of more fire-heat than generally required so soon, or in the season; care must be taken that the atmosphere is not allowed to get too dry, or, if there are *Camellias* in the house, the buds will be in danger of falling prematurely. Where there are a few evaporating troughs on the pipes, the precaution is easy of keeping as many filled with water as may be required to impart enough humidity to the air without making it too moist; where no troughs exist a good body of sphagnum, a foot in thickness and extending for a yard or so in length, should be placed on the pipes in two opposite corners of the house and kept damped every day. This will prevent the air getting arid.

Roses.—Where any addition is intended to the number of pot Roses grown, the plants, whether on their own roots or otherwise, should be at once got in from the open ground and potted, giving plenty of drainage and using good loam, well enriched and mixed with a little sand; pot firm and prune them at the time of potting. They should then be placed in a cold pit or frame, where frost can be excluded, and allowed to come on into flower without being at excited in heat this season. *T. Baines.*

FRUIT HOUSES.

PINES.—At the present time it will be advisable to consider prospectively the requisite demands which will have to be met in the way of a supply of ripe fruit from the department for the not-at-all unimportant months of May and June next. If an inadequate number of the following kinds—Smooth-leaved Cayenne, Black Prince, Black Jamaica, Prince Albert, Charlotte Rothschild, and Montserrats—failed to show fruit during the months of October and November, the fruit of those which start now will not be ripe at the time in question, which will therefore necessitate efforts being made at once to induce plants of other kinds, which belong to a section of these, which occupy less time in attaining perfection, such as the different sorts of Queen, Providence, Enville, &c. Assuming that a good proportion of the successional stock has been subjected to a somewhat cool and dry condition of treatment, such as has been indicated through the medium of this Calendar, a selection from amongst such plants should be made forthwith, choosing those plants which develope an enlarged base with a tendency to open at the centre, "some signs of the fruit being shortly visible." Give these plants a light house or pit, apply a brisk bottom-heat of 85° or 90°, a surface temperature varying according to circumstances outside from 60° to 70°, with 5° more daily and 10° when any favourable conditions prevail outside. Keep up a genial state of atmospheric moisture about the plants, not by steaming intensely heated hot-water pipes, or syringing the surface of the beds between the plants, or too frequently doing so overhead—once or twice a-week being ample, and then very lightly—but by occasionally damping the cool surfaces about the house which may be available for the purpose. See that the state of the soil is right at the roots. Use tepid water having a dash of guano in it, and apply it copiously when needful, which will be requisite in the case of vigorous and healthy plants about every ten days. A weekly examination in this respect should always take place. Continue, as before advised, the temperature as then recommended

to other plants in the several departments. *G. T. Miles, Wycombe Abbey.*

CUCUMBERS.—The past few weeks have been characterised by a great absence of sun in this neighbourhood, rendering extra firing necessary, one of the results of which combined circumstance is a somewhat weakly and attenuated growth. Light is a very important element in the cultivation of the Cucumber in winter, and now that days are at their shortest it is of great importance that the glass be kept thoroughly clean both outside, and inside, too, as much as is possible. Until we get brighter weather, do not excite the plants overmuch by means of strong doses of liquid manure or other stimulant, for it needs no philosopher to prove that it is the reverse of good practice in the cultivation of everything in general, but of Cucumbers in particular, to over-excite them at a time when the external conditions are unfavourable to the proper growth and development of vegetation. The soil applied to the roots, however, should be rich and sweet. Continue the directions given in the last Cucumber Calendar, especially in regard to the temperatures. Beware of canker at the collar and in the old growths during a continuance of this weather, and apply freshly-slaked lime round the former as a preventive, and press it well into the affected parts of the latter directly it is visible, as a cure. Be careful not to over-crop the plants just now, and don't suffer the fruits to hang too long upon the vines. They will keep quite fresh for days if the heels are inserted in saucers of water, and kept in moderate heat. Now that the work of clearing up the leaves is in progress, take care to store away a goodly quantity of Oak leaves—choosing a dry day if possible for the operation, and afterwards protect them from heavy rains, so that they may be ready when wanted in early spring. *Thos. Simpson, Chelmsford, December* 21.

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

87. YEW LEAVES AND PHEASANTS.—A correspondent asks are Yew leaves poisonous to pheasants?

88. STEVENSONIA GRANDIFOLIA.—Can any of your correspondents kindly tell me why this noble Palm from the Seychelles Islands was named the Stolen Palm? (Phœnicophorium). *G. P.* [It obtained the name of Thief Palm, we believe, in allusion to an incident in the history of the plant, which it is asserted was stolen from the Royal Gardens, Kew. EDS.]

Answers to Correspondents.

BOOKS: *C. C.* Williams' *Select Stove and Greenhouse Plants* will give the information required.

HEATING: *Peter.* Quite justified in measuring the whole, unless otherwise specified.

NAMES OF PLANTS: *Nemo.* Both are forms of Adiantum hispidulum, not being often called A. pubescens.—*C. B.* Appears to be Libonia floribunda.

PORTRAITS: *Nemo.* The gentleman you mention has not yet appeared in our series.

POTTERY.—Mr. Looker's address is Kingston-on-Thames.

SARRACENIA FLORIBUNDA: *Cor.* The best place for it is a cold frame. It is perfectly hardy as regards temperature.

WHITE CLOVER: *E. N.* Hardy if sown early enough.

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CATALOGUES RECEIVED.—Grant & Co. (Nurserymen, Portadown), Descriptive Catalogue of Roses and Fruit Trees, Hardy Ornamental Trees and Shrubs, Camellias, &c.—Messrs. Carter & Co. (237 and 238, High Holborn, W.C.), Vade Mecum and General Illustrated Catalogue.—Messrs. Sutton & Sons (Reading), Amateur's Guide and Spring Catalogue.—James Veitch & Sons (Royal Exotic Nursery, King's Road, Chelsea, S.W.), Catalogue of Garden and Flower Seeds, &c.

Markets.

COVENT GARDEN, December 22.

A more healthy feeling has pervaded the market the last few days, consequent upon the approaching Christmas festivities, but there is still a difficulty in clearing rough goods, large quantities of common Apples remaining on hand. There is a good demand for wall Pears, and good samples of late Grapes will now make remunerative prices. Kentish Cobs are at a standstill. *Jas. Webber, Wholesale Apple Market.*

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per doz.	42	0–60 0	Heaths, in var., doz.	12	0–30 0
Begonias, per doz.	6	0–12 0	Hyacinths, Rom., do.	12	0–30 0
Bouvardias, do.	12	0–18 0	Mignonette, do.	6	0– 9 0
Chrysanthemum, do.	6	0–12 0	Myrtles do.	3	0– 9 0
Cyclamen, do.	12	0–24 0	Pelargoniums, scarlet, per doz.	6	0– 9 0
Cyperus, do.	6	0–12 0	Poinsettia, per doz.	12	0–18 0
Dracæna terminalis	30	0–60 0	Primula sinensis, do.	6	0–12 0
— viridis, per doz.	12	0–24 0	Solanums, do.	6	0–24 0
Epiphyllums, do.	18	0–42 0	Tulips, per doz.	9	0–18 0
Euphorbia jacquiniifolia, per doz.	9	0–18 0	Veronica, do.	4	0–12 0
Ficus elastica	1	6– 7 6			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, 12 sprays	2	0– 4 0	Narcissus, per dozen	3	0– 6 0
Camellias	6	0–18 0	Pelargoniums, 12 spr.	1	6– 3 0
Carnations, 12 blooms	2	0– 4 0	— Zonal, do.	1	0– 2 0
Chrysanthem., 12 bl.	3	0– 6 0	Poinsettia, per doz.	4	0–12 0
— 12 bunches	9	0–18 0	Primula, dbl., p. bun.	1	0– 1 6
Cyclamen, 12 blooms	0	3– 0 6	Roman Hyacinths, 12 sprays	3	0– 6 0
Epiphyllum, p. doz.	1	0– 3 0	Roses, indoor, p. doz.	2	0– 6 0
Eucharis, per doz.	6	0–18 0	Spiræa, 12 sprays	1	0– 3 0
Euphorbia, 12 spr.	4	0– 9 0	Stephanotis, 12 sprays	6	0–12 0
Gardenia, per doz.	6	0–12 0	Tuberoses, per doz.	3	0– 6 0
Heliotropes, 12 spr.	0	6– 1 0	Violets, 12 bunches	3	0– 6 0
Mignonette, 12 bun.	6	0– 9 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, per doz.	4	0– ..	Leeks, per bunch	0	2– 0 4
— Jerusalem, p. lb.	0	3– ..	Lettuces, per score	2	0– ..
Asparagus (English), per bundle	8	0–10 0	Mushrooms, per pott.	1	0– 2 0
Beans, French, p. 100	2	0– 3 0	Onions, young, bun.	0	4– 0 6
Beet, per doz.	1	0– 2 0	Parsley, per bunch	0	4– ..
Brussels Sprouts, lb.	0	4– ..	Potatos (new), baskt.	1	0– ..
Cabbages, per doz.	1	0– 2 0	— Sweet, per lb.	0	6– ..
Carrots, per bunch	0	6– ..	Radishes, per bunch.	0	2– 0 4
Cauliflowers, p. doz.	2	0– 4 0	— Spanish, doz.	1	0– ..
Celery, per bundle	1	6– 2 0	— French	0	6– ..
Cucumbers, each	2	0– 3 6	Rhubarb, per bundle	2	0– ..
Endive, per doz.	1	0– 2 0	Salsafy, per bundle	0	9– ..
— Batavian, p. doz.	2	0– 3 0	Seakale, per punnet	2	0– 3 0
Herbs, per bunch	0	2– 0 4	Shallots, per lb.	0	3– ..
Horse Radish, p. bun.	3	0– 5 0	Tomatos, per doz.	1	0– 2 0
			Turnips, per bundle.	0	4– ..

Potatos—Rocks, £5; Regents, £7 to £8; Kidneys, £7 to £8 per ton.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1	0– 2 6	Oranges, p. 100	6	0–12 0
Cobbs and Filbts., lb.	0	6– 0 9	Pears, per doz.	1	6– 5 0
Grapes, per lb.	1	6– 6 0	Pine-apples, p. lb.	2	0– 5 0
Lemons, per 100	6	0–10 0	Walnuts, p. bush.	8	0–12 0
Melons, each	2	0– 4 0			

CORN.

At Mark Lane on Monday business was checked by the closing of the year. For both English and foreign Wheat the rates of last Monday were in almost all instances demanded, notwithstanding the weakening influence of the weather. Barley was rather pressed for sale, and offers were readily accepted. Malt was quiet and nominally unaltered. Sound Swedish Oats experienced a moderate inquiry, and made an advance of about 3*d.* per quarter, but other sorts were no dearer. Maize was steady. There was no appreciable change in the value of either Beans or Peas. Flour was occasionally lessened in price, without attracting buyers.—On Wednesday English and foreign Wheat met little inquiry, but sales were not pressed, and prices remained nominally the same as on Monday. Flour was extremely dull, and tending in favour of buyers. Barley hung on hand, and, in the general absence of business, rates are nominally unaltered. Beans moved off very steadily at firm rates. A fair demand prevailed for Peas, at full value. For Oats quotations were unaltered. Maize inactive, and unchanged in value.—Average prices of corn for the week ending Dec. 18:—Wheat, 46*s.* 7*d.*; Barley, 35*s.* 4*d.*; Oats, 24*s.* 10*d.* For the corresponding week last year: Wheat, 45*s.* 1*d.*; Barley, 44*s.* 7*d.*; Oats, 29*s.* 8*d.*

POTATOS.

The Borough and Spitalfields markets report states that the arrivals of Potatos continue on a moderate scale. Trade is steady, and prices rule as under:—Kent Regents, 110*s.* to 140*s.*; Essex ditto, 100*s.* to 130*s.*; rocks, 85*s.* to 95*s.*; flukes, 160*s.* to 165*s.*; Victorias, 135*s.* to 150*s.*—Last week's imports of Potatos comprised 5681 bags from Antwerp, 220 bags 50 baskets Rotterdam, 1835 bags Harlingen, 1438 sacks and 140 tons from Dunkirk, 15 tons Jersey, 260 bags Boulogne, 188 tons Rouen, 956 bags Brussels, 8 sacks Hamburg, and 1 bag from Jamaica.

COALS.

The market has ceen characterised by firmness, with an upward tendency in prices. Quotations:—Bebside West Hartley, 19*s.* 9*d.*; Walls Ends—Hetton, 25*s.*; Hetton Lyons, 22*s.* 9*d.*; East Hartlepool, 23*s.* 9*d.*; Original Hartlepool, 25*s.*

THE KNAP HILL CYPRESS,
Cupressus Lawsoniana erecta viridis.

ANTHONY WATERER

Will be happy to supply beautiful specimens of this famous hardy Evergreen, at the following prices:—

3 feet high, 2½ feet in circumference, 30*s.* per doz.
4 feet high, 3 to 4 feet do., 42*s.* to 60*s.* per doz.
5 feet high, 4, 5 and 6 ft. do., 10*s.* 6*d.*, 15*s.* to 21*s.* each.
6 and 7 feet high, 6 to 7 and 8 ft. do., 21*s.* to 31*s.* 6*d.* each.

No cuttings have been taken from the plants here referred to, which are simply perfect in growth and splendidly rooted.

KNAP HILL NURSERY, WOKING, SURREY.

IMPORTED ORCHIDS.

B. S. WILLIAMS,

Having just received from his Collectors in the East and West Indies large consignments of the undermentioned Plants, begs to offer them at the following unprecedentedly low prices:—

CATTLEYA SUPERBA, from 10*s.* 6*d.* each.
EPIDENDRUM BICORNUTUM, from 15*s.* each.
SCHOMBURGKIA UNDULATA, from 10*s.* 6*d.* each.
CYMBIDIUM EBURNEUM, warranted true, imported about 3 months, having made strong growths, 63*s.* to 147*s.* each.
SACCOLABIUM GUTTATUM, warranted true, from 63*s.* to 105*s.* each.
„ RETUSUM, warranted true, from 63*s.* to 105*s.* each.
AERIDES AFFINE, warranted true, from 21*s.* each.
„ ROSEUM, from 10*s.* 6*d.* each.
DENDROBIUM CHRYSOTIS, from 15*s.* ea
„ DEVONIANUM, strong plants, from 7*s.* 6*d.* each.
„ CAMBRIDGEANUM, from 15*s.* each.
VANDA CŒRULEA, from 15*s.* each.

B. S. WILLIAMS,
VICTORIA and PARADISE NURSERIES,
Upper Holloway, London, N.

FRANCIS & ARTHUR DICKSON & SONS.
106 Eastgate St. & The "Upton" Nurseries CHESTER.
Illustrated Catalogue of Vegetable & Flower Seeds,
Post free on Application.
Quality unsurpassed.

PEAT.—A few hundred tons of excellent Peat, delivered at the Farnborough Station on the South-Western or South-Eastern Railways, at 17*s.* per ton. A small sample will be sent by Post, free.
W. TARRY, "Golden Farmer," Bagshot, Surrey.

Fibrous Peat for Orchids, &c.
BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.
BROWN and BLACK PEAT, for general purposes.
Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck-load. Sample sacks, 5*s.* 6*d.* each.
FRESH SPHAGNUM, 10*s.* 6*d.* per sack.
WALKER AND CO., Farnborough Station, Hants.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA.
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

BELL'S MILDEW COMPOSITION, as used by them for the last twenty-five years at their "HORTICULTURAL ESTABLISHMENT, BRACONDALE," their "NURSERIES, LAKENHAM," and "VINERIES, THORPE HAMLET," consisting of over 30,000 feet of glass Retail, 1s. 6d. and 2s. 6d. per bottle, of the Sole Manufacturers,
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MADE of PREPARED HAIR and WOOL.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 4d. and 1s. 10d. per yard.
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2 yards wide .. .. 1s. 10d. per yard run.
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ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.
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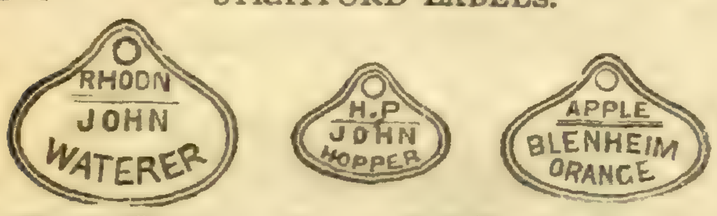

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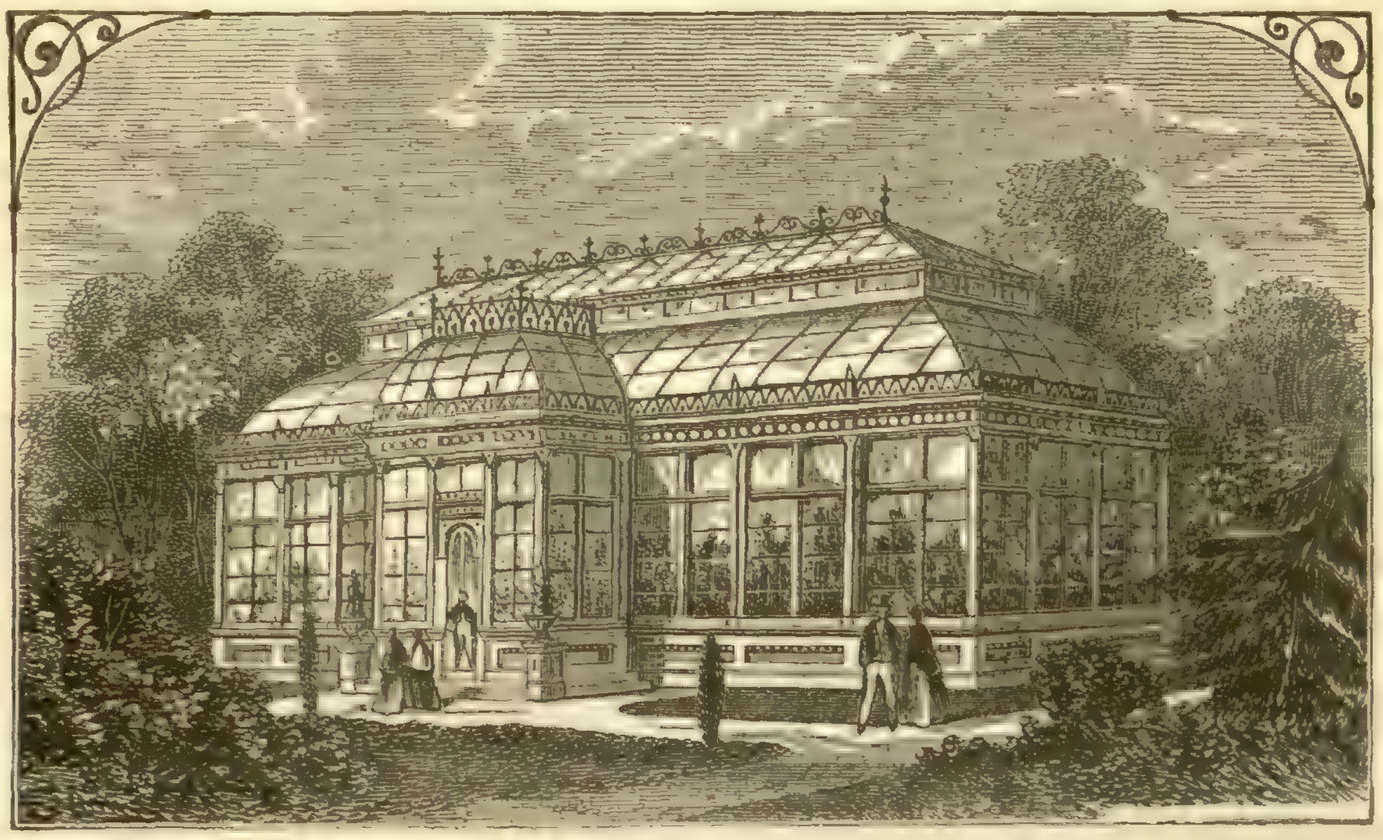

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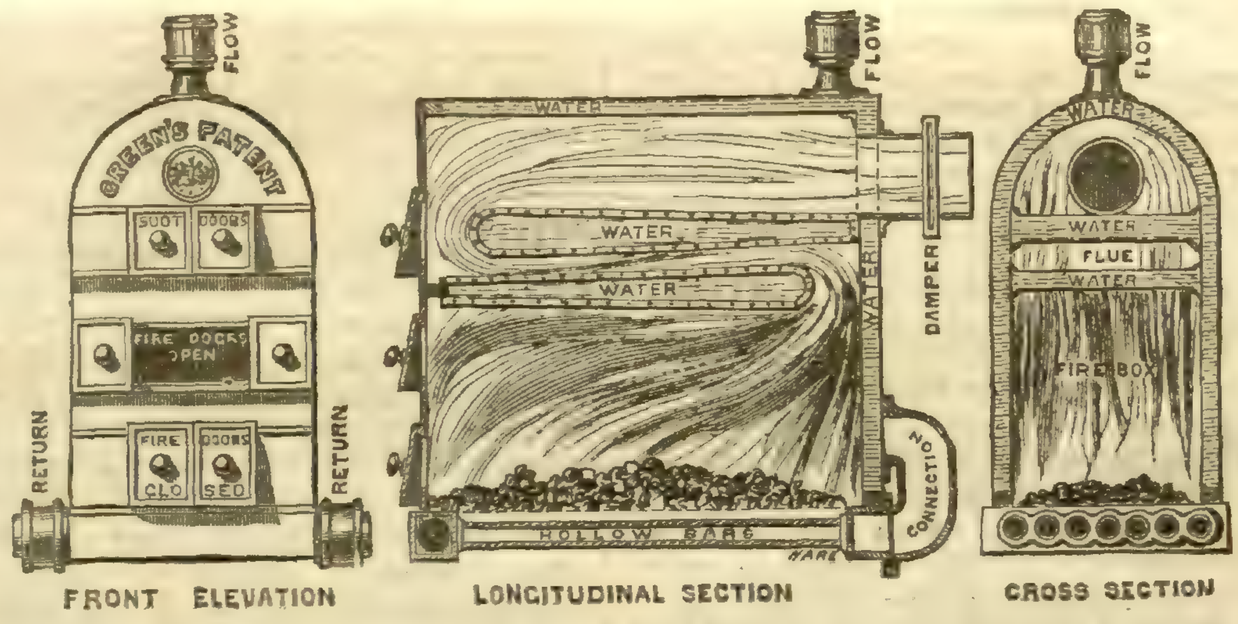
WROUGHT-IRON HOT-WATER BOILERS,
WITH SHELVES AND HOLLOW GRATE BARS.

THEY ARE SPECIALLY ADAPTED FOR
Heating Greenhouses, Conservatories, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

They are the neatest, cheapest, most effective, and durable of any that have yet been invented.



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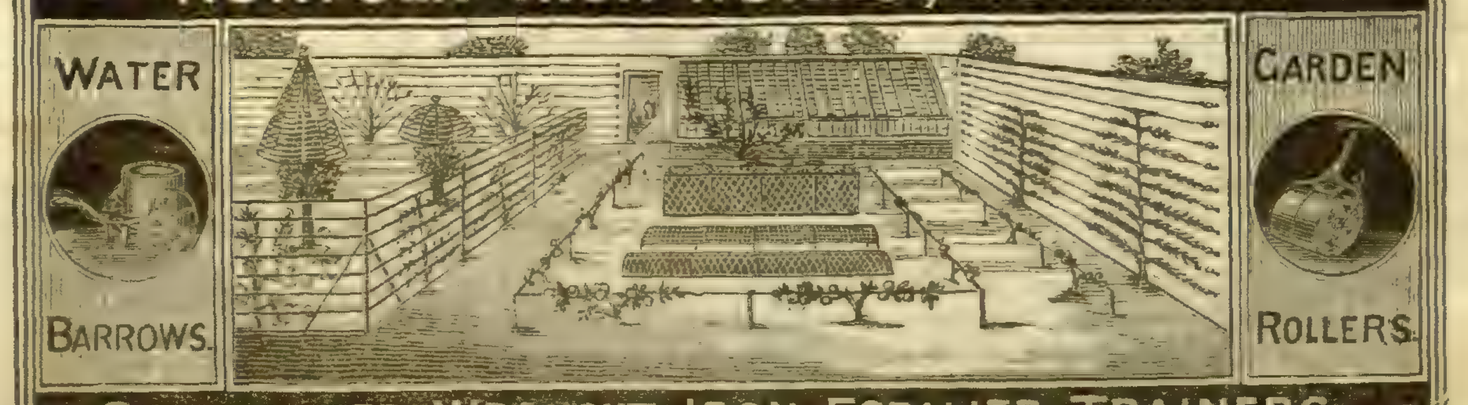

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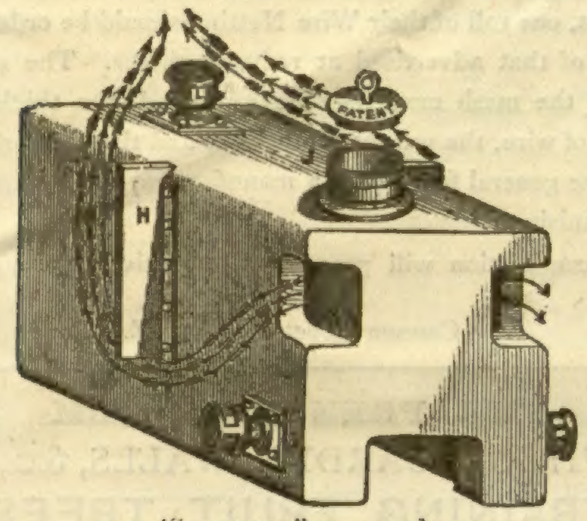

("CLIMAX" BOILER.)

NEW PATENT "CLIMAX" BOILER (1874). See p. 666, 1874, *Gardeners' Chronicle.*

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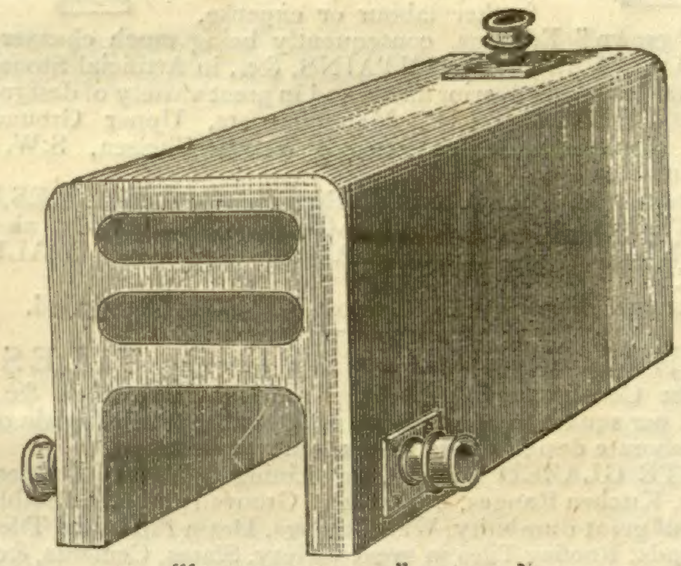

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"TUBULAR," and every other Boiler of known merit or excellence.

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PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

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PORTABLE HOT-WATER CIRCULATING BOILER,

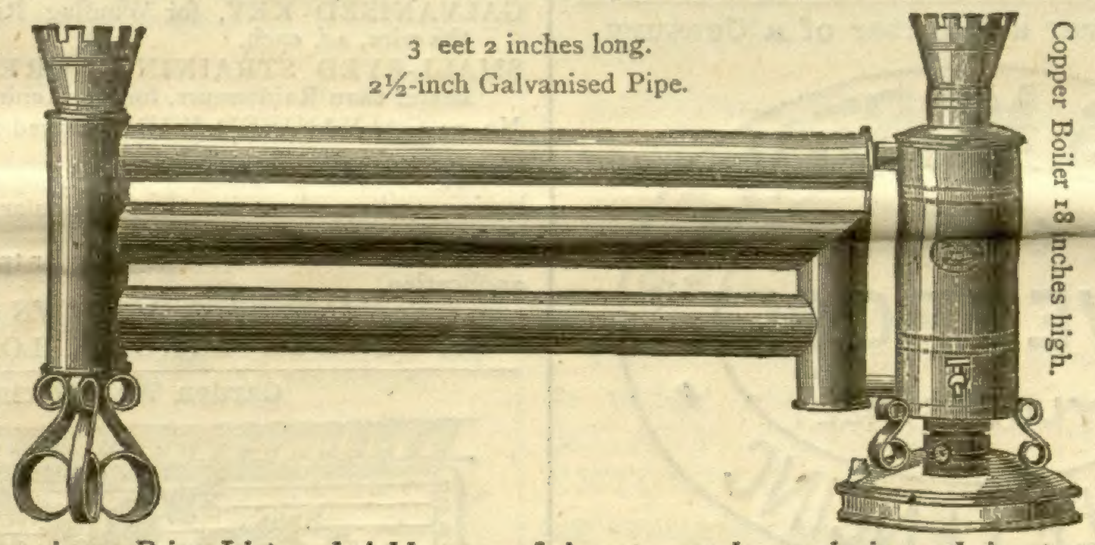
THE BEST AND CHEAPEST EVER OFFERED TO THE PUBLIC.

To Burn Petroleum Oil, or, when required, may be Heated by Gas.

Made in several sizes—

SAFE, EFFECTIVE, ECONOMICAL, AND PORTABLE.

Suitable for Warming Small Entrance Halls, Conservatories, Bed Rooms, Offices, Saddle Rooms, Ship's Cabins, &c.



There is no smell, smoke, dust or danger in using this Apparatus. It will burn for

THIRTY HOURS

without attention, at a cost of less than

ONE FARTHING

per hour.

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☞ HEAPS & WHEATLEY have been awarded Prize Medal for the Special and General Utility of their Portable "Perfect Cooking and Heating Stoves," at the Yorkshire Exhibition.

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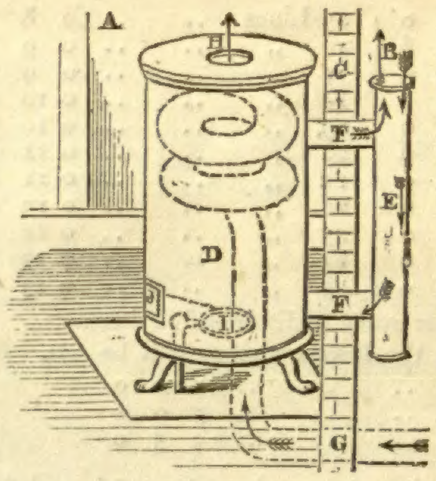
Warming and Ventilating Small Conservatories.



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Height, 28 inches; diameter, 14 inches.

It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).

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This Stove introduces a strong current of warmed (not burnt) fresh air.

ESTABLISHED 1856.

KEEP OUT THE FROST.

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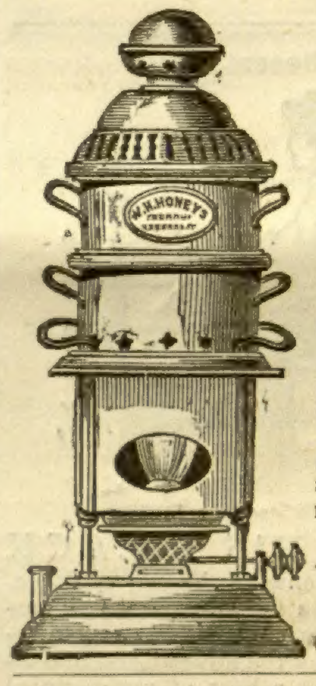

To Burn Kerosene or any Mineral Oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the Oil.

Suitable for Greenhouses, Conservatories, Halls, Bed-rooms, &c.

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Prices, in block tin, 30*s.*; in copper, 50*s.* Copper, with glass, to give light and heat, 55*s.* Either will be sent on receipt of Post-office Order.

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Catalogue free. No agents appointed.

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COUNTY MAGISTRATES, Governing Bodies, Noblemen, Gentlemen, Manufacturers, &c., are solicited to inquire into COWAN'S SYSTEMS of HEATING and GASMAKING, as, by the adoption of them in Gaols, Asylums, Hospitals, Workhouses, Factories, Private Mansions, Horticultural and other Buildings, a very great saving of expense is effected.

COWAN'S SYSTEM has been adopted by many Noblemen and Gentlemen, and can be seen in operation at Garston, where Apparatus for Heating, and one combining Heating and Gasmaking, have been erected.

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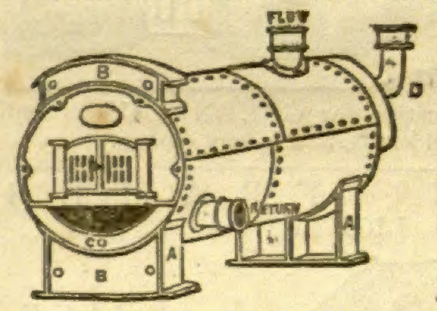

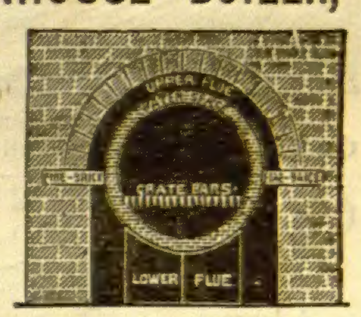

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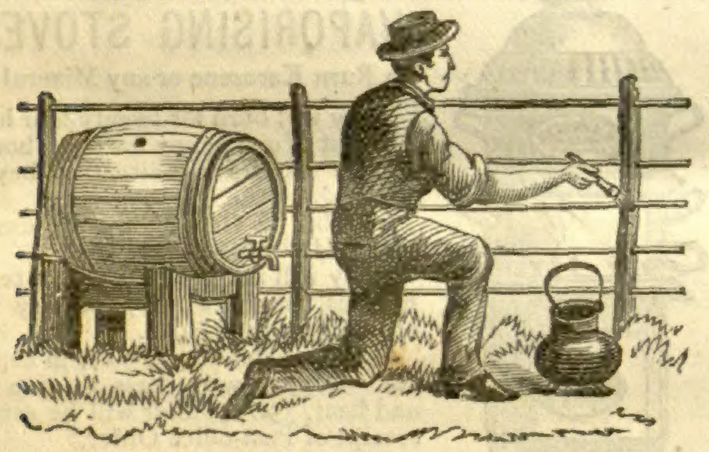

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Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any *Station in the Kingdom.*

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Apply to HILL AND SMITH, Brierly Hill Ironworks, near Dudley; and 118, Queen Victoria Street, London, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

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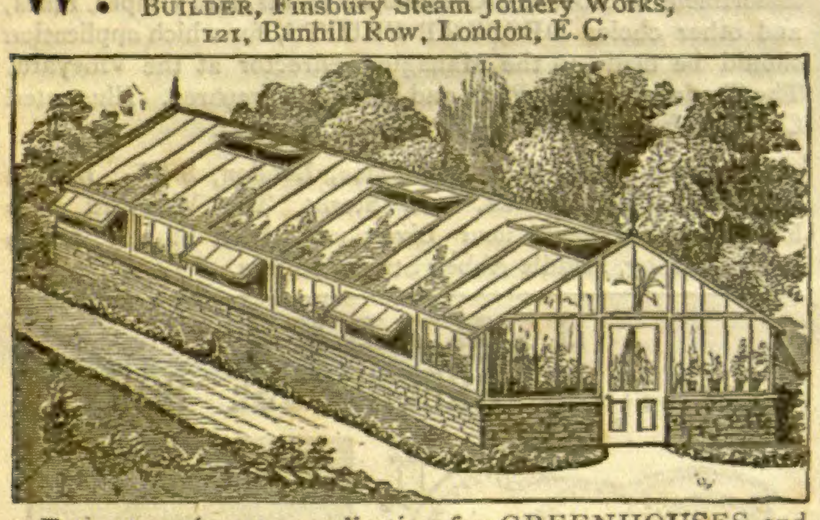

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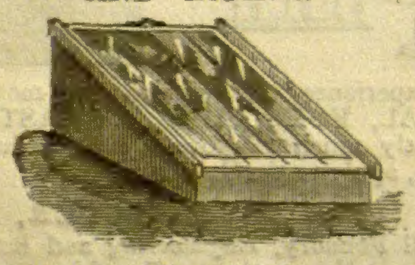
A large assortment. Various sizes in stock.



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Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

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SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

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KENT PEATS or LOAM supplied at lowest rates in any quantities.

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A liberal Discount to the Trade.

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Is in use over many thousand miles,

And has been awarded the Medals and highest Commendation, of all the leading Agricultural Societies.

It is constructed with

POWERFUL WINDING STRAINING PILLARS,

RIGID INTERMEDIATE IRON POSTS,

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Forming the most efficient Strained Iron Fencing known for agricultural and general purposes.

Continuous Bar Iron Fencing,

With bars secured by F. M. & Co.'s Patent Self-locking Joints, which effectually prevent the uprights being pushed aside, and are independent of loose pins, wedges, or staples.

IRON ENTRANCE and FIELD GATES, IN WROUGHT AND CAST IRON,

Designed for the Mansion, Villa, or Farm.

WICKET AND GARDEN GATES,

In Great Variety of Patterns.

Iron Hurdles, Railing, Tree Guards,

FRUIT ESPALIERS, WALL FRUIT TRAINERS, &c.

☞ *Illustrated and Described in F. M. & Co.'s New Catalogue, sent on application.*

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This examination will prove the respective qualities of the Netting.

90, Cannon Street, London, E.C.

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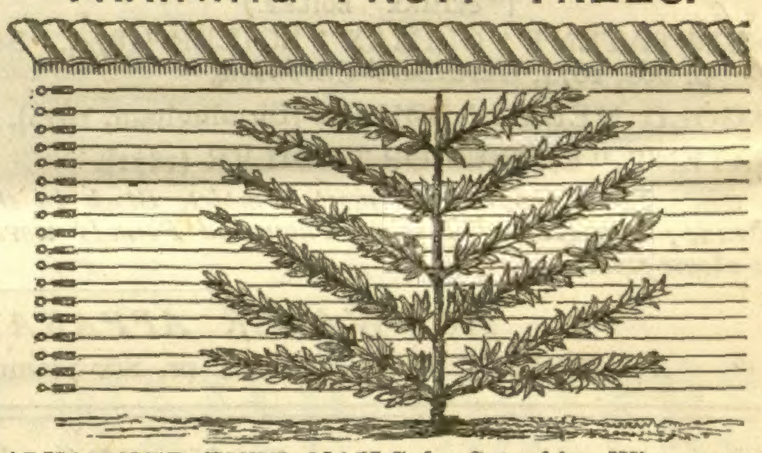
OF WIRING GARDEN WALLS, &c., FOR

TRAINING FRUIT TREES.



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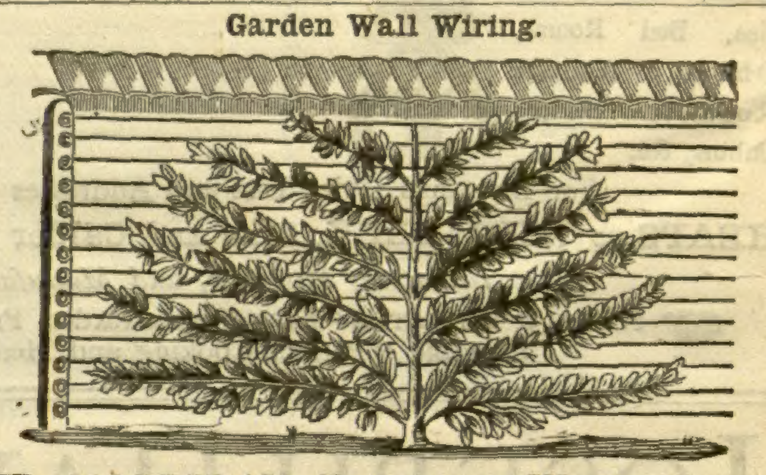

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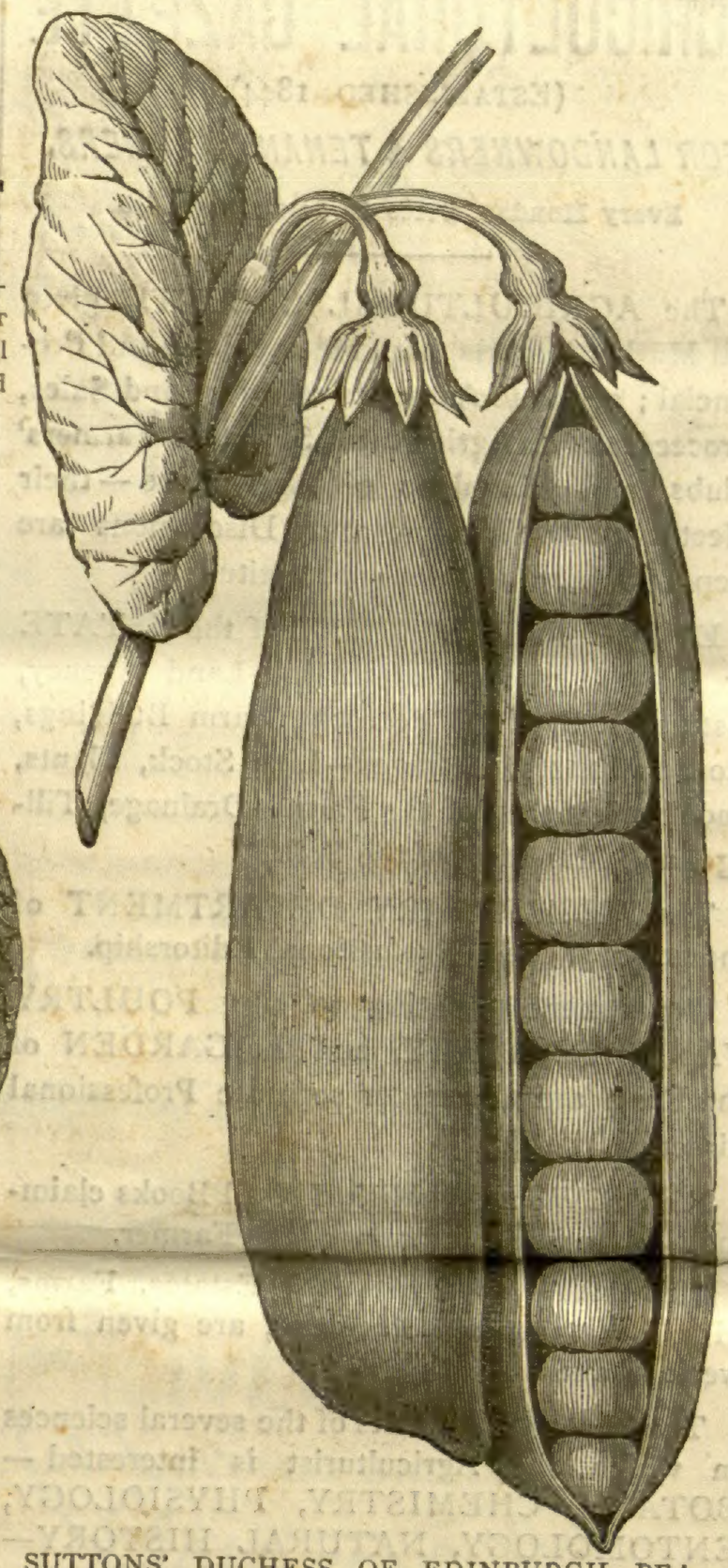

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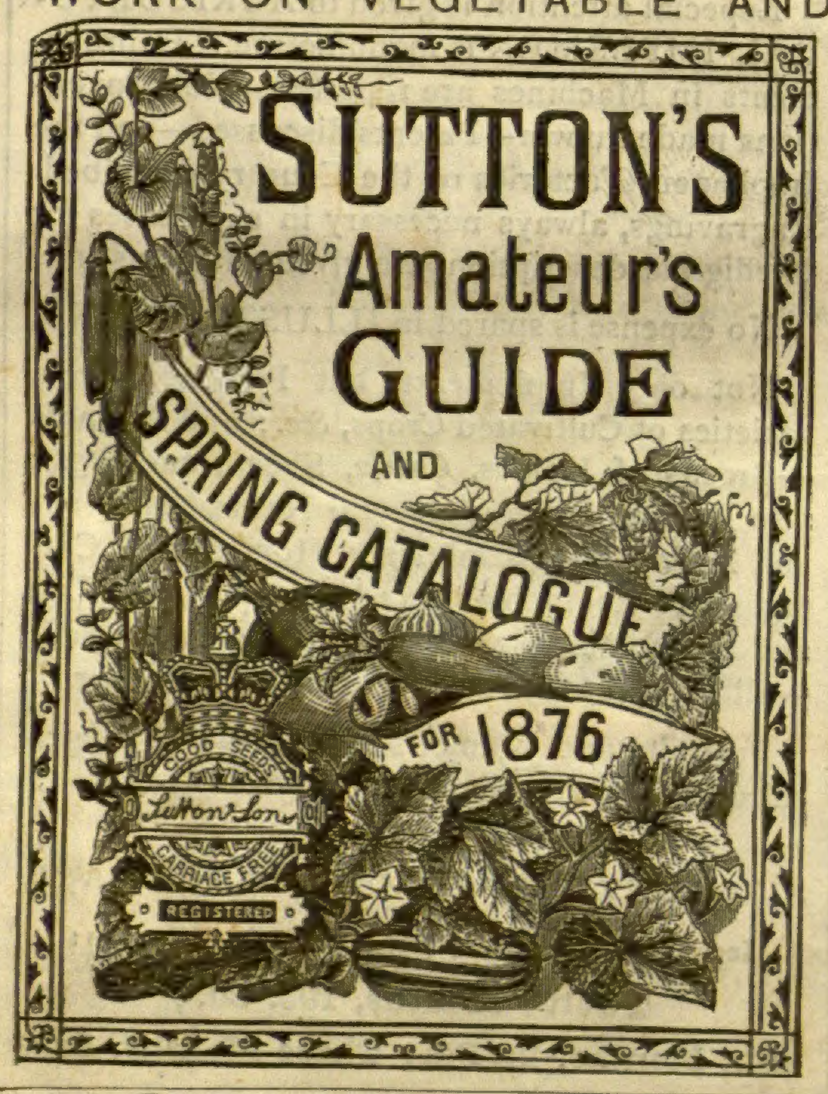

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